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Protective factors contributing to teacher-working environment fit in Italian teachers' sample**DOI:** <http://doi.org/10.26758/9.1.1>

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Address correspondence to: Simona De Stasio, Department of Human Studies, Lumsa, Piazza delle Vaschette, 101 – 00193 Roma, Italy; Ph.: [++39-06-68-42-29-11](tel:+390668422911);E-mail: s.destasio@lumsa.it**Abstract**

Objectives. Main purposes of our study were to examine in a sample of teachers involved in educational and scholastic services for children between 0 and 6 years old: a) the relationship between work environment fit and some dispositional and socio-contextual variables teachers age; b) the predictive role of subjective happiness, work engagement, collective efficacy and some socio-contextual variables (self/co-regulated proactive strategies) on teachers' working-environment fit.

Material and methods. Our sample was composed of 189 full-time in-service teachers (89% female) from Rome, Italy. Age ranged from 27 to 63 years old ($M=36.03$ years, $SD=10.15$). All teachers subjected to: Subjective Happiness Scale (Lyubomirsky and Lepper, 1999), Utrecht Work Engagement Scale (UWES-17; Schaufeli and Bakker, 2004, Italian version of UWES-17, validated by Balducci, Fraccaroli and Schaufeli, 2010), Proactive Strategy Scale (Pyhäntö, Pietarinen and Salmela-Aro, 2011, Salmela-Aro, 2009) and Teacher-working environment fit scale (Pyhäntö, Pietarinen and Salmela-Aro, 2011).

Results. The main findings of regression model analysis conducted show that teachers' proactive co-regulation strategies ($\beta = .379$, $t = 5.713$, $p < .001$), perceived collective self-efficacy ($\beta = .252$, $t = 5.015$, $p < .001$), work engagement levels ($\beta = .166$, $t = 2.857$, $p = .005$), and subjective happiness ($\beta = .115$, $t = -2.105$, $p = .036$) all positive predicted working environment fit.

Conclusions. The identification of factors sustaining teachers in their work environment represents a considerable resource, preventing the risk of distress and avoiding its extreme consequences, such as burnout and turnover.

Keywords: work environment fit, early childhood teachers, subjective well-being, work engagement.

Introduction

Early childhood teachers' work occurs in a social context and it is especially social for that teachers working in teams that call for ongoing contact among colleagues, principles, and members of other workgroups (Leiter et al., 2012). Different studies highlighted that the highly relational nature of the early childhood work environment has a relevant effect on teachers' well-being. A positive climate (Hoy and Spero, 2005), receiving constructive feedback and professional recognition at school from colleagues and principles (Stoeber and Rennert, 2008), may play a central role in promoting job satisfaction, and work engagement which, in turn, improve job performance (Xanthopoulou et al., 2009). In a recent large-scale study carried out by Johnson, Kraft and Papay (2012) teachers identified three key characteristics of schools as

working environments: working relationships with colleagues, school principal's leadership, and characteristics of the school culture that contribute to teachers' work satisfaction and retention. As some authors noted, it is worthwhile to understand the factors contributing to teachers' working environment as well as the preventive measure that can be endorsed to contrast stress, taken into account that teachers can also modify their working environments by using different strategies to cope with the stressors (Bermejo-Toro, Prieto-Ursúa and Hernández, 2016).

The few existing studies, examining teachers' working environment, have shown that personal and social factors impact on organizational outcomes at school (Barsade et al, 2003; Hareli and Rafaeli, 2008; Robinson, Watkins and Harmon-Jones, 2013). In the light of the foregoing, there is still a lack of research on how dispositional dimensions might influence early childhood teachers' working environment fit.

The main aim of the current study was to examine the predictive role of subjective happiness, work engagement, collective efficacy and some socio-contextual variables (self/co-regulated proactive strategies) on teachers' working-environment fit in educational and scholastic services for 0/6 years old children. Drawing on Fredrickson's (2001) broaden-and-build theory of positive emotion, we argue that frequent positive affects triggered by subjective happiness at work should affect teacher work outcomes. According to the broaden-and-build theory, the presence of positive emotions at work broadens individuals' mindsets and builds individuals' resources, thereby enhancing their sensitivity, openness and consideration of their workplace (Fredrickson, 2013).

Subjective happiness and work engagement

Several individual aspects may have a role in influencing work experience. Among these, subjective happiness and dispositional positive affect towards others have been recently demonstrated to have a peculiar influence on people's adaptation at work (Boehm and Lyubomirsky, 2008).

The terms 'happiness' and 'subjective well-being' have been interchangeably used in positive psychology. Despite this, some authors claim for the use of 'subjective well-being' instead of 'happiness', as the first one is considered a more science-backed expression (see Diener et al., 2017 for a recent review of the terms). Interestingly, Lyubomirsky and Lepper (1999) underlined that happiness fits well into the subjectivist approach to well-being, as one of the criteria based on which people rate their well-being (Diener et al., 2017). Furthermore, they underlined that happiness may be considered as a dispositional measure of subjective well-being, that could be useful to explain why some people report higher subjective well-being depending on life changes, while others tend to report the same amount of subjective well-being regardless life events (Lyubomirsky and Lepper, 1999). Starting from these considerations, the authors proposed a construct, i.e. subjective happiness, in order to account for a dispositional measure of subjective well-being, that could explain the individual differences found within the subjectivist studies on well-being (Lyubomirsky and Lepper, 1999). The authors claimed that perceived global well-being differs depending on how individuals encode, interpret, and emotionally respond to life events. Accordingly, other studies have shown that dispositional measures of subjective well-being give a hint on how people adapt to situations, events and daily life (Lucas, 2007). This is consistent with the Broaden and Build Theory of positive emotions (Fredrickson, 2001), according to which, by experiencing frequent positive affects, people broaden cognitive and behavioural repertoire and build personal resources such as self-efficacy, resilience and optimism. Therefore, dispositional subjective well-being may have a role in predicting how people manage their work experiences, too (Lyubomirsky, King and Diener 2005). Consistently, studies have shown that high dispositional subjective well-being has several positive consequences at work, in terms of higher performance, higher success and higher social support

from and to colleagues (Boehm and Lyubomirsky, 2008). Interestingly, happier workers have been shown to better engage in “organizational citizenship” behaviours, namely altruistic, conscientious and cooperative behaviours that improve the general climate and productivity at work (Boehm and Lyubomirsky, 2008). Moreover, happier workers better manage workload and occupational stress and make better decisions at work improving job performance (Warr, 2007).

Several studies carried out till now have confirmed the linkage between subjective happiness (as a personal resource) and engagement at the workplace (Bakker and Oerlemans, 2016) but, surprisingly, there is still a limited literature on this relationship among teachers.

Work engagement has been defined as “a state of fulfilment that is characterized by vigour, dedication, and absorption”. Namely, vigour refers to the energy and the willingness to put extra efforts and be persistent in one’s work; dedication is characterized by being strongly involved in one’s work as well as experiencing a sense of meaningfulness, enthusiasm, and inspiration; absorption refers to being fully concentrated and happily engrossed in one’s work, whereby time passes quickly (Schaufeli et al., 2002).

Work engagement has emerged as predictive of job performance, low intention to quit teaching as well as having a “contagious” effect on positive teacher-student relationships and on pupils’ academic achievements (Salanova et al., 2010).

Self/co-regulated proactive strategies and collective self-efficacy

Teachers’ cognitive and behavioural efforts to manage work-related stress that are referred as coping strategies can include self- or co-regulation strategies, or both (Parker et al., 2012). Self-regulation strategies refer to teacher’s self-generated cognitive, emotional and behavioural strategies to cope with work stressors. The social resources constitute co-regulation strategies which in turn facilitate meaningful goal orientation and reduce burnout (Xanthopoulou et al., 2009). The use of direct actions rather than indirect and avoidant strategies make teachers’ more effective in coping with the challenges and demands of their work; such positive actions, in turn, increase job satisfaction and work engagement (Salmela-Aro, Tolvanen and Nurmi, 2011). Soini, Pyhältö and Pietarinen (2010) found that teachers who experience a positive work tend to use problem-solving strategies and co-regulate their behaviour with their colleagues’ one in social context. In line with this, prior research shows that a positive social climate is related to teacher satisfaction and motivation (Skaalvik and Skaalvik, 2011). Teachers who perceived high level of social support from colleagues have reported a lower intention to leave teaching than those with a low level of support (Pomaki et al., 2010). In the school context, perceived self-efficacy appears deeply linked to the group’s functioning. Perceived collective self-efficacy represents teachers’ beliefs on the colleagues’ skills employed for planning actions to achieve specific objectives. There are only a few studies that have examined this variable, assuming that perceived collective self-efficacy represents a determining factor for the subjective work experience. A number of studies have proven the pivotal role played by proactive strategies, in reducing teaching stress and developing a better working environment (Pietarinen et al., 2013). The relevance of addressing such strategies lies in the fact that the learning and the use of them depend on the social interaction of the schools where the teachers work, therefore they can be intentionally promoted and sustained (Pietarinen et al., 2013). Proactive strategies adopted by teachers may not only reduce the risk of burnout but also contribute to develop a positive working environment and increasing work engagement.

Material and methods

Participants and Procedure

Our sample was composed of 189 full-time in-service early childhood teachers (89% female) from Rome, Italy. Ages ranged from 27 to 63 ($M=36.03$ years, $SD=10.15$). In terms of marital status, 56.5% were married, 21.6% were single, 18.4% were separated/ divorced, and 1% was widowed. Participants who took part spontaneously to the research after plenary presentation of the research project at school received written information on Italian privacy regulations, and signed informed consent. The research was conducted following the APA's ethical principles and Code of Conduct (American Psychological Association, 2002).

Measures

The Subjective Happiness Scale (Lyubomirsky and Lepper, 1999) is a 4-item scale aimed at assessing subjective happiness, using a 7-point Likert scale. The first two items ask people to rate how they are generally happy about their life (1 = *not a very happy person*, 7 = *a very happy person*) and how happy they are in comparison with their peers (1 = *less happy*, 7 = *more happy*); the last two items ask respondents on the extent the characterization of an happy and of an unhappy person describes themselves (1 = *not at all*, 7 = *a great deal*). Higher scores on this measure indicate greater subjective happiness. Prior studies have reported Cronbach's alpha coefficients for the SHS from .79 to .94 (Lyubomirsky and Lepper, 1999). In the current study Cronbach's alpha was .71.

The Utrecht Work Engagement Scale (UWES-17; Schaufeli and Bakker, 2004, Italian version of UWES-17, validated by Balducci, Fraccaroli and Schaufeli, 2010) assesses work engagement. The scale is composed of 17 items, grouped into three subscales. Namely: vigour (six items), dedication (five items), and absorption (six items). All items are scored on a 7-point frequency rating scale ranging from 0 (never) to 6 (always). Cronbach's alpha was .96.

The Proactive Strategy scale (Salmela-Aro, 2009) consists of seven items, measuring two factors of proactive strategies: a) self-regulation (4 items) and b) co-regulation (3 items), meaning, respectively, the ability to identify and use resources for coping with stressors and the ability to seek and receive social support from colleagues. All items were rated on a 7-point Likert-type scale, ranging from 1 (completely disagree) to 7 (completely agree). Cronbach's alpha was .69.

The Teacher-working environment fit scale (Pyhältö, Pietarinen and Salmela-Aro, 2011) consists of 6 items, measuring two dimensions: a) received professional recognition (3 items) and b) constructive and enabling work climate (3 items). The professional recognition dimension measures the appreciation individual experienced by the teacher as a member of a professional community. The second dimension measures the teacher's shared capacity to contribute to the optimal fit within the professional community, as experienced by the respondent (i.e. the environment-centred approach to the perceived fit). All items were rated on a 7-point Likert scale ranging from 1 (completely disagree) to 7 (completely agree). Cronbach's alpha was .67.

Results

Bivariate Analyses

Bivariate correlations among the studied variables are all positive and are presented in Table 1. Subjective happiness was significantly correlated with work engagement ($r = .40$, $p < .01$), teachers' self- ($r = .46$, $p < .01$) and co-regulation strategies ($r = .42$, $p < .01$). Both

teachers' self-regulation ($r = .37, p < .01$) and co-regulation ($r = .47, p < .01$) strategies were significantly correlated with working environment fit and also with work engagement (respectively $r = .48, p < .01$; $r = .51, p < .01$). Finally a significant correlation emerged between teachers' work engagement and working environment fit ($r = .37, p < .01$) and between collective efficacy and working environment fit ($r = .38, p < .01$).

Multivariate Analyses

A multiple regression analysis was conducted to further investigate the contributions of relevant correlated independent variables to variance of the working environment fit. Hierarchical multiple regression was performed to separately assess the contributions of each variable. In line with the literature reviewed in the Introduction, socio-demographic variables were block-entered at the first step, followed by subjective happiness and work engagement at the second step, and regulation strategies with collective self-efficacy at the third. The results of the regression analysis are presented in Table 2.

Table 1. Bivariate Correlations among studied variables

	1	2	3	4	5	6	7	8	9
1.Age	1	.20**	.26**	.09	.00	.03	-.06	.11*	-.06
2.Marital status		1	.16**	.01	.04	.04	-.04	.01	-.07
3.Seniority			1	.18**	.10	.09	-.03	.09	-.08
4.Work Engagement				1	.48**	.51**	.37**	.40**	.25**
5.Self-regulationstrategies					1	.67**	.37**	.46**	.29**
6.Co-regulationstrategies						1	.47**	.42**	.21**
7.Working Environment Fit							1	.13*	.38**
8.Happiness								1	.12*
9.Collective Self-Efficacy									1

*. Correlation is significant at the .05 level (two-tailed)

**. Correlation is significant at the .01 level (two-tailed)

Table 2. Regression Coefficients for Predictors of Working Environment Fit

Variables	Working Environment Fit										
	Step1				Step2				Step3		
	B	E.S.	β	p	B	E.S.	β	p	B	E.S.	β
Age	-.019	.023	-.049	.40	-.029	.021	-.074	.18	-.017	.019	-.044
Marital status	-.229	.491	-.027	.64	-.126	.455	-.015	.78	-.158	.408	-.019
Seniority	-.006	.027	-.012	.83	-.038	.025	-.082	.14	-.026	.023	-.058
Subjective Happiness					-.007	.087	-.005	.93	-.175	.083	.115
Work Engagement					.175	.026	.390	.00	.074	.026	.166
Self-regulation strategies									.021	.094	.015
Co-regulation strategies									.696	.122	.379
Collective efficacy									.202	.040	.252
R	.06				.38				.57		
R ²	.00				.15				.33		
ΔR^2					.15				.18		

Hierarchical multiple regression revealed that the model as a whole accounted for 33% of the variance in working environment fit ($F(8, 181) = 18.859, p < .001$). Teachers' proactive co-regulation strategies ($\beta = .379, t = 5.713, p < .001$), perceived collective self-efficacy ($\beta = .252, t = 5.015, p < .001$), work engagement levels ($\beta = .166, t = 2.857, p = .005$), and subjective happiness ($\beta = .115, t = -2.105, p = .036$) all positive predicted working environment fit.

Discussions

Our study aimed to consider possible relations between work environment fit and some dispositional and socio-contextual variables, namely: subjective well-being, work engagement, collective efficacy and the use of self/co-regulated proactive strategies, in teachers involved in educational and scholastic services for children between 0 and 6 years old. Fit or misfit in scholastic environment shows a strong impact on teachers' well-being, affecting job commitment and performance.

As expected, the results confirmed what previous research evidenced: teachers' subjective well-being, work engagement, and use of self/co-regulated proactive strategies were positive correlated to work environment fit.

According to the findings of regression model analysis conducted, the work environment fit variance was positively predicted by the use of proactive co-regulated strategies, collective self-efficacy, work engagement levels and subjective happiness. The identification of factors sustaining teachers in their work environment represents a considerable resource, preventing the risk of distress and avoiding its extreme consequences, such as burnout and turnover.

In order to tolerate and manage stressful conditions, teachers may resort to several self- or co-regulated coping strategies (Parker et al., 2012). Self-regulated strategies are identified by teachers on their own, when facing particularly stressful conditions; by contrast, co-regulated strategies consist in the identification and use of social resources in managing work-related solicitations.

The performed analysis shows that the utilization of proactive co-regulated strategies can contribute to workers' perception of environmental fit in the context of educational services. The observed results confirm data from literature; using socially oriented strategies, teachers are able to realize a better regulation of their behaviour in relation to everyday working conditions, improving environment fit (Ciucci et al., 2018; Salmela-Aro, Tolvanen and Nurmi, 2011).

According to Pietarinen et al. (2013), the use of co-regulated strategies in a composite group of teachers was associated to lower levels of discomfort experienced in working and to the perception of fit felt in their work environment; furthermore, according to these authors, the planning of specific interventions may actively sustain operators' well-being. Moreover, Bakker, Tims and Derks (2012) report the relationship between the levels of well-being perceived at work and the use of proactive co-regulated strategies, expressed in the systematic research of colleagues' support and cooperation. The use of proactive co-regulated strategies is described as associated to new problem-solving strategies and to an unusual and flexible use of the available resources (Linnenbrink-Garcia et al., 2011), with effects on work-related well-being. The perception of a social climate founded on an effective support from the group of colleagues significantly affects teachers' satisfaction and motivation at work (Skaalvik and Skaalvik, 2011). The abovementioned variables may lower work-related stress, even when challenging working conditions are perceived as particularly intense (Pomaki et al., 2010). In addition to the reduced risk of burnout, the use of proactive social strategies may promote a positive work climate, improving cooperation among colleagues. Teachers who feel more supported by their co-workers are less oriented to quit their jobs, compared to those who experience lower levels of social support (Pomaki et al., 2010). Studies concerning educational context, describe teachers'

attitude to use complex co-regulated strategies, as protective factors in reducing emotional depletion.

The school is a complex work environment. Our results show that social and relational dimensions play a considerable role within the scholastic and educational contexts; teachers interact not only with infants or students, but also with families and members of the professional community. Usually, the organization and planning of scholastic activities takes place in groups of teachers, rather than in a single professional; team's functioning seems to be an important premise for individual work outcomes and for personal self-efficacy (Skaalvik and Skaalvik, 2007). According to our results, environment fit can be predicted by the perception of collective efficacy, defined as the set of teachers' beliefs concerning colleagues' skills in planning effective actions, in order to reach specific goals. In the last decades, a limited number of studies took into account the aforementioned construct. The perception of collective efficacy can be crucial for individual self-efficacy in educational context; researches hypothesized that teachers' self-efficacy is strongly related to colleagues' perception of collective functioning, as well as to students' academic outcomes (Skaalvik and Skaalvik, 2007). Higher levels of collective efficacy, together with the perception of encouraging expectations from colleagues and principals, sustain teachers in the global management of their work, in particular improving their perception of work-related well-being (*ibidem*); by contrast, teachers may feel less motivated when an adequate support from colleagues' community is not perceived, with subsequent effects on their work with students.

From the performed regression model analysis, we observed that teachers and educators' environmental fit may be positively predicted by some dispositional variables, as work engagement and subjective happiness.

As confirmed by data in literature, the work engagement has a predictive role in job performance, teacher-students relationship and academic achievements. Furthermore, it has been associated to lower levels of perceived stress and lower intentions to quit work, enhancing job satisfaction and performance in working (Xanthopoulou et al., 2009).

According to existing literature, the perceived levels of subjective happiness may determine people capability to face and manage ordinary challenging situations (Lucas, 2007). According to Bakker et al. (2014), in scholastic contexts subjective well-being may encourage positive work experiences, sustaining teachers in a more productive use their own resources more productively, on both individual and relational levels (Bakker et al., 2014). Experimenting positive emotions in working, through high levels of subjective happiness and positive dispositional affects, may contribute to enlarge possible cognitions and actions', consolidating the available individual resources.

Subjective well-being may induce positive effects in terms of a better job performance, commitment and higher levels of perceived social support (Boehm and Lyubomirsky, 2008); furthermore, higher levels of subjective happiness have been associated to a better work organizational climate, determining significant positive effects in global productivity levels (Boehm and Lyubomirsky, 2008). Researchers describe that higher levels of personal well-being may sustain workers in facing stressors, more effectively managing work solicitations, through the activation of personal cognitive and behavioural resources (Warr, 2007). In line with the "Broaden-and-Build-Theory of positive emotions" (Fredrickson, 2001), subjective well-being can play a role in the way in which people face their experience in work environments, with consequent positive effects on working outcomes, performance and success (Lyubomirsky, King and Diener 2005). According to literature, happier workers show more altruistic and cooperative behaviours, actively contributing to a better working climate, with favourable productivity outcomes (Boehm and Lyubomirsky, 2008); furthermore, their work experience seem to be characterized by a more effective management of stressful conditions, with positive problem-solving strategies (Warr, 2007).

Conclusions

This study can be addressed to the empirical perspective of Positive Psychology and examined the principal factors associated to work-related well-being in the educational and scholastic contexts. The performed analysis gives a significant insight on the aspects that can promote educators/teacher's environment fit in these peculiar and characteristic environments. According to these results, proactive co-regulated strategies and collective efficacy showed to positively predict levels of environment fit, confirming the relational nature of the considered contexts; moreover, the role of dispositional variables, represented by subjective happiness, and work engagement, was confirmed.

Specific interventions may be planned, in order to promote personal and environmental resources in educational contexts, enhancing operators' environment fit and, thus, their overall work-related well-being. Interventions may represent the possibility for workers to reflect on personal resources and tools, being occasions for sharing personal experiences and growth. Future perspectives may also include the analysis of the relationship between the abovementioned variables in a longitudinal perspective, including an in-depth qualitative analysis of teachers' experiences, instead of the utilization of self-report tools.

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Factors contributing to unfulfilment of and changes in fertility intentions in Czechia**DOI:** <http://doi.org/10.26758/9.1.2>

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Abstract

Objectives. Achieved fertility is lower than intended fertility in Europe. The factors contributing to this mismatch are thus an important research topic. The objective of this study is to identify the factors that contribute to the unfulfilment of short-term fertility intentions and to changes in the intended number of children to improve our understanding of the mismatch between achieved and intended fertility in Czechia.

Material and methods. Binary logistic regression is applied to data on people aged 18-45 from two waves of the Generations and Gender Survey from 2005 and 2008 to explore what factors contribute to the unfulfilment of short-term fertility intentions, and to the Life Course 2010 data on people aged 25-60 from 2010 to identify what factors contribute to changes in the intended number of children. Descriptive statistics show the most cited reasons for the downward or upward changes in fertility intentions.

Results. The results show the importance of gender, partner, age, cohort, and the two-child norm for the chance that short-term fertility intentions will be left unfulfilled and the chance that people will change the number of children they plan to have. The results confirm that short-term fertility intentions are predictors of fertility behaviour, and labour market instability and siblings are factors that influence the number of children a person intends to have. Economic conditions, health, and the absence of a partner are the main reasons given to explain downward changes in the number of children people plan to have, while a change of values / new experiences and the influence of one's partner explain upward changes.

Conclusions. This study contributes to existing knowledge by testing factors associated with both, the fulfilment of short-term fertility intentions and changes in lifetime fertility intentions. They are rarely analysed together, although they both contribute to the postponement of childbearing and the mismatch between intended and achieved fertility.

Keywords: fertility intentions, changes in fertility intentions, low fertility, post-socialist context.

Introduction

Despite the decline in fertility in most European countries to a level below two children per woman, the ideal of having two children in a family still exists in most European countries (Sobotka and Beaujouan, 2014). The distinction between the ideal, personally preferred, intended and actual number of children that people have has led researchers to study the factors contributing to the differences.

Fertility ideals regarding the ideal number of children in the family have been repeatedly studied across European countries and are considered a good indicator of the

prevailing norms in a society (*ibid.*). Studying the preferred/desired number of children people want to have in their life brings researchers closer to a person's personal situation than fertility ideals. Survey questions on personal preferences/desires often conclude with the qualification 'under ideal conditions' or 'regardless of your current situation' and emphasise in particular the person's value orientation, while other circumstances in a person's life remain rather overlooked (Kuhnt, Kreyenfeld and Trappe, 2017). Most often, therefore, research focuses on investigating fertility intentions. Panel data make it possible to examine even the extent to which fertility intentions are fulfilled, although usually only in the short term of several years (e.g. Šťastná, 2011; Szalma and Takács, 2015; Berrington, 2004; Testa and Toulemon, 2006).

Among the concepts mentioned above fertility intentions are considered the best indicator of potential behaviour because this concept focuses on the variety of circumstances that may affect fertility behaviour (Miettinen and Szalma, 2014). However, as panel data show, even fertility intentions often remain unfulfilled (e.g. Šťastná, 2011; Szalma and Takács, 2015; Berrington, 2004; Testa and Toulemon, 2006). And they remain unfulfilled more frequently in some populations than others – for example, among young people and people with lower education (Testa and Toulemon 2006; Smallwood and Jefferies, 2003; Berrington, 2004). Unlike fertility ideals, but also unlike personal preferences/desires, fertility intentions undergo more frequent changes throughout an individual's life. They do so in response to the changing circumstances of a person's life (Kuhn, Kreyenfeld and Trappe, 2017). While fertility ideals and personal preferences/desires are both significantly shaped by societal expectations, fertility intentions reflect as well as societal expectations also changes in an individual's personal circumstances to a greater extent than the other two concepts (Riskind and Patterson, 2010). If the central interest is to research the factors that shape individual ideas about whether, when, and how many children a man or a woman will have in their lives, fertility intentions are therefore the most appropriate concept of the three (*ibid.*). At the same time, it should be borne in mind that fertility intentions need not necessarily coincide with the actual fertility behaviour of a man or a woman in the future as intentions can change over time and are only one of the possible factors that influence the fertility outcomes of an individual. Unforeseen experiences (such as a breakup with a partner, disagreement over reproductive intentions in a partnership, or when the experience of raising a child proves to be different from what was expected) may lead an individual to change their fertility intentions (Iacovou and Tavares, 2011). In addition, even at a time when contraceptives are widely available, not all births are planned.

Although fertility ideals, personal preferences/desires, and intentions are operationalised in various ways in different studies, it is the consensus that the basic line towards fertility outcomes is the line that runs from fertility ideals, to personal preferences/desires and then to intentions (Sobotka and Beaujouan, 2014).

Previous studies have shown that fertility intentions decline with increasing age in the case of both women and men because people are likely to adjust the number of children they expect to have in response to biological constraints and prevailing age norms (Ní Bhrolcháin, Beaujouan and Berrington, 2010; Iacovou and Tavares, 2011). However, as Smallwood and Jefferies (2003) conclude, the fact that the intended number of children declines with increasing age should not necessarily be interpreted as signifying what they call the 'unmet need for fertility'. The difference between intentions and subsequent fertility is likely to be both a result of the fact that intentions tend to be uncertain in nature and they are often modified in response to subsequent life events and circumstances.

Consequently, in this study we focus on fertility intentions and explore not only what factors contribute to short-term fertility intentions being fulfilled or not in Czechia. Since fertility behaviour is considered to be the outcome of sequential decision-making (Iacovou and Tavares, 2011), we explore also factors that contribute to changes in individual fertility intentions in the region. Altogether, the study contributes to the understanding of unfulfilled short-term fertility

intentions and changes in the total intended number of children that are behind the existing gap in the country between fertility intentions on the one hand and fertility outcomes on another hand.

There remains a strong orientation in Czechia towards the two-child family model (Rabušic and Chromková Manea, 2013). The low age of women at first birth and relatively high fertility around two children per woman were typical characteristics of reproduction during the last decades of the state-socialist era (Sobotka, 2004; Šprocha et al., 2016). Since the 1990s, the age of women at first birth has rapidly increased from 21 to 28 years. Meanwhile, total fertility rates declined from 1.9 children per women in 1990 to 1.2 in 1999, and they then increased to 1.6 when among people born in and after the late 1960s some of the 'postponed' births were realised at a later age as they started to have children later than previous cohorts typically did. Since not all the 'postponed' births were ultimately realised at a later age, cohort fertility slightly declined among the cohorts that started to postpone childbearing in Czechia (Šprocha et al., 2018). Nevertheless, the two-child family is still the ideal family size in Czechia and this ideal is very stable (e.g. representative surveys on Czech population repeated by Public Opinion Research Centre of the Institute of Sociology of the Czech Academy of Sciences between 2004 and 2016 proved that constantly 69-71 % of the population consider the two-child family to be their ideal family size; see Čadová, 2016).

In line with previous literature our study differentiates between short-term fertility intention, measured as one person's intention to have a child in the next three years, and a person's lifetime fertility intention in the sense of the total number of children they plan to have. While a short-term intention refers to the intended timing of when to have a (another) child in one's life (regardless the total number of children one intends to have in life), the lifetime fertility intention refers to the intended number of children (regardless of the timing of their birth).

Testing what factors contribute to the non-fulfilment of short-term fertility intentions and what factors contribute to changes in the lifetime fertility intentions is based on the results of previous studies. These studies suggest that partnership status is one of the main factors that distinguish people who fulfil and those who do not fulfil their short-term fertility intentions, and that changes in partnership status also contribute to changes in fertility intentions (e.g. Iacovou and Tavares, 2011; Hayford, 2009; Spéder and Kapitány, 2009; Štátná, 2011). This is because people usually plan to have children when they are part of a couple and they need to negotiate their fertility intentions with their partner, whose fertility intentions may differ, and this can lead to adjustments to individual fertility intentions (Iacovou and Tavares, 2011).

As Bernardi (2003) points out, people's fertility intentions are influenced not just by their partner, as the effect of peer influence may also be significant. Moreover, some studies suggest that there may be differences between cohorts in terms of fulfilling and adjusting their fertility intentions as influential historical events (such as economic crisis or post-1989 socioeconomic transformation in Central and Eastern Europe) affect the lives of people of different cohorts in different phases of life. Philipov, Spéder and Billari (2005, p. 26) underlined that the quick drop in fertility in Central and Eastern Europe after 1989 was caused by social anomaly when planning irreversible events with life-long effects (such as a childbirth) became difficult and led people in childbearing age to postpone these events. Sobotka, Skirbekk and Philipov (2011) showed that the economic crisis after 2008 intensified the postponement of childbearing by the means of increasing unemployment and insecurity. And others have shown that the effect of perceived labour market insecurity on fertility intentions is reduced or intensified by the age (Fahlén and Oláh, 2018).

While Fahlén and Oláh (2018) showed that perceived labour market instability has a negative effect on the intention of becoming a parent, Buhr and Kuhnt (2012) did not find employment status to have any significant effect on changes in fertility intentions, and Štátná

(2011) did not find employment status to have any significant effect on having a child as soon as intended.

And the same applies to education. While Šťastná (2011) did not find any effect of education on the fulfilment of short-term childbearing intentions in Czechia, Testa and Toulemon (2006) showed that in France, higher-educated people better predict their future fertility outcomes.

Last but not least, the two-child norm that is well documented across Europe could have a significant effect on fertility intentions, their fulfilment, and changes in fertility intentions because it is easier for a person to conform to societal expectations than it is for them not to do so (Iacovou and Tavares, 2011).

Material and methods

In this paper we explore: What factors contribute to the fulfilment or not of men's and women's short-term fertility intentions? What factors contribute to changes during one's adulthood to lifetime fertility intentions? What reasons do people give for changing their lifetime fertility intentions?

To identify what factors contribute to the fulfilment or not of the short-term fertility intentions of men and women of reproductive age in Czechia we analysed longitudinal panel data on the Czech population drawn from the international Generations and Gender Survey (GGS). In 2005 the first wave of this survey was conducted in Czechia and respondents were asked about their short-term (during next three years) and long-term intention to have a (another) child. The following questions were central to our analysis:

'Do you intend to have a (another) child during the next three years?' The possible answers were: definitely yes, probably yes, probably not, definitely not.

'Supposing you do not have a/another child during the next three years, do you intend to have any (more) children at all?' The possible answers were: definitely yes, probably yes, probably not, definitely not.

The second wave of the GGS survey was conducted in Czechia in 2008; therefore, it was possible to identify whether or not those people who in 2005 intended to have a (another) child did have a (another) child in the next three years. This data allowed us to answer our first research question on what factors contribute to the fulfilment or not of the short-term fertility intentions among men and women of reproductive age in Czechia. To answer this question we selected a population of men and women aged 18-45 in 2005 who intended in 2005 to have a (another) child (N=538 respondents).

To identify what factors contribute to the non-fulfilment of short-term fertility intentions, we applied a binary logistic regression to the GGS data (Model 1). The dependent variable is binary: s/he had (0) or did not have (1) a (another) child between 2005 and 2008. Beta coefficients (B) and exposed beta coefficients (Exp (B)) are presented in Model 1. All the explanatory variables in the Model 1 are categorical. One category is always the reference category (ref.) and the other categories of this variable are compared to the reference category. If the Exp (B) for some of the categories is higher than 1, the chance of not having a (another) child in the next three years is higher than for the reference category.

To explore what factors are associated with lifetime fertility intentions to change during adulthood and what reasons people give for having changed their lifetime fertility intentions, we analysed data from the Life Course 2010 representative survey of the Czech population aged 25-60 years (N=4010 respondents). Like the GGS, the Life Course 2010 dataset includes basic socio-demographic information, detailed information about respondents' parental and partnership trajectories, detailed information about their fertility intentions, data on their current family, work and housing situation, and a number of attitudinal questions on parenting and care,

work and family orientation, and the division of gender roles. The following questions were central to our analysis:

‘When you think about the past, have your intentions regarding the total number of children you will have in your lifetime ever changed in the course of your adulthood?’ The possible answers were: yes, no, don’t know.

Among those people who changed their lifetime fertility intentions during adulthood we examined what direction this change or changes led – that is, whether the change(s) led towards more or fewer children than they had expected in total or whether people became uncertain whether they want to have a child at all or whether people became certain they want to have a child or stay childless. Then respondents replied to an open question: ‘Can you please tell me what the main reason for this change was?’ The respondents’ answers were then coded.

To identify what factors lie behind changes in people’s lifetime fertility intentions during adulthood, we applied a binary logistic regression to the Life Course 2010 survey data (Model 2). The dependent variable is binary: s/he did not change (0) or changed (1) their lifetime fertility intentions during adulthood. All the explanatory variables in Model 2 are categorical. Beta coefficients (B) and exposed beta coefficients (Exp (B)) are presented in Model 2. If the Exp (B) for some of the categories is higher than 1, the chance that a person changed their lifetime fertility intentions during their adulthood is higher than for the reference category.

Finally, descriptive statistics were used to show what reasons people give as leading them to change their lifetime fertility intentions in the specified direction.

Results

We will first present the results of our analysis of GGS data and then the results of our analysis of the Life Course 2010 survey data.

Factors associated with (non-)fulfilment of short-term fertility intentions

Table 1 shows that among respondents who in 2005 claimed they definitely intended to have a (another) child within the next three years, only 43% had fulfilled this plan by 2008, while for the remaining 57% of these respondents their intention remained unfulfilled. Among the respondents who in 2005 said that they would ‘probably’ have a (another) child within the next three years, the share of those who did is even smaller. And among the people who in 2005 intended to have a (another) child but later than within the next three years, only 7% had had a child by 2008. Table 1 thus confirms that fertility intentions are predictors of subsequent fertility behaviour. The relationship between fertility intentions and behaviour is not as strong as one might expect. A relatively large share of respondents who definitely or probably intended to have a (another) child in the next three years did not fulfil this intention, even though both the total fertility rate and the economy were increasing in Czechia between 2005 and 2008, i.e. it was a period of stability and growth.

Table 1. Descriptive statistics: having a (another) child between 2005 and 2008 among respondents who intended in 2005 to have a (another) child, GGS data

	a child was born between 2005 and 2008 (%)	no child was born between 2005 and 2008 (%)
intention in 2005: definitely yes in three years	43	57
intention in 2005: probably yes in three years	21	79
intention in 2005: yes but later	7	93

Note: N=536 respondents aged 18-45 who intended in 2005 to have a (another) child and participated in both GGS waves. Source: GGS data for the Czech Republic, 2005 and 2008.

The finding that a relatively large share of people who intend to have a child within the next few years do not fulfil their fertility intentions in the short term even if it is a time of social and economic stability, not a depression, led us to our first research question on what factors are behind the fulfilment or not of the short-term intention to have a child among men and women in reproductive age in Czechia. To answer this research question a binary logistic regression was applied to GGS data. Table 2 presents the descriptive statistics for the variables used in the binary logistic regression that is presented in Model 1.

Table 2. Descriptive statistics for variables used in Model 1, GGS data

Variables	Categories	Number	Percentage (%)
Childbearing intentions in 2005	definitely intended to have a child within 3 years	114	22
	probably intended to have a child within 3 years	179	34
	intended to have a child later	228	44
Gender	Men	300	58
	Women	221	42
Partnership status in 2005	co-resident partner	229	44
	non-resident partner	121	23
	no partner	171	33
Number of children in 2005	0	353	68
	1	119	23
	2 or more	49	9
Age in 2005	18 – 24	149	29
	25 – 29	200	38
	30 – 34	116	22
	35 – 45	56	11
Highest education level in 2005	primary to lower secondary	346	66
	upper secondary to post-secondary	74	14
	tertiary	101	19
Total		521	100

Note: N=521 respondents aged 18-45 who intended in 2005 to have a (another) child and participated in both GGS waves. Source: GGS data for the Czech Republic, 2005 and 2008.

In Model 1, the dependent variable is having/not having a (another) child between 2005 and 2008 among those respondents who intended in 2005 to have a (another) child.

The model shows that those who declared in 2005 that they probably intended to have a child within three years, had a 1.8 times (80 %) higher chance of not having a child within the next three years compared to the reference category of those who in 2005 said they definitely intended to have a child within the next three years. And those who intended to have a child later had a 5.5 times higher chance of not having a child within the next three years than the reference category while controlling for the other variables in the model.

Gender is also statistically significant. Men had a 2.4 times higher chance of not having a child within the next three years compared to women while controlling for the other variables in the model.

Partnership also proved to be important. Regardless of whether the partner was co-residential or non-residential (even marital status was not statistically significant) those who did not have a partner had almost a 5 times higher chance of not having a child within three years compared to those with a partner. This shows the importance of having a partner for the realisation of fertility intentions.

How many children respondents already had in 2005 also proved to be important. There was no difference between childless people and people who had only one child, but those who already had at least two children (i.e. a widely shared ideal family size in Czechia) had a 4 times higher chance of not having a child within three years than childless people. It shows that the transition to a bigger family than the two-child family is either more difficult than the transition to the first or the second child, or it points to the declining urgency to have another child when a person has already met the widely shared ideal family size in the country.

We also tested for the effect of age. Respondents aged 18 to 24 had almost a 3 times higher chance of not having a child within three years than respondents aged 25 to 29. This relates to the fact that the youngest people still have a long time to fulfil their fertility intentions and thus may decide to postpone having a (another) child more easily than older respondents. Moreover, older persons may feel more social pressure they should no longer postpone their fertility intentions.

Based on the previous literature we also controlled for the highest education level obtained, but no statistical differences in having a child within three years were found regarding the education level among those who intended to have a (another) child when controlling for the other variables in the model.

Although previous studies pointed out the possible effect of the employment status on the decision about having (another) child, especially among men (e.g. Szalma and Takács, 2018; Miettinen and Szalma, 2014), this variable was not statistically significant when using Czech data. The variable was then removed from the final model due to multi-collinearity in the data (high correlation with age and education).

In sum, Model 1 is in line with previous findings by Šťastná (2011) and shows that a higher chance to not having a (another) child in the next three years had among those who intended to have a (another) child those who were less certain about having a (another) child during the next three years or those who intended to have a (another) child later than in three years, men compared to women, respondents without a partner, those who already reached the widely shared ideal family size of two children in Czechia and young people in their teens or early twentieths. The specific values of B coefficients are showed in Model 1.

Model 1. Binary logistic regression, not having a (another) child between 2005 and 2008 among those who intended in 2005 to have a (another) child, GGS data

Variables	Categories	B	Exp(B)
Fertility intentions in 2005	definitely intended to have a child within 3 years (ref.)		1
	probably intended to have a child within 3 years	0.768	2.155**
	intended to have a child later	1.541	4.669***
Gender	Women (ref.)		1
	Men	0.965	2.625***
Partnership status in 2005	co-resident partner (ref.)		1
	non-resident partner	0.606	1.832
	no partner	1.644	5.175***
Number of children in 2005	0 (ref.)		1
	1	0.324	1.382
	2 and more	1.808	6.099**
Age in 2005	25 – 29 (ref.)		1
	18 – 24	1.041	2.832**
	30 – 34	0.252	1.287
	35 – 45	0.297	1.345

Variables	Categories	B	Exp(B)
Highest education level in 2005	tertiary (ref.)		1
	primary to lower secondary	-0.880	0.415
	upper secondary to post-secondary	-0.294	0.746
Constant		-0.643	0.526

Note: N= 521 respondents aged 18-45 who intended in 2005 to have a (another) child and participated in both GGS waves. Omnibus Test of Model Coefficients = 0.000. $R^2 = 0.32$. Hosmer and Lemeshow Test = 0.724.

*Ref. = reference category; * = $p < 0.05$; ** = $p < 0.01$; *** = $p = 0.00$.*

Source: GGS data for the Czech Republic, 2005 and 2008.

Factors associated with changes in lifetime fertility intentions

The second research question in this paper is what factors lead people during the course of their adulthood to change their intended overall number of children? To answer this question binary logistic regression was applied to the data from the Life Course 2010 survey. Table 3 presents the descriptive statistics for the variables used in the binary logistic regression that is presented in Model 2.

Table 3. Descriptive statistics for variables used in Model 2, Life Course data 2010

Variables	Categories	Number	Percentage (%)
Intended number of children	0	814	21
	1	804	21
	2	1782	46
	3 or more	428	11
Gender	Men	1937	51
	Women	1891	49
Partnership history (only living with a partner for at least 6 months was considered)	never lived with a partner	783	20
	lived with 1 partner	2365	62
	lived with 2 partners	577	15
	lived with 3 or more partners	103	3
Experience with unemployment	no experience	2941	77
	1 experience with unemployment	721	19
	2 or more periods of unemployment	166	4
Number of siblings	no siblings	521	14
	1 or more siblings	3307	86
Age (date of birth)	34 and younger (born 1976 and later)	1208	31
	35 to 45 (born between 1965 and 1975)	1083	28
	46 or older (born before 1965)	1537	40
Highest education level	primary to lower secondary	2059	54
	upper secondary to post-secondary	1303	34
	tertiary	466	12
Total		3828	100%

Note: N= 3828 respondents aged 25-60. Source: Life Course 2010 survey.

From the total population analysed in the Life Course 2010 survey, a quarter of them declared that they had changed their total lifetime fertility intentions during the course of their adulthood. This share is in line with previous findings by Rabušic and Chromková Manea (2013). The data from the Life Course 2010 survey also include questions on what specific changes respondents had made to their intended overall number of children: a) a change in

fertility intentions to a higher overall number of children than previously planned, b) a change in fertility intentions to a lower overall number of children than previously planned, c) a change where they became uncertain about whether to have a child at all, d) a change where they reached the decision to definitely have a child or e) a change where they reached the decision to remain childless. More than one-third of respondents who reported a change in the number of children they intended to have declared that they had made two (or even more) such changes during their adulthood. Most often people made downward revisions to their intended overall number of children (see Figures 1 and 2). A disadvantage of the Life Course 2010 survey dataset is that it is not possible to determine the order and the timing of different changes over the course of a person's adult years. We are therefore analysing what factors contribute to changes in the intended overall number of children in general, which may be considered an indicator of unstable parental intentions in adulthood.

In Model 2, the dependent variable is a change in the intended number of children in adulthood (s/he did not change (0), changed (1) her/his intentions).

The first variable in Model 2 is the intended number of children. This variable represents the real number of children for people who did not intend to have more or any children and the total intended number of children for people who did intend to have a (another) child(ren) in the future. The model shows that those who intended to remain childless or to have a single child had almost a 4 times higher chance of changing their intended number of children in their adulthood than the reference category made up of those respondents who intended to have 2 children in their life. Also those who intended to have 3 or more children had a 4 times higher chance of changing their intended number of children than the reference category. The results show that people whose fertility intentions equal the widely shared ideal of 2 children in Czechia are more stable in their intentions than others. The results may also suggest that people with a non-normative lifetime fertility intention (zero, one, three or more children) changed their intended overall number of children more often than those who intended to have 2 children in their life and they only arrived at the non-normative number of children they intended to have as a result of experiences and events that occurred in the course of their adult life.

Gender also proved to be statistically significant in Model 2. Women had a 1.8 times (80%) higher chance of changing their intended overall number of children during adulthood than men.

Co-residential partnership history also proved to be statistically significant. The more partners the respondent lived with (only living together for at least 6 months was considered) during his or her life, the higher the chance was that he or she changed the intended number of children. This shows that people adapt their fertility intentions to their partners' intentions and life trajectories; it may also reflect a downward effect of partnership dissolution on fertility intentions followed by an upward effect of re-partnering for some of them though. While previous research has shown a downward effect of partnership dissolution on fertility on an individual level, the effect of re-partnering on fertility is less obvious and seems to depend on gender (Beaujouan and Solaz, 2013) and whether both partners have already children from previous partnerships or not (Murinkó and Szalma, 2016). Moreover, when only one of the partners have a pre-union child, family and gender role attitudes, family policies and demographic trends seem to influence the effect of re-partnering on fertility (*ibid.*).

The effect of experience with unemployment was also tested. Those respondents who had personally experienced unemployment once had a 1.3 times (30%) higher chance of having changed their intended overall number of children in adulthood than the reference category made up of those respondents who had never experienced unemployment; those who had experienced unemployment two or more times had even a 1.6 times (60%) higher chance of having changed their intentions compared to the reference category. If experience with unemployment is

considered to be an indicator of labour market instability or insecurity, then a change or changes in the overall intended number of children may reflect labour market instability or insecurity.

Moreover, respondents with siblings had almost a 1.4 times (40 %) higher chance of having changed their intended number of children compared to respondents without any siblings. This may reflect the fact that not only do people adapt their fertility intentions to their partner's intentions and life trajectories, but that their fertility intentions are also influenced by their peers (Bernardi, 2003) and siblings are just a special kind of peer group with whom a person may compare or synchronise their life trajectories. The idea that siblings may increase the chance of changing one's intended number of children has been suggested by previous research. Szalma and Takács (2018) pointed to the situation when a person changes his/her fertility intention because his/her sibling has many children and thus the person does not need to reproduce. Moreover, Hašková (2009) pointed to an increased pressure to reproduce from parents on their childless adult children in their late twenties to early forties when there were no grandchildren (yet), and a decline of this pressure on the remaining childless adult children when the parents became grandparents due to one of their children's entry into parenthood. These studies suggest that siblings' children may have the effect of declining one's need to reproduce and that siblings' childlessness may have the effect of increasing one's feeling of obligation to give grandchildren to their parents. Since we expected that the effect of siblings might not be the same for men and women, interaction between gender and siblings was tested in the model but was not statistically significant. According to this result, the effect of siblings does not differentiate between men and women (or – more information is needed, e.g. not only information on the respondent's gender but also gender of his/her siblings).

The next variable in Model 2 divides respondents into three categories based on their year of birth (age). The oldest respondents, born before 1965, are the reference category here. People born between 1965 and 1975 represent the cohorts who introduced the 'new reproductive regime' into the country, because they were aged 15-25 at the beginning of the 1990s before total fertility rates dramatically dropped and the age of women at the first birth started its rapid increase. In the 'new reproductive regime', which has gained strength in Czechia since the 1990s, people typically have fewer children over the course of their reproductive years and have them later than they did in the 'old reproductive regime'. This new regime became a part of Czechia's demographic and social reality alongside the process of childbearing postponement. In contrast, the 'old reproductive regime' was typical for the cohorts that gave birth during the state-socialist era in Czechoslovakia (represented by the reference category), when total fertility rates were around 2 children per woman and mothers were almost always married before they gave birth to their first child at around the age of 20-22 (Sobotka, 2004, p. 320). The youngest respondents were born 1976 and later and it is highly probable that some of them will still make some changes in their fertility intentions in the future. Model 2 shows that people from the cohorts who were in their prime reproductive age at the time of the post-1989 social transformation in the 1990s and the first decade of the new millennium and who initiated the 'new reproductive regime' in the country had a 1.3 times (30%) higher chance of changing their intended number of children in adulthood compared to the reference category. The youngest people born 1976 and later do not differ significantly from the reference group, which represents the 'old demographic regime'.

These results suggest that the post-1989 social transformation and the transition from early to later childbearing had a significant effect on the cohorts who started to postpone childbearing and experienced a significant drop and very low fertility rates in their prime reproductive age. The people who were in their prime reproductive age during the post-1989 social transformation and introduced the 'new reproductive regime' had more unstable fertility intentions, which is signalled by the fact that they more than other respondents declared their fertility intentions changed during their adult years. Since the youngest group of respondents

were still relatively young when surveyed, it is also possible that a significant share of them will change their lifetime fertility intentions later when they are older, and their intentions may prove to be as unstable as those of the 1965-1975 cohorts. If this is the case, the above-mentioned interpretation needs to be changed. Such a situation would simply mean that the increasing length of time that young adults remain childless before establishing a family relates to an increased chance of a person changing the overall intended number of children over the life course.

The highest level of education attained by the respondents was included in Model 2 as a control variable, but it showed no statistically significant differences concerning changes in lifetime fertility intentions during adulthood by education.

In sum, Model 2 shows that the chance of the overall intended number of children changing during adulthood was greater among people with non-normative parental intentions, women, respondents with a more extensive co-residential partnership history, respondents who had experienced unemployment at least once (i.e. they had experienced labour market and economic instability or insecurity), those who had at least one sibling, and those who were from the cohorts who introduced the 'new demographic regime' in Czechia. The specific values of B and Exp (B) coefficients are listed in Model 2.

Model 2. Binary logistic regression, changes in the intended overall number of children

Variables	Categories	B	Exp(B)
Intended number of children	2 (ref.)		1
	0	1.282	3.604***
	1	1.364	3.912***
	3 or more	1.407	4.086***
Gender	Men (ref.)		1
	Women	0.566	1.762***
Partnership history	never lived with a partner (ref.)		1
	lived with 1 partner	0.478	1.613***
	lived with 2 partners	0.712	2.038***
	lived with 3 or more partners	1.349	3.855***
Experience with unemployment	no experience (ref.)		1
	1 experience with unemployment	0.258	1.294*
	2 or more periods of unemployment	0.469	1.599*
Number of siblings	no siblings (ref.)		1
	1 or more siblings	0.316	1.371*
Age (date of birth)	46 and older (born before 1965) (ref.)		1
	34 and younger (born 1976 and later)	-0.103	0.902
	35 to 45 (born between 1965 and 1975)	0.282	1.325**
Highest education level	primary to lower secondary (ref.)		1
	upper secondary to post-secondary	0.093	1.098
	tertiary	0.165	1.179
Constant		-3.434	0.032***

*Note: N= 3828 respondents aged 25-60. Omnibus Test of Model Coefficients = 0.000. $R^2 = 0.13$. Hosmer and Lemeshow Test = 0.262. Ref. = reference category; * = $p < 0.05$; ** = $p < 0.01$; *** = $p = 0.000$.*

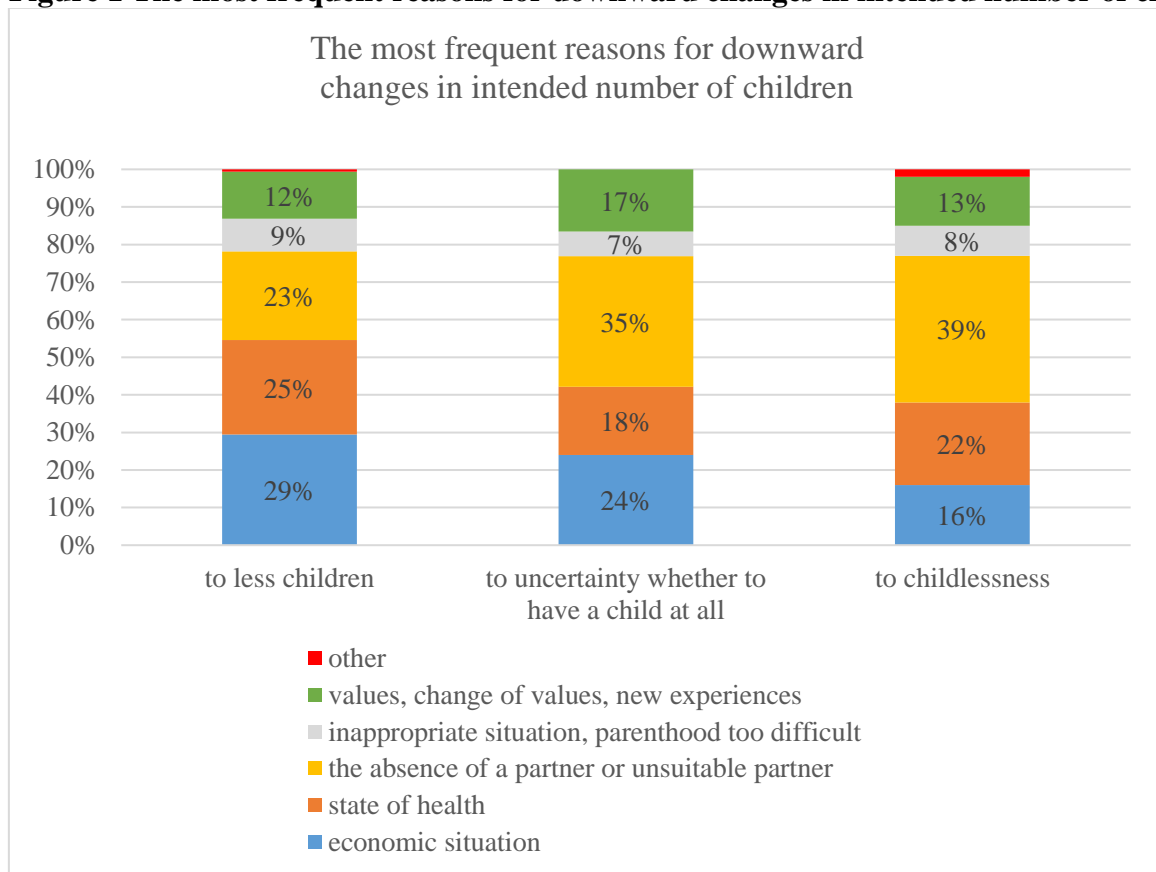
Source: Life Course 2010 survey.

Reasons for changes in fertility intentions

The data from the Life Course 2010 survey contain information on the specific direction in which a person's overall intended number of children changed (a change of fertility intentions to a higher overall number of children, a change to a lower overall number of children, a change to uncertainty, whether to have a child at all, a change to a decision to have a child or a change to remain childless). The small number of respondents who reported making only one specific change in their fertility intentions makes it impossible to analyse these sub-samples separately using binary logistic regression. Therefore descriptive statistics were used to illustrate at least the most frequently cited reasons for each of the specifically directed changes in fertility intentions that the respondents named as the main reason for the specific change in their intended overall number of children. It was an open question, i.e. no pre-defined replies were offered to the respondents. The respondents' replies were coded and then recoded into the following categories: economic situation (economic in/stability or housing situation); state of health; partner in the negative sense (the absence of a partner or unsuitable partner for having a(nother) child) and partner in the positive sense (having a partner who wants a child); feeling inappropriate for a (nother) child or that parenthood is too difficult; values, change of values, new experiences; unplanned parenthood; other.

When we focus on the reasons for downward changes – a change to having fewer children in their lifetime, a change to being uncertain about whether the respondent intends to have a child at all and a change to the decision to remain childless – the structure of the reasons is similar (Figure 1).

Figure 1 The most frequent reasons for downward changes in intended number of children

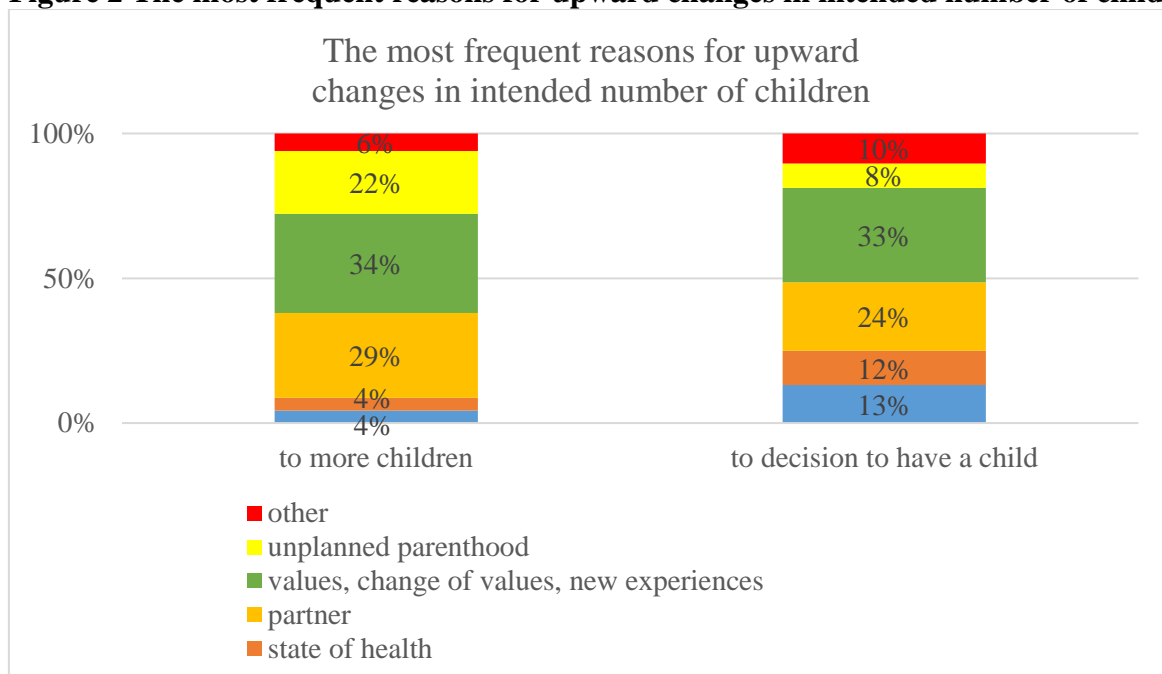


Note: Change to less children (N= 488); change to uncertainty whether to have a child at all (N= 134); change to childlessness (N= 107). Source: Life Course 2010 survey.

The first three reasons listed in differing order are: economic situation, state of health and the absence of a partner or having an unsuitable partner. The following reasons are cited for the change that leads to a lower intended overall number of children: economic situation is in first place with 29% of these respondents citing this reason, state of health ranks second at 25% and the absence of a partner or having an unsuitable partner is third at 23%. When the change leads to uncertainty about whether or not to have a child at all, it is the absence of a partner or having an unsuitable partner that ranks first among the reasons cited at 35%, economic situation is in second place at 24% and state of health is third at 18%. When people's fertility intentions change to the decision to remain childless, the absence of a partner or having an unsuitable partner is the reason in first place at 39%, state of health ranks in second place (22%) and economic situation is third (16%).

As expected, the structure of responses is different in the case of upward changes (Figure 2).

Figure 2 The most frequent reasons for upward changes in intended number of children



Note: Change to more children (N= 228); change to decision to have a child (N= 161).

Source: Life Course 2010 survey.

Fewer people make upward changes in their lifetime fertility intentions during adulthood but if they do, then values, a change in values and new experiences represent the most commonly cited reason (34%), partner ranks second (29%) and unplanned parenthood is third (22%). When the change leads to the decision to have a child, again it is values, a change in values and new experiences that figure in first place (33%), partner is the second most common reason cited (24%), followed by economic situation (13%), state of health (12%) and unplanned parenthood (8%).

Discussions

Our study explores what individual characteristics contribute in Czechia to the non-fulfilment of short-term fertility intentions and to changes in lifetime fertility intentions in the sense of a change in the total number of children a person plans to have. We tie in with previous studies that have mapped people's fertility intentions and analysed factors that contribute to the

non-fulfilment of those intention. We also tie in with studies that have examined how fertility intentions change over the course of life. This study expands on research to date by testing what factors play a role in both the non-fulfilment of short-term intentions and to changes in lifetime fertility intentions in the sense of the number of children a person plans to have in life.

In line with previous studies we found that fertility intentions are predictors of subsequent fertility but many short-term fertility intentions remain unfulfilled even in times of social and economic stability. We also observed that fertility intentions are negotiated in response to a person's experiences and conditions.

The two models in this study show the following: among those who intended to have a/nother child, the higher chance of not having a child within three years was observed among those respondents who did not intend or were uncertain about having a child within such a short time, as well as among men, people in their teens or early twenties, people without a partner, and those who had already reached the widely shared ideal family size of two children. The people who have a higher chance of changing their lifetime fertility intentions, i.e. how many children they intend to have over the course of life include women, people with non-normative parental intentions (they want fewer or more than two children), people with a more extensive partnership history, those who have experienced unemployment, those who have at least one sibling, and people from the cohorts in Czechia who started to postpone childbearing.

Let's examine the results of two models above and discuss the various factors that were found to be relevant to the non-fulfilment of fertility intentions and to changes in lifetime fertility intentions in more detail here. As expected from previous literature (e.g. Iacovou and Tavares, 2011; Šťastná, 2011; Szalma and Takács, 2015), the lack of a partner proved to be an important factor contributing to not having a (another) planned child within the short-term period. In contrast, the more partners the respondents had, the more likely it was that their lifetime fertility intentions, i.e. the total number of children they wanted, changed in adulthood. This seemingly contradictory finding is in line with another stream of literature. Given that partners' fertility intentions may differ, both partners may adjust their childbearing expectations in a process of negotiation. Therefore, the explanatory power of models of childbearing intentions increase when the spouse's intentions are included (Thomson, 1997). As Iacovou and Tavares (2001) noted, mainstream literature on fertility intentions have focused mainly on the downward effect of the disagreement between partners on their fertility intentions. This study suggests, however, that for more than a quarter of those who changed their fertility intentions upwards, they believed that the influence of their partner was crucial. Moreover, the impact of their partner on the upward change in the number of children they intended to have was the second most often cited reason for the change. The finding that a more extensive partnership history increases the chance that a person's fertility intentions will change may reflect the fact that people adjust their fertility intentions to their partners' intentions and life trajectories. However, it may only reflect the effect of partnership dissolution and re-partnering. In sum, partnership has an important effect on fertility intentions: having a partner increases the chance of having a child as soon as intended; a more extensive partnership history means a greater chance of a person's lifetime fertility intentions changing; and partners' disagreement over their fertility intentions may lead to both downward and upward changes in fertility intentions.

Among the people who intended to have a child, women proved to be more likely to have the child as soon as they intended. But they were also found to change their intended total number of children more often than men. This may be associated with biological and age norms related fertility revisions, which seem to be more pronounced in the case of women than men (e.g. Hašková, 2009, p. 264).

Our models did not confirm any significant relationship between education on the one hand and the fulfilment of short-term fertility intentions or changes in the intended overall number of children on the other hand. Greater labour market instability/insecurity (measured as the

experience of unemployment) proved, however, to be connected to changes in the intended total number of children. Similarly to Šťastná (2011), we did not find a statistically significant effect of the employment status on the chance of fulfilling short-term fertility intentions in the period of economic stability and growth though.

Our results are consistent with the findings of some studies while others have shown different results. The different results of various studies on the effect of education and labour market instability are likely to stem from region-specific differences, differences in the sense of measuring the effect in the time of economic decline or growth, and differences in the way labour-market instability and changes in fertility intentions are operationalised in research.

The effect of siblings on the chance of a person's fertility intentions changing is not commonly tested but some studies suggest that siblings' reproductive behaviour may influence one's fertility intentions (e.g. Szalma and Takács, 2018; Hašková, 2009). The higher chance of (lifetime) fertility intentions changing in adulthood that our study identified among people with at least one sibling can be understood in the light of existing research on fertility, peers, and social networks. While it is established knowledge that people adapt their fertility intentions to their partner's intentions and life trajectories, they are also influenced by their peers (Bernardi, 2002). Our research suggests that siblings are just a special kind of peer group with whom a person may compare or synchronise their life trajectories. Moreover, it has been noted by other research that grandparents' capacity and willingness to support an adult child (e.g. in the sense of providing childcare) have an effect on their adult children's fertility intentions and outcomes (Železná, 2018, p. 181). This could be more pronounced in such welfare contexts as that in Czechia, where the availability of non-family childcare is scarce (Hašková and Dudová, 2016). And how willing and able grandparents are to provide this kind of support can be greater or lesser depending on how much support they also have to provide the adult child's siblings in the form of caring for their children. This could be another way in which the life trajectories of siblings may influence a person's fertility intentions.

Regarding the effect of age and cohort, the fact that very young people (under the average age of women at first birth) were less likely than people in prime reproductive age to have a child within the studied three-year period is consistent with the findings of previous studies (Šťastná, 2011; Testa and Toulemon, 2006). The reason is that young people still have a relatively long period of time ahead of them in which to have children, which allows them to postpone their childbearing plans. The influence of age norms and peers can also be considered: given that these people are younger than the average age, expected age, and, what according to public opinion research is viewed as the ideal age at which to become a mother or father (Čadová, 2016), for them parenthood would still be inconsistent with the 'expected timetable of life' (Liefbroer and Billari, 2010) and would make them differ significantly from their peer group. Both age norms (or rather the 'expected timetable of life', in this late modern time) and peer-group pressure thus today probably work against having children between the ages of 20 and 25 (see Hofäcker and Chaloupková, 2014 for the notion of re-standardisation or "new standard"), which is the age at which the majority of men and women became parents in the 'old reproductive regime' during the state-socialist period.

It is not just a person's age that matters for fertility intentions but also the year in which a person was born. The year of birth determines the age at which a person experiences important moments and changes in society, which could have an influence on their fertility intentions, depending on what age they were (and in what stage of the reproductive trajectory they were) when these social changes occurred. The finding that in Czechia it was people born in the second half of the 1960s and the first half of the 1970s who were more likely during adulthood to have changed the number of children they intended to have is a sign of the effect the social transformation after 1989 had on fertility intentions. People born in the second half of the 1960s and the first half of the 1970s were impacted by the changes in Czech society after 1989 at an

age when people tend to engage most in making fertility plans and fulfilling those intentions. And in this region they were the ones who ushered in the 'new reproductive regime'. Older people for the most part had had children when they were very young, just over the age of 20, while still living in the state-socialist regime. And younger people reached prime reproductive age at a time when the average, expected, and, according to public opinion, the ideal age to become a parent had already increased and at a time when the conditions in society were also less turbulent. Since the youngest group of respondents were still relatively young when surveyed, it is also possible that a significant share of them will change their intended number of children later in life. In this case another interpretation could be more appropriate. The results would indicate that there is a positive link between the increasing length of time people spend in the stage of 'young adulthood', during which time young people remain free from any parental obligations, and more unstable lifetime fertility intentions. It will only be possible to test whether the first or the second interpretation of the findings is more likely on the basis of more recent data. Regardless, however, the outcome of this study adds to the rich body of literature examining the influence the social transformation after 1989 had on fertility intentions and the fulfilment of fertility intentions or change in them in central and Eastern Europe.

Last but not least our study underlined an important relationship between childbearing norms on the one hand and the fulfilment of fertility intentions or changes in them on the other hand. Many authors have noted the prevalence of a two-child norm across European countries (Berrington, 2004; Sobotka and Beaujouan, 2014). Morgan and Rackin (2010) stated that the normative ideal of the two-child family results from two forces: there is an upward pressure on the number of children to have that relates to concerns about raising a single child, but the perception that three children constitutes a large family acts as a downward pressure. Following from studies demonstrating the existence of the two-child norm, our study adds that in Czechia this norm may affect fertility intentions and the fulfilment or revision of those intentions. Not only do our data show, like previous studies, that a large share of people in Czechia still want and plan to have a two-child family. People who already have two children are less likely to fulfil their plan to have another child than those who have not yet met the two-child norm. Our study also revealed that people whose fertility intentions fit the two-child norm have more stable fertility intentions than do people whose fertility intentions are to have more or fewer than two children and who formulated those intentions usually once they were already adults based on experiences and events in their life.

In sum, the two logistic regression models were helpful in testing what factors contribute to the unfulfilment of short-term fertility intentions and what factors contribute to changes in the number of children a person intends to have. Descriptive statistics on the factors respondents gave as the main reasons explaining the downward or upward changes in their intended number of children were also informative.

In line with the previous literature our results confirm that the main reasons people give for changing their fertility intentions towards uncertainty about whether to have a child at all and towards the decision to remain childless is their partnership situation (and especially the absence of a partner). The fact that since the 1990s in Czechia there has been a significant increase among young people in the length of time they spend in life without a permanent partner and often still live with their parents (Chaloupková, 2010, p. 167) indicates that the absence of a partner during a person's reproductive period of life will continue to be a significant factor that will lead some people to change the number of children they expected to have to zero. The fact that economic factors were cited as the main reason for changing their fertility intentions by almost 30% of those who said they adjusted their fertility intentions downward to a smaller number of children and by almost one-quarter of those who said they changed their fertility intentions towards being uncertain about whether they would even have a child at all, but only by one in six of the people who said they changed their fertility intentions to the decision to remain

childless also indicates that although economic circumstances are not usually the main reason why people end up childless, economic factors do play an important role in people's decision to decrease the number of children they plan to have. It is also worth noting that health conditions were mentioned as the main reason for downward changes in fertility intentions by about a fifth to a quarter of respondents who declared such a change. If fertility below the replacement level (2.1 children per woman) and the mismatch between planned, and achieved fertility are considered to be a political issue, these findings may serve as one of the bases on which to formulate policy recommendations.

This study also shows that people make changes in the timing of childbirth to a time earlier than they intended and make upward changes in their fertility intentions, i.e. increase the intended total number of children, far less often than they make downward changes. But if they do increase the number of children they intend to have, then a change in values/new experiences and the influence of their partner are the main reasons they believe explain the change in their fertility plans. People's attitudes may change over the life course in response to new information people receive from their observations of others, their own experiences, changing circumstances, and insights into their own personalities. The results of our analysis suggest that if value changes and new experiences in the course of adulthood are mentioned as the main reason for a change in the intended number of children, it is more an upward than a downward change that they produce. This 'internal circumstance' contrasts with the somewhat external circumstances (namely, the absence of a partner, health, and economic constraints) that are mainly behind downward changes. The minor importance of unplanned parenthood for the decision to become a parent may reflect the huge increase in the use of modern contraceptives when planning whether and when to become a parent, yet it continues to be an important factor for explaining an increase in the expected total number of children.

Although quantitative research is strong in testing what factors are associated with un/fulfilling and changes in fertility intentions, qualitative research would be useful to complement the findings mentioned above. Qualitative research can help to understand the meanings of un/fulfilling short-term fertility intentions and the meanings of changes in lifelong fertility intentions, given by the people themselves. Moreover, process-oriented qualitative research can be illuminating when trying to understand the social mechanisms leading to unfulfilment and changes in fertility intentions (e.g. Hašková, 2009). Such process-oriented qualitative research on unfulfilment and changes in fertility intentions could complement, deepen and triangulate the above mentioned findings driven from quantitative data that were used to test whether the selected factors contribute to the studied processes of unfulfilling and changes to fertility intentions or not, but cannot reveal the mechanisms involved in these processes nor the meanings of the studied processes. More concretely, future qualitative research could help to understand the different meanings of processes leading to unfulfilling and changes in fertility intentions. Moreover, the mechanisms of the influence of siblings, extensive partnership history, health and fertility-related norms (among others) on changes in fertility intentions could be better explored by qualitative research that would build on the present research outcomes. Last but not least, the higher turbulence in fertility intentions among the cohorts of people who started the 'new reproductive regime' in the country that was shown in the quantitative data could be better understood through complementing the statistical data with biographical narratives of those who brought the 'new reproductive regime' compared to those older and younger to them.

Conclusions

Studies devoted to fertility intentions usually focus on short-term fertility intentions and in some cases also whether or not these plans are fulfilled, or they study lifetime fertility intentions in the sense of the total number of children they plan to have (and sometimes also

changes in the lifetime fertility intentions over the course of life). This study contributes to knowledge in this area by testing what individual characteristics contribute to both the non-fulfilment of short-term fertility intentions and changes in lifetime fertility intentions. The data reveal that a number of individual characteristics are associated with both of these processes which together contribute to the postponement of childbearing and the mismatch between intended and achieved fertility in Czechia.

Given that we analysed fertility intentions in the specific post-socialist context and with a view to the cohort effect, our study also contributes to the understanding of Czech society's rapid transition to the 'new reproductive regime'. The postponement of childbearing and lower completed cohort fertility (than in cohorts that achieved their fertility intentions before 1989) are typical features of the 'new reproductive regime'.

Moreover, our study suggests that an absence of a partner contributes to the non-fulfilment of short-term fertility intentions and health and economic difficulties and absence of a partner contribute to downward changes in lifetime fertility intentions. Families with small children rank among the groups of people who are more often at risk of income poverty in Czechia, and Czechia belongs to the countries in eastern and southern Europe where young people live in the parental home longer than they do in countries in northern and Western Europe (e.g. Iacovou, 2011; Eurostat, 2017). Consequently, the policy lesson from this study would be that it is necessary to invest in measures designed to improve the conditions (e.g. housing, employment) for young people to start their own household and to improve the economic and work-life balance situation in families. In European comparison, Czechia is a country with low availability of childcare services, high employment gap between women with and without children (OECD Family Database, 2018), low availability of part-time work (Kuchařová et al., 2017, p. 245) and high unemployment rate among women immediately after their childcare related leave (Bičáková and Kalíšková, 2015, p. 22). The lack of childcare services, long and inflexible working hours and weak enforcement of work-life balance policies contribute to difficulties of mothers to return to the labor market, families to come out with money and to problems of couples to have as many children as they wish (Kuchařová et al., 2017). Therefore, childcare-, leave-, and work-life balance policies to combat these shortcomings and problems seem to be inevitable to reduce the mismatch between intended and achieved fertility in Czechia. Moreover, a relatively large share of respondents referring to health issues as a reason for a downward change in their fertility intentions signalizes, in line with a study by Štátná et al. (2017), that health-related problems seem to be an important factor in the processes of delaying childbearing and changes in fertility intentions. To understand the mechanisms of how the factors, which were revealed and tested in this study, intervene the processes of unfulfilling and changes in fertility intentions, and to examine people's understanding (meanings) of these processes, process-oriented qualitative research would be useful to complement the presented variable-oriented quantitative analysis. Such qualitative research may also help to specify the diversity of targeted policies needed to help populations at various intersections of social categories (including marginalized populations that are difficult or impossible to examine in country level representative surveys) to having as many children as they wish.

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Sex-related differences in chest dimensions in 9-10 – years old Bulgarian children**DOI:** <http://doi.org/10.26758/9.1.3>

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Abstract

Objectives. This study aimed to characterize the sexual differences in chest dimensions and shape in Bulgarian schoolchildren and the relation of chest measurements with vital capacity and some anthropometric parameters.

Material and methods. A total of 107 (60 boys and 47 girls) schoolchildren aged 9-10 years from Sofia, Bulgaria were studied. Chest's diameters and circumference, waist circumference and vital capacity of each subject were measured. Thoracic index and BMI were calculated.

Results. In 9-10 years old children the sexual differences of some variables are well expressed as the boys had greater values than girls.

Conclusions. Significant positive association of all chest dimensions with anthropometric features in both sexes was observed. A significant and positive relation between some torso parameters and vital capacity also was found. In boys it was low and in girls - moderate.

Keywords: chest dimensions, thoracic index, vital capacity, Bulgarian schoolchildren.

Introduction

Chest characteristic is a basic indicator for tracing the changes in physical status and body constitution of man and in some cases for his health status. The main chest dimensions give important information about the chest shape and massiveness, as well for the fat and muscle mass accumulation in the trunk. There are also regional differences caused by socio-economic differences and changes in the daily diet structure of children, with consequences especially on their growth and development (Baciu, 2011). Some authors established strong relation between trunk development and lung function. (Schrader et al., 1984; DeGroodt et al., 1986; Asher et al., 1987; Connett et al., 1994). High correlation between lung volumes and height increment in children is determined too. Therefore, most of the published reference values of lung function are based on height. Fisher et al., (1990) proved that there is proportional relationship between lung volumes and function and weight.

The aim of the present study was to characterize the sexual differences in chest dimensions and shape in Bulgarian schoolchildren and the relation of chest measurements with vital capacity and some anthropometric parameters.

Material and Methods

A total of 107 (60 boys and 47 girls) children aged 9-10 years from two primary school in Sofia, Bulgaria were studied. The children and their parents volunteered for the research and gave their written informed consent. Ethical agreement to perform the study was obtained from the Human Ethical Committee of Institute of Experimental Morphology, Pathology and Anthropology with Museum – Bulgarian Academy of Sciences (Protocol № 3/11.04.2018) and conducted in accordance with the declaration of Helsinki for human studies of the World Medical Association (Declaration of Helsinki, 2008).

Height, weight, chest's diameters, chest circumference in pause and waist circumference of each subject were measured by using the Martin Saller's classical methods from the right side of the body. Transversal diameter (chest breadth) of the thorax was measured from left to right midaxillary line (at the level of the mesosternal) in cm. Sagittal diameter (chest depth) of the thorax was measured in the sagittal plane (from the mesosternal to the apex of corresponding processus spinosus of the spine) in cm. Thoracic index and body mass index (BMI) were calculated by the formulas:

Thoracic index = Chest depth * 100 / Chest breadth

BMI = Body weight (kg)/ Body height (m)²

The metrical data were analyzed by SPSS software, version 16.00. The independent sample t-test was performed to compare the mean values of the anthropometric measurements between genders. Statistical significance was set at $P < 0.05$. Pearson's correlation analysis was used investigating the relationship among chest's dimensions, anthropometric variables and vital capacity.

Results

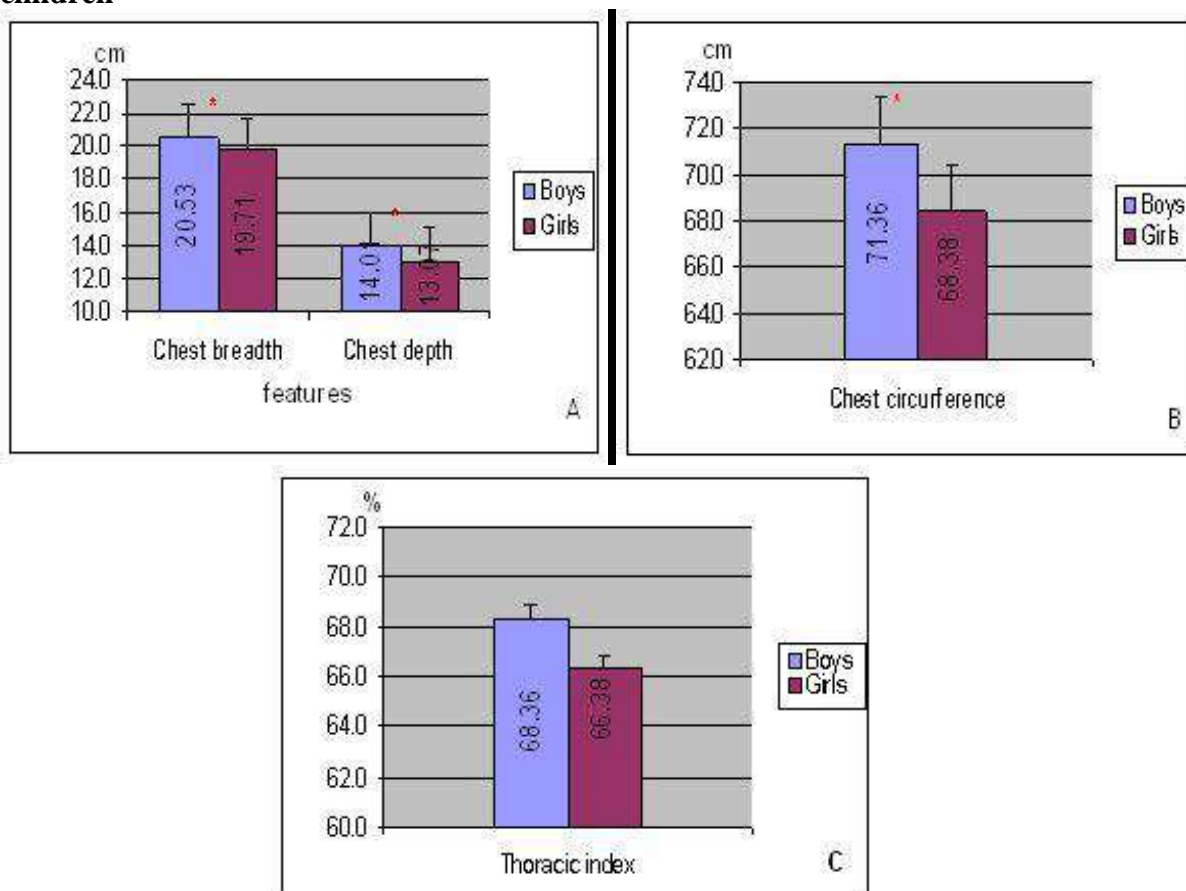
The mean values of anthropometric features in 9-10 years old children were presented on **Table 1**. Height, weight, BMI and waist circumference were higher in boys compared to girls. The differences between sexes were not statistically significant in height, weight and BMI. The values of waist circumference were higher in boys than in girls and significant differences were observed ($p = 0.016$).

Table 1. Anthropometric characteristics in 9-10 years old Bulgarian children

Participants Traits	Boys (n=60)		Girls (n=47)		P-value
	Mean	(SD)	Mean	(SD)	
Age	9.60	(0.49)	9.49	(0.51)	0.258
Height (cm)	143.00	(6.39)	141.00	(6.78)	0.770
Weight (kg)	39.16	(8.63)	36.48	(7.80)	0.990
BMI (kg/m ²)	18.93	(3.44)	17.82	(3.52)	0.106
Waist circumference (cm)	67.07	(8.87)	63.07	(7.61)	0.016*

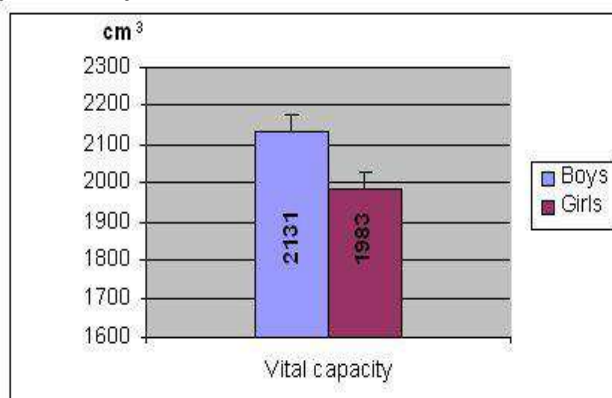
*Statistical significant differences

The data analysis of two chest diameters and chest circumference showed significant sexual differences ($p < 0.05$), as the boys aged 9-10 years had higher values than girls of the same ages (Fig. 1 A, B). The thoracic index, expressed by the ratio between antero-posterior and transversal diameter gave information about chest shape. The sexual differences between its mean values were not significant ($p = 0.12$) (Fig. 1C).

Figure 1. (A,B,C) Chests dimensions and Thoracic index in 9-10 years old Bulgarian children

It is well known that vital capacity is influenced by body growth, pubertal development, sport activity and diseases.

The mean value of vital capacity in girls was $1982.98 \pm 511.31 \text{ m}^3$, and in boys - $2130.83 \pm 567.93 \text{ m}^3$, respectively. In this early school age there were no significant differences ($p = 0.16$) between assessed groups (Fig. 2).

Figure 2. Vital capacity in 9-10 years old children

A strong association between all chest dimensions and anthropometric parameters was observed (**Table 2** and **Table 3**). The correlation coefficients characterized relationship between stature, weight and chest parameters were mostly higher in girls. In boys the higher values of

correlation were found between BMI, waist circumference and chest parameters. A significant and positive relationship with low to moderate intensity between vital capacity and some torso parameters in both sexes was established. Vital capacity correlated positively also with body height and weight, as the intensity was only moderate.

Table 2. Correlation between vital capacity, chest dimensions and waist circumference in 9-10 years old schoolboys

Traits	Height	Weight	BMI	Waist circ.	Chest breadth	Chest depth	Chest circ.	Vital capacity
Height	1	0.591**	0.232	0.401*	0.492**	0.456**	0.385**	0.339**
Weight		1	0.919**	0.913**	0.879**	0.678**	0.906**	0.305*
BMI			1	0.911**	0.822**	0.594**	0.931**	0.210
Waist circ.				1	0.817**	0.667**	0.938**	0.178
Chest breadth					1	0.524**	0.868**	0.281*
Chest depth						1	0.641**	0.293*
Chest circ.							1	0.210
Vital capacity								1

**Statistical significant differences at $p < 0.01$;

* Statistical significant differences at $p < 0.05$;

Table 3. Correlation between vital capacity, chest dimensions and waist circumference in 9-10 years old schoolgirls

Traits	Height	Weight	BMI	Waist circ.	Chest breadth	Chest depth	Chest circ.	Vital capacity
Height	1	0.763**	0.313*	0.541*	0.588**	0.666**	0.615**	0.404**
Weight		1	0.681**	0.881**	0.862**	0.836**	0.917**	0.371*
BMI			1	0.673**	0.615**	0.542**	0.650**	0.142
Waist circ.				1	0.798**	0.728**	0.858**	0.122
Chest breadth					1	0.716**	0.888**	0.323*
Chest depth						1	0.798**	0.279
Chest circ.							1	0.375**
Vital capacity								1

**Statistical significant differences at $p < 0.01$;

* Statistical significant differences at $p < 0.05$;

Discussions

During the growth period, clearly expressed sexual differences are observed in different anthropometric parameters. The present study provided information for differences between sexes in chest dimensions and vital capacity in Bulgarian primary schoolchildren. Descriptive statistics of the basic anthropometric features showed that the boys were taller and heavier than girls, but statistically significant sexual differences were not established. Similar results are presented by Nacheva et al. (2012). According to data of two chest diameters and chest

circumference the boys had significantly wider and deeper chest and bigger chest circumference than girls in this age. The results correspond those obtained by Živičnjak et al. (2008), according to which the males had broader chest and larger antero-posterior chest diameter than females.

Considerable distinctions are noted also for waist circumference which values are higher in boys. A study conducted in 2001-2002 in Bulgaria showed that the values of chest and waist circumferences are equal in girls and boys aged 10 years. In the next age they are significantly higher in boys than in girls (Mitova, 2005). Data from the National Health Survey in the United States also reported results close to these one in the present study (National Center for Health Statistics, 1973). The current data of the chest and waist circumferences were considerably higher than those from the investigation of Bulgarian children and youths (Nacheva et al., 2012). Contrary to this the values of chests diameters and thoracic index were significantly lower. During childhood and adolescents the shape of thorax is changed from cone with base turned down in infants to cone with base turned upwards in adults. It should be noted that the present results confirmed this definition and reported for the negligible gender differences in thoracic index in the studied Bulgarian children.

The vital capacity is a one of the parameters that provide information of lung function (LF). Spirometry is the technique to evaluate how well the lung function is helpful in the diagnoses and monitoring of diseases as well as the epidemiological surveys. During the growth LF is influenced by anthropometric, environmental and socio-economic factors, body composition, sex, maturity, ethnicity (Vijayan, 1990; Karacan, 2008; Whitrow and Harding, 2008; Adedoyin, 2010; Pekkarinen, 2012; Jat, 2013). In this early school age significant sexual differences in mean values of vital capacity are not observed ($p = 0.16$), although the boys had greater ones.

This research also examined the relationship between anthropometric features and vital capacity in the early school age. The correlation matrix showed significant relation of the vital capacity with height and weight and was not significantly associated with BMI in both males and females. The finding was confirmed by other authors (Kivastik and Kingisepp, 2000; Medarov, Strachan and Cohen 2005; Roy, 2014). Contrary to our results Behera et al. (2014) indicated a significant association of vital capacity with BMI in case of females.

Conclusions

In 9-10 years old children the sexual differences of some anthropometric variables are well expressed as the boys had greater values than girls. Significant positive association of all chest dimensions with anthropometric features in both sexes was observed. A significant and positive relation between some torso parameters and vital capacity also was found. In boys it was low and in girls - moderate.

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Changes in body composition and skeletal robustness in 7-17-year-old children and adolescents from Plovdiv, Bulgaria (1998-2008)**DOI:** <http://doi.org/10.26758/9.1.4>

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Abstract

Objectives. Overweight and obesity among children and adolescents represent a global epidemic problem that leads to a number of socially serious diseases among grown-ups. The purpose of this study is to assess the changes that have occurred for a 10-year period of time in body composition and skeletal robustness of children and adolescents.

Material and methods. 2094 healthy children and adolescents aged 7-17 from the town of Plovdiv were examined in 2008/2009. The results were compared with identical ones referring to healthy 7-17 year-old children and adolescents from Plovdiv, who were examined in 1998-1999. For each person height, weight, elbow breadth, subscapular and triceps skinfolds were measured using anthropometric methods. On this basis, calculations of the body mass index, the fat free mass index, the fat mass index, percentage of body fat and the Frame- Index of each child were made. The data were processed by SPSS 20.0 software.

Results. The children from this survey are slightly taller and heavier, with the values of BMI and a significantly lower percentage of body fat tending to increase. During the 10 years period of survey, the Frame has decreased significantly in almost all age groups, except 11 and 16-year-old boys and 17-year-old girls from the previous study. Skeletal robustness has not decreased in any percentile groups: the 90 and 97 percentile values are higher among children nowadays, and the values of the 10th and 3rd percentile of the index are lower. The ten-year variations in the values of 10th percentile correspond to lower skeletal robustness from 2 to 15.7% for boys and from 7 to 18% for girls. There are no significant correlations between skeletal robustness and BMI, as well as between skeletal robustness and percentage of body fat.

Conclusions. While growing, contemporary children accumulate more fat-free body mass per unit of height, whereas their peers a decade ago – more fat tissue per unit of height. The increase in the percentage of overweight and the decrease in skeletal robustness of contemporary children and adolescents from Plovdiv were caused, entirely or partially, by reduced physical activity.

Keywords: body composition, skeletal robustness, changes, school children.

Introduction

As a matter of biological importance and from a medical point of view as well, it is essential to study body composition because it will give us an idea of the ratio of the components forming human body weight. The assessment of body composition of children and adolescents is a matter of particular importance, since deterioration in their physical development and reduced health indicators occurred during the last decade. Moreover, there is an increased frequency of occurrence of adolescents with insufficient and excessive body mass.

According to Popkin, Adair and Ng (2012) changes in lifestyle, food systems and dietary habits are consequences. The nutrition transition results in increased energy intake and with the advancement of techniques physical activity decreases. The reduced physical activity and sedentary behaviour of contemporary generation children and adolescents are more frequent (Basterfield et al., 2011; Verloigne et al., 2012). Furthermore, children in more European countries spend more and more time watching TV and participate in sports clubs less frequently, such behaviour leading to lower physical activity (Klimatskaya, Laskiene and Shpakou, 2011; Lömmle et al., 2012). Reduced physical activity is not only one of the reasons for obesity, but also a cause of the impairment of the external skeletal robustness resulting in a decrease of it (Sheffler, 2011; Rietsch, Godina and Scheffler, 2013). On the other hand, an imbalance of energy intake and consumption leads to obesity among children and adults in industrial and developing countries (Popkin, Adair and Ng, 2012). High consumption of sweets, snack-type products, as well as eating in front of the TV, have increased the percentage of overweight among contemporary children, compared to their peers in 1970s according to data found about children in Romania (Baciu, 2011). These disorders occur frequently due to restrictive and dull diets, for such reason being important to ensure adequate nutritional intake, especially for adolescents (Baciu, 2013).

WHO classifies overweight, and especially obesity among adolescents, as a global epidemic problem, causing a predisposition to socially significant diseases among grown-ups (Erbersdobler, Hesecker and Wolfram, 2005).

The body mass index (BMI), which describes only the height-weight ratios, is used to determine body nutritional status. However, an individual's developmental status and nutritional evaluation cannot be estimated in a similar way by means of the relation between height and weight only, because while providing a general idea of the total body mass quantitative changes, they do not provide explanation on what expenses those changes are carried out (Chotecov, 1970). Proper development evaluation requires approaching the methods and techniques that reveal an organism's qualitative changes occurring at certain stages of its development. Similar approaches are associated with investigation of the components constituting body mass, as the body composition (Frisancho, 1984; Frisancho, 1990; Mitova, 2009; Mladenova and Nikolova, 2005; Mladenova and Kodgebasheva, 2010; Rolland – Cachera, 1998; Freedman et al., 2005). A number of studies show that high BMI correlates with a higher percentage of body fat (Daniels, Houry and Morrison, 1997; Deurenberg, Weststrate and Seidell, 1991; Pietrobelli et al., 1998) and other components.

For a growing-up organism, however, it is essential to have detailed information about the development of the components of body mass. Thus, prevention of the decrease can start from early childhood

The assessment of different body components of children and adolescents from Plovdiv and comparing them with the results from the previous study will give more information about the development of body composition and external skeletal robustness in the period between 1998 and 2008.

Material and methods

Sample

A number of 2094 Bulgarian children and adolescents from Plovdiv (1040 boys and 1054 girls), aged 7 to 17, were cross-sectionally examined in 2008-2009. The comparative sample includes 1913 Bulgarian children and adolescents (1024 boys and 889 girls), who were examined in 1998-1999 by the authors. All children in the two samples of this study were clinically healthy and of Bulgarian nationality and origin. The children with chronic diseases of the skeletal-muscular system, diabetes type A, hormonal disorders and hereditary diseases were excluded from the sample. The children belonging to Roma, Turkish and other ethnic groups were also excluded from the sample.

Ethics statement

The study was made with the official approval of the Regional Inspectorate of Education in Plovdiv, Bulgaria's Ministry of Education and Science and of the Ethical Committee of Plovdiv University. A written informed consent of the parents or guardians of each child included in the research group, was obtained in accordance with the ethical principles for medical research involving human subjects in the Helsinki Declaration of World Medical Association (World Medical Association Declaration of Helsinki, 2000). Measurements were taken in elementary and secondary schools in the town of Plovdiv (Bulgaria). The schools are in different regions of the town therefore children belonging to them vary in social backgrounds.

Anthropometric measurements

For each person height, weight, elbow breadth, subscapular and triceps skinfolds were taken using anthropometric methods. Anthropometric measurements were followed by the standardized methods of Martin and Saller (1959) in a standing position. The measurements were taken with prescribed measuring anthropometric instruments.

By means of such method, the following indices were calculated and compared: the percentage of Body Fat (% BF), Fat Mass (FM, kg), Fat-Free Mass (FFM), Body Mass Index (BMI, kg/m²), Fat Mass Index (FMI, kg/m²) and Fat-Free Mass Index (FFMI, kg /m²) and Frame-Index (FrI). The percentages of Body Fat (% BF), Fat Mass (FM, kg) and Fat-Free Mass (FFM, kg) were calculated by means of the regression equations of Slaughter et al. (1988). Fat Mass Index (FMI) and Fat-Free Mass Index (FFMI) were defined according to Freedman et al. (2005). Frame-Index was calculated by *Frisancho's formulae* (1990):

Frame Index = (elbow breadth (mm) x 100) /height (cm)

Statistical analysis

The descriptive statistics, the correlation and the non-parametric analysis were used. Mean and standard deviation and the 10th, 50th and 90th percentiles for each of the anthropometric measurements and indexes were calculated. In addition, the 3rd and 97th percentiles for the Frame index were calculated. The correlation coefficients between the Frame-Index, the Body Mass Index and the Body Fat (%BF) percentage for each age and gender group were calculated. The data were processed by SPSS 20.0 software. The statistical significance of the two samples was evaluated through T-test of Student on p-level ≤ 0.05.

Results

Table 1 presents the results of the mean(Mean),the standard deviation (SD) and percentiles 10th, 50th and 90th of the height, weight, % body fat, the body mass index, the fat mass index, the fat-free mass index and the Frame index, according to the age and sex of **the girls** from the samples of the years 1998 and 2008.

Table 1. Basic statistical characteristics of anthropometric indicators of the girls

	GIRLS	1998					2008					♀/♀
Age (y)	Indicators	Mean	SD	P ₁₀	P ₅₀	P ₉₀	Mean	SD	P ₁₀	P ₅₀	P ₉₀	p
7	Height, cm	125.9	5.6	117.7	126.6	132.0	127.2	5.6	121.0	127.0	135.0	.164
	Weight, kg	26.4	5.3	21.0	25.2	35.2	26.6	5.1	20.4	25.6	33.4	.841
	BMI,kg/m ²	16.7	3.1	13.8	15.7	22.5	16.4	2.5	13.6	15.8	19.6	.517
	FMI, kg/m ²	3.65	1.53	2.21	3.03	6.17	2.86	1.53	1.42	2.36	4.94	.016
	FFMI, kg/m ²	13.03	1.91	11.08	12.35	15.92	13.50	1.39	11.94	13.49	15.02	.214
	% BF	21.16	4.53	15.87	20.95	27.99	16.78	6.17	9.93	14.71	26.17	.000
	FrI	44.00	3.94	39.23	43.38	49.19	37.75	3.81	33.23	37.50	42.46	.000
8	Height, cm	129.1	5.8	120.4	129.6	137.7	131.9	6.5	124.0	131.7	139.1	.006
	Weight, kg	29.4	6.1	22.0	27.6	38.9	30.3	7.4	22.8	28.5	42.8	.463
	BMI,kg/m ²	17.6	2.8	14.5	17.0	21.4	17.2	3.0	14.2	16.4	21.9	.482
	FMI, kg/m ²	3.88	1.58	2.22	3.48	6.32	3.12	1.83	1.57	2.43	5.53	.014
	FFMI, kg/m ²	13.90	1.56	11.97	13.79	16.28	14.11	1.50	12.33	13.95	16.36	.427
	% BF	21.16	5.62	14.01	20.39	29.57	17.13	6.61	10.56	15.08	26.77	.000
	FrI	40.46	3.73	37.00	40.09	43.73	38.86	3.79	34.74	38.32	44.63	.010
9	Height, cm	133.9	5.5	127.2	133.8	141.1	137.0	7.2	128.0	137.0	146.0	.001
	Weight, kg	31.6	6.1	24.5	30.6	38.8	33.9	8.7	24.7	32.0	47.1	.030
	BMI,kg/m ²	17.5	2.7	14.3	17.5	21.2	17.9	3.4	14.4	16.9	22.0	.448
	FMI, kg/m ²	3.75	1.35	2.35	3.49	5.87	3.61	1.99	1.73	2.96	6.10	.581
	FFMI, kg/m ²	13.69	1.55	11.77	13.54	15.59	14.27	1.66	12.35	13.85	16.46	.021
	% BF	20.97	4.92	14.94	21.21	27.85	19.15	6.60	11.59	17.31	28.07	.036
	FrI	40.86	3.52	37.55	40.33	44.64	39.41	3.89	34.43	39.11	44.79	.006
10	Height, cm	140.8	7.7	130.5	141.5	149.3	144.2	7.5	133.8	144.0	155.0	.003
	Weight, kg	37.2	9.3	26.4	35.5	50.7	39.2	9.3	28.0	38.5	53.8	.137
	BMI,kg/m ²	18.5	3.4	14.8	18.0	24.1	18.7	3.6	14.5	18.1	23.4	.708
	FMI, kg/m ²	4.43	2.20	2.17	3.88	7.84	3.70	1.83	1.83	3.11	6.55	.020
	FFMI, kg/m ²	14.29	1.70	12.28	14.07	16.83	15.04	2.22	12.60	14.48	17.84	.014
	% BF	22.51	7.12	13.49	21.50	33.83	18.88	6.48	12.07	17.23	28.21	.001
	FrI	40.74	2.96	37.55	41.17	44.38	41.82	5.73	34.86	40.94	48.76	.118
11	Height, cm	147.8	8.2	137.8	147.3	156.4	147.4	8.6	135.2	149.0	160.0	.793
	Weight, kg	40.9	9.7	28.9	40.0	54.5	40.4	9.6	28.3	39.5	55.7	.746
	BMI,kg/m ²	18.5	3.3	14.6	18.2	23.5	18.4	3.3	14.7	17.8	23.1	.799
	FMI, kg/m ²	4.28	2.03	2.14	3.72	7.25	3.27	1.61	1.56	2.96	5.47	.000
	FFMI, kg/m ²	14.16	1.64	12.32	14.07	16.30	15.15	2.16	12.72	14.81	17.70	.001
	% BF	22.29	6.86	13.96	20.77	33.35	17.10	5.81	9.76	16.71	25.63	.000
	FrI	39.97	2.37	37.46	39.83	43.23	40.06	4.61	34.95	38.69	47.78	.876
12	Height, cm	153.3	7.2	144.4	154.0	161.6	154.5	7.8	142.2	155.0	164.0	.263
	Weight, kg	45.5	10.4	34.4	43.4	59.5	48.3	12.2	34.5	46.0	61.9	.101
	BMI,kg/m ²	19.3	3.6	15.3	18.5	25.2	20.0	3.9	15.5	19.4	24.7	.170
	FMI, kg/m ²	4.41	2.05	2.49	3.74	7.38	4.10	1.97	1.99	3.60	6.85	.296
	FFMI, kg/m ²	14.86	1.91	12.52	14.87	17.27	15.92	2.51	13.12	15.65	19.62	.002
	% BF	22.00	6.03	15.45	20.92	31.39	19.75	6.40	11.59	18.24	29.25	.014
	FrI	39.42	2.68	35.88	39.38	43.00	39.40	12.37	32.90	37.12	44.45	.986
13	Height, cm	158.8	5.8	151.9	158.6	166.5	159.2	5.6	152.0	159.0	167.0	.559
	Weight, kg	51.5	11.8	39.2	50.0	66.6	53.8	12.2	39.2	52.0	72.1	.186
	BMI,kg/m ²	20.4	4.3	15.8	19.3	26.4	21.1	4.3	16.4	20.2	26.9	.221
	FMI, kg/m ²	5.22	2.81	2.39	4.42	9.03	4.45	2.24	2.39	3.93	7.72	.035
	FFMI, kg/m ²	15.42	2.02	13.24	14.93	18.08	16.68	3.10	13.77	15.94	21.06	.001
	% BF	23.97	7.62	15.19	23.42	35.80	20.43	7.07	12.75	19.06	31.21	.001
	FrI	39.12	3.46	35.36	38.91	42.12	39.21	6.85	33.09	36.65	50.13	.907
14	Height, cm	161.5	5.5	155.0	161.6	168.5	160.3	5.4	152.0	160.0	168.0	.131
	Weight, kg	55.3	12.5	43.2	52.2	71.3	54.6	10.1	44.5	52.5	69.4	.642
	BMI,kg/m ²	21.1	4.3	16.9	20.1	26.3	21.2	3.7	16.9	20.5	26.0	.894
	FMI, kg/m ²	5.86	2.70	3.18	5.10	10.05	4.92	2.20	2.61	4.25	8.08	.013
	FFMI, kg/m ²	15.88	2.15	13.52	15.47	17.98	16.31	2.10	13.79	16.23	18.74	.196
	% BF	25.85	6.46	18.74	24.90	35.21	22.41	6.58	14.60	21.50	31.39	.001
	FrI	39.07	2.91	35.78	38.96	42.14	38.31	8.44	31.50	36.02	46.52	.389
15	Height, cm	161.6	5.5	154.3	161.5	169.8	161.0	5.8	153.0	161.5	169.0	.533
	Weight, kg	53.2	10.1	41.3	52.5	65.9	55.1	8.6	45.0	54.3	67.7	.172
	BMI,kg/m ²	20.4	3.7	16.5	19.7	24.7	21.2	3.0	17.8	20.8	25.7	.085

	GIRLS	1998					2008					♀/♀
Age (y)	Indicators	Mean	SD	P ₁₀	P ₅₀	P ₉₀	Mean	SD	P ₁₀	P ₅₀	P ₉₀	p
	FMI, kg/m ²	5.73	2.45	2.97	5.24	8.65	4.66	1.73	2.79	4.34	6.93	.015
	FFMI, kg/m ²	15.68	2.49	13.13	15.57	18.65	16.58	1.97	14.40	16.13	19.41	.026
	% BF	25.92	6.66	17.40	25.02	34.16	21.52	5.79	14.71	20.92	29.52	.000
	FrI	37.81	2.75	34.61	37.61	41.05	37.63	5.69	31.99	36.07	47.01	.785
16	Height, cm	162.5	6.1	153.9	162.1	169.6	162.8	5.9	156.0	162.0	170.9	.729
	Weight, kg	56.4	11.1	46.7	53.6	69.5	55.7	9.8	45.1	52.8	71.0	.656
	BMI, kg/m ²	21.4	3.9	17.8	20.3	26.8	21.0	3.2	17.3	20.1	25.8	.489
	FMI, kg/m ²	5.85	2.62	3.62	5.04	10.51	4.80	1.87	2.85	4.32	7.17	.022
	FFMI, kg/m ²	16.18	2.08	14.08	15.65	18.95	16.15	1.88	13.80	15.92	19.04	.938
	% BF	25.55	6.40	18.98	24.18	35.50	22.36	5.53	15.82	21.21	31.17	.004
	FrI	38.04	2.55	34.59	38.01	41.57	35.78	3.83	31.65	35.58	40.38	.000
17	Height, cm	162.6	5.7	156.0	162.1	170.8	161.1	6.4	152.4	162.0	169.6	.134
	Weight, kg	54.7	8.9	46.0	53.5	62.6	54.9	9.3	43.3	54.2	66.1	.888
	BMI, kg/m ²	20.6	3.1	17.9	20.0	23.8	21.1	3.3	17.3	20.7	25.2	.359
	FMI, kg/m ²	5.29	2.45	3.40	4.86	7.24	3.87	1.58	2.11	3.66	5.94	.000
	FFMI, kg/m ²	15.51	1.39	13.68	15.39	17.11	17.25	2.59	14.14	16.68	20.69	.000
	% BF	24.61	6.41	17.69	23.74	31.38	18.07	5.71	10.56	17.57	24.74	.000
	FrI	38.59	2.53	35.40	38.65	41.12	44.04	10.46	32.46	42.35	58.47	.000

Note: Mean - average mean values; SD - standard deviation; P10 - 10th percentile; P50 - 50th percentile; P90 - 90th percentile; BMI-Body Mass Index; FMI-Fat Mass Index; FFMI-Fat-Free Mass Index; % BF-percentage of Body Fat; FrI-Frame-Index; p - level of significance

The average height of 7-year-old girls is 127.2±5.6 cm and of 17-year-olds - 161.1±6.4 cm respectively. The average weight of contemporary 7-year-old girls is 26.6±5.1kg and 54.9±9.3 kg for 17-year-olds.

The average values of BMI of contemporary girls vary from 16.4±2.5kg/m² for 7 year-olds to 21.1±3.3kg/m² for 17 year-olds..As far as girls are concerned, the differences in average values of BMI between the girls from the two samples are insignificant (p>0.05).

The results from the age dynamics of the two components of BMI, such as the fat mass index (FMI) and the fat-free mass index (FFMI) show that the average values of FMI for girls from the sample of 2008 increase by 2.86±1.53 kg/m² for 7-year-olds to 4.92±2.20 kg/m² for 14-year-olds. Above this age the values of FMI decrease to 3.87±1.58 kg/m² for 17-year-olds. The differences between FMI of girls from the two samples (1998 and 2008) are significant during all age periods with the exception of 9 and 12-year-olds. This results show that the average values of fat mass normalized by square meter of height for contemporary girls are significantly lower, compared with the values of their coevals in 1998 (p<0.05).

The values of the Fat-Free Mass Index (FFMI) in contemporary girls increase from the average 13.5 kg/m²±1.39 kg/m² for 7 year-olds to 17.25±2.59 kg/m² for 17 year-olds, i.e. with an average of 3.75 kg/m². During the whole period investigated contemporary girls have significantly higher quantity of FFMI, compared with their coevals in 1998 (p<0.05).

The other important indicator related to the components of body composition is the percentage of body fat (%BF). As can be seen in Table 1, the average body fat (%BF) percentage increases from 16.78% ± 6.17% for 7-year-old girls to 22.4% ± 6.58% for 14- year-olds, meaning during puberty. Above the age of 14 the percentage BF decreases to 18.07% ± 5.71% for 17-year-olds. Contemporary girls have significantly lower % BF than girls in 1998 during the whole period between 7 and 17 years old (p<0.05). This fact reflected on the values of the Fat Mass Index (FMI).

The Frame-Index is the other important health indicator and the component of body composition. By means of this index we can draw our conclusions about external skeletal robustness. Our results show that the average value of this index is 37.75±3.81 index unit (UI) in 7-year-old girls sample and it increases to 44.04±10.46 UI at the end of the period. The results also show that the values of this index are lower for girls in 2008, especially up to 10 years of age. After that, the differences become fewer and the values of the Frame Index are very similar,

with the exception of girls of 17 years old, where they significantly increase as far as contemporary girls are concerned.

Table 2 presents the results of the mean (Mean), the standard deviation (SD) and percentiles 10th, 50th and 90th of height, weight, % body fat, the body mass index, the fat mass index, the fat-free mass index and the Frame index, according to age and sex for the boys from the samples of the years 1998 and 2008.

Table 2. Basic statistical characteristics of anthropometric indicators of boys

	BOYS	1998					2008					♂/♂
Age (y)	Indicators	Mean	SD	P ₁₀	P ₅₀	P ₉₀	Mean	SD	P ₁₀	P ₅₀	P ₉₀	p
7	Height, cm	126.7	5.3	120.2	126.5	134.5	128.0	5.8	121.0	127.0	134.4	.162
	Weight, kg	26.7	4.8	22.0	26.0	32.4	28.4	6.3	21.7	27.1	35.5	.073
	BMI, kg/m ²	16.6	2.2	14.2	16.1	19.8	17.2	2.7	14.2	16.7	21.1	.141
	FMI, kg/m ²	3.39	1.62	1.69	2.92	6.31	2.86	1.65	1.30	2.34	5.81	.184
	FFMI, kg/m ²	13.73	1.71	11.52	13.78	16.65	14.32	1.57	12.46	14.23	16.41	.132
	% BF	19.06	5.98	11.56	17.58	29.62	15.86	6.74	8.67	13.47	26.27	.039
	FrI	45.08	4.56	40.28	44.28	50.19	39.39	3.65	34.80	39.37	43.45	.000
8	Height, cm	130.7	6.6	121.6	129.4	139.2	132.6	7.0	124.0	132.1	142.0	.091
	Weight, kg	31.8	7.9	22.6	30.0	43.2	31.8	8.4	22.5	29.8	44.0	.976
	BMI, kg/m ²	18.4	3.3	14.3	18.1	23.6	17.9	3.5	14.5	17.0	22.6	.299
	FMI, kg/m ²	4.01	1.93	1.92	3.57	7.11	3.31	2.19	1.41	2.49	6.37	.043
	FFMI, kg/m ²	14.43	1.66	12.39	14.13	17.08	14.55	1.58	12.86	14.29	16.82	.642
	% BF	20.80	6.70	13.10	19.83	30.42	17.24	7.73	9.41	15.13	30.04	.004
	FrI	41.76	2.68	38.35	42.12	44.73	40.01	4.00	35.82	39.55	45.50	.001
9	Height, cm	136.0	6.6	127.4	135.8	144.5	137.1	8.2	129.0	136.6	145.0	.294
	Weight, kg	32.2	6.8	24.6	31.4	40.7	34.3	9.3	25.0	32.2	47.1	.078
	BMI, kg/m ²	17.3	3.0	14.4	16.6	21.3	18.0	3.3	14.5	17.2	24.1	.111
	FMI, kg/m ²	3.64	2.10	1.74	2.96	6.45	3.46	2.37	1.40	2.73	6.93	.623
	FFMI, kg/m ²	14.11	1.36	12.35	13.94	16.24	14.58	1.74	12.66	14.39	16.46	.072
	% BF	19.46	7.37	11.67	16.93	29.90	17.96	8.47	9.77	15.61	30.61	.249
	FrI	41.52	2.77	37.73	41.38	45.07	40.24	3.90	35.29	40.00	45.20	.007
10	Height, cm	141.8	6.3	133.7	141.3	149.7	143.0	6.4	135.0	142.0	151.0	.240
	Weight, kg	37.6	9.0	27.2	35.5	49.5	39.9	10.0	29.0	37.5	56.0	.119
	BMI, kg/m ²	18.5	3.4	15.1	17.9	23.7	19.3	3.7	15.3	18.3	24.5	.135
	FMI, kg/m ²	4.47	2.44	1.98	3.57	8.12	4.00	2.36	1.79	3.14	7.38	.240
	FFMI, kg/m ²	14.39	1.39	12.71	14.29	16.46	15.31	2.10	13.19	14.87	17.55	.003
	% BF	22.35	7.79	13.65	20.88	34.20	19.64	8.07	11.26	17.12	31.67	.041
	FrI	41.84	4.09	37.60	41.46	45.78	41.93	4.33	35.66	41.79	47.33	.890
11	Height, cm	145.6	6.1	137.5	145.6	153.1	148.6	8.1	138.0	148.0	158.4	.003
	Weight, kg	38.9	9.0	30.3	37.2	49.8	44.5	13.3	30.1	41.0	63.9	.000
	BMI, kg/m ²	18.2	3.3	15.0	17.5	22.8	19.9	4.6	15.0	19.0	26.6	.003
	FMI, kg/m ²	4.08	2.46	1.76	3.60	7.48	4.02	3.12	1.63	2.89	7.50	.891
	FFMI, kg/m ²	14.38	1.59	12.56	14.19	16.56	15.88	2.69	13.02	15.46	19.39	.000
	% BF	20.76	7.90	11.67	20.01	32.23	18.63	9.31	10.14	15.04	29.76	.121
	FrI	40.64	2.60	37.85	40.29	44.26	44.33	7.52	37.09	42.07	56.40	.000
12	Height, cm	150.9	7.7	141.4	150.7	160.5	154.3	8.0	145.0	154.0	166.0	.004
	Weight, kg	45.5	12.1	32.3	43.6	61.8	48.2	11.9	34.0	45.8	66.5	.131
	BMI, kg/m ²	19.8	4.0	15.5	18.8	25.2	20.0	3.7	15.4	19.4	26.0	.651
	FMI, kg/m ²	4.76	2.96	1.68	4.26	8.56	3.25	2.12	1.29	2.66	6.29	.000

	BOYS	1998					2008					♂/♀
Age (y)	Indicators	Mean	SD	P ₁₀	P ₅₀	P ₉₀	Mean	SD	P ₁₀	P ₅₀	P ₉₀	p
	FFMI, kg/m ²	15.67	1.78	13.84	15.28	17.97	16.77	2.55	14.03	16.53	20.39	.001
	% BF	21.68	9.03	10.81	21.03	34.74	15.38	7.58	7.77	12.95	26.16	.000
	FrI	41.35	3.51	37.82	41.40	45.29	40.47	6.39	34.75	39.51	46.65	.243
13	Height, cm	160.8	8.3	150.2	160.2	172.0	160.7	8.2	151.0	160.0	172.0	.959
	Weight, kg	54.1	14.0	38.1	51.6	72.9	54.6	13.3	38.7	52.7	72.0	.798
	BMI, kg/m ²	20.7	4.0	16.7	19.4	26.6	21.0	3.9	16.7	19.9	26.4	.642
	FMI, kg/m ²	4.59	2.84	1.86	3.85	9.02	3.58	2.06	1.66	2.79	7.32	.007
	FFMI, kg/m ²	16.33	1.91	14.10	16.17	19.26	17.40	2.50	14.69	16.90	20.15	.001
	% BF	20.52	8.74	11.04	18.83	32.81	16.20	6.68	9.44	14.10	27.21	.000
	FrI	41.45	2.30	38.57	41.27	44.46	41.65	5.36	36.02	40.96	46.45	.738
14	Height, cm	164.4	9.0	153.5	166.0	174.5	167.6	8.3	157.0	167.0	179.0	.009
	Weight, kg	58.3	14.7	41.0	56.3	78.5	60.5	15.5	45.0	56.9	82.0	.306
	BMI, kg/m ²	21.4	4.3	16.7	20.5	28.1	21.4	4.3	17.1	20.1	26.9	.945
	FMI, kg/m ²	4.76	3.30	1.75	3.56	9.63	3.60	2.51	1.48	2.72	6.95	.009
	FFMI, kg/m ²	16.85	1.84	14.24	16.84	19.61	17.76	2.41	15.22	17.25	20.90	.005
	% BF	20.31	9.57	10.17	17.24	34.02	15.75	7.44	8.38	13.43	26.52	.001
	FrI	41.90	2.67	38.49	41.79	45.14	40.16	4.82	34.79	39.52	47.05	.001
15	Height, cm	171.8	7.1	163.8	171.8	181.5	173.4	6.5	166.1	173.0	180.0	.112
	Weight, kg	63.0	15.5	48.5	59.0	84.3	70.3	15.1	52.2	68.9	89.9	.001
	BMI, kg/m ²	21.2	4.2	17.3	20.1	27.3	23.3	4.5	18.7	22.5	29.5	.001
	FMI, kg/m ²	4.02	2.78	1.73	3.03	7.95	4.32	2.17	2.06	3.80	7.09	.403
	FFMI, kg/m ²	17.17	1.81	15.02	16.89	19.55	18.95	3.02	15.56	18.45	23.23	.000
	% BF	17.65	7.78	9.97	15.32	29.30	17.91	6.36	10.19	16.88	24.92	.801
	FrI	41.94	2.24	38.99	41.67	44.77	41.45	5.50	35.88	40.45	51.08	.429
16	Height, cm	173.7	5.8	166.0	173.5	182.3	174.4	7.7	165.0	172.5	184.0	.500
	Weight, kg	65.6	12.3	51.6	63.0	83.3	69.2	11.2	59.3	66.4	84.2	.035
	BMI, kg/m ²	21.7	3.6	17.9	20.6	28.0	22.8	3.5	18.7	22.2	28.6	.037
	FMI, kg/m ²	4.16	2.48	1.90	3.28	8.12	3.94	2.10	2.00	3.39	7.12	.480
	FFMI, kg/m ²	17.55	1.67	15.67	17.37	19.78	18.85	2.15	16.17	18.81	21.65	.000
	% BF	18.07	7.66	9.97	15.97	31.20	16.67	6.34	10.07	15.23	28.29	.149
	FrI	41.30	2.13	38.26	41.53	43.96	43.42	6.60	36.44	42.23	53.20	.009
17	Height, cm	175.8	7.0	167.1	175.2	185.2	176.4	7.1	169.0	177.0	183.1	.582
	Weight, kg	67.7	10.9	56.4	66.8	83.7	72.8	12.8	58.9	71.3	92.4	.005
	BMI, kg/m ²	21.9	3.5	18.4	21.4	27.3	23.4	3.9	18.6	22.5	29.8	.009
	FMI, kg/m ²	3.73	2.46	1.33	3.01	7.63	3.79	2.39	1.47	3.12	8.13	.876
	FFMI, kg/m ²	18.24	1.84	16.18	18.06	21.07	19.62	2.50	16.43	19.06	23.46	.000
	% BF	15.93	7.75	7.25	14.06	26.17	15.38	7.65	7.09	13.32	29.19	.651
	FrI	41.17	2.67	37.92	41.37	44.66	42.23	6.43	35.44	41.05	51.32	.192

Note: Mean - average mean values; SD - standard deviation; P₁₀ - 10th percentile; P₅₀ - 50th percentile; P₉₀ - 90th percentile; BMI-Body Mass Index; FMI-Fat Mass Index; FFMI-Fat-Free Mass Index; % BF-percentage of Body Fat; FrI-Frame-Index; p - level of significance

The average height of 7-year-old boys is 128.0±5.8. After this period the values of height increase to 176.4 ±7.1cm for 17-year-old boys. They are slightly taller than their peers 10 years ago. The differences with boys are significant from their 11 to 14 years of age, and with girls up to the age of 10 (p<0.05). The mean value of weight increase from 28.4±6.3 kg at 7 years of age to 72.8±12.8 kg for 17 year-old boys, respectively.

The average values of the Body Mass Index (BMI) increase from $17.2 \pm 6.3 \text{ kg/m}^2$ for 7-year-olds to $23.4 \pm 3.9 \text{ kg/m}^2$ for 17-year-olds, respectively. The differences between BMI of the boys from the two samples are significant at 11, 15, 16 and 17 years of age ($p < 0.05$).

The average value of the Fat Mass Index (FMI) of 7-year-old boys is $2.86 \pm 1.65 \text{ kg/m}^2$ and it increases to $3.79 \pm 2.39 \text{ kg/m}^2$ in 17-year-olds. The results show that only 13-14-year-old contemporary boys have significantly higher values of their FMI compared with their coevals in 1998 ($p < 0.05$).

The Fat-Free Mass Index (FFMI) of boys also increases from $14.32 \text{ kg/m}^2 \pm 1.57 \text{ kg/m}^2$ at 7 years of age to $17.25 \pm 0.59 \text{ kg/m}^2$ at 17 years of age. The differences between the average values of FFMI of boys from the two samples are significant above the age of 9 years to the end of the period ($p < 0.05$) and are higher for contemporary boys.

The average Body Fat (%BF) percentage for 7-year-old boys is $15.86\% \pm 6.74\%$. Its values increase until 10 years of age up to $19.64\% \pm 8.07\%$, subsequently decreasing to $15.38\% \pm 7.65\%$ for 17-year-old boys. Between 7-8 years of age and 12-14 years of age the average percentage of BF for contemporary boys is significantly lower compared with % BF of their coevals in 1998 ($p < 0.05$). After this period the values of % BF of the two samples of boys are very similar.

The average values of the Frame-Index for boys also increase with the age from $39.39 \pm 3.65 \text{ UI}$ for 7-year-old boys to $42.23 \pm 6.43 \text{ UI}$ for 17-year-old-boys. But the contemporary 7–10 year-old boys have significantly lower values of the Frame-Index, compared with their coevals. After this period the values of this index are very similar for the two samples of boys, considering them up to 14 years of age. The summarized results show a significant decrease in the index values in almost all age groups and both sexes for the past 10 years with the exception of 11- and 16-year-old boys and 17-year-old girls.

Figures 1 and 2 present the graphic curves of percentiles 3rd, 10th, 50th, 90th and 97th of the Frame-Index for Plovdiv children and adolescents belonging to both sexes and both samples. It is noteworthy that the skeletal robustness does not decrease with time in all percentile groups. The values of the 90th and 97th percentiles are higher for children nowadays from all age groups, while the values of the 10th and 3rd percentiles of the index are lower. The differences in the values of 10th percentile measured in the course of ten years ranged between 0.8 and 5.3 index units for boys, and from 2.3 to 6.9 index units for girls.

Figure 1. Percentiles of skeletal robustness, assessed by the Frame index (7-17- year-old Plovdiv girls, 1998 and 2008)

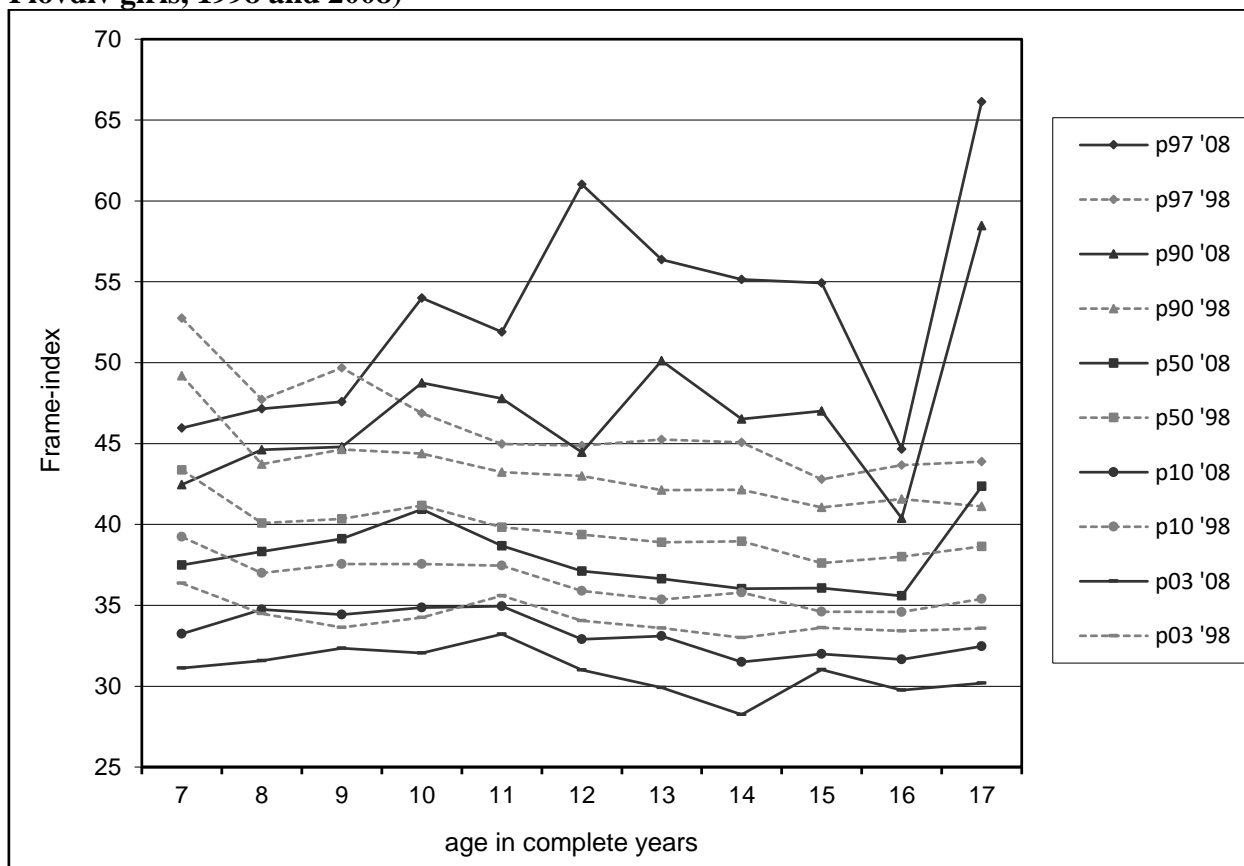


Figure 2. Percentiles of skeletal robustness, assessed by the Frame index (7-17- year-old Plovdiv boys, 1998 and 2008)

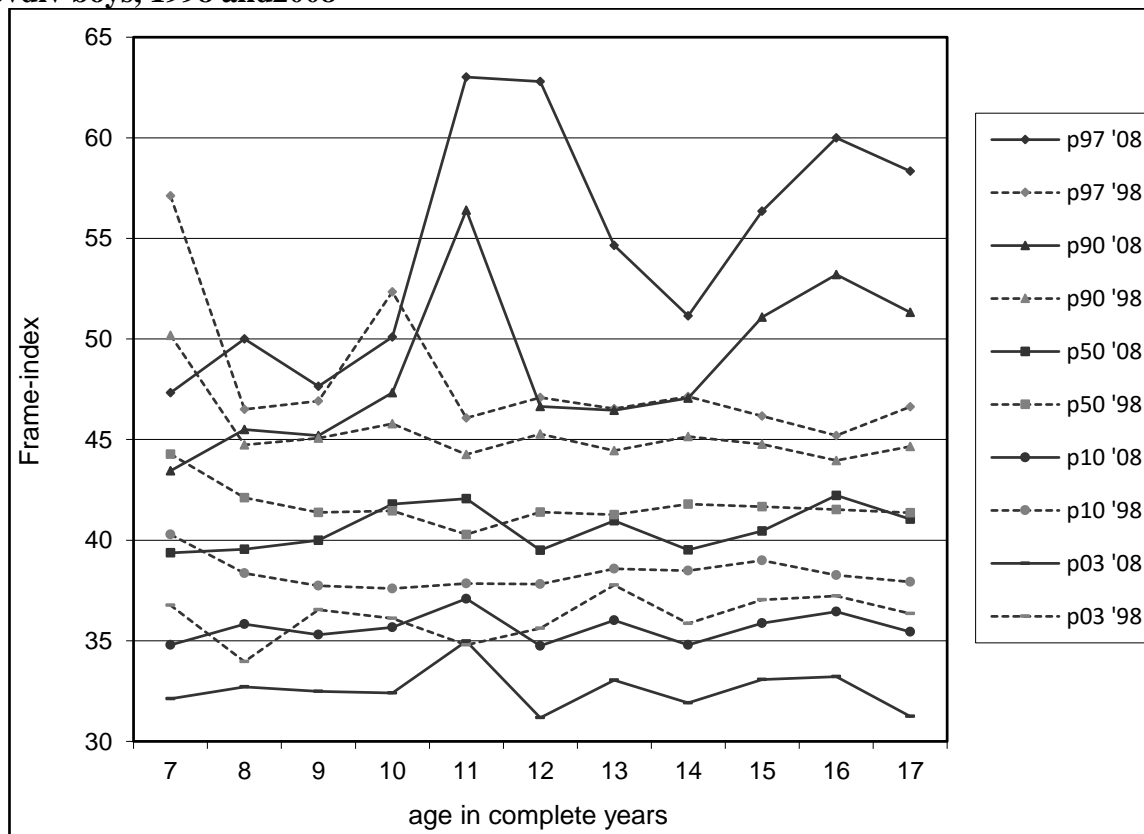


Table 3 presents the relationship between the Frame-Index i.e. external skeletal robustness and the percentage of Body Fat and the Body Mass Index. The analysis shows that there are no significant correlations between the three body components for both sexes.

Table 3. Coefficients of the correlation between the Frame-Index and BMI, respectively Frame-Index and % BF

Girls	r		Boys	R	
	BMI	%BF		BMI	%BF
7 y.	0.329	0.348	7 y.	0.237	0.337
8 y.	0.329	0.274	8 y.	0.474	0.450
9 y.	0.421	0.403	9 y.	0.527	0.463
10 y.	0.330	0.170	10 y.	0.382	0.472
11 y.	0.353	0.135	11 y.	0.263	-0.025
12 y.	0.052	-0.102	12 y.	0.310	0.182
13 y.	0.251	-0.098	13 y.	0.285	0.157
14 y.	0.234	0.048	14 y.	0.281	0.128
15 y.	0.244	-0.103	15 y.	0.447	0.188
16 y.	0.317	0.085	16 y.	0.247	0.139
17 y.	0.358	-0.335	17 y.	0.328	0.153

Note: r-correlation coefficient; BMI- Body Mass Index; % BF-percentage of Body Fat

Discussions

Body components depend on height and weight. Our results of height show that children nowadays have normal growth. They are slightly taller compared with their peers 10 years ago. Age differences in body weight relate to the changes in height, and it is important to consider the ratio of weight to height when comparing the two samples.

The Body Mass Index (BMI) gives such information, not considering the Fat-Free Mass Index (FFMI) and the Fat Mass Index (FMI). Our results show that boys have higher values of FFMI throughout the whole age period of examination, while girls have higher values of % BF and FMI between 12 and 17 years of age. This fact occurs in both samples – in 1998 and 2008. For children and adolescents in 2008, however, the fat-free mass component is higher, and the fat component is lower than this of their peers 10 years ago. The changes of the two components of the BMI such as FMI and FFMI in Bulgarian children and adolescents from the city of Sofia were published by Mitova (2009).

The important health problem concerning skeletal robustness was discussed in previous studies by Scheffler (2011) as far as 6-to 12-year-old German children are concerned and by Rietsch, Godina and Scheffler (2013) as far as 6-10-year-old Russian and German children are concerned. One of the newest studies devoted to this problem is by Mumm et al. (2018) observing children from different European countries (Germany, Poland, Czech Republic, Russia), India and South Africa. The study presents the new European references for external skeletal robustness from birth to adulthood and their international comparisons.

Our study referring to the first period of time presents the data of the external skeletal robustness for Bulgarian children, based on the Frame-Index. Our results demonstrate the changes that have occurred during the 10-year period. The summarized results show a significant decrease of the index values for almost all age groups and both sexes for the past 10 years with the exceptions of 11 - and 16-year-old boys and 17-year-old girls. The results point at the fact

that skeletal robustness does not decrease in time in all percentile groups. The values of the 90th and 97th percentiles are higher for contemporary children belonging to all age groups, while the values of the 10th and 3rd percentiles of the index are lower. The differences in the values of 10th percentile measured in the course of 10 years ranged between 0.8 and 5.3 index points for boys, and from 2.3 to 6.9 index points for girls. These results correspond to a lower skeletal robustness from 2% to 15.7% for boys, respectively from 7% to 18% for girls. It is noteworthy that the values of the 10th percentile in contemporary 10-17-year-old girls and 11-17-year-old boys are lower than the 3rd percentile of the children examined in 1998-1999. This is worrying because reduced skeletal mass and skeletal robustness are risk factors for osteoporosis in later years of an individual's life (Langenbeck, 2005; Sheffler, 2011; Rietsch, Godina and Scheffler, 2013; Mumm et al., 2018).

Our results also present how the skeletal robustness is associated with the %BF and the BMI. The results of the correlation analysis show that there are no significant correlations between the three body components. The fact that there is no correlation between the skeletal robustness and the body fat percentage means that it is not necessary for a child with a high percentage of body fat to have a low value of the Frame-Index. This makes the interpretation of results concerning external skeletal robustness very complicated, especially in the low percentile groups. In general, skeletal mass depends on genetic factors in 60-80% and in 20-40% it is modified by external factors, including nutrition and physical activity (Cameron and Demerath, 2002). Over the past 10 years, no genetic changes have occurred in Plovdiv population and the lower percentile values of the Frame-Index are likely to be a result of the influence of external factors that are probably connected with reduced physical activity. Our results confirm the data of a previous study by Sheffler (2011) and Rietsch, Godina and Scheffler (2013) showing a decrease in external skeletal robustness of contemporary German and Russian children, connected by the authors with an increase in values of BMI and body fat percentage, as well with a decrease in physical activity being the most important reason for shrinking skeletal robustness.

The latter leads to an increase in the number of overweight individuals, who have a higher percentage of body fat, but not lower values of the Frame-index. The different development of body components is related to two phenomena. On the one hand, under the same environmental conditions and depending on the genetic constitution of the body, there are gracile and robust individuals in both samples. On the other hand, the individuals registered with overweight and obesity should develop their own muscles and bones to maintain their body, which is probably due to the increased skeletal robustness. A harmonious and healthy somatic and psychic development can be ensured by a nutritional balance, adapted according to age, occupation, and the environment in which an individual lives (Baciu, 2014).

Conclusions

While growing, contemporary children accumulate more fat-free body mass per unit of height while their peers a decade ago accumulated more fat tissue per unit of height.

The increase in the percentage of body fat and the values of the Fat-Mass Index of body composition and the decrease in the Frame-Index i.e. of the external skeletal robustness for contemporary children and adolescents from Plovdiv were entirely or partially caused, by reduced physical activity. In this context physical activity should be particularly investigated.

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The Moral Motivation in Treating Addictions as Basis of the Multidisciplinary Team Pedagogy

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Abstract

Building the interventional diagnosis and support team seems to be the simplest method among the methods of the active intervention. However, choosing the intervention principles cannot be a morally indifferent process. This study is based on the analysis of the main references in the field, regarding the religious morals and the struggle against the isolation as form of noncombat in addiction, the moral sense of teamwork, and the prevention as related culture of intervention through the therapeutic team. Either we have to do with a Christian anthropology or with religious neutrality; either with a believer or nonbeliever, the intervention activity remains steady. It does not mean that it is neutral from the culture of intervention point of view. Thus, it becomes imperative to reconsider the moral motivation in treating the addiction, this being one of the keys of the forgiveness system, which foster the cultural resistance against this practice. Considering these, approaching the object of gnosiology and axiology could be the reason of a long-lasting solid research.

Keywords: moral landmarks, culture of intervention, cultural anthropology of addiction support, mixed-multidisciplinary team.

Introduction

Among the therapeutic preoccupations regarding the interventional professional group to support the persons with drugs or gambling addiction, the moral rebalance of the beneficiary is a priority. The main tendency identified in the last years in the diagnosis and therapy reveals an increasing need of 'forgiveness' whether social (from family or social group) or moral (related to God or any other immediate moral benchmarks). Considering Berger and Luckmann's (1969) analysis of reality as a picture of social construction, modern psychology has identified the broad parameters of a culture of psychosocial intervention, identified as a mechanism that produces common thinking and behavior to people belonging to a particular society. According to Taylor (1958), this conglomerate of behaviors and mentalities encompasses common knowledge, faith, art, morality and law, traditions, and any skill acquired in time by the person in the respective social slice (Abraham, 2013, pp. 275-290). He started from Robert Campbell Moberly's work (1845-1903), *Atonement and Personality* (Moberly, 1901), and highlights how the cultural thinking gathers in active cultural segments. The culture of addicted people, which mediates the reality between the addicted person's life and society as such, reveals extensive changes of the cultural anthropology related to addicted people.

Pollo (2007, p.267) offers us maybe one of the most articulate analysis, redefining the priorities of the cultural psychology of the substance abuse from different perspectives, including

the psychotherapist's perspective, the social psychologist's perspective, and of any person involved in the process of recovering the addicted person. The motivation of psychotherapy, the culture dictated by the psychiatric experience of the person, constitute from his point of view, the psychotherapeutic language landmarks of the anthropological foundation of the therapy approach. The addicted person's relationship with the sacred is the key to questioning many aspects of psychotherapy or occupational therapy by which the person can be brought back in the positive social perimeter.

The research conducted in the last 10 years by the *Blue Cross* organization in Romania have demonstrated once more that establishing a religious reference point of therapy need is justified. Therapy should stay in close connection to religious dimension whether we are talking about the religious interpretation of addiction (Romania is still struggling with the mentality that the alcoholics and people addicted to drugs should not be helped, for they do it on their own free will) or of the religious scale of rethinking the motivation to be recovered from addiction.

The religious morals and the struggle against the isolation as form of noncombat in addiction

One of the first aspects identified in the cultural-anthropological profile of the addicted people I met, is related to a syndrome difficult to overcome, namely the syndrome of loneliness. Considering that this syndrome is connected to the syndrome of shame based sometimes on the religious censorship, it is obvious that the psychotherapeutic intervention implies a different approach.

The cooperation with the priests and the Church pastoral operators as well as with religious organizations (including Muslims or Mosaics organization) was initiated by the *Blue Cross* 20 years ago, when the central therapeutic team was reorganized. The reason of the cooperation was that including the religious aspect in intervention could reduce the social isolation for much more people. It is not about publicity or incitement to hunting the addicts, but a simple signaling formula that there is an alternative to isolation. The *Blue Cross* has initiated training courses for volunteers, for students of the theological faculty of Sibiu, has built mixed practice groups of theology and psychology students and psycho-pedagogues. Moreover, the organization cooperates with the universities of Sibiu, Târgu Mures, Cluj-Napoca and Braşov, offering practical opportunities for young students or graduates of medicine to know the cultural mechanism of the counseling and centered-person intervention in a world increasingly affected by the egocentric preoccupations in both American and European Western thinking.

Speaking about the frequency of isolated individuals cases, David D. Henderson highlighted the possible roots of isolation. According his opinion, the feeling of isolation was foster by the four psychologists' approach of counseling. Influenced by the Second World War optimism, the four psychologists (Abraham Maslow, Carl Rogers, Erich Fromm and Rollo May) developed a new approach of counseling. This therapy style focused on building high self-esteem of the counseled person was based on four supreme values:

- Self-understanding: establishing a connection with what I feel
- Self-acceptance: a positive outlook on myself, no matter what I say or do;
- Self-expression: be myself - define myself - without taking into account the others;
- Self-satisfaction: fulfilling my needs of being happy.

The central theme of the four psychologists' thinking was the belief that we as humans are essentially good, that we are equipped with everything we need to grow and be healed. Therefore, Rogers developed a counseling style in which there was no confrontation, and nothing was criticized. He called it 'reflective listening', which implied summarizing what the speaker said and embracing his/her perspective without necessarily agreeing with it ("this is what I think you said"). Moreover, this kind of doing therapy fostered the client's feeling of fully

acceptance “regardless of his/her feelings... no matter how his/her speech is... exactly as he is” (Rogers, 1961, p. 130). In other words, “I am special, wonderful, and unique, worthy to be respected by others by the mere fact that I am myself”. Any standards of evaluating character, integrity or responsibility are removed. The name of the ‘game’ is acceptance (Henderson, 2014, p. 304)

Henderson identifies a series of shortcomings of the four psychologists’ theory. For instance, Maslow’s ideas were quickly assumed by the dominant cultural stream directed to self-concern, which became rapidly the way a nation defined its problems in selfish individualistic terms: “it matters our needs, our rights, and not our responsibilities at all”.

The most relevant movement in therapy is that of the *therapeutic culture of good mood* (Wuthnow, March, 1995, p. 41, cited by Henderson, 2014), whose foundations are still alive in the culture of academics and which does not agree with the practice of intervention / counseling. The theory consists of the opinion that the individual is defined only by his needs and motivated only by satisfying them.

Henderson however, understands that these principles have weakened the moral order, whether or not Christian, related to the addicted person. He identifies some changing in focus:

1. from God to humanity;
2. from group to individual;
3. from responsibilities to rights ;
4. from the other to self-perspective;
5. from serving to self-expression;
6. from blessings to the needs (Henderson, 2014, p. 120).

All these aspects have led to a new individualism, which isolates the human being from itself, from the neighbour and from the moral source of its life, regardless how it is called. The solitary police officer’s syndrome is thus, expressed in some cultural behaviors that can be identified in most cases of addicted people and occurs in the first phase of case analysis: ‘I do not need anyone’s company’; ‘safety in the virtual community’; ‘a man’s house is his bunker’; ‘Mind your own business’; ‘today here, tomorrow far away’; ‘I know what I want and when I want’; ‘I’m not my brother’s keeper’. Henderson’s conclusion is simple (Henderson, 2014, pp. 120-126, with a rich bibliography and a systematic presentation of every syndrome) and based on some researches on individualism: *we have passed from self-made man to self made by man* (Leinberger and Tucker, 1991).

This excursus on ‘social dogmatics’, as we dare to call it, preceded the conclusion of some particular observations regarding the addicted people in Romania treated and observed by us in their therapeutic evolution during 1998 and 2018.

In the beginning, the *Blue Cross* dealt with people addicted to alcohol. Since 2005, the number of persons addicted to drugs and gambling has significantly increased. In the last years there were much more requests for drugs and gambling addiction treatment assistance, as if the alcohol addiction is no more such a problem.

We do not have a systematic analysis of gambling addiction, but we can evaluate its social impact based on the data emphasized in the recent book of Armando Angelucci and Claudia Bartalucci (Angelucci and Bartalucci, 2017, p. 160). They describe the situation in the year 2017 in Italy, asserting that 54% of Italians practiced gambling at least once in a year; 2,296,000 were ‘problematic’ gamblers and 1,329,000 were ‘pathological’ gamblers.

The authors consider these gaming extremely dangerous, real hazards, for they have neither rules nor physical or psychical boundaries, and compromise the human relationships and the daily reality. The lives of the gamblers (less of the producers, but more of the consumers and of their families) are undermined.

Among the solutions to escape from isolation and despair, the two authors mention the individual, couple and family counseling, and building a person-centered assistance support related to his/her immediate needs.

The moral sense of teamwork

There should be taken into consideration the difficulty of the psychotherapist's intervention and the need to set up a psychotherapeutic team. In the context in which addictions changed their contents and their pathological expression, notes on the emergence of depressions, tendencies and acts of suicide, anorexia or bulimia as a multiple syndrome linked to addiction and end-stage diseases and insists on the need to develop research in order to deepen this relevance (De Stefano, 2017, p. 112), the former *Blue Cross* team of physician, psychologist, and psychotherapist, was joined in time by clinical psychologist, occupational therapist and religious counselor (initially a layman and today a priest). Why the need to restore the religious counseling, which in the beginning of the *International Blue Cross* was in fact fundamental to therapy? Evaluating more than 100 cases, we observed that the addicted person's isolation is caused by the exclusion from his/her family and the social ethos. There is no addiction without a social visibility, even if we speak about the porn addiction, which in the first phase does not affect the public image of the person. Hence, addiction has great impact in public due to the addicted person's smell, attitudes, lack of focus and professional concentration, destabilization of collectives through violence, domestic violence. Unbelievable as it may sound, persons addicted to gambling or even games of chance, influence through absenteeism, increased irritability, and violent language their working teams. In most of the analyzed cases either in personal or in a team consultation, we observed that the target group comprised especially young people, who were still looking for the meaning of life, which sometimes made them look for soft financial solutions to present financial problems.

When gambling exceeds pleasure and riches the level of the material gain not only in the case of addictions, we have to go further with the analysis, considering the reality of addiction. That means we have to include in our analysis the reality of the human weaken will put in the service of a construction that destabilizes the balance of the beneficiary. We are overtaken by technology and fall from use to abuse and then, to addiction. The role of the relationships in the mixed or multiple-mixed support and diagnosis team are developed in relation to the complexity of intervention. All addictions have the same pattern. However, their pathology increased and new forms emerged as *Internet Addiction Disorder* (IAD), *Cybersex Addiction*, *Information Overloading Addiction*, *On-line Gambling*, *Cyberchondria*. (Portelli and Papantuono, 2017, p. 189). Therefore, the culture of teamwork is becoming more and more important, based on a common training but with particularities for all those who are responsible for the effort of therapy. From therapeutic practice results a systemic reality. Analyzing the first men's and women's interviews (pre-hospitalized at the Sura Mica or Șelimbăr psychotherapy centers), the dialogue with a great number of addicted subjects (mostly multiple addicted) remind us of the words of the famous drunkard (the character of the novel *Little Prince* written by Antoine de Saint-Exupéry): "I am drinking to forget that I am ashamed of drinking". Moreover, the analyses make clear a primary spiritual confusion of the addicted individual, caused by the fact that they are rejected both by their families and by the group pressure. Moreover, most of them were suffering of depression at the time of admission in the centers (Borowiak, 2007, p. 191).

In other words, they were isolated by themselves. Analyzing the stages of addiction recovery program, we noticed that the intervention of the team of physician-psychologist-psychotherapist was improved by introducing the priest or the catechist in the therapeutic process. Thus, the therapy includes today the prayer group, reading Scripture, both formal and

informal religious education (catechesis), spiritual evaluation of someone's life project. In the latest psycho-pedagogical researches on alcohol consumption, for example, the specialists have noticed a worrying increase in family dissolution. They speak especially about Marital Dissolution and Marital Interaction Processes (Cranford and Fairbairn, 2018).

Considering all these, we assert that the first evaluation carefully conducted by physician and psychologist is extremely important, but not enough (Lambron, 2017, p. 368). In the training programs of medical personnel it is necessary to introduce a discipline that will complement its knowledge in order to facilitate the integrated diagnosis and recovery process of the drug-addicted persons (Baciu, 2017a). The rebalancing effort cannot ignore the marital counseling specialist, who rebuilds in time the functional parameters of marriage in the mental mechanism and the culture of resistance to the pressure of the problem arising in the (often-imaginative) context of marriage. In very many cases, the priest can help to rebalance the anti-divorce resistance or to heal the syndrome of pastoral violence. The priest becomes also the mediator of the patient's dialogue with himself/herself, with God and the fellows, because much of the success of a therapy comes from the creation of an escape space, a kind of Zoar city, in which the therapy is positively influenced by the presence of family's forgiveness. Of course, things happen different in the cases of alcoholic couples or even alcohol-consuming families, which unfortunately have increased.

Prevention as related culture of intervention through the therapeutic team

Another aspect of building a mixed performing team is prevention.

Insisting on educating mature people's responsibility regarding alcohol consumption and educating the young people to non-consumption attitude, encouraging organizations that promote it a healthy life style among teenagers, in order to diminish the negative effects of alcohol, needs to be encouraged (Baciu, 2014). It is an extraordinary proposal based on the levels of prevention defined by the World Health Organization as primary, secondary and tertiary prevention. Primary prevention aimed at reducing the incidence and disappearance of new drinking problems. The secondary prevention focuses on reducing the frequency of cases that already exist and the tertiary prevention tries to reduce the severity of existing complications, monitoring addicted people or their relatives.

In each of these phases, there is a need to build mixed teams in which, for example, the priest can identify in the school or at the addicted person's workplace those people who can become the netting knots of a safety net in order to optimize the addicted person's therapy. The same core team could effectively struggle to limit of assimilation of the social advertising related to the addiction process; could develop prevention projects within the schools by developing the information system regarding addiction topics, and proposing responsible attitudes towards the anti-abuse education. Moreover, the core team could propose a coherent alternative related to the culture of the risk of addiction to the culture of entertainment, and develops the channels of true communication among teachers, students and family in the family environment (Kuntz, 2016, p. 381; Lindenmeyer, 2016, p. 126). Finally, an educational platform should be developed to reduce the impact of addiction on the young population, and foster the moral motivation of the youth. Drug use cannot be stopped but it can be reduced through a better education and process of informing the entire society and addicts have to be perceived as people who have a serious problem, with chances of recovery (Baciu, 2017b, p. 91).

To prevent the family alcohol addiction, we have to build relational bridges based on sincerity and mutual trust. Saving an addicted person from isolation, regardless his/her age, should start with creating a safety space that enables the team to attentively observe the recovery process and to professionally reconfigure it. In the case of adolescents, for example, it becomes important for them to learn how to take emotional distance to avoid conflict, how to understand

the mechanism of violence and the process of passing from aggression to mature, responsible behavior (Valsecchi, 2010, p. 158).

Conclusions

To conclude, it is obvious in the practice that in the case of the alcohol addicted person, the intervention team must comprise first the individual in crisis. He/She can open channels of communication or close, sometimes definitively, the horizon of any cooperation. However, this should not affect the family, the experts, the support team or the people usually present in his/her daily life. Therefore, reconsidering the moral motivation in treating the addiction becomes imperative. It is the key of the forgiveness system, which foster the cultural resistance against addiction. The success of the therapy is based on the person's free will that characterizes the true man's life without addiction or death.

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Framing public health in Romanian media between 1918 and 1945**DOI:** <http://doi.org/10.26758/9.1.6>

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Abstract

Objectives. The aim of the present paper was to present media coverage of public health in Romanian printed press between 1918 and 1945.

Material and methods. A quantitative content analysis was made on a sample of 81 articles published in Romanian reviews and magazines between 1918 and 1945. Descriptive statistics was used in the analysis of the results.

Results. The findings can be summarized as follows: 1). There was a small number of sources related to medical system and public health cited in the articles but they were of high quality (doctors, ministers, researchers and professors at the faculty of medicine); 2). The main type of event related to medicine and public health covered by Romanian media in that period of time was routine event (and not accident or/and scandal); 3). The journalists had adopted the role of educators about the medical system and public health.

Conclusions. The basic conclusion of the study is that the media from 1918-1945 had covered the public health and medicine in a different manner that it is made today, by putting a greater stress on the quality of information regarding health and medicine, stressing the objectivity of the scientific evidences and quoting experts from the domain in direct reference to the topics.

Keywords: health communication, media framing of public health, Romanian public health, public awareness of health and illness.

Introduction

In present days, as the existing literature shows (McCombs, 2004, p. 7-13), the news production is influenced by organizational and professional variables (professional norms, individual and professional values). Whether individually or as part of a group, professional values adapted to the requirements of society and ideology can be found in the institutional, occupational and cultural practices composing the media. The media content no longer appears as an "isolated", but as a product deeply rooted into the social world, being organizationally determined. Occupational routines of journalists relate to broader ideological needs. The media is a body of work relevant for understanding the nature and the importance of content effects on people and society (knowing the media, content, its effects on the audience can be predicted). McCombs (2004, p. 71-76) widely considered the problematic role of the media in creating public interest topics. According to his analysis, the most important aspect of the role of public agenda for the media is to influence public opinion, and his argument is based on several elements. First, the themes that capture people attention are known through newspapers, not through personal experience. Secondly, the news functions as a signal, alerting people on the latest developments in the near or more distant environment. Third, journalistic content, resulting

from specific rules of selection and packaging, directs public attention and influences the perceptions of individuals (McCombs, 2004, p. 75).

If today we have all the tools necessary to identify the above-mentioned elements through which the print media provides a picture of reality, what was the situation in the past? In addressing this question we intend to return in time in order to see how news production and journalistic practices were embedded in media products. For that, we have chosen the period 1918-1945 in Romania and we have been interested to trace the media's perspectives from which the issue of public health was then addressed in media – the newspapers, reviews, and magazines.

The general research question we address in this paper was: "What was the media coverage of public health in Romanian printed press between 1918 and 1945?"

The specific objectives of this paper were the followings:

RO1. To present the journalistic procedures used in articles covering the topics of public health published in Romanian written press in the period 1918-1945;

RO2. To identify the frames used in presenting the topics related to the medical system and public health in Romanian printed press in the inter-war period.

The historical context of Romanian medicine and public health between 1918 and 1945

After the reunification of 1918 and the establishment of "Great Romania", the first Romanian Law regarding public health was adopted in 1921 and it had established the basis of the unification for the entire medical system in Romania. Between 1918 and 1921 Transylvania, Bukovina and Bessarabia (the new provinces annexed to the Romanian Kingdom in 1918) remained under the same public health inspectorates inherited from the former Austro-Hungarian Empire and those had functioned according to the Austro-Hungarian normative acts.

The new Sanitary Law from 1921 had allowed the unitary management of various medical structures from the new provinces and the Old Kingdom. In the same year (1921), through the amendment to the Sanitary Law, the Ministry of the Interior was put in charge with the administration of hospitals, hospices, asylums and all medical facilities from the so-called "Allied Territories". One year later, a change of the central medical structures took place through the setting up of the Ministry of Public Health, Labor and Social Affairs. In 1930, the Law on Health and Prevention was the first unique law of health for entire Romania and it included most of the progressive ideas on social hygiene specific to the medical school from Cluj (especially those originated from Iuliu Moldovan). The law had stated the fact that new medical principles and practices were parts of the Romanian state's plan to implement the specific objectives aiming at the protection of Romanian population's health.

The Romanian health system established in 1921 remained in force until 1948 when, as the results of passing a new Constitution voted on April 13, 1948, and the Law of Nationalization Law (11 November 1948), all state and privately-owned hospitals and clinics became state property. Only in 1978, the "Health Insurance Act for Romanians" was adopted and it was the first law after 1948 that regulated the Romanian medical system after almost half of a century.

Between 1918 and 1940, the Ministry of Health had passed through a series of administrative changes in order to become an independent institution (Setlacec, 1998, p. 14): "In 1923 the Ministry of Public Health, Labor and Social Welfare was divided into different institutions. On the one hand, the Ministry of Public Health and Social Protection was set up and, on the other, the Ministry of Labor, Social Insurance and Cooperation was organized. In 1926, the two ministries were merged, and until 1938 they had functioned as a unitary structure. In 1938, the Ministry of Health was once again set up as an independent entity".

The law adopted in 1923 had led to administrative changes, especially regarding the activity of physicians, their number increasing at the level of Romanian villages. The issue of hospitals and that of the entire medical system's efficiency have become top priorities in the inter-war period, and they were assessed by one Romanian health minister as being "at least as important as national defense" (Setlacec, 1998). All these changes had led to the development in the medical practices and institution, especially in the field of surgery and public health.

Other medical institutions set up were the so-called "Eforia of the Civil Hospitals in Bucharest" which had attempted to provide free medical services for the population (within the existing financial resources) and had managed a number of clinics and hospitals throughout the country. Its activity was not interrupted during the Second World War, and the financing of those institutions had been diverse (from donations to shares or loans) securing their ability to provide free access to people at health-related services, until near the end of the war when they were obliged to introduce hospitalization fees. Other institutions set up after 1930 were the "Brâncoveanu Settlements", which were made up by merging the existing Brâncovenesc Hospital with Domnița Bălașa Foundation.

At the end of the First World War, the Central Social Insurance House was transformed into an "autonomous body" which had meant the development of compulsory health insurance and its subsequent changes. After 1933 the resources of Central Social Insurance House had increased, and a series of non-binding insurance for health enters into force for the general Romanians. Other medical institutions that had been functioning in the same period of time include the Army's Sanitary Service (which was set up to assist the victims of the war), the "National Office of Invalids, Orphans and War Widows", medical services provided for the employees of the Romanian Railway Network, the ambulance system and the Emergency Hospital which were managed by the Red Cross.

The physicians from this period were also well-known scientists, known not only in Romania but also abroad. Their total of doctors in Romania during the inter-war period was around 8.000, but they were mainly working in big cities, few of them choosing to settle up their cabinets in rural areas that remained disadvantaged as regards health-related services. The scientific medicine was in a direct and open conflict with charlatanism, which also had reached impressive odds in those years, witchcraft and occultism being among the favorite methods of "amelioration" of medical conditions for many Romanians (Setlacec, 1998).

A general perspective on the state of the medical system at the beginning of the twentieth century allows us to notice the existence of a cultural boundary between doctors and the average men. In spite of the hard struggle that the medical staff wore to maintain a balance between the disordered lives of their citizens, their morals, and their access to the existing medical facilities, most of the time the medical staffs' efforts to educate Romanians were somehow "a lost battle".

Unfortunately, the rural population was still deprived in a great part of free access to health-related services, the number of insured Romanians living in villages remaining very small (Setlacec, 1998, p. 16): "The reasons for this situation were different: intermittent character of work in the villages, not so clear separations among land-owning, low incomes that did not allow for health-related contributions, the annual variation for rural household incomes, the difficulties for providing mandatory and prompt medical assistance for a geographically dispersed population, the small number of doctors who had set up their cabinets in rural areas".

The ways the peasants managed to avoid the "threat" of the medical system's development reach were quite unusual, even for trained doctors. Apart from the clear social class difference between peasants and doctors and the precarious economic situation both social groups faced one could add the high level of misinformation existing at the level of disadvantaged class, the rural population. The indifference of the rural population with regards to curative and preventive medicine was high (Bărbulescu, 2010, p. 7): "Medicalization can only be

understood through the grid of the opposition between the dominant culture and the subaltern culture, and with the birth of modernity culture the peasantry becomes and remains in a subordinate position through the entire period of time.”

In fact, all the peasants’ efforts to avoid modern medicine were the result of their fears towards modern life. The changes brought about by the evolution of the healthcare system, possibly the pressure exerted by the doctors, combined with the lack of adequate basic education have led peasants to seek their own “remedies” rooted into folklore and magical thinking (Bărbulescu, 2010, p. 7): “Healers in the villages have always existed in pre-industrial peasant societies, and Romanian rural communities were not exceptions. Any peasant society has self-regulated the disease-healing-death relationship. Before the advent, if modern doctors and medicine, [...] the peasant communities had solved the problems of illness and healing by resorting to persons specializing in certain diseases, clearly defined by a so-called nosology, specific for a peasant medical culture”.

Another important aspect of the peasants’ assessments of disease and healing are spiritual beliefs. Divinity played the leading role in influencing the decision-making of the patients in this period of time. On that basis a number of practitioners existed the entire modern and contemporary period within the rural communities (Bărbulescu, 2015, p. 238): “There are also the “orthopedic specialists”, peasant occultists, and finally, a lot of healers specialized in various diseases, such as Marin Catana, who cure rabies, or Stoian Buruiana, who cure madness. Along with them come different specialists of remorse against magical aggression: monks, priests, and wizards.”

The reason for which all those healers were assessed by peasants as being “omnipotent” was the fact that, according to the (pre-modern) peasants’ representations, disease was not a disorder of the bodily mechanism (humoral or physiological), but was always “either a divine punishment or the result of magic agents’ actions” (Bărbulescu, 2015, p. 238): “The belief that man has to pass through physical sufferings following deviations from religious canons was deeply imprinted in the mentality of the peasants, and any way of science to destroy this dogma was viewed with hostility by them.”

If this was the image of the Romanian society between 1918 and 1945 our interest was directed towards the ways in which Romanian media of that period of time covered the issues of public health. For that, the following section will deal with some concepts of the sociology of news which could be of help in our approach.

Elements of the sociology of news

In his seminal work about media coverage and journalistic practices, Entman had defined frames as a process which implies (Entman and Rojecki, 1993, p. 52): “[To frame is] to select some aspects of perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation.”

Referring to the research tradition of framing theory, D’Angelo (2002) had identified three central paradigms of it: the constructionist perspective, the critical approach and the researches, which used the cognitive perspective. If the constructive approach focused on the interaction between journalists and frames (Shah et al., 2010), the critical paradigm considered that frames are essentially social and that they varied from the social and cultural points of view (Ettema and Peer, 1996; Gamson and Modigliani, 1989). In the meantime, the cognitive perspective assessed that framing effects were the result of the negotiation processes existing between the audience’s direct knowledge of an event and the media frames (Baresch, Hsu and Reese, 2012).

In the existing literature, one can also identify several classifications of frames. Thus Iyengar (1990) distinguished between two main types of media frames: episodic frames - those cover the news in personal terms, providing specific cases, individual accounts, and personal experiences; and, on the other hand, thematic frames – those offer relevant information for wider analysis, outlining the general trends around the phenomenon or event presented through the use of statistics or data from various sources. De Vreese and Boomgaarden (2003) also had identified two different types of media frames: issue-specific frames – which are used for specific media events, and they allow detailed and in-depth analysis for certain events (but this analysis is difficult to generalize in the construction of some theories); and generic frames - these refer to different topics in various contexts and timeframes, allowing generalizations of results. In his analysis, Scheufele (2002) presented two different types of frames: formal-abstract frames (which clearly refer to a particular event or episode covered in the media) and content-related frames (they can transmit meanings centered on more global issues).

Material and methods

The way the analysis of media frames is conducted is different in the specialized literature, as shown by Semetko and Valkenburg (2000). Therefore, the inductive analysis of the frames analyses small article samples, building on some very general analysis directions, in order to extract possible frames of news coverage. On the other hand, the deductive approach of the frames uses large samples, defines particular frames and counts their appearances within articles in order to highlight the differences that exist among different types of mass media content.

In our study, we used an inductive approach for the frame analysis. The advantage of this perspective stands in its capacity to capture the diversity of frames which can be identified in the sample of the analyzed article. At the same time, we were interested in identifying the frames at a double level – both as prime definers of the situation and as the entire analyzed corpus (Ferree et al., 2002).

As the main method for research we have used quantitative content analysis, a method which is systematic and objective in analyzing media texts (Chelcea, 2001).

The sample of the present analysis was made of 81 randomly chosen articles dealing with the issue of public health which were identified in nine Romanian reviews and magazines from 1918-1945.

The magazines were consulted online on the “Digital Library of Bucharest” and they were presented in the Table 1 from bellow:

Table 1. Sample analysed (articles from reviews and magazines)

Name of the review or magazine	Number of articles
“Albina” [“The Bee”]	15
“Boabe de grâu” [“Grains of wheat”]	9
“Epoca” [“The epoch/era”]	9
“Pagini populare” [“Popular pages”]	10
“Medicina populară” [“People’s Medicine”]	10
“Memoriile secțiunii științifice – Secțiunea Medicală [“The memories of the scientific section- Medical section”]	9
“Monitorul Oficial” [“The Official Monitor”]	10
“Sociologie românească” [“Romanian Sociology”]	9

The grid for content analysis had been devised alongside two main axes. The first dimension, which had focused on drafting issues, author identity and media coverage, included

the items related to the type of article; article's size; its position within the review's or magazine's page; the impact of the title on the reader; the identity of the author; the attitude of the author towards the topic and the style of coverage. On the other hand, the second dimension had dealt with the assessment of the content of articles and consisted of the following items: the status of the topic in the general review's or magazine's issue; the reference made to Romania or to other countries; the medical specialty covered in the article; the type of reference to medical issues and general framework of the article within the existing agenda of the period of time considered.

The period of time in which all data were collected was November 2018-January 2019. The statistical package used for data analysis was SPSS 11.5 and the article presents mainly descriptive statistics of data.

Results

According to the data set, the image of public health in Romanian magazines was built mainly by experts in medicine and health who authored the majority of articles enclosed in the analysis - 43 articles from the total (53.75%). From a qualitative point of view, if someone is analyzing those articles in a qualitative way, the fact that an expert opinion is expressed about health in half of the sample could be assessed as being relevant for the reader and the rest of the society (Beciu, 2011). Those results were supported also by the fact that we found only one article (1.25%) which was simple news about public health.

Table 2. Type of article about public health

	N	Percent (%)
Article written by an expert	43	53.75
News	1	1.25
Law referring the medical system and/or health	11	13.75
Advertising	11	13.75
Simple article	15	17.50

An interesting aspect worth mentioning is the equality which was recorded between articles making advertising for healthcare or medical services and those outlining the legislative framework of the public health system, namely 11 articles (13.75%) in each case. This showed us "the double-face" of Romanian reviews and magazines' coverage of the public health during that period of time: on the one hand, it was presented as advertising to medical products and institutions and, on the other, the stress was put on the role of media as formal educators about the medical system through the use of citations from laws and official documents in the articles. The coverage of public health in a simple, direct way was recorded in the case of 15 articles (17.50%) those providing in general an objective approach to the topic. The articles which could be assessed as objective consisted mainly of recommendations for improving the medical conditions, pieces of advice to avoid common diseases, etc. This suggested the fact that, to a certain degree, the coverage of public health remained a specialized one even if the article is not written by an expert in the field but by a journalist who collected the medical information and packed it according to the norms of her profession.

Table 3. The article was published together with a photo

	N	Percent (%)
No photo was published together with the article (only text)	53	66.25
A photo was published together with the text (the article was published together with a photo)	23	28.75

	N	Percent (%)
Only a photo had took the place of the text (it was an advertising for a medical product)	5	5

A total of 53 articles analyzed (66.25%) present the subject of health without using any image, 23 of them (28.75%) covered the topic and publish also a photo together with the text and only 5 articles (5%) had used only a simple image which was not accompanied by a text, the latter case being exclusively advertisements promoting either medical institutions or various medical practices or services. We can notice also the fact that the majority of articles published without images were written by experts who had been used a specialized language that is explicit enough to clearly convey the essential health ideas. This approach in Romanian printed press of the period could be assessed as stressing the fact that the reader's attention to the topic should not be visually attracted by the images but only by the quality of information from the articles. Not even in the case of the news about health and medical system the articles there was no image published together with the text.

Even in the case of the articles which were published together with an image (23 articles, meaning 28.75% of the entire sample) the photos and drawings were mainly medical objects or products. The journalists had used them only when the content of articles had made reference to treatments or natural remedies, to present a scientist from the medical field or to present and to promote medical services or institutions.

Table 4. The length of the article

	N	Percent (%)
One page	31	38.75
More than a page	46	57.50
Less than a page	4	3.75

From the entire sample enclosed in the analysis, a total of 46 articles (57.5%) had covered the issue of health in more than one page. This situation was recorded mainly in the case of scientific reviews magazines, which obviously had given the subject a particular importance, treating it even in exclusivity.

The issues related to public health were covered in 31 articles (38.75%) of one-page length, those being mainly simple articles and news. Articles whose main themes were medical recommendations or guidelines provided to the reader in order to identify his/her medical conditions by presenting diseases' symptoms had chosen to provide this information in a concise, objective manner which had fit into a page from the publication.

We also identified four (4) articles that covered the topics related to public health in less than one page (3.75%). Those articles were mainly advertisings to medical products and/or institutions.

Table 5. Place of the article within the page of the review or magazine

	N	Percent (%)
Right up of the page	10	12.50
Left up of the page	14	17.50
Right down of the page	7	8.75
Left down of the page	16	21.25
In the middle of the page	34	42

The positioning of the article on the page does not necessarily represent a tool for measuring its importance as long as it is seated in the right-down, left-to-bottom, but as it occupies the middle of the page one could consider it as being relevant for the general political economy of the publication.

As our data showed, 34 articles (42% of the entire sample) were placed in the middle of the page, which meant the fact that the topic was considered important by the journalists. For the rest of the sample (47 articles - 56%) our data showed that they were positioned as follows: in the bottom left side of the page – 16 articles (21.25%), in the top/upper-left side of the page - 14 articles (17.5%), in the top/upper-right side of the page - 10 (12.5%), and in the bottom right of the page - 7 articles (8.75%).

The placement of an article on the front page is an element which points out the relevance of the topic covered for the editorial agenda of the publication. In the case of our data, only seven (7) articles (7.5%) were published on the front page of the review or magazine. It is worth to notice that those were strictly specialized publications which were focused entirely on health and medicine. The majority of articles (64, that is 77.5% of the sample) had published the articles on another pages that the first or last ones. Also, 10 articles (12.5%) had been published on the last page, but those were mainly advertisements at medical facilities and/or institutions or drugs.

As regards the identity of journalists who wrote the articles our data showed that 30 articles (37.5%) had male authors, 39 articles (48.75%) had female authors, and, in the case of 12 articles (13.75%), there was no specification about the gender of the journalist.

Table 6. Identity of the article's authors

	N	Percent (%)
A single author	60	75
Many authors	9	11.25
Not specified (Unknown author)	12	13.75

According to our set of data, the majority of articles – 60 (75%) – were written by a single author, 9 (11.25%) of them were written by several authors, and, in the case of 12 articles (13.75%), the number of their authors remained unspecified.

As regards the place of the articles covering public health issues with the general “economy of the publication” our data showed that 50 of them (62.5%) have this theme as a secondary one. Public health was the main theme only in 19 articles (23.75%) and here again was the case of those magazines which were specialized in health and medicine. Also, in the case of 11 articles (13.75%), public health was only accidentally mentioned – this was the case of advertisings, announcements or of the short articles with medical recommendations for different diseases.

When public health issues are related to a certain place our analysis showed that 64 articles (78.75%) mentioned only Romania (Bucharest, Cluj, Iasi and some non-specified rural areas), 7 articles (8.75%) had made reference both to Romania and to other regions of the world (Europe or America), and 10 articles (12.5%) made a clear reference only to Europe.

The most common type of medical specialty covered in the articles analyzed was general medicine – 24 articles (30%) – followed by dentistry, internal medicine and genetic medicine – each of them being covered in 6 articles (7.5%). We notice that all articles covering specialties of the medical domain have been authored mainly by experts and not by journalists.

Another sub-set of articles - 7 (8.75%) – have made references to medical institutions such as health care facilities, pharmacies or medical offices. Typically, these articles were advertising and promoting the services offered by those institutions.

At the same time, our data had shown that only one (1) article (1.25%) had made reference to health-related issue from the point of view of naturalist remedies, in this case the general topic was the beauty treatments for women.

The lifestyle and the role of medical advice related to diets for the population were not stressed within the articles analyzed. According to our set of data, only 4 articles (5%) referring to the health sector had covered those issues. As compared with nowadays media this small percentage could point to the low interest put on a scientific-guided nutrition by the written press between 1918 and 1945. Another domain which is different in comparison with the present-day media is the way in which “gynecology” and all its branches (gynecological diseases, contraceptive methods, and sexually transmitted diseases) were covered by the articles we analyzed. Only one (1) article (1%) addresses this domain, and it did not refer to the contraceptive methods or sexually transmitted diseases, but to so-called “female” medical issues related to health and illness.

Not all articles from the sample had made a clear reference to a particular specialization of medicine, and 21 articles (26.25%) had covered health-related issues at a very general level, focusing on health in general or they presented only the situation of the Romanian medical system as a whole. Another sub-set of 14 articles (17.5%) had presented the results of medical research, the evolution of medicine as science or some influent scientists of the period. Three (3) articles (3.75%) had addressed general health issues, describing various diseases, warning about the symptoms of various health conditions, and offering treatment suggestions.

In 14 articles (17.5%) the health system is presented from the legal point of view, the stress being put on the laws regulating public health during that period of time, the public health initiatives and state's public policies related to public health, the norms and regulations which had been in function within the medical field. This was the case with the articles published mainly in “The Official Monitor”, through which the Romanian readers could have had access to the legislative changes of the medical system.

Apart from that, 22 articles (27.5%) had reconstructed the image of public health and medicine through the appeal at doctrines, ideas, and theories about the medical system, using “health” versus “illness” as generic, axiological terms. Ten (10) articles (12.5%) had covered the issues of public health by offering descriptions of the scientific researches, making reference at the evolution of medical practices and presenting outstanding Romanian personalities from medical sciences.

Our analysis also stressed the fact that three (3) articles (3.7%) had connected the issue of public health to the distribution of anatomical human features according to geographic areas. In 15 articles (18.75%) the stress was put on public health issues from the perspective of causes and solution for various diseases in different regions of the country. In the case of 5 articles (6.25%) the topic of public health was connected to the presentation of some treatments, those articles having mainly a descriptive character, stressing symptoms (e.g. what they called “alarm signals” regarding the existence and manifestations) of various diseases.

A separate category was that of “Medical Guidance” which appeared in the case of 10 articles (12.5%). This category contained the specialized information about certain diseases, their treatments and ways of preventing them provided by the journalists and/or the medical experts. Eleven (11) articles (13.75%) were advertising articles, which promoted certain services, medical institutions or even practitioners in some specialized medical domains. Scientific articles had made around a quarter of the sample - 18 (22.5%) - and they were devoted exclusively to the medical field covering all areas, the evolution of medical scientific researches and the presentation of medical experts.

The events related to public health were actually built as a necessity of informing the readers about the evolution and dynamics of the medical sector, and this was the case with only two (2) articles (2.5%) for the entire sample. 37 articles (46.25%) had presented an event which

was related to the personal experience of the patient, the discoveries from medical research, the legislative changes or the actions of the local government related to health system:

Table 7. Type of event covered by the media

	N	Percent (%)
Medical discoveries	46	58.30
New laws and regulations regarding public health and medicine	26	33.30
Personal experience of a patient	7	8.33
Actions of local administration related to health and medical system	2	2.77

In the case of 20 articles (23.75%), the health-related event was clearly presented as being connected to the medical domain, while in the case of 61 articles (76.25%) this connection was not evident (that is, it was only implicitly stated).

71 articles (88.75%) did not refer to any person from the medical field, in 2 articles (2.5%) there were presented cases involving only adults aged 35-60 years, in the case of 2 articles (2.5%) the reference was made to children aged 5 to 11 and 5 articles (6.25%) covered youths aged between 11 and 35 years.

Only in the case of 15 articles (18.75%) a person or more were cited as they had stated something about medicine or public health. The persons quoted were doctors - in 10 articles (12.5%), patients - in 2 articles (2.5%), researchers, ministers, and professors at the faculties of medicine – each quoted in one (1) article (1.25%).

In 37 articles (46.25%), the public health situations or events were only described and the author did not make any recommendations. For 16 articles (20%), the author chooses not only to describe the medical reality of the period but also to assess the existing state of affairs in the domain and make recommendations for the future.

The analysis of article on the axis of “colloquial” or “scientific” language showed that the majority of articles had been written in a simple, direct language (69 articles - that is, 86.25% of the entire sample) and only in the case of 12 articles (13.75%) the medical jargon was used.

Table 8. Type of language used in the article

	N	Percent (%)
Colloquial language (the information can be easily understood by the average reader)	69	86.25
Expert language (the information can be understood with some difficulty by the average reader)	12	13.75

Journalists' attitude towards the topics covered in articles was different from one magazine or review to another. On the basis of our sample, we could identify five major positions for the journalists and experts who authored articles enclosed in the analysis. The first attitude was the impersonal one, registered for 26 articles (32.5%). In this case, the author did not express his or her position on the topic but only had transmitted clearly the information (mainly of a scientific type). The second type of attitude is that of a medical expert – the author of the article had presented her or his knowledge in the medical field and had made technical recommendations related to the article's topic. This attitude was recorded in the case of 16 articles (20%). The third type of attitude refers to the positive assessment of the Romanian medical system, medical services or health-related facilities and it was recorded in the case of 15 articles (18.75%). Fourth, the journalists' and experts' critical assessments of existing medical conditions and facilities in Romania were recorded in 12 articles (15%). Finally, the fifth types of attitude was that of making recommendations referring either to the whole medical system, to

various sub-systems or regarding the medical research and this was the case of 11 articles (13.75%) we have analyzed.

Discussions

According to the existing literature (Gitlin, 1980; Reese, 1997), the paradigm of journalism can be seen as a model that governs the collection of information, manifested in practical journalism and focused on the evaluation criteria of journalistic potential and on the ways of their transmission to the public. The cornerstone of this model is objectivity (Reese, 1997, p. 424). The role of the media in this process is to make visible the limits of each definition of reality (Gitlin, 1980; Reese, 1997), the media reproducing a consistent ideology. As bearers of truth, journalists naturally oppose manipulation by sources or by their managers, which is quite likely to happen within the framework of their professional, having sufficient means available to achieve this thing. Accepting as a rule that the journalism is free from values, the media supports and emphasizes values, ideological frameworks, and rules set by the dominant elites. The process of drafting news serves well to hegemonic principles as generally editing decisions are made by the editors, who are supposed to be more experienced and have a broader view of the world; they also have extensive contacts with officials and elite sources, which influences them in the formation of the “vision” of the world (Reese, 1997). As literature recognizes (Rieffel, 1994), when an article or a piece of news appears in the media, only the journalist’s idea to make a material or reflection or to report a material exists before the information provided by sources. After the idea, sources “are” virtually materials producers, they give the approach angle, they stress or not certain information, driving it erratically in public or simply sending “test balloons” through journalists. Given the role of the “map” of the sources in the production of articles and news and its relation to the journalists’ professional imaginary, we can notice that in the case of Romanian printed media the number of sources related to medical system and public health not only was a small one but they have a different quality, since they were represented mainly by people connected to the domain – doctors, ministers, researchers, and professors at the faculty of medicine.

Some authors (Molotoch and Lester, 1997) have distinguished between three categories of events presented by the media: (1) routine events; (2) accidents; (3) scandals. Molotoch and Lester (1997) show that the existence of three types of events is an indicator of the centrality of organizational planning in the activities of media organizations. Also, the inclusion of an event in a certain class endorses organizations regarding the events codification made by journalists. In the case of our sample, the analysis had shown that the majority of events presented in Romanian reviews and magazines could be enclosed in the first type of event – the inter-war journalists and specialists had chosen to present routine events related to public health and medicine, and not mainly scandals and accidents.

Referring to the work of journalism, Jeffres (1986) have differentiated between objective standards of professional culture on the one hand and elements derived from the very specific events presented by the media. We considered that we could identify professional and organizational variables that were functional in Romanian media between 1918 and 1945. The most important of them was the fact that the experts of that period of time had been a “voice” in the public debate about health and medicine.

Conclusions

We can conclude by noticing the fact that the image of public health in Romanian printed press for the period 1918-1945 was differently framed by the specialists and journalists as compared with present-day media. The reviews and magazines had published articles which had stressed the role of media as formal educators about the medical system through the use of citations from laws and official documents, extended coverage of medical discoveries, making recommendations about the future of the system and adopting an impersonal attitude towards the topics presented.

Thus, the Romanian authors of the articles enclosed in the sample published had put a greater stress on the quality of information regarding health and medicine, stressing the objectivity of the scientific evidence, using few images or photos, covering the topics on long articles (more than one page of the publication) and quoting experts from the domain with direct reference to the topics.

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The role of epistemic beliefs and epistemic emotions in online learning**DOI:** <http://doi.org/10.26758/9.1.7>

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Abstract

Objectives. The aimed objectives of this study are 1) to determine which factors of epistemic beliefs are significant in an online course, 2) to determine if positive or negative epistemic emotions are significant in an online course, and 3) to identify the existence of a correlation between epistemic belief and epistemic emotions in an online.

Material and methods. The Epistemic Belief Inventory and the Epistemic Emotions Scales – Short-Form were administrated to 30 students at the Faculty of Medicine and Psychology from the Autonomous University of Baja California after taking a 36-weeks online course.

Results. The results showed higher scores for positive epistemic emotions and lower scores for negative epistemic emotions. Pearson's coefficient indicates a negatively moderate correlation between positive and negative emotions and two factors from the epistemic belief inventory.

Conclusions. This research supports the importance of epistemic beliefs in epistemic emotions when students learn through online courses participating in the growing body of evidence on this topic.

Keywords: epistemic beliefs, epistemic emotions, online learning.

Introduction

There is a growing body of evidence about the influence of Epistemic Belief have in learning processes (Trevors et. al, 2016). The epistemic beliefs refers to “beliefs about the nature of knowledge [...], these may include beliefs about the certainty, the source, the justification, the acquisition, and the structure of Knowledge” (Duell and Schommer-Aikins, 2001, p. 419). The epistemic beliefs could be expressed in five main kinds of beliefs: 1) Omniscient Authority; 2) Certain Knowledge; 3) Quick Learning; 4) Simple Knowledge; and 5) Innate Ability (Leal-Soto and Ferrer-Urbina, 2017).

On the other hand, epistemic emotions have demonstrated an important role in learning (Trevors et al., 2017). Epistemic emotions refer to emotions that result when the object of the students focus is on knowledge learning, that means that the most important for the learner is the self-knowledge (Muis et al., 2015). Several epistemic emotions have been considered to understand their impact in learning such as surprise, enjoyment, anxiety, and boredom (Muis et al., 2015) based in the academic emotions developed by Pekrun et al. (2011).

However, if there is a growing body of evidence about epistemic beliefs and epistemic emotions demonstrating an important role in areas such as climate change (Bråten and Strømsø, 2009) and mathematics learning (Muis et al., 2015), the relation between them is not clear. In

addition, the study of epistemic beliefs and epistemic emotion in other learning environments such as online have not been considered yet

Thus, the aimed objectives of this research are 1) to determine which factors of epistemic beliefs are significant in an online course, 2) to determine if positive or negative epistemic emotions are significant in an online course, and 3) to identify the existence of a correlation between epistemic belief and epistemic emotions in an online. Finally, our hypothesis for this study is expressed as following:

- 1) There are similar scores of epistemic belief and positive epistemic emotions when students take an online course.
- 2) There is a correlation between epistemic belief and epistemic emotions when students take an online course.

Material and methods

Participants

For the current study 30 first-year students who took an online course about educational technology in a Psychology bachelor from one of the largest universities in Mexico where considered (female = 21; male = 9, age average = 19.77).

Procedures

The procedure consisted of the adaptation of a mandatory course in an online modality. The adaptation consisted in the creation of goals categorized in five units with readings, video tutorials, forums, and quizzes completely online for 36 weeks. At the end of the course, participants voluntarily responded to informed consent, the Epistemic Beliefs Inventory developed by Schraw, Bendixen and Dunkle (2002) and translated to a Spanish version by Leal-Soto and Ferrer-Urbina (2017). In addition, a translated version of the Epistemic Emotions Scales – Short-Form (Pekrun et al., 2016) was administrated. To ensure equivalence, the translation consisted of a three steps procedure (Spanish-English-Spanish) translation made by three different highly proficient experts in the topic. The statistical analysis consisted of the calculation of descriptive for each instrument (means and standard deviations), and the calculation of correlation using parametric statistics.

Instruments

After taking the online course students responded to the Epistemic Belief Inventory and the Epistemic Emotions Scales – Short-Form. The Epistemic Belief Inventory (EBI) is a 32-item questionnaire of 5-point Likert-type rating scale from strongly disagree (1) to strongly agree (5). It measures the five factors beforehand mentioned in the introduction: 1) Certain Knowledge (CK) for example *“absolute moral truth does not exist”*, 2) Innate Ability (IA) for example *“some people will never be smart no matter how hard they work”*, 3) Quick Learning (QL) for example *“if you do not learn something quickly, you will never learn it”*, 4) Simple Knowledge (SK) for example *“too many theories just complicate things”*, and Omniscient Authority (OA) for example *“children should be allowed to question their parents’ authority”*. For its part, the Epistemic Emotions Scales – Short-Form (EES-SF) consists of a 7-item questionnaire of 5-point Likert-type rating how strongly they felt each of the emotions: curiosity, enjoyment, surprise (positive), and confusion, anxiety, frustration, boredom in a 1 to 5 scale. The EES-SF was translated to the Spanish language as well as the EBI. In addition, demographic questions age and gender were included in the questionnaire.

Results

The statistical analysis consisted of the calculation of descriptive (means and standard deviation) to aim the first and second objectives of our research: *to determine which factors of epistemic beliefs are significant in an online course, and to determine if positive or negative epistemic emotions are significant in an online course, following by the calculation of Pearson's coefficient (r) to answer the second objective: to identify the existence of correlation between epistemic belief and epistemic emotions in an online course.* Due to the sample size a confirmatory analysis was not calculated.

As is shown in Table 1, Descriptive indicate low scores for epistemic beliefs ($M = 2.84$, $SD = 3.40$), while positive emotions showed higher values ($M = 3.77$, $SD = 7.31$) opposite to negative emotions which obtained lower values ($M = 2.24$, $SD = 2.51$) (See Table 1).

Table 1. Descriptive and correlation values by factor

item	Factor	MEAN	SD	EES _{POSITIVE}		EES _{NEGATIVE}	
				r	p	r	p
EBI1 EBI10 EBI11 EBI13 EBI18 EBI22 EBI24 EBI30	SK	2.96	0.40	-.420	0.02*	-.415	0.02*
EBI2 EBI6 EBI14 EBI19 EBI23 EBI25 EBI31	CK	2.47	0.37	-.398*	0.03	-.498**	0.01
EBI3 EBI9 EBI16 EBI21 EBI29	QL	3.00	0.56	-0.34	0.07	-0.13	0.50
EBI4 EBI7 EBI20 EBI27 EBI28	OA	2.91	0.46	-0.35	0.06	-0.25	0.18
EBI5 EBI8 EBI12 EBI15 EBI17 EBI26 EBI32	IA	2.93	0.48	-0.27	0.15	-0.21	0.26
EE _{POSITIVE} EE _{NEGATIVE}	EE	3.77 2.24	0.68 0.88				

Note: r = Pearson's coefficient values; *p = Significant value at .05

On the other hand, the Pearson's coefficient (r) showed negatively significant correlations and significant p value for both positive and negative epistemic emotions regarding to SK ($EES_{\text{positive}} r = -.420^*, p = 0.02$; $EES_{\text{Negative}} r = -.415, p = 0.02$) and CK factor ($EES_{\text{positive}} r = -.398, p = 0.03$; $r = -.498, p = 0.01$).

Discussions

The results of this study only confirm the first hypothesis for the Quick Learning (QL) factor which obtained higher scores as well as positive emotions which is a positive issue for online learning. Regarding the second hypothesis, effectively results confirm that there is a correlation between epistemic belief and epistemic emotions when students take an online course.

Surprisingly, the results were significant for positive and negative epistemic emotions supporting the inconsistencies reported by (Leal-Soto and Ferrer-Urbina, 2017) due in both cases there is a moderate negative correlation according to the criterion suggested by Hair et al. (2006). Nonetheless, it is clear that lower scores in SK ($M = 2.96$), and CK ($M = 2.47$) are negatively correlated with higher values for positive epistemic emotions ($M = 3.77$), while lower scores in SK and CK scores are negatively correlated to lower values for negative epistemic emotions ($M = 2.24$).

That means that lower levels of Simple Knowledge, for example "*It bothers me when instructors don't tell students the answers to complicated problems*" (SK) and Certain Knowledge such as "*If two people are arguing about something, at least one of them must be wrong*" could predicts negatively some positive epistemic emotions (curiosity, enjoy, surprise). In other words, the decreasing of scores in SK and CK factors is correlated to the increase of scores in positive epistemic emotions. Instead, lower scores Simple Knowledge and Certain knowledge could predict negatively in lower levels of negative emotions (confusion, anxiety, frustration, boring) which indicates that lower scores in SK and CK factors trend to decrease negative epistemic emotions.

These results are consistent about the importance of epistemic belief in learning environments (Trevors et al., 2016) being an important variable in the development of learning including the online based learning. Also, this study supports the evidence about the importance of emotions in the process learning because epistemic emotions have demonstrated to be an important factor to mediate complex relations between epistemic beliefs and fundamental learning outcomes (Trevors et al., 2017).

Conclusions

In conclusion, this research contributes in a theoretical and methodological way in the understanding of a growing body of evidence about epistemic belief and epistemic emotions in learning environments, particularly in online environments, showing the importance of the analysis of cognition in the understanding of emerging emotions in education. Its relevance has been widely evidenced in themes such as climate change (Bråten and Strømsø, 2009) and mathematics (Muis et al., 2015b) as mentioned in the introduction, and it could be important to evaluate this variable in other themes such as health. For its part, the results showed that a decrease in some epistemic beliefs could decrease negative epistemic emotions (i.e. confusion, anxiety, frustration, boring) and increase positive epistemic emotions (i.e. curiosity, enjoy, surprise) facilitating the learning processes in online learning. However, this research has some limitations. The principal limitations are the sample size because it was not possible to calculate a confirmatory analysis. Second, further research is necessary to understand the role of Quick Learning in online environments. Finally, there is important to consider a future study including

a control group to determine if the importance of Simple Knowledge and Certain Knowledge are an important factor for traditional courses just like online learning of if there are significant differences.

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Understanding reality television: a study of tamil television reality shows impact on audience**DOI:** <http://doi.org/10.26758/9.1.8>

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Abstract

Objectives. The aim is to identify reality television audience and its preferences and also, to analyze its context, structuring and presentation styles; to analyze its impact on the audience.

Material and methods. The study employed content analysis and survey. For the content analysis, Tamil TV reality shows namely *Enga Veetu Mappillai*, *Villa to Village*, *Colors Super Kids*, *Super Singer* and *Dance Jodi Dance* were analyzed. People's habitual nature, usage of words/conversation with co-hosts or contestants, costumes worn, commercial elements and incorporation of dramatic elements etc. were analyzed.

An analysis of textual data collected from newspapers and internet looked at the various perspectives regarding reality television, and its effect on Tamil culture and traditions.

The survey collected feedback on various aspects related to reality shows.

Results. In order to create hype, Tamil television reality shows unrealistic/unacceptable showcase concepts, which are leading to a cultural imbalance among the audience. These programs are designed with prewritten scripts, making the program's outcome more dramatic, and enticing viewers to consume more. However, some shows namely *Super Singer* and *Colors Super Kids* provide a platform to display talents.

Conclusions. In order to preserve the cultural values, producers should employ appropriate themes/concepts, styles of presentation, dialogues, costumes, etc. and not be driven by commercial interests and viewership ratings.

Keywords: reality TV, programmes, impact, audience, reality shows.

Introduction

The defining aspect of reality TV is probably the manner in which it is shot. Reality TV, regardless of being under the form of shows taking place in a real setting with real people (much like a documentary), shoots in front of a live studio audience participating in the program, or shoots using hidden surveillance, relies on the camera, capturing everything as it happens. Reality television is a more recent genre and a very successful phenomenon of entertainment programming in India that has been growing steadily over the past years.

However, it is a matter of great concern that reality shows have deviated from what they intended to be. Reality shows have become a paradox; the reality aspect is gradually vanishing. The structure of the programs is not spontaneous anymore. The focus is more on how to portray the show as reality rather than to let the program happen as an interaction between participants.

Reality shows have become a mixed genre of television programs. The reality programs differ from cinema and other forms of content due to the aura of realism and spontaneity they invoke (Calvert, 2004, p. 56). This has been a popular trend over the past decade with the advent of many televisions solely on creating drama through a scripted sequence, making sure that the

audience is intrigued enough not to wonder about its authenticity. Shows like Big Brother prefer to keep the scripting aspect of the show as a secret, testing the curiosity of viewers.

The evolution has not been restricted only to the creative aspects of the show. Audiences have become more capable to find out the patterns as well as the strategy that the favorite show follows. In spite of it, spectators are hooked to the reality shows. There exists a two-way interaction between the creative writers and viewers through the reality show acting as a bridge. A major debate arises about the ethical nature of such an interaction. Some say that it is a part of how the entertainment industry has grown, defending its use of techniques to toy with the audience. Others mention that such a method employed in television programs reflect a sad reality of our society. According to the critics' opinion such shows play with the emotions of viewers, using inappropriate techniques that will have a bad effect on the society, on the lives of viewers.

In this context, this study explores the various components of Tamil television reality shows and their impact on audience perception towards its culture.

The study is guided by the following objectives:

- To identify reality television audience and its preferences;
- To analyze its context, structuring and presentation styles in Tamil reality shows;
- To analyze the news media reports on the impact of reality shows on the audience.

Reality Television Shows: An Overview

As we watch, listen, and are entertained, TV programmes are revising our social and cultural writing, shifting our sensitivities, social-relationships, and associations to the natural biosphere. Earlier people have face-to-face interactions and associations, but today, they are constantly exposed to audiovisual content through television and they are associated with it. Reality shows have amalgamated into the lives of the people, being view, on one hand, as a platform for representing the society, and on the other hand, as a medium to understand oneself better. Rutenberg (2001) said, "Some have argued that reality programs should not be honored at all, lest they sully the television industry" and at one Academy meeting, also stated that "production of reality TV was referred to as "bottom feeding" that exploits the basest human instinct for voyeurism". Gerbner (1969) developed the Cultural Indicators program as part of his work with cultivation effects, to assess the television exposure impact over the viewers.

Hill (2005, p. 29) points out that surging popularity of the particular genre are reflected in the TRP ratings of these programs, which in turn have resulted in higher advertising revenues for the networks. The Reality programs as a genre has unique characteristics where it is promoted as audience have gone beyond a mere spectator to an active participant. In some cases, the audience is advanced further level of main characters (Andrejevic, 2004, p. 198).

Reality TV can be generally viewed under following parameters. 1. Recording of an event in lives of the individuals or group. 2. Capturing of dramatized reconstruction of real-life events. 3. And packaging the materials into an effective entertainment program, which can be later widely marketed for the Television audience (Kilborn, 1994).

Wei and Tootle (2002) defines Reality TV as a – Television Program that has the ability to stimulate real-world, real-life psychologically, emotionally and mentally challenging situations and draw out audience into reward-motivated, self-selected contests. Reality TV often focuses on providing the viewers with a chance of becoming potential players in the entertainment program. In this way Reality TV has pushed many traditional boundaries for a television program and becomes an empowering tool for audience, enabling it to become participant and influencer in the creation of media content (Papacharissi and Mendelson, 2007). At the present situation, the younger generation participants compete at the age of five and six, at such age being psychologically more impacted by judges' remarks on their performances. 17%

of the respondents watch reality shows for the celebrities and fraternities who make an impact on the participants, but even a stronger one on viewers in most of aspects like lifestyle, attitude, behaviour, in such manner being interested in knowing more fantasies to be observed. It would rather be that the celebrities, who contribute to commercially driving the shows, must become the role models for the mass (Malur and Lakshmikantha, 2014).

The reality television can be evaluated with following features: 1. Use of non-professionally trained actors, 2. Programmes are filmed in unscripted situations, 3. Given more prominence in capturing contestants' spontaneity over improvisation, 4. With very limited level of producer/directors' creative involvement in the programme and 5. The recording of the contestants experience not limited to particular moment (Vijaykumar and Arulchelvan, 2015). In India, Zee TV pioneered in involving the audience in the elimination process of contestants of the program, *Cine Stars Ki Khoj* meaning "Search for a film star". This elimination process has been later replicated by many reality television and celebrity based programmes. Soon after many new methods have undertaken to improvise the voting process, by initiating new 'one mobile-one vote' type campaign in different shows, to avoid duplication of audience votes, as well as new 'Missed call voting' system, a phenomenon that helps the audience to participate and vote free of cost.

Material and methods

The study employed both content analysis and questionnaire based survey. For the content analysis of the reality shows, the following Tamil TV reality shows were included: *Enga Veetu Mappillai*, *Villa to Village*, *Colors Super Kids*, *Super singer*, and *Dance Jodi Dance*. Each of the five programs was watched by the researcher/coder. Prior to watching the programs, the researcher identified the major thematic elements, that were relatable to the cultural impacts such as people's habitual nature, usage of words/conversation with co-hosts or contestants, costumes worn, commercial elements and incorporation of dramatic elements etc. Those themes were independently coded, based on the total amount of time each of the thematic element has consumed on screen time.

The secondary sources involved textual data, which were collected from newspaper articles, internet sources regarding such programmes. The articles were coded/ transcribed based on the source, context, and relationship with the current study. The analysis looked at the various perspectives/opinions regarding the reality television, exhibiting the dual nature of reality show and its effect on the Tamil culture and traditions.

In addition to the content analysis, the questionnaire survey collected the feedback from the respondents on various aspects related to the reality shows. The mode of answering was restricted only to the online medium.

Results

The study mainly focuses on examining the impact of Tamil television reality shows on culture. Totally 240 respondents participated in the survey questionnaire. The result pertaining to the survey-based approach aids in understanding the youths' inclination to reality shows.

Table 1. Time Spent on Watching Television in a Day

Watching in Hours	Percentage (%)
Less than 1 Hour	34.2
1 - 2 Hours	42.1
3 - 4 Hours	15
More than 4 Hours	1.2

The above table shows that nearly half (46%) of the respondents have the habit of watching TV for more than 1-2 hours, followed by 37% respondents who are watching TV programmes for less than one hour. Only 16% of the respondents have the habit of watching TV programmes for more than 4 hours.

Table 2. Respondents' Choice of Tamil Channels

Channel Name	(%)
Star Vijay	58.8
Sun TV	11.3
Zee Tamil	7.1
Colors Tamil	6.3
Others	16.5

The above table shows the respondents' choice of watching Tamil television channels. 58.8% of the respondents watch Star Vijay compared to other Tamil television channels like Sun TV, Zee Tamil and Colors Tamil. Some respondents prefer Tamil channels being telecasted by the cable operators and not distributed throughout Tamil Nadu.

Table 3. Various sources through which respondents get to know about those reality shows

Category	(%)
Advertisement	46.3
Word of Mouth	16.7
Publicity	22.1
Promos on YouTube	13.3
Others	1.6

Most (46.3%) of the respondents get to know about those television reality shows through the advertisements and promos. 22% of the respondents feel that the publicity given by the television channel also plays a crucial role in the viewer's engagement with the reality shows.

Table 4. Do you agree that the content and the style of presentation of Tamil television reality shows are causing cultural imbalance among the audience?

Response	%
Yes	28.7
No	27.5
May Be	43.8

From the above table, we can see that the majority of the respondents (43.8%) were inconclusive with their opinion. It is probably because a few shows are innovative, unlocks new talents among the participants and tries to promote traditional cultural values. Respondents of equal numbers (27.5% and 28.7%) tend to have conflicting opinions with their agreement on the reality shows and its impact on cultural values.

Table 5. Respondents' views on the scripting styles used in production of reality shows

Response	%
Full scripted	29
Semi scripted	58
Spontaneous	11
Poorly scripted	2

The majority (58%) of the respondents view the scripting styles of the reality shows to be semi-scripted. To ensure higher viewers rating for the programme, the producers use scripted elements in terms of dialogues, costume, talent behavior and creating situations to make the program more dramatic and sensational for the audience and thus totally deviating from the principle of reality element which is the essence of reality shows. 29% of the respondents feel that the reality shows were fully scripted, greatly deviating from the reality elements in this manner, while 11% of the respondents feel there is complete spontaneity in the show and realism exhibit in the programmes.

Table 6. Elements that attract respondents' attention in watching reality shows

Response	%
Concepts	49
Presenting styles	25
Host	11
Celebrity guest	15

Respondents were asked to choose the elements that attract their attention in watching the Tamil television reality shows. Among the various choices given to them, the respondents were mainly influenced by the programme's concepts/idea (49%), followed by programme's presenting style (25%), celebrity guest (15%) and host (11%). The results show that overall idea/concept is the most important element in attracting the audience attention in reality shows rather than other elements.

Table 7. Respondents' interest towards participation in reality shows

Response	%
Yes	18.7
No	45
May Be	36.3

The above table shows that the majority (45%) of the respondents denied their interest in participating in reality shows. Some (36.3%) respondents were inconclusive about participating in the reality shows. Only 18.7% of the respondents were willing to participate in reality shows.

Table 8. Respondents' most favorite Tamil television reality shows

Response	Percentage
Super singer	68
Color super kids	16
Enga veetu mappilai	4
Villa to village	12

The majority of the respondents showed greater interest in the reality show titled *Super Singer* (68%), followed by *Colors Super kids* (16%), *Villa to Village* (12%) and *Enga Veetu Mapillai* (4%).

Discussions

Content analysis was carried out including both the video programs and textual data extracted from newspaper/online articles reported on Tamil television reality shows. The study analyzed the five different reality shows, which were monitored over a period of 1 month (January to February 2018). In this study, the content analysis focuses mainly on the following prominent elements namely:

- Role of prewritten scripts in reality shows
- Usage of words/dialogues in the program
- Participants' usage of props/costumes (western/traditional wears),
- Influence of media advertising on reality shows
- The necessity for viewers' discretion

Table 9. The below table shows the total number of articles/internet sources on reality shows that are analyzed for this study

No.	Names of the selected reality Shows	No. of articles on poor scripting /usage concepts	No. of articles targeting on the program's scripts /concepts to be exposing cultural values	No. of articles targeting on the program's scripts / concepts, affecting the cultural values	Total number of articles on reality shows
1	Enga veetu Maapillai	4	0	12	16
2	Villa to Village	2	4	7	13
3	Super Singer	5	19	1	25
4	Colors Super Kids	1	18	0	19

Role of prewritten scripts in reality shows

The content analysis of newspaper articles/online forums indicated that in most of these reality shows, the scripts were prewritten before the shooting for the purpose of dramatizing the real events. Therefore, the audiences wonder whether the particular programme content is real or fake. The media reports also criticized the quality of scripts used in the programs.

Usage of words/dialogues in the program

In reality shows, the usage of dialogue by the contestants, hosts and judges play a crucial role in audience engagement in the programme. Programmes as *Enga Veetu Mapillai*, *Villa to Village* portray intense dramatic scenarios among the participants through the usage of dialogues. It is noticed that the use of harsh words, inappropriate dialogues, and bullying comments were showcased or highlighted in order to create hype among the audience. On the contrary, the programmes *Super Singer* and *Colors Super Kid* were exhibiting the participants' talents, where the dialogues/usage of words for creating a hype or viewer's rating was not required.

Participants' usage of props/costumes (western/traditional wears)

In many cases, the participants, as well as the celebrities, were using western outfits over traditional dresses. Reality shows like *Enga Veetu Mappilai* and *Villa to Village* tend to adopt more of westernized outfits for presenting the shows. In certain episodes, the costumes that were worn by the female participants were inappropriate and deviate from the Tamil cultural values. In case of reality shows like *Colors Super Kids* and *Super Singers*, the participants, hosts and judges were wearing both traditional and western costumes that were appropriate and professional.

The influence of reality show teaser on the audience

It is observed that the reality shows teaser has a significant effect on the people, as they show the gist of the sequence that exposes dramatic events, which makes the people to emotionally feel sympathetic/bad regarding that particular situation. However, the concern is in some cases the situations shown were depressing and cultureless. For instance, in *Enga Veetu Maapillai*, the way some of the scenes portrayed reality was totally against the cultural and moral values followed in Tamil tradition. The sequence showing the lead actor trying to impress many women and vice versa was found to be disturbing to the audience. In the reality show *Villa to Village*, the women contestants, exchanging harsh and sensitive words and behaving in a harsh way appears quite unpleasant for the viewers to watch.

Viewers' discretion in watching the reality shows

Viewers' discretion is becoming necessary in watching reality shows. Majority of the reality shows concepts and themes are suited mainly for the adults and are quite unacceptable for the children and teenagers to view as it might affect them psychologically. This could be witnessed in programs like *Enga Veetu Mapillai* and *Villa to Village*. Certain scenes involve inappropriate romancing, usage of harsh and vulgar words, which could affect the children's psyche and development. Hence viewers' discretion is becoming a necessity for watching reality shows.

Conclusions

In order to create hype among the audience, Tamil television reality shows are employing certain unrealistic and unacceptable concepts, which are causing a certain degree of cultural imbalance among the audience. Those reality programmes are designed primarily with prewritten scripts, thus making the programme's outcome more dramatic and arousing the curiosity of the viewers to eagerly wait for the forthcoming episode. However, on a positive side, some reality shows are focusing primarily on unleashing the participant's talents and showcasing it to the public. Tamil television reality shows namely *Super Singer* and *Colors Super Kids* provide an opportunity for the common man to showcase his or her talent to the audience. Thus, the study could be concluded with a positive remark that, in order to preserve the cultural values in the Tamil television reality shows, the producers should employ appropriate themes/concepts, style of presentation, dialogues and costumes in the programs and at the same time they should not allow the commercial interest and viewer ratings to drive the program content and style of presentation.

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The nexus between infrastructure and economic development in Ilorin metropolis**DOI:** <http://doi.org/10.26758/9.1.9>

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Abstract

Objective. The current level of infrastructural development in Nigeria is heartbreaking one. Journeying through the streets of Ilorin, one can see the derelict state of infrastructures. Previous studies have indicated the relevance of infrastructure in driving economic development. The study therefore sought to determine the relationship between the some infrastructure system elements, such as state of the railway system correlated to its level of use, the latter being an indicator of economic development. The study also determined the relationship between the state of hydroelectric power supply and presence of industries, respectively community literacy level and gender equality in the employment of teachers.

Material and methods. The utilitarian theory was employed to explain the area of interest. The study adopted a mixed method of design, utilizing both questionnaire and in-depth interview for data collection. A sample of 262 respondents was drawn from the population with the use of purposive sampling technique. The chi square statistical technique was used to test the quantitative data.

Results. State of railway transport system is significantly associated to its level of use by people of Ilorin [C^2 (6, N=250) = 85.214, $p=.05$]. State of hydroelectric power supply is significantly associated to the presence of industries in Ilorin metropolis [C^2 (6, N=250) = 102.865, $p=.05$]. Community literacy level is significantly associated to level of gender equality in the employment of teachers in Ilorin metropolis [C^2 (4, N=250) = 84.112, $p=.05$]. The findings from the in-depth interview corroborate those results.

Conclusions. The three hypotheses tested revealed a significant association between the variables of study. With this result in mind, it is recommended that efforts should be made by Kwara state government to strive rendering infrastructural facilities available to the inhabitants of Ilorin metropolis in order to achieve the desired development.

Keywords: infrastructure, economic, development, poverty, metropolis.

Introduction

Economic development epitomizes a chief objective of most of the world's nations. It remains the most critical social task facing nations of the world as they become saddled with the responsibility to raise the well-being and socio-economic conditions of people."The access to habitation is a complex phenomenon which does not involve just the simple fact of owning or living in a habitation. It is a human fundamental need for both shelter and access to utilities and basic services. The right to habitation is a fundamental human right, explicitly or implicitly". Rada showed the rural/urban disparities in Romania regarding infrastructure, connection to the

drinking water network, sewerage network (Rada, 2013, p. 336). The present study shows that some localities (such as Ilorin), although they are declared cities, have a rural infrastructure.

Essentially, researchers and policy makers have recognized the critical relevance of efficient infrastructure to the sustainable economic development of a nation (Aschauer, 2000). Accordingly, adequate provision of infrastructure supports economic growth, enhances value of life and is vital for national security (Baldwin and Dixon, 2008). The primal significance of infrastructure is made clearer by pointing out that it includes the whole range of services such as railways, roads, education, telecommunication, shipping, power generation and transmission, urban development, and postal facilities. For instance, better roads decrease accidents and improve public wellbeing, efficient water systems reduce the level of disease infections, and a proper waste management improves aesthetics as well as the health of communal members. The availability of a decent level of these infrastructures stimulates rapid industrialization, improving the quality of life of people (Gibson and Rozelle, 2003). As such, social infrastructures are basically the wheels of development, the absence of which cripples the economy (Edun, 2011).

Notably, there are tangible indications that poor infrastructure hampers development in many ways. Diao and Yanoma (2003) showed that growth in agriculture is constrained by high marketing costs due to poor transport facilities. In addition, a poor educational infrastructure system would rob a society of improving the literacy level among the populace, consequently reducing their intellectual prowess. Estache and Vagliasindi (2007) further argued that insufficient power generation confines the development of a nation. Energy is such a critical factor of development, often serving as an input for other infrastructural systems (such as water system which cannot be made available without the use of electricity).

Developing nations like Nigeria typically lack basic infrastructure such as potable water and, to a lesser extent, a good transport system (Estache and Vagliasindi, 2007). According to Bakare (2006), the provision of basic infrastructure seems to be a herculean task for most state governments in Nigeria. They drink, bathe, and cook with unhygienic water especially in the rural areas, often resulting in serious illness or death, reducing the nation's labour force. On another note, a deficiency in transport system in some parts of Nigeria results in scenarios whereby traffic and passenger congestion is quite rampant, impeding the flow of commercial activities (Edun, 2011). Massive gridlocks are common in the large cities with the resultant effect of delays in movements and accidents. This perilous situation has serious impact over the economic development and it constitutes a major setback in the pursuit of sustainable development in Nigeria.

In spite of the various attempts by government to provide infrastructures, there is no major headway being made, making it a losing battle as days go by. In line with the stated problem, the study provides an outlook on the association between infrastructure and economic development in Ilorin metropolis by studying specific types of infrastructure (such as hydro-electric power supply) that have been rarely explored in Nigeria. The study examines the association between steady power supply and industrial development as well as the nexus between societal educational level and human capital development in the study area.

Infrastructures essentially comprise of physical edifices of various types, employed by various industries as inputs to the production of goods and provision of services (Chan et al, 2009). This portrayal encompasses social infrastructure such as hospitals and schools as well as economic infrastructure consisting of energy, water, transport, and digital communications. The sector includes a wide range of services such as roads, airways, railways and water transport services, power generation, telecommunications, port handling facilities, water supply and sewage disposal, mass transport systems, medical facilities, educational facilities and other primary services.

Essentially, Shah (1969) has classified these under eight different headings such as irrigation, power, transport, education, communication, research and development, health and

other facilities comprising of law and order as part of infrastructure. A very comprehensive depiction of the components of infrastructure is examined in the analysis delivered by Rao (1968). According to him, the economic infrastructure comprises of the transportation (roads, railways, shipping ports and harbors, airports, and transport equipment); communication (telegraphs, telephones, radio, television, cinema, etc.); and energy/power system (coal, electricity, wind power, solar energy, oil, gas, and bio-gas).

Chambers (2004) contends that development has been seen to connote various things at various times, in varying places, and by various people in differing occupations and organizations. But in all cases, it has always involved discussions about change. Economic development therefore represents a course from a lower to a greater phase with an element of visible change. Blakely (1989) on the other hand outlines economic development to be a process through which the government manages prevailing resources and enters into partnership with the private sector, or with another nation, to generate new jobs as well as to rouse economic activities. The quantity of the new jobs is a measure of economic development that has been employed to assess the efficacy of development programs.

There has always been a great interest from the researchers, policy makers as well as non-government organizations on how to measure economic development. The basic needs approach stresses six areas in terms of the achievement of economic development; basic education, sanitation, health, water supply, housing, and nutrition (Hicks and Streeten, 1979). To Harbison and Myres (1964), index of 'Social Progress' comprises of more than forty indices which are found under ten sub-divisions; health status, efforts at defense, environment, status of women, education, demography, social chaos, cultural diversity, economic, and welfare effort (Camp and Speidel, 1987). Finally, in the work of Anand and Sen (1994), development should be seen in terms of attainments in three scopes: health, living standards and education.

Van der Gaag (2011) stated that the indices of economic development entail higher education and literacy levels, general improvement in health as well as nutrition, high social skills, social cohesion and improved levels of equality. In the view of Henderson (1994), environmental indices should also be discussed. Lately, sustainable economic development is the desire of all nations, being measured by the extent to which developmental efforts mustered in the present do not endanger the posterity. It takes the long term interest in mind rather than short term. Gilbert et al. (1996) devised a concept in relation to sustainable economic development, which is economic sustainability. This addresses the country's financial feasibility with development geared to the sustenance of the environment. Furthermore, development economists have cited the relevance of modern transportation in measuring economic development.

In a bid to draw out a connection between infrastructure and economic development, a systematic review of some studies was presented. Starting with that of Antle in Uwagboe (2011), a study was done in 47 developing nations and 19 developed nations. Antle discovered that transportation infrastructure was an effective factor influencing economic development. However, the significance of electricity to economic development has been globally well documented in a huge amount of studies as it is more or less a recurrent point in all investigations on the obstructions to the business environment (Dethier, Hirn and Straub, 2008). Amid these researches, all those concentrating on developing nations discover a significant impact of the energy infrastructure on economic development. As a matter of fact, while carrying out his survey, Garsous (2012) contends that studies concentrating on the energy sector are more probable to discover a significant positive effect than other infrastructures, all things being equal. This implies that investment in the energy sector might be the best bet to attain economic development. Adenikinju (2005) delivered a robust argument to back the relevance of electricity supply. The poor nature of electricity supply in Nigeria, according to him, has weighed on the industrial sector of the country, which is the driver of economic development.

But despite a general agreement among researchers on the perceived relevance of energy to economic development, there have been debates over some infrastructures, such as the water infrastructure. Mixed conclusions have been reached by researchers in this aspect. Binswanger, Khandker and Rosenzweig (1993) discovered that the influence of canal irrigation infrastructure to crop yield is non-existent in his study carried out in India. Estache, Speciale and Veredas (2005), on the other hand, posited the role of the water and sanitary infrastructure to be significant in fostering economic development in a study carried out in sub-Saharan nations.

However, in a study carried out by Kakar, Khilji and Khan (2011), a conclusion was reached that education correlates with development, which would significantly lessen income inequality. In addition, Afzal and Abbas (2010) approved that education has a significant impact on economic growth in Pakistan. Furthermore, Dauda (2009) scrutinized the effect of investments in educational sector on economic development in Nigeria and found a significant effect of expenditures in the educational sector on economic development. Bakare (2006) in his study discovered that a positive correlation exists between educational demand and economic growth. This means larger rate in school enrolments will result to economic development. A conclusion was therefore reached that the operative means to deal with illiteracy and foster economic development is via education. Hence, the sustainable development of the energy, education, water, and transportation system can serve as an instrument of change in any country.

The study concluded that the rising price of energy resources is a major barrier in the way of economic growth. Furthermore, from all energy resources, the impact of petroleum was seen to be critical for economic growth in Pakistan. Estache, Speciale and Veredas (2005), while analyzing importance of infrastructure regarding growth in sub-Sahara Africa, found positive effects between investments in education and economic development. In addition, Egert, Kozluk and Sutherland (2008) found that infrastructure enhanced economic development in OECD nations via augmentation of market competition and number of network externalities. A huge level of economic development was also equated to efficient investments in power and telecommunication sectors.

The utilitarian theory is the framework of theoretical analysis for this study. This theory rests on an ethical conundrum with significant bearing on utilitarianism. Bentham (2001) is the chief postulator of utilitarianism. He termed utility, as the sum total of all forms of gratification that is consequential of an action, devoid of torment to anyone involved in the action. Utilitarianism essentially considers all interests equally. Mill (2011) also made noteworthy additions to the theory of utilitarianism. In his view, utility denotes individuals carrying out actions for the purpose of social utility. This, to him denotes the comfort of people, and as such, an action that leads to the utmost pleasure for the members of the society.

Applying this theory to this study, it can be safely explained that the purpose of any government is to ensure the well-being of its citizens and the provision of adequate infrastructures would certainly go a long way in achieving this. The provision of an efficient power supply as opposed to a poor one would definitely improve the well-being of citizens. The availability of network of good roads would boost commercial activities significantly and reduce the occurrence of accidents. Higher economic growth level would result from healthy transport infrastructure, educational facilities, health system, energy system and other basic infrastructures in the society. The public investment on these infrastructures is vital to economic growth and development of a nation as this ensures the comfort of the people.

Material and methods

Ilorin is the state capital of Kwara State and is located on latitude 8° 30' and 8° 50' N and longitude 4° 20' and 4° 35' E. This study was carried out in Ilorin metropolis of Kwara State, Nigeria. Ilorin is home to diversity of culture, housing different ethnic groupings like Yoruba,

Igbo, Hausa, Nupe, Baruba, etc. It is a home to Christians and Muslims. The study adopted a mixed method of design, utilizing a quantitative and qualitative technique of data collection. This was done so as to fuse the strengths of both techniques in gaining a deeper understanding of the people of Ilorin in terms of infrastructure and economic development. The respondents of the study were selected with the use of purposive sampling technique. This was based on the need to consult individuals who are properly acquainted with the infrastructural facilities, are mature and have spent at least a year in the study area. Based on this, 262 respondents were selected. From the selected respondents, ten individuals were selected for unstructured in-depth interview based on a show of interest. The analysis of the quantitative data was carried out with the use of chi square, with 250 questionnaires found to be valid. The qualitative data on the other hand was subjected to content analysis.

Results

Hypothesis One

H₀= There is no significant association between the state of rail transport system and the level of use by people of Ilorin Metropolis

Table 1. State of Rail Transport System and Level of Use by People of Ilorin Metropolis

State of Rail Transport System	Level of Use			Total
	Low	Moderate	High	
Poor	161	39	4	204
Fair	7	30	1	38
Good	3	0	0	3
Excellent	2	1	2	5
Total	173	70	7	250

Source: Researchers' Fieldwork (2019) $\chi^2(6, N=250) = 85.214, p=.001$.

The chi square value stands at 85.214. The degree of freedom is 6 with the significance level at .05. Using these values, the chi-square table value is 12.59. Since the χ^2 c is greater than the χ^2 t, the alternate hypothesis is accepted and the null is rejected.

The result indicates a significant association between the state of the rail transport system and the level of use by people of Ilorin Metropolis. This connotes that the poorer the state of the road transport system, the lesser the use by people of Ilorin Metropolis.

Hypothesis Two

H₀= There is no significant association between the state of hydroelectric power supply and presence of industries in Ilorin metropolis

Table 2. State of Hydro-electric Power Supply and Presence of Industries

State of Hydroelectric Power Supply	Presence of Industries			Total
	Low	Moderate	High	
Poor	153	37	5	195
Fair	14	30	0	44
Good	1	3	2	6
Excellent	2	0	3	5
Total	170	70	10	250

Source: Researchers' Fieldwork (2019) $\chi^2(6, N=250) = 102.865, p=.001$.

The chi square value stands at 102.865. The degree of freedom is 6 with the significance level at .05. Using these values, the chi-square table value is 12.59. Since the χ^2 c is greater than the χ^2 t, the alternate hypothesis is accepted and the null is rejected. This result indicates a positive association between the state of hydroelectric power supply and the presence of industries in Ilorin metropolis.

Hypothesis Three

H₀= There is no significant association between community educational level and gender equality in the employment of teachers in Ilorin metropolis

Table 3: Community Literacy Level and Level of Gender Equality in the Employment of Teachers

Community Literacy Level	Level of Gender Equality in the Employment of Teachers			Total
	Low	Moderate	High	
Low	99	28	6	133
Moderate	27	55	1	83
High	4	21	9	34
Total	130	104	16	250

Source: Researchers' Fieldwork (2019) χ^2 (4, N=250) = 84.112, p=.001.

The chi square value stands at 84.112. The degree of freedom is 4 with the significance level at .05. Using these values, the chi-square table value is 9.49. Since the χ^2 c is greater than the χ^2 t, the alternate hypothesis is accepted and the null is rejected. The result indicates a significant association between community literacy level and level of gender equality.

Interview Findings

1. Has the state of the rail transport system affected its level of use by people of Ilorin?

The respondents in this study had similar views on how the state of the railway system affects its use by people of Ilorin metropolis. The following are some of the responses given by some of the respondents:

"Sure...The condition of the railway transport system is quite poor. It is outdated compared to what you can find in other countries. I do not use it that much. It is always hot in the train and quite congested. There was a time when the train got faulty while I was travelling. It was quite frustrating" (male, 31 years old).

Another respondent expressed a similar view:

"My brother, the train is not so good. It is very old and needs serious repair. There are no working fans in the train and it is always packed. I cannot take the train, especially in this heat. If it would be the modern type that is found in South Africa, America, then I will make use of the railway transport system very well" (female, 27 years old).

A respondent also had this to say on the question asked:

"The train is too slow. The train tracks are not properly maintained too. I do not take the train too much because of this. I only take it as a last resort. If these problems are fixed, I will start taking the train more" (male, 24 years old)

Another respondent had this to say:

"Although the train is bad, I still take it because it is cheaper than travelling by car. I only make fifteen thousand naira in a month so I have to find ways to cut down unnecessary costs. Despite this, I will be quite happy if the rail transport system can be upgraded to the modern standard" (female, 30 years old).

2. Does the state of the hydroelectric power supply affect the presence of industries in Ilorin metropolis?

The respondents in this study had similar views on how the state of the hydroelectric power supply affects the presence of industries in Ilorin metropolis. The following are some of the responses given by some of the respondents:

"A lot of industries do not want to operate in Ilorin because of poor electricity. Most of them operate in Lagos or Abeokuta. Electricity in Ilorin is very poor. Even the industries that are in Ilorin do not depend on hydroelectric power supply. An industry serious about operating in Ilorin has to buy generators to survive" (male, 25 years old).

Another respondent expressed a similar view thus:

"The hydroelectric power supply in Ilorin is nothing to write home about. Since even the masses have to constantly use generators, industries have no choice. As this will be an additional cost, industries seldom settle in Ilorin. The electricity is so poor that we sometimes experience blackout for days" (female, 35 years old).

Another respondent's view is expressed thus:

"Industries operating in Ilorin have to find other sources of power as the hydroelectric power supply cannot be depended upon. It is epileptic in nature. Whenever rain falls, blackout follows, even if it is just a light drizzle. Such is the state of hydroelectric power supply in Ilorin. Because of this, industries might find it difficult to stay afloat in Ilorin" (male, 40 years old).

A respondent also expressed her view thus:

"It is not easy for industries to operate in Ilorin. The poor power supply is enough to chase them away as debt might be incurred if they remained. Not only is the hydroelectric power supply epileptic in nature, it is also exorbitant. If it is exorbitant for me, imagine the electricity bills that industries would have to pay" (female, 45 years old).

A respondent's view is also expressed thus:

"The period spent in blackout is longer than the time light is available. That shows just how poor the hydroelectric power supply is. Since even small scale businesses consider electricity to be a factor before starting up somewhere, then industries definitely consider it to before settling in a location" (female, 32 years old).

3. Do you think community literacy level affects gender equality in the supply of teachers in Ilorin metropolis?

The respondents in this study had similar views on if community literacy level affects gender equality in the supply of teachers in Ilorin metropolis. The following are some of the responses given by some of the respondents:

"A lot of people still believe that there is no point in females attending schools. I know a little girl that hawks instead of attending school. The girl's parents are not educated. How can a girl like that have a chance to be a teacher when she does not even attend school?" (female, 30 years old).

Another respondent's view is expressed thus:

"Ilorin is considered a city but there are some parts that are quite rural in nature. In such parts, girls are reminded that marriage is the most important aspect of their life. They do not aspire for much aside this. If you look at their parents, you will see that they are uneducated" (male, 27 years old).

Another respondent had this to say on the posed question:

"There are some jobs that are considered by people to be for men. Teaching is one of those. There are some schools where you cannot find a single female teacher. I believe that if the educational level of the general community is improved, then females stand a chance to

penetrate not just teaching but other professions considered to be male-centred” (female, 40 years old).

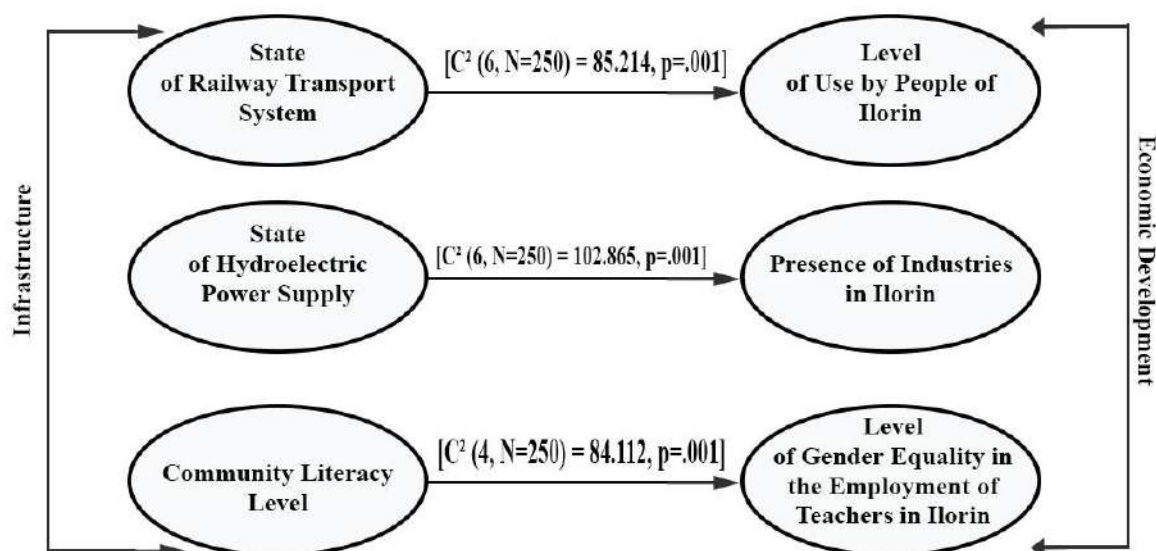
A respondent also had this to say on the question:

“If more members of the community get to go to school, especially the females, then they would be able to compete with males in terms of various professions that have been dominated by men for so long. I believe that the community educational level affects gender equality in the supply of teachers in Ilorin” (female, 32 years old)

Discussions

The figure below summarizes the assumptions of the study.

Figure 1. A Model Depicting the Relationship between the Tested Hypotheses



Source: Researchers' Fieldwork (2019)

The provision of efficient and sufficient infrastructures to a certain extent serves not only in fostering economic development of Ilorin metropolis, but could as well boost the aesthetics of the city. The three hypotheses tested in this study revealed a positive association. The first hypothesis revealed a significant association between the state of rail transport system and level of use by people of Ilorin metropolis. As the state of railway transport system in Ilorin metropolis was described as poor by 81.6% of the respondents, the notion of the railway transport facilitating major economic development seems farfetched as it is scarcely used by the community. Thus, the availability of sufficient and efficient railway transport system can drive development of Ilorin metropolis. This is consistent with the findings of the study carried out by Fan and Chan-Kang (2005) on the impact of road investment in promoting production growth in China. Kuroda, Masahiro and Nangia (2007, p. 235-259) also revealed in a study that in the period between 7500-4000 BC, the Silk Road aided the exchange of goods between India, Mesopotamia and Chinese regions. Therefore, proper investment in the road/railway infrastructure could prove fortuitous for Ilorin metropolis. Not only would the government generate funds from a proper investment in the railway system, it would also facilitate trade

activities among the masses, all contributing to developmental purposes in long run. To Rao (1968), the nexus between infrastructure and economic growth is a constant process through which economic development has to be led to achieve national and global stated objectives. Hence, a proper infrastructural system could be of critical relevance to a country. The availability of a well-functioning infrastructural system in terms of transports could prove to be very vital in matters of national defense. In addition, infrastructures could prove germane for developmental efforts. Infrastructures basically serve as drivers of social change. Advances in transport, industry, and education among others may very well alter the society for better. Although the critical relevance of sufficient infrastructural facilities has been well defined by the above findings, Ilorin metropolis still needs a lot in this area for sustainable development. There is no doubt that good roads, adequate power supply, and efficient educational system would make Ilorin a pride to other metropolis in Nigeria.

The second hypothesis revealed a significant association between the state of hydroelectric power supply and the presence of industries in Ilorin metropolis. Adequate electricity distribution would lead to increased production of goods and services which would concomitantly ensure a good business environment for the economic development of the metropolis. Industries are therefore finding it difficult to settle in Ilorin partly because of the epileptic power supply. The finding is related to the work of Ndebbio (2006) which cited that the supply of electricity drives the industrialization procedure. Similarly, in another work, Ukpong (1976) recognized the reality of a significant association between the consumption of electricity and economic development. This is similar to the findings of Siddiqui (2004) who revealed the benefits of energy resources, particularly petroleum in facilitating the growth of Pakistan's economy. Studies like Emeka (2008), Nnimmo (2007), and Odiaka (2006) have seen the growth in electricity supply as critical in quickening the advancement of the industrial sector. However, efficient energy system is still a mirage in Ilorin metropolis as the community is besieged with unstable and epileptic power supply. This perilous situation has grave implications for the running of industries, as most companies expended fortunes in generating their own power. This affects local and international businesses as it raises production costs in industries and discourages foreign investments, thereby constituting a major setback in the pursuit of economic development in the metropolis.

The third hypothesis also revealed a significant association between community literacy level and gender equality in the supply of teachers in Ilorin metropolis. As a scenario, the national budget indicated the relatively meagre funds set aside for education in Ilorin, which is a reflection of the country's investment in education, as can be seen in the budget for education in 2018 which is just 7.07 percent of the total budget (Punch, 2018). Gender equality is a necessity in terms of human capital. In a scenario where gender equality is the norm, meritocracy supersedes sexism. A study carried out by Amasuomo (2013) revealed that there was scarcity in the supply of female teachers in secondary schools in Bayelsa State, Nigeria. This is because a large portion of females do not attend schools as the parents believe that it interferes with prospects of marriage, which is seen as a priority. This view is supported by findings from the interview conducted in this study. Gender equality is one of the indicators of development as stated by Harbison and Myres (1964). According to Aja-Okorie (2013), it is becoming increasingly worrisome that efforts mustered by the Nigerian government to tackle gender disparity in education remain largely fruitless. Akinlo (2004) asserted that school enrolment serves as a significant contribution to human capital development. This is also in corroboration with findings of various researchers who have observed how expenditures on the educational sector influences economic development as indicated in the findings of Yogish (2006), and Permani (2009). Notwithstanding governmental investments in education, this study found out that the sector seems to be beclouded with problems. To some extent, a large proportion of schools in Ilorin are dominated by congestion, pitiable hygiene, poor administration, abysmal

students-teachers' ratio, pitiable remunerations for teachers, abandoned capital projects, insufficient funding, pitiable conditions of service, etc. The ensuing effects of these multitudes of incongruities are the making of incompetent graduates and corruption of varying kinds among others. Thus, the appalling performance of the educational sector in Ilorin despite governmental expenditures on education has led to a poor level of social investments and this has stunted economic developmental efforts.

Harbison and Myres (1964) carried out a study of 75 countries with a focus on the correlation between GNP per capita enrollment in primary schools, between GNP per capita and enrollment in secondary schools and tertiary levels. A strong positive correlation was the result of this study. Curle (1964) has revealed a strong positive correlation between per capita income and enrollment in primary school as well. In addition, he indicated that a greater portion of a nation's wealth is intertwined with the funds made available for education. Estache, Speciale and Veredas (2005) in the analysis of sub-Sahara Africa also revealed the importance of education to economic development.

Conclusions

The study sought to shed more light on issues relating to infrastructure and economic development. From these findings, it is recommended that proper plans be made in making infrastructures available to the inhabitants of Ilorin metropolis. The railway system should be upgraded to meet modern standards as the findings reveal an outdated one. There should also be a great focus on improving electricity in the metropolis as it is a major driver of economic development. A stable power supply in the metropolis enhances the quality of the local business by ensuring productive employment among working age populace and also serves to draw in foreign investments. Attempts should be made to explore other sources of power such as solar if the provision of stable hydroelectricity proves to be a Herculean task. The educational infrastructure should as well be accorded the same level of importance. A sound educational system lays the blueprint for the quality of life lived by the habitants of the metropolis. It prepares them with the appropriate skills and abilities to use one's resources to contribute to the development of one's society. Therefore, the Kwara state government should invest more in education by upgrading the learning and teaching facilities in schools, ensure that there is gender equality in the enrollment of students in schools and employing competent teachers.

To ensure positive results from these plans and strategies, checks and balances should be in play to avoid possible cases of mismanagement of resources. There should be an air of transparency while carrying out these plans. Proper sensitization of members of the public on the utilization of infrastructural facilities would also be part of the indices of ensuring sustainable economic development. The public should be educated and encouraged on the maintenance of certain infrastructures. Finally, Kwara state government and other concerned agencies responsible for monitoring these infrastructural institutions should ensure continuity and consistency of the developmental policies.

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Psychometric quality of family adaptability and cohesion evaluation scale IV by latent class analysis; quantitative study on the elderly in Romania**DOI:** <http://doi.org/10.26758/9.1.10>

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Abstract

Objective. The aim of this study is to show the strengths of Romanian version of the Family Adaptability and Cohesion Evaluation Scale IV (FACES IV) on a sample of subjects without apparent problems and to assess the cohesion and flexibility of the FACES IV according to gender, age and place of residence. FACES is useful in clinical evaluations and assessments of marital and family therapeutic interventions, in research highlighting changes within family life cycles.

Material and method. A cross-sectional study on 601 subjects aged between 55 and 93 years, using Latent Class Analysis with 2 models: clusters and discrete factors.

Results. The Cronbach's alpha coefficient was from .55 for the Chaotic scale to .80 for the Cohesion scale and over .91 for the Communication and Satisfaction scales. Like the author of the instrument the study identified 6 types of families. About three quarters described family as balanced or midrange. The Pearson Chi-Square showed that there was a statistically significant difference in Circumplex Total Ratio score between the different residence places ($p < 0.05$), the share of the unhealthy family system being higher in the rural area compared with the urban environment. No significant differences in Circumplex Total Ratio scores between genders or age groups were observed.

Conclusion. The absence of significant differences by gender or age group indicated that ageing requires abandoning the interactional competitive model and a good behavior in adaptability and cohesion. The Chaotic concept in the Romanian ex-Communist cultural space could be clarified by interviews.

Keywords: FACES IV, cohesion, flexibility, elderly, family life cycles.

Introduction

The Family Adaptability and Cohesion Evaluation Scale (FACES) initiated in 1979 (Olson, Sprenkle and Russell, 1979) is useful in clinical evaluations and assessments of marital and family therapeutic interventions. The FACES or the *Circumplex Model of Marital and Family Systems* conceptualizes the family using the cohesion, flexibility, and communication dimensions.

In the most recent version of the family evaluation scale, FACES IV, there are 25 types of families, and each is represented as a small square framed within a large square. Family members are typically envisioned as being connected by an emotional bond, referred to as cohesion. Flexibility (Adaptability) is defined as the quality and expression of leadership and

organization, role relationships, and rules and negotiation within relationships. Similar to FACES II and FACES III, in FACES IV, there are 2 balanced scales that assess *balanced family cohesion* and *balanced family flexibility*. FACES IV also contains 4 unbalanced scales that assess the high and low extremes of cohesion and flexibility: 2 unbalanced scales for cohesion, which include *disengaged* and *enmeshed*, and 2 unbalanced scales for flexibility, which include *rigid* and *chaotic* (Olson and Gorall, 2006; Olson, 2011).

FACES IV is composed of 42 items where the participants rate their degree of agreement on a 5-point scale ranging from 1 to 5 (1, totally disagree; 5, totally agree). The scores showed adequate internal consistency values in the original American version (enmeshed, .77; disengaged, .87; balanced cohesion, .89; chaotic, .86; balanced flexibility, .84; rigid = .82) (Olson, 2011).

FACES IV scale performs well in the assessment of families before and after therapy, for example, on alcoholic families (Margasiński, 2014).

FACES IV can identify the adaptive resources of the families that face crisis or health issues. For instance, the assessment with FACES IV of married couples where the other was schizophrenic revealed surprisingly the fact that more than three fourths described their family as balanced (Carvalho et al., 2014). Another example on Clinical and Normal Italian Families has shown that “a large percentage of health-oriented members, in normal and clinical population, underlined the family's ability to respond to difficulties and painful situations, such as the presence of a disorder in one of its member and suggests avoiding the direct association between the presence of a disorder and the presence of dysfunction in the family” (Visani et al., 2017).

The diagnosis of a chronic illness and the necessary treatment require the family to move from an Enmeshed model to a more rigid one, as is the case of families who have a child suffering from cancer (Marsac and Alderfer, 2011).

During the life cycles, the individuals can decide to move from a more relaxed model to a more rigid one, as in the case of the impact of the new parental status on career involvement – an aspect that FACES can identify (Rada and Olson, 2016).

Within Europe, FACES IV was adapted and validated in Hungary (Mirnics et al., 2010), Italy (Baiocco et al., 2013; Di Nuovo, Loredio and Visani, 2013), Greece (Koutra et al., 2013), Spain (Rivero, Martínez-Pampliega and Olson, 2010), and Portugal (Hugo, Peixoto and Gouveia-Pereira, 2017).

Other authors have also been concerned with updating FACES IV. The most recent update of FACES IV on families without apparent problems from Italy showed that the instrument has a good power (Loredio, Visani and Di Nuovo, 2017).

The first step in the Romanian Validation of Family Adaptability and Cohesion Scale IV (FACES IV) and evaluation of Family Communication and Family Satisfaction scales were done on the basis of a quantitative cross-sectional study conducted between 2013 and 2014 on a total of 1,359 young people aged between 18 and 30 years old (Rada, 2018).

The scales were independently translated from English into Romanian by 2 psychologists who were native Romanian speakers with high English proficiencies. When the translations were different, a third specialist was consulted. The procedure was in compliance with Translation Guidelines provided by Life Innovation (Olson, 2010b).

The main limits of that study were the fact that it included only a young age segment of population and the sample had an unbalanced structure from the point of view of marital status.

At the same time, a lower internal consistency has been identified at some scales. This study was launched to overcome these impediments and to make a final form of the Romanian FACES IV version.

This article on FACES IV in Romania is useful for allowing intercultural comparisons with other studies that have validated and used this tool in other countries. The model can surprise family dynamics, becomes more obvious during the transitions within life cycles, such

as the emergence of the parent status after childbirth, the retirement, or as a result of an unpleasant, stress-generating event, such as illness or accident. FACES IV is useful for clinical evaluation, treatment, as well as to evaluate the efficacy of marital and family therapeutic intervention.

Material and methods

Design and sampling

This article is based on a quantitative cross-sectional study carried out between 2016 and 2017 on a total of 601 patients who were treated within the “Ana Aslan” National Institute of Gerontology and Geriatrics aged between 55 and 93 years, without apparent problems regarding family. People under family psychotherapy, under the age of 55 years, non-cooperative people, individuals with strong auditory or visual sensory deficits, with severe cognitive deficits, with disorders accompanied by psychotic elements with serious somatic pathology have not been selected for this study. Table 1 displays the basic sociodemographic variables of the sample population.

Table 1. Sociodemographic and Family Characteristics of the Participants

Sociodemographic data	N	%
Gender		
Female	492	81.9
Male	109	18.1
Age groups (years)		
55-64	224	37.3
65-74	272	45.3
75-84+	105	17.4
Place of residence		
Urban	445	74.0
Rural	156	26.0
Marital status		
Married	318	52.9
Widowed	202	33.6
Divorced	55	9.2
Consensual union over 1 year	19	3.2
Unmarried (single)	7	1.2
Employment status		
Not working (pensioners (retired), housewives)	574	95.5
Working	27	4.5
Education		
Elementary/high school (up to 12 years of school)	167	27.8
Lyceum/vocational school/school of foreman in a profession	305	50.7

Sociodemographic data	N	%
University degree	129	21.5
Children in the family		
0	57	9.5
1+	544	90.5
The number of family members living with the respondent including himself		
1	175	29.1
2	278	46.3
3	58	9.7
4	34	5.7
5+	56	9.2

Measurements, questionnaire design

Depending on the doctor's recommendation and diagnosis, up to 15 blood tests have been performed (usual clinical parameters) on the patients. Several questionnaires on personality, depression, memory, and quality of life have been applied. An Omnibus-type questionnaire was used, with 36 items that collected sociodemographic data, data on behaviors harmful for health, and opinions and attitudes relevant to the health of the elderly and the FACES IV Package, which contains 6 scales from the Family Adaptability and Cohesion Scale IV (FACES IV) with 42 items and 2 scales on the Family Communication and Family Satisfaction, each with 10 items (Olson, 2010a).

The questionnaires were completed in the form of a face-to-face interview with each individual patient conducted by a psychologist. The response rate was 100%. Care and sensitivity were applied at all times when dealing with the respondents.

The aim of this study is to finalize the development and testing of the psychometric quality of Romanian version of the Family Adaptability and Cohesion Evaluation Scale IV (FACES IV) on a non-clinic sample of elderly subjects and to assess the cohesion and flexibility of the FACES IV according to gender, age, and marital status.

In the first Romanian study on FACES IV Package, the Flexibility, Enmeshed, Rigid scales had relatively low consistency, with Cronbach's alpha of 0.69, 0.61, 0.66, respectively and low on Chaotic scale, with Cronbach's alpha of 0.53 (Rada, 2018). For this reason, focus groups were organized, aiming to compare the family category to which they belong, in accordance with FACES IV where the family type results were based on the face-to-face discussions. These in-depth interviews showed the necessity of rephrasing more clearly and more concise the following items 2, 5, 10, 11, 14, 16, 22, 23, 26, 28, 29, 34, 35, 38, 40, and 41 (Table 2).

Table 2. Original and reworded items

Item nr.	Original items	Reworded items
2	Our family tries new ways of dealing with problems.	Our family looking (try) new ways to solve problems
4	There are strict consequences for breaking the rules in our family	For breaking the rules in our family applies strict penalties
10	Family members feel pressured to spend most free time together.	Family members feel compelled to spend most of their leisure time together

Item nr.	Original items	Reworded items
11	There are clear consequences when a family member does something wrong.	There are clear sanctions when a family member does something wrong
14	Discipline is fair in our family.	In our family, discipline is based on justice, equity
16	Family members are too dependent on each other	We are too dependent on each other in the family
22	Family members have little need for friends outside the family	We do not need friends outside the family
23	Our family is highly organized.	Our family is extremely organized
26	We shift household responsibilities from person to person	We can change household responsibilities from one person to another
28	We feel too connected to each other	We are too connected, bound to each other
29	Our family becomes frustrated when there is a change in our plans or routines	Our family becomes frustrated when there is a change in her plans or her usual schedule
34	We resent family members doing things outside the family	We do not like when family members are always doing things outside the family
35	It is important to follow the rules in our family	It is especially important to respect the rules in our family
38	When problems arise, we compromise	When new problems arise, we can make agreements based on reciprocal yields, a compromise
40	Family members feel guilty if they want to spend time away from the family.	Family members feel guilty when they want to spend separate family time
41	Once a decision is made, it is very difficult to modify that decision.	Once a decision is made, it is very difficult to change that decision.

The last version with these newly rephrased items, translated independently by 2 psychology specialists with high English proficiencies, has been approved by the supplier of the FACES IV Package. The present study focuses on FACES IV with those reformulated items.

Psychometric Quality of FACES IV by Latent Class Analysis

Methods

Statistical analyses were carried out using IBM SPSS 20 and Latent Gold 5.0 (Statistical Innovation Inc.) for Latent Class Analysis (LCA). LCA is a statistical method for identifying unmeasured class membership among subjects using categorical or continuous observed variables.

Internal consistency represented by Cronbach's alpha was measured to verify the reliability of the 6 scales (cohesion, flexibility, disengaged, enmeshed, rigid, chaotic) and the communication and satisfaction scales proposed by Olson.

LCA, which is most similar to the K-Means approach for cluster analysis and used by Olson, is a method for analyzing the relationships among polytomous manifest data when some variables are unobserved. The unobserved variables are categorical, allowing the original data set to be segmented into a number of latent classes (clusters). Individuals are classified into the class

in which they have the highest posterior membership probability of belonging, given the set of responses (manifest variables) for that case. Advantages of Latent Class cluster models over more traditional ad-hoc types of cluster analysis methods include model selection criteria and probability-based classification. Posterior membership probabilities are estimated directly from the model parameters and used to assign cases to the modal class - the class for which the posterior probability is highest (Magidson and Vermunt, 2002).

For each subject, the raw scores were computed for the 6 Olson scales and then converted into 6 categorical variables conventionally known as cohesion, flexibility, disengaged, enmeshed, rigid, and chaotic according to the Olson algorithm and categories (or levels). The first 2 categories, cohesion and flexibility, were associated with the balanced scales and had the following 3 categories: 1, somewhat connected; 2, connected; and 3, very connected for cohesion and 1, somewhat flexible; 2, flexible; and 3, very flexible for flexibility. Each categorical variable was associated with the 4 unbalanced scales, disengaged, enmeshed, rigid, and chaotic, and were scored as follows: 1, very low; 2, low; 3, moderate; 4, high; and 5, very high.

Latent Class Analysis includes latent class factor models (DFactor Model) that identify factors, which group together variables sharing a common source of variation. The model may include several ordinal latent factors (Discrete Factors). The Discrete Factor (DFactor) model assumes that each factor contains 2 or more ordered categories as opposed to traditional factor analysis, which assumes that the factors (as well as the variables) are continuous (interval scaled) (Magidson and Vermunt, 2002).

Using the Olson methodology, the dimension scores on cohesion and flexibility for plotting scores on Circumplex Model have been computed. These dimension scores were created by using the balanced scores (for Cohesion or Flexibility) and adjusting the balanced scores up or down the scale based on whether the difference in the 2 unbalanced scales is at the high or low of the dimension using the following formulae:

$$\text{cohesion} = \text{balanced cohesion} + ([\text{enmeshed} - \text{disengaged}]/2);$$

$$\text{flexibility} = \text{balanced flexibility} + ([\text{chaotic} - \text{rigid}]/2)$$

The percentile scores were used for each scale based on the raw scores as indicated in Olson methodology for FACES IV. The dimension score levels obtained were used to locate each person within the Circumplex Model. The model provided 25 types of family systems because each dimension has 5 levels. The following are the 5 levels of cohesion and flexibility that have been used with 20% for each level: 0-20, 21-40, 40-60, 61-80, and 81-100. The 9 balanced types are in the central area of the model, and there are 12 mid-range types balanced on 1 dimension and unbalanced on the other dimension. The 4 unbalanced types have unbalanced scores (very high or very low scores) on both cohesion and flexibility.

Using the Olson methodology, the ratio score of balanced and unbalanced scales was created for both cohesion (Cohesion Ratio) and flexibility (Flexibility Ratio) and the 2 scales combined (Circumplex Total Ratio). The 2 balanced scales measure the healthier family functioning and the 4 unbalanced scales measure the more problematic family functioning. As a result, the higher the ratio score of balanced to unbalanced, the healthier the family system. The higher the ratio score (above 1) is, the healthier the family system is and the lower the ratio (below 1) is, the unhealthier the family system is. Circumplex Total Ratio score was used to indicate the family's characteristics.

Results

The internal consistency was good for the 5 of 6 scales (Cronbach's alpha coefficient, ranging from .62 to .80). The consistency for the Chaotic scale was poor ($\alpha = .55$) but still acceptable for this analysis. A very good internal consistency was observed for the Communication and Satisfaction scales (Table 3).

Table 3. Reliability Statistics — Cronbach's alpha

Subscale	Cronbach's alpha
Cohesion	.80
Flexibility	.76
Disengaged	.69
Enmeshed	.62
Rigid	.69
Chaotic	.55
Communication	.91
Satisfaction	.94

The LCA, LC Cluster Model best-fit statistics for latent class cluster models were estimated for all theoretical models with 1 to 8 latent classes. The best-fit model was selected considering the lowest Bayesian Information Criterion (BIC) value (9390.91) for the 6 clusters model with 55 parameters (Npar) and 546 degrees of freedom (df). The Consistent Akaike Information Criterion (CAIC) had also the lowest value for the 6 cluster model, CAIC=9445.91. For this particular model, the dissimilarity index was 0.69, and the total bivariate residual BVR was 19.21. This large BVR value identified a correlation between the associated variable pairs (scales), which have not been adequately explained by the model (Table 4).

Table 4. LCA Best-fit Statistics

Model	BIC	CAIC	Npar	df
1-Cluster	10454.69	10474.69	20	581
2-Cluster	9854.37	9881.37	27	574
3-Cluster	9607.37	9641.37	34	567
4-Cluster	9486.07	9527.07	41	560
5-Cluster	9418.57	9466.57	48	553
6-Cluster	9390.91	9445.91	55	546
7-Cluster	9397.22	9459.22	62	539
8-Cluster	9411.16	9490.70	69	532
6-Cluster and 1 CFactor	9342.45	9403.45	61	540
6-Cluster with 1 CFactor and 1 covariate	8318.14	8384.14	66	535
2-DFactor (3.3)	9353.78	9389.78	36	565

Furthermore, the 6-class model was improved by including a class-independent continuous random intercept (CFactor 1) to capture respondent differences in average attitude across all scales and latent classes. The CFactor was considered as a reflection of individual liability on an assumed continuous latent trait, as it is explained in item response theory (IRT) models. As a confirmation of the model improvement, the BIC value decreased to 9342.45, and the total BVR dropped to 1.97. CAIC also decreased to 9403.45.

For improved cluster or segment description (and prediction), the relationships between the latent classes and external variables (covariates) were assessed simultaneously with the

identification of the classes (clusters, segments). This eliminated the need for the usual second stage of analysis where a discriminant analysis is performed to relate the resulting clusters or factors obtained from a traditional cluster or factor analysis to demographic and other variables.

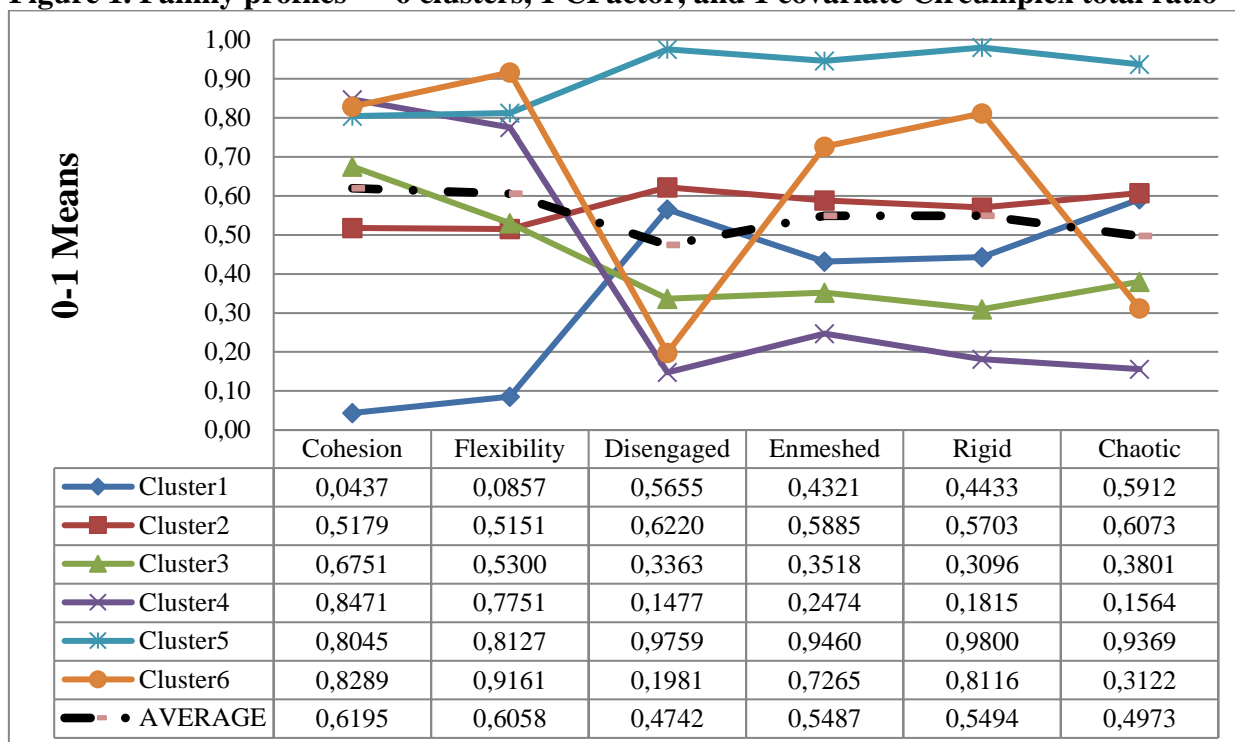
For the purpose of this research, the computed Circumplex Total Ratio was used as a numeric covariate to assess the family health for each cluster. For the model with covariates, the BIC value decreased to 8318.14 and CAIC decreased to 8384.14. Classification statistics, such as Lambda Reduction of errors (0.89) and Entropy R^2 (0.87), being over 0.8, indicated that reasonably accurately, respondents can be assigned to the classes. Over 5% of cases were present for each cluster. This assured meaningfulness of the model, as small size clusters add no value, except in very obscure edge conditions.

Each cluster was associated with a family profile defined by the profile scores provided by the Latent Gold profile output as class-specific means. For the family profiles presented in Figure 1, the 0-1 means for each Olson scale are plotted on the vertical axis instead of class-specific means.

The advantage of such scaling is that these numbers can be depicted on the same scales that always lie within the 0 to 1 range for all categorical variables. Scaling these “0 to 1 means” was accomplished by subtracting the lowest observed value from the class-specific means and dividing the results by range, which was simply the difference between the highest and the lowest observed category values. On the same graphical representation, a *reference profile* was also plotted.

The reference profile scores (AVERAGE) were computed as the mean of the 6 classes for each scale. Latent Gold software provided the means, after model estimation, to assign individuals to latent classes or clusters using their posterior class membership probabilities and, subsequently, investigated the association between the assigned class memberships and external variables. Class assignment can be modal (to the class for which the posterior membership probability is largest) or proportional (to each class with a weight equal to the posterior membership probability for that class).

Figure 1. Family profiles — 6 clusters, 1 CFactor, and 1 covariate Circumplex total ratio



Cluster 1 was the largest cluster and represented 27% of the sample population. This cluster was characterized by low scores on the cohesion and flexibility balanced subscales and high scores on the unbalanced subscales, disengaged, enmeshed, rigid, and chaotic. The average covariate Circumplex Total Ratio was very low (.36). This profile was considered to be similar to the *Unbalanced* family profile described by Olson. After posterior classification, the cluster proportion was still 27%. The posterior probabilities in Latent Class Analysis (LCA) refer to the probability of that observation that is classified in a given class.

Cluster 2 represented almost 26.6% of the sample population. Moderate scores on the balanced and unbalanced subscales characterized this cluster. The average covariate Circumplex Total Ratio was .91. This profile was considered to be similar to the *Midrange* family profile described by Olson. After posterior classification, the cluster proportion was 26.3%.

Cluster 3 represented almost 14.9% of the sample population. This cluster was characterized by low scores on the unbalanced 4 scales (disengaged, enmeshed, rigid, and chaotic). However, this cluster was characterized also by high to moderate scores on the Cohesion and Flexibility scales. The average Circumplex total ratio was 1.66, indicating a healthy family system. This profile was considered to be similar to the *Moderate Balanced* family profile described by Olson. After posterior classification, the cluster proportion was 15.5%.

Cluster 4 represented almost 14.9% of the sample population. This cluster was characterized by high scores on flexibility and cohesion. The scores on the unbalanced subscales were low especially on disengaged and chaotic. The average covariate Circumplex Total Ratio was very high (4.34), indicating a very healthy family system. This profile was considered to be similar to the *Balanced* family profile described by Olson. After posterior classification the cluster proportion was 15.0%.

Cluster 5 represented almost 9.8% of the sample population. This cluster was characterized by high scores on flexibility and cohesion. The scores on the unbalanced subscales disengaged, enmeshed, rigid, and chaotic were also high and uniform, almost equal. The average covariate Circumplex Total Ratio was .85. This profile is in the category of *Midrange* family profile, translated in parallel with the high score space. The cluster was also suspected to be an Extreme Response Style (ERS) segment that included the respondents with systematic tendency to choose categories on Likert scales, independent of the intended object of measure. ERS is the tendency to choose only the extreme endpoints of the scale. After posterior classification, the cluster proportion was 10.1%.

Cluster 6 represented almost 6.6% of the sample population. This cluster was characterized by high scores on flexibility and cohesion. The scores on the unbalanced subscales were high on enmeshed and rigid and very low on disengaged and chaotic. The average covariate Circumplex Total Ratio in the cluster was 1.56, indicating a healthy balanced family system. With some differences regarding unbalanced scores, this profile was considered to be similar to the *Rigidly Cohesive* family profile described by Olson. After posterior classification, the cluster proportion was 6.2%.

The classic LCA model with covariate is summarized as follows: 36.6% of the sample population as balanced, 36.4 % as midrange, and 27.9% as unbalanced.

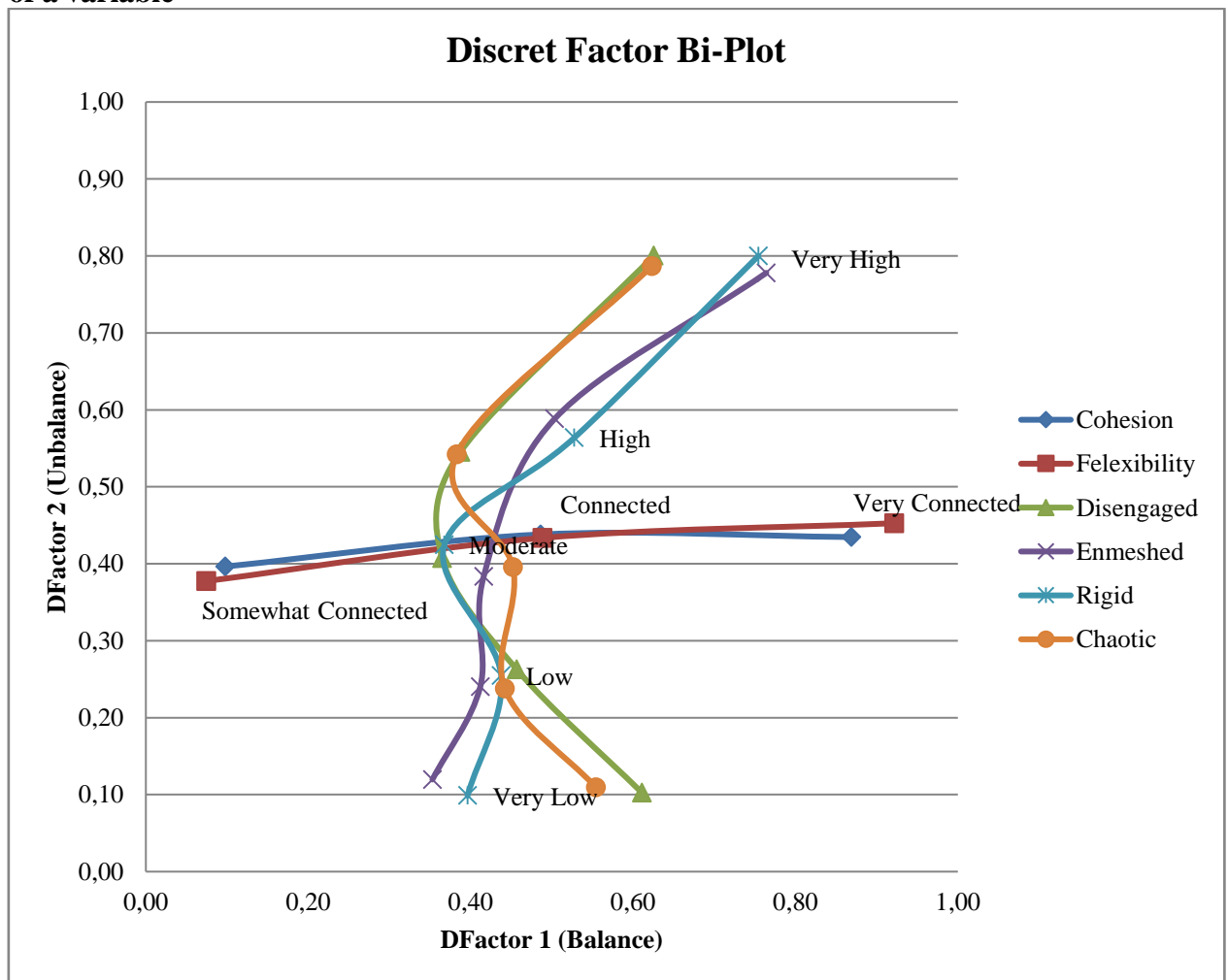
For the purpose of this research, a DFactor Model with 2 discrete factors was also estimated. The best-fit model was selected considering the lowest BIC value (9353.91) for the 3 levels (1, low; 2, medium; 3, high) in each DFactor, with 36 parameters (Npar) and 565 degrees of freedom (df). For this particular model, the dissimilarity index was 0.71, and the total bivariate residual BVR was 9.69. The CAIC value was 9389.78.

Inspection of the model loadings indicated that Cohesion and Flexibility load primarily on DFactor1, whereas disengaged, enmeshed, rigid, and chaotic load on DFactor2. In addition, the Latent Gold software bi-plot of the results in graphical presentation, as in Correspondence

Analysis, helped to interpret the abovementioned DFactors. Each indicator variable category was positioned in a 2-dimensional space at a point where coordinates are aggregated mean DFactor scores obtained for all cases responding in this category.

For more clarity, curved lines connecting the categories of a variable have been added. The graphical presentation indicated that cohesion and flexibility discriminate over DFactor1 (balance) axis, whereas disengaged, enmeshed, rigid, and chaotic were associated with the DFactor2 (unbalanced) axis. This was a confirmation of Olson family classification theory, regarding balance and unbalance characteristics of family type.

Figure 2. DFactor (3.3) Model, biplot of results with curved lines connecting the categories of a variable



Plotting on Circumplex Model of the Cohesion Dimension and Flexibility Dimension Scores and the Influence of the Sociodemographic Characteristics

The distribution in the sample by type of family system is shown in Figure 3.

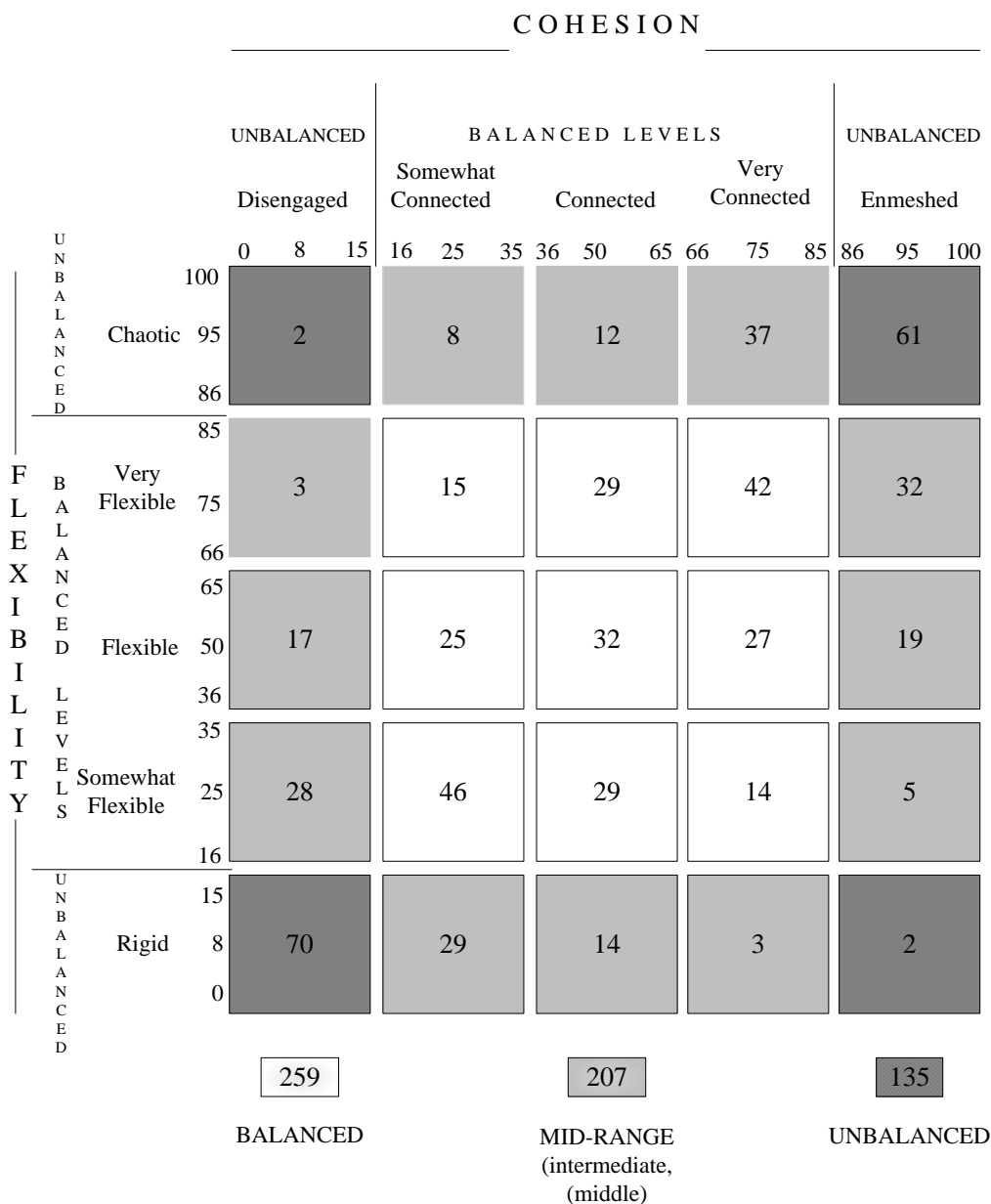
Figure 3. Family flexibility and cohesion among people older than 55 years from Romania according to the FACES IV

Figure 3 reveals the fact that *Balanced* functioning family system prevails, with the following predominant types of families: somewhat connected-somewhat flexible and very connected-very flexible. Within *Unbalanced* functioning family system, the rigid-disengaged and chaotic enmeshed types of families prevail, whereas the types chaotic-disengaged and rigid-enmeshed are less represented.

The Pearson Chi-Square showed that in the sample studied there was a statistically significant difference in Circumplex Total Ratio score between the different residence places, ($\chi^2=4.957$, $df=1$, $p=0.026$), the share of the unhealthy family system being higher in the rural area was 60.9% compared with the urban environment with 50.6%. No significant differences in Circumplex Total Ratio scores between genders and age groups were observed

Discussions

The fact that in the evaluation through the Cronbach's alpha coefficient, the removal of any item from the Chaotic scale did not lead to the increase of consistency is probably caused by the lack of adaptability of these scale items to the Romanian culture.

Compared with the internal consistency obtained through the application of FACES IV to young adults (18-30 years), the internal consistency obtained in this study in the adult and elderly population (55-93 years) was maintained or increased at all scales except for the disengaged scale, where it declined, although no item from this scale was reformulated. Although as concerns flexibility, 6 of 7 items of the rigid scale and 4 of 7 items of the balanced flexibility scale were reformulated, only a 2-point increase in the consistency of the chaotic scale was obtained. The chaotic scale remains empirically weaker. With regard to the chaotic scale, it results that Flexibility dimension which gives the profile of the Chaotic scale relates rather to the role distribution, to the management, and less to the organization; for example, the answers *The strongest disagreement* registered the highest share for the item "We never seem to get organized in our family."

Like Olson's study which indicated in 2008 6 types of families, the present study identified also 6 types of families or clusters that were improved by including a class-independent continuous random intercept to capture respondent differences in average attitude across all scales and latent classes. Circumplex Total Ratio was used as a numeric covariate to assess the family health for each cluster. The latent class factor models (DFactor Model) indicated that the 6 subscales discriminate in 2 discrete factors orthogonal space: balance and unbalance. The findings of this research are somehow different with those presented in the Italian Faces IV study in 2013, among Italian adolescents (Baiocco et al., 2013) when 5 types of families have been identified.

The fact that about three fourths of the subjects described the family so that it belongs to the balanced and midrange categories indicates that the Romanians from the sample studied have a good potential of intimacy and adaptability and healthy family functioning methods.

Taking into account the Circumplex Total Ratio, the subjects in the urban area have described the family system as healthier than those in the rural area. This is an aspect that should be better explored through interviews.

The fact that in this sample there were no significant statistical differences on gender, age groups, place of residence in terms of cohesion and flexibility scales can be explained by a tendency to homogenize the actors within the family in the modern and post-modern period as a result of the emancipation of women, the interchangeable roles in the couple, and the migration that allows the borrowing of models from other cultures (Rada, 2013).

In comparison with other studies in which the dynamics of the couple as regard control and cooperation was expressed relatively differently between men and women and between the middle-aged couples and older couples (Smith et al., 2009); in the current study, these variables did not greatly influence the scores on any of the 6 scales of flexibility and cohesion.

Moreover, as years pass, rather, as the years of marriage pass, the couples become more stable, with less power struggle and competition within the couple. Like other studies (Rada and Pănescu, 2016), the current research reveals, through the high share of the families of balanced and midrange types, that toward the end of the middle age and beginning with the third age, the partners mutually understand and respect their attachment needs and are more aware of their major role as sources of support and caring for each other.

In the case of the elderly, the challenges of the couple consist of the decrease of the mental and psychical health potential which makes the marital obligations more difficult to manage (Iveniuk et al., 2014). Even if the subjects in the studied sample were diagnosed with at least 1 chronic illness, the family functioning as regard the 2 dimensions — flexibility and

cohesion — was mostly balanced. The elderly in this sample have understood, like those in other studies (Berg et al., 2007), that collaboration regarding the domestic chores and spending time together after the retirement are an important resource for well-being.

Some dysfunctions are determined by the occurrence of some gaps between the partners' needs. The fact that the sample is formed of subjects who were not in a family crisis can explain the low share of the families of unbalanced type.

Conclusions

Like any authors, we consider that FACES IV is, in general, a good instrument, and the differences in strengths and internal consistency derive from the aspects connected to the cultural space (Martínez-Pampliega et al., 2017).

Values Cronbach's alpha over 0.90 of Family Communication and Family Satisfaction scales, in the previous study conducted on people between 18-30 years and in the present study conducted on people between 55-93 years, show that they are good tools in the Romanian context.

In exploratory studies, a 0.60 value of Cronbach's alpha can be accepted (Garson, 2010; Popa, 2011). Internal consistency close to 0.7 and even higher in all the scales except for the Chaotic scale shows that FACES IV can be a useful instrument in the Romanian context. A different approach regarding the Chaotic concept in the Romanian ex-Communist cultural space could explain the low power of this scale.

The Communist regime in Romania, which ended in 1989, violated the rights to freedom, food, decent living conditions, and so on. The Party and the State controlled the public and private lives. The father dominated the family. The promotion and the career of a person could be affected by a divorce or a marriage if that was considered inappropriate from the point of view of political affiliation, partner, political past, relations with foreign countries, and even parents. Deviations in this sense were sanctioned. Under these circumstances, where education and family and social roles were rigid, it is possible that the meaning given by the subjects to flexibility could be influenced by this background.

The subjects' answers to the flexibility scale, the interpretation of the chaotic concept could be a result of the gained freedom, an interpretation of this freedom as a chaos.

To overcome this impediment, it would be a good idea to clarify the meaning of the term chaotic through an interview or an open question.

However, using the Latent Class Analysis with categorical variables, the exploratory analysis has been obtained in a model with 6 clusters, as statistically best fit. The model, which is comparable, with some differences, with the family profiles structures described by Olson, indicated that FACES IV was confirmed to be a reliable approach.

The study of subjects older than 55 years from non-clinical families (were not under family psychotherapy) highlights family profiles showing homogeneous flexibility and cohesion by gender, age group, and residence. It is the result of several age-related events, such as the decrease of professional and social identity, the marriage of children, the birth of grandchildren recharging with privacy in another context the marital and parental identity; then retirement that changes the family budget, the family schedule, the interests, and the social relationships. The biological and psychological regression, the health issues, the low income — the main problems of the elderly — require the decrease of the competitive interactive model, a good manifestation of adaptability, cohesion, and of the model of cooperation as mechanisms coping with these challenges.

A merit of this article is that it evaluates the validity using a different method (LCA) with 2 models: clusters and discrete factors. Another merit of this article is to reveal FACES IV

value in longitudinal and transversal research on changes within the family as a system, within family life cycles, in the context of changes in legislative, economic contexts, and so on.

Limitations

The main limit of this study is that it was done on families who were not under psychotherapy. Another limit is the fact that the study was not effective on couples so that the perception of each partner of the marital pair could be identified and compared.

Ethical considerations

Informed written consent was obtained from each participant at the time of recruitment. The subjects were informed that they could withdraw from the study at any stage, and confidentiality was assured. The study was approved by the Ethics Commission of “Francisc I. Rainer” Anthropology Institute of the Romanian Academy (153/01-03-2016).

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Towards a ‘heterotopology’ of gaming: From Azeroth to Sanctuary**DOI:** <http://doi.org/10.26758/9.1.11>

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Abstract

Objectives. In this article, Michel Foucault’s (1967) theoretical insights regarding heterotopias are reconsidered, in order to determine whether his ‘heterotopology’ can be mirrored in several virtual worlds that are constantly redefined and reimagined by game producers and gamers alike. The places represented and juxtaposed in MMORPG’s like *World of Warcraft* epitomize countless virtual worlds full of contradictions, paradoxes and representations of the ‘Other’.

Material and methods: Towards a ‘heterotopology’ of virtual worlds. Drawing upon in-game participant observation, the main argument is that the plethora of emplacements and cultural references from virtual worlds like *Azeroth* and *Sanctuary* underline their paradoxical character. These worlds appear to simultaneously connect and differentiate between various spaces and times. Furthermore, they connect and contextualize multiple meanings, which can be interpreted from an anthropological standpoint.

Results. The juxtapositions between the various meanings entailed by these worlds are relevant only through the ways in which they encompass and exemplify the contradictions that exist in reality, without including solutions for them.

Conclusions. Accordingly, the ways in which virtual worlds such as *Azeroth* are reimagined highlight the need of redefining the conceptual relevance of heterotopia.

Keywords: heterotopia, heterotopology, virtual world.

Introduction

The applications of Michel Foucault’s ‘heterotopology’ have been debated in various fields of research in the past half-century, bridging Cultural Anthropology to Architecture, and Sociology to Urban Planning. Accordingly, Foucault’s theoretical insights regarding heterotopias have constituted the basis for a corpus of knowledge dedicated to ‘other spaces’. In this article, his insights are reconsidered, in order to ascertain if the ‘heterotopology’ can be mirrored in several virtual worlds that are regularly redefined and reimagined by game producers, developers and gamers.

The multiple juxtapositions entailed by virtual worlds like *Azeroth* and *Sanctuary* connect multiple spaces, times and meanings. They interfere with the continuity of the ‘ordinary space’. This article represents a development of a previous excursus, in which it was asserted that a virtual world is essentially a multileveled heterotopia where the digital counterparts of real objects seem more ‘real’ and ‘compelling’ than the originals (Palfrey and Gasser, 2008; Burlacu, 2017). The article begins with a review of the inception of ‘heterotopia’ in the social sciences. It continues with a brief exposition of Foucault’s ‘heterotopology’. Afterwards, the article contains

several considerations pertaining to the applications of Foucault's principles in describing virtual worlds like *Azeroth* or *Sanctuary*.

This excursus requires some preliminary clarifications vis-à-vis Foucault's attempt to envisage the new and original type of spatial analytics called 'heterotopology' (i.e. fr. 'hétérotopologie'). The fundamental concept that is approached in this article, heterotopia, is actually borrowed from the medical discourse, where it designates a tissue with an anomalous location or a displaced organ (Boyer, 2008, p. 58). As places of Otherness, heterotopias are "sites constituted in relation to other sites by their difference", according to Kevin Hetherington (1997, p. viii). The concept is extensionally vast and its description is somewhat ambiguous. Despite its vagueness, in the five decades, Foucault's principles regarding heterotopias have garnered a significant notoriety among architects and social scientists.

Inception of Heterotopia

The first lecture dedicated to this concept was presented on the 14th of March 1967 at the *Cercle d'études architecturales*, which at that time was directed by Ionel Schein and Jean Dubuisson. Foucault held this lecture after Schein heard his thesis in a radio talk entitled "Les Hétérotopies" that was broadcasted on *France Culture*, in December 1966. Actually, Foucault had written his lecture during his stay in Sidi-Bou-Saïd, Tunisia (Faubion, 2008, pp. 31–39). In the same period he was writing *L'archéologie du savoir* ("The Archaeology of Knowledge") and trying to elucidate the issues generated by the concepts used in his 1966 book, entitled *Les Mots et les choses: Une archéologie des sciences humaines* ("The Order of Things: An Archaeology of the Human Sciences"). He left France for Sidi-Bou-Saïd in September 1966 in order to avoid the commotion generated by the publication of this book. Furthermore, his lecture was derived from an idea regarding utopias and heterotopias from the same book.

In a nutshell, Foucault linked in *Les Mots et les choses* the two concepts with language. On the one hand, he claimed that utopias illustrate stories about imaginary non-places. On the other hand, heterotopias "secretly undermine language, because they make it impossible to name this *and* that, because they shatter or tangle common names, because they destroy 'syntax' in advance [*sic!*]" (Foucault, 2002, p. XIX). While utopias allow the development of language, heterotopias destroy the existential fundamentals for any grammar. Interestingly, Christine Boyer points out that in his radio broadcast, Foucault uses the concept of 'heterotopia' in order to present his insights regarding space, not language (Boyer, 2008, p. 55).

It is considered relevant to stress the fact that even though in "Des Espace Autres" ("Of Other Spaces") Foucault continues to highlight heterotopias as 'other spaces', they are presented as spaces that entail juxtaposed meanings. Unlike Boyer's paper, this article is not based on the idea that Foucault connected utopias and heterotopias exclusively with language in *Les Mots et les choses*. Actually, in his later lectures he doesn't describe his concept exclusively in spatial terms. By emphasizing the fact that heterotopias are spaces entailing juxtaposed meanings, Foucault hints that his 'heterotopology' should not be confined within the limits of proxemics, architecture or topology, and it shouldn't be understood in terms of language. Therefore, his third principle, stating that "the heterotopia has the power to juxtapose in a single real place several spaces, several emplacements that are in themselves incompatible" hints to a semiotic perspective (Foucault, 2002, p. 19). His examples have one thing in common: heterotopias are places in which multiple spaces can be juxtaposed in terms of meaning. It could be argued that heterotopias are ultimately places that juxtapose multiple meanings and not spaces *per se*.

The progressive incorporation of digital technology into people's everyday life opened new horizons and created new places that simultaneously connect and invert various spaces and times. This excursus is built upon previous articles in which there were addressed the emergence and proliferation of these new places that can be called 'virtual heterotopias' (Burlacu, 2014;

2015; 2017). The main aspect that makes ‘virtual heterotopias’ an attractive topic of research resides in the amalgamation or juxtaposition of traits from several types of heterotopias described by Foucault. Analogous to mirrors, they offer people the possibility of having avatars, which are actually similar to Foucault’s ‘shadow’ (2008, p. 17). Thus, each individual gets her/his own visibility, and as such, people can see themselves where they are not. ‘Virtual heterotopias’ are paradoxical, because they are both illusory and meticulously arranged. Indeed, many virtual worlds are immersive because they were designed as places of compensation.

Juxtapositions reconsidered: Foucault’s ‘heterotopology’

Heterotopias are places characterized by the relativity of the times and spaces they simultaneously represent, contest, invert, contain and/or accumulate. While often being considered ambiguous, Foucault’s description of heterotopias, or ‘heterotopology’, entails six principles, expounded in the following paragraphs.

[I] In the first principle, Foucault states that heterotopias are cultural universals. Although their diversity in form and function is notable, heterotopias can be grouped in two main categories: (a) heterotopias of crisis, such as the boarding schools; (b) heterotopias of deviation, like the psychiatric hospitals or prisons.

[II] The second principle is that the way an existing heterotopia functions can be altered by a society, as its history unfolds. Illustrative for this principle is the heterotopia of the cemetery and the way its function altered through history.

[III] Of particular relevance for this article is the third principle, in which he asserts the thesis that heterotopias can juxtapose within a single place several spaces, emplacements “that are in themselves incompatible” (Foucault, 2008, p. 19). Prime examples for this principle are theatres, cinemas and more importantly, gardens. The latter are described as containing ‘deep’ and ‘superimposed’ meanings. For instance, the Persian traditional garden contained within itself representations of all the four parts of the world. In a sense, its sacred character was derived from the fact that the garden juxtaposed in one place multiple spaces. Furthermore, its centre, which consisted of a fountain or a water basin was “still more sacred than the others”, because it represented the navel of the world (Foucault, 2008, p. 19). However, it should be emphasized the fact that the gardens don’t juxtapose spaces or times *per se*, but their meaning. This is eloquently highlighted by Foucault when he comments the origins of the carpets, as reproductions of gardens. A similar analogy could be drawn between the nature from the real world and the representations of nature in various virtual worlds, a topic that was approached previously (Burlacu, 2017).

[IV] In the fourth principle Foucault asserts that heterotopias are frequently correlated to ‘slices of time’, which he calls ‘heterochronisms’ (Foucault, 2008, p. 20). He claims that a function of heterotopia is fully manifested only when those that find themselves within it are separated from their representation of time. Two categories of heterotopias are derived from this principle: (a) ‘heterotopias of time that accumulates indefinitely’, such as the cemeteries and museums; (b) heterotopias of transience or festivity, like the carnival.

[V] The fifth principle pertains to a general characteristic of any heterotopia. More specifically, one of the paradoxes of heterotopias is the fact that they all have a system of opening and closing that both isolates them and make them penetrable. Either one can enter in a heterotopia only with a special permission or, conversely, she or he can have the illusion of free entrance, while being unaware of “curious exclusions” (Foucault, 2008, p. 21).

[VI] Finally, heterotopias have always a function in relation to the rest of space. The potential functions of heterotopias are placed by Foucault on a continuum between two ‘extremes’. At one pole there is the function of creating ‘a space of illusion’ that exposes, by contrast, the rest of the normal and/or ‘real’ space as being even more ‘illusory’. For example,

brothels are such 'heterotopias of illusion'. Oppositely, heterotopias can have the function of creating meticulously ordered spaces, which contrasts the disorder of all the rest of the 'real' space. The Jesuit colonies from South America are such 'heterotopias of compensation' (Foucault, 2008, pp. 21–22). When discussing this principle, there are two things that should be taken into consideration. Firstly, each pole is envisioned by Foucault in a 'double' opposition, both between themselves and also between themselves and the rest of the 'real' space. Secondly, and this is of particular relevance in the case of virtual worlds, the two 'extreme poles' may not be opposite at all. For instance, one of the defining characteristics of multiple distinct places from *Diablo III*'s world of *Sanctuary* is the fact that they are both illusory and they are meticulously arranged. As a matter of fact, this is an important feature of most virtual heterotopias.

After reviewing Foucault's six principles, one should be careful not to find heterotopic features everywhere. Accordingly, it can be underlined once again the thesis that not every place is a heterotopia (Dehaene and De Cauter, 2008, p. 6). Without accepting this 'axiom', the heterotopia becomes conceptually inconsistent and impossible to use, from an epistemological point of view. Moreover, Foucault's 'heterotopology' contains several polarities that can be used in order to understand the contemporary urban planning, and the design of virtual worlds. The former was addressed in quite a few academic works in the last three decades. In the case of the latter, the books and articles dedicated to the heterotopias that exist in virtual space are far rarer.

Material and methods: Towards a 'heterotopology' of virtual worlds

It is difficult to use Foucault's principles as a starting point for theorizing 'virtual heterotopias', because it is hard to define them empirically. One can easily compare a virtual world with a landscape simulation. From the earliest 2D arenas from the 1970's and 1980's, followed by the 2D maps from the 1990's, via the isometric 2D of *Ultima Online* to *Everquest*'s first-person 3D perspective, the evolution was always towards more flexible, more complex and bigger landscapes. In terms of gameplay, not many things have actually changed, as Espen Aarseth states "while the semiotic layer afforded by the graphics and the physics engines keeps improving, it does not seem to have a profound effect on the gameplay" (2008, p. 113). In virtual worlds like *Sanctuary* from *Diablo III* or *Azeroth* from *World of Warcraft*, meaning is created in a plethora of landscapes and cultural references. Blizzard has succeeded in making worlds that remain fundamentally hollow. In their composition, the emphasis is on the way the various quests are completed and not on what they mean. Indeed, the various places from the two virtual worlds offer little flexibility for the gamer in terms of creating meaning. However, the same thing cannot be said about other virtual worlds, like *Second Life*.

In order to discern whether or not Foucault's 'heterotopology' can be used to describe these two virtual worlds, the method of participant observation was used. It required an extensive immersion which raised several challenges. One of the most important was a deceptive form of addiction that was very hard to get rid of. Gradually, it became apparent that they could be considered both heterotopias in themselves and juxtaposed collections of heterotopias. Both heterotopias and virtual worlds are paradoxical because they are unreal and illusory, and yet they 'exist' inasmuch as they are constructed. The accessibility of the 'virtual heterotopias' entails a form of 'hyper-illusion' in which the digital counterparts of real elements from the physical world seem more 'real' and 'compelling' than the originals. Similar to Foucault's analogy of the mirror (2008, p.17), from the gamer's standpoint, one can consider that 'virtual heterotopias' are created from the 'Other' part/space of the monitor, reflecting its juxtaposed meanings towards reality. However, this raises one problem: there is always the 'risk' that the gamer may be erased, because at some point she/he is no longer able to authenticate herself/himself upon "the

Other". Even so, as 'virtual heterotopias' exist, it is important to establish how can be used the Foucault's principles for describing them.

First principle: while heterotopias are cultural universals, their virtual counterparts have proliferated globally, as a result of the rapid Internet expansion from the last two decades. While they are not accessible everywhere, games like *World of Warcraft* number millions of players. In the research used for this article, 36 guilds from two 'Realms' (i.e. servers) were documented. However, this is only a fraction of the total number of guilds.

Second principle: similar to Foucault's concept, the 'virtual heterotopias' from *World of Warcraft* and *Diablo III* have been changed with the introduction of expansion packs. For example, in the case of the first game mentioned, there have been seven expansion packs up until August 2018. They have altered the world of *Azeroth* considerably. For example, the third expansion, entitled *World of Warcraft: Cataclysm* (2010) introduced the radical redesign of the continents of *Eastern Kingdoms* and *Kalimdor*. In *Diablo III*, the expansion pack called *Reaper of Souls* (2014) introduced a new City and multiple dungeons that functioned, by themselves, as heterotopias.

Third principle: a virtual heterotopia juxtaposes in a place several meanings, which represent multiple spaces and times. *Azeroth* includes thematic zones connected by teleports, portals, roads, ships, mounts and even rail-based transportation. While playing with a Night Elf avatar, their limits were credible. It is necessary to see those zones from above in order to notice the discrepancies between them. For example, in southern *Kalimdor*, the Un'goro Crater is a lush zone surrounded by three desert zones and a marsh to the north. In the Crater, any player can easily find a bizarre mixture of animals and artefacts. As a matter of fact, the strange juxtaposition of deserts, marshes, jungles and glaciers and the small distances between the antagonistic ethnic groups' settlements are unrealistic, but functional. In *Diablo III*'s world of *Sanctuary*, the gardens are hyperbolized in numerous areas, in order to condense space and to accelerate time.

Fourth principle: gamers construct the time they spend playing in a manner analogous to the one described by Johannes Fabian, when he refers to the 'denial of coevalness' (1983). Virtual worlds like the ones mentioned above accumulate the gamers' time in a timeless place. Puzzlingly, some of them include zones with associated quests that must be completed in a limited amount of time. In *Sanctuary*, there are multileveled juxtapositions of several apparently incompatible places, called *Nephalem Rifts* and *Greater Rifts*. While they are ephemeral, their results are meticulously registered and stored via an achievement system, in order to determine the player to spend more time in-game.

Fifth principle: accessing some levels from a virtual world is deceptively simple. One gains the impression that she/he is privy to the workings of the game, but is actually excluded from its engine. Open 'sandbox' zones like *Velen* from *Witcher 3* are apparently continuously accessible, but are actually restricted by the number and level of the adversaries, as well as by the quests given. This is actually a constant in open world games: the quests offer the illusion of accessibility, while greatly reducing the openness of the game. In *Azeroth*, the ridiculousness of the multiple juxtapositions is alleviated only by the artificial boundaries and by the level-based access restrictions: the areas from *Teldrassil* can be considered an ensemble of absurd places from a functional standpoint. Their accessibility involves a form of 'hyper-illusion' for the beginner Night Elf players.

Sixth principle: all the levels from a virtual world like *Sanctuary*, all the areas from *Azeroth*, all the regions from *Assassin's Creed: Origins* are spaces of illusion. The multiple relations between characters, avatars, and the game mechanics render various representations of reality into a multi-faceted place, which is an elaborated illusion. However, in order to be immersive, these virtual heterotopias include references to real challenges, like the equilibrium

between nature and technology, tolerance for the various hypostases of the 'Other', resource production and distribution etc.

Conclusions

Adapting Foucault's 'heterotopology' to virtual worlds is an endeavour that should be undertaken while accepting the fact that not all the virtual places are heterotopias. In *Azeroth* and *Sanctuary* space is describable only in relation to time and vice-versa: there are no gaps. This gives the illusion of continuity, by avoiding the inevitable gaps from the worlds imagined by various authors of fiction. Without the repetitive activities from other fictional worlds, *Azeroth* and *Sanctuary* may appear to be more 'authentic'.

In conclusion, Foucault's principles can be used for describing virtual worlds. Thus, by immersing in these two worlds, it is possible to ascertain that they are both heterotopias in themselves and collections of smaller heterotopias. Furthermore, they tend to have a nucleus that functions like an 'engine' for the continuation of their existence. The uninterrupted change of meaning caused by "virtual heterotopias" leads to the emergence of new implications and the development of new virtual places. That is why such heterotopias are far greater reserves of imagination than their counterparts imagined by Foucault. In adapting the original 'heterotopology' for describing 'virtual heterotopias', a particular importance should be given to Foucault's third and sixth principles. Also, it is important to emphasize the fact that from a semiotic standpoint, 'virtual heterotopias' tend to continuously transform their meaning on multiple levels. This feature may open new ways of understanding space and place in virtual contexts, from an anthropological point of view.

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One health – a new concept in social sciences?**DOI:** <http://doi.org/10.26758/9.1.12>

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Abstract

The present article emphasizes the emergence and spread of a new concept in the scientific field: One Health concept. It refers to the unitary approach of some topics such as risks and crisis originated at the interface between human social world, one hand, and the biological and ecological environments, on the other hand, which, until recently have been addressed in specialized ways. The *One Health* approach, developed since 2005 as an international and cross-sector movement, recognizes and affirms that human, animal and ecosystem health is interlinked. More than joining ecology, veterinary medicine, human health, microbiology and molecular biology, public health, and health economics, there are arguments that social and socio-behavioral sciences can integrate the concept of One Health into a new explanation about balance and health of the groups and individuals, on the one hand, and imbalance and pathology on the other hand. The traditional specialised way of treating social and cultural pathologies is barely productive. But it can be continued towards a positive approach to social health as a rebalancing of natural and cultural resources. *One Health*, as a healthcare current and as a model for scientific integrated thinking can include the results obtained in the field of socio-human sciences in order to restore continuity and integration between man, society and environment.

Keywords: One Health, cross-sector approach, interdisciplinarity, social sciences.**Introduction**

Nearly a decade ago, a project to improve the health and well-being of people and the environment was launched to prevent risks and mitigate the effects of crises that originated at the interface between humans, animals and their different environments. To this end, a multi-sectoral and intra-sectoral „whole society” approach has been promoted in the United States and European societies to identify and assess health risks. The current *One Health movement* is an unexpected positive development that has emerged as a result of the unprecedented global response to the highly pathogenic avian influenza. Since the end of 2005, there has been growing interest in new international political and cross-sector collaborations pertaining to the serious health risks of the population.

One Health is rather a new approach of things than a concept and this new approach is under the incidence of a process of transforming itself into an international movement. This approach appears as a systemic change in the perspectives of risk management so far, but also in the concept of health. Based on cross-sector coordination, the new unitary health concept involves joining ecology, veterinary medicine, human health, microbiology and molecular

biology, public health, and health economics into a single coherent approach. Collaboration between sectors that have a direct, or indirect, impact on health involves re-evaluating strategies and optimizing resources and efforts while respecting the autonomy of different sectors. To prove the effectiveness of the *One Health* approach, it is necessary to establish a good sectoral balance between existing groups and networks, especially between veterinary, human, ecology, on the one hand, and economic agents, developers, representatives of socio-human disciplines behaviours, on the other hand (<http://www.onehealthglobal.net/what-is-one-health/>).

In a rapidly changing international context, the *One Health* approach recognizes and affirms that human, animal and ecosystem health is interlinked. This involves applying a coordinated, collaborative, multidisciplinary and intersectoral approach to address potential or existing risks from the animal-human-ecosystem interface. As an internationally developed movement, it is very fast-moving as it is officially approved by the European Commission, the US Department of State, the US Department of Agriculture, the Centres for Disease Control and Prevention (CDC), the World Bank, The World Health Organization (WHO), the Food and Agriculture Organization of the United Nations (FAO), the World Organization for Animal Health (OIE), UNSIC Coordination, the various Universities, the NGOs and many others. Numerous international meetings and symposiums have been held, including major initiatives in Winnipeg (Manitoba, Canada, March 2009), Hanoi (Vietnam, April 2010) and Stone Mountain (Georgia, USA, May 2010), as well as Scientific Congresses on Health (the first of which took place in Melbourne, Australia, in February 2011). The first International Health Congress in Melbourne emphasized the fact that One Health has become an international movement with specific associated research, complex and continuously developing methodology and projects to be carried out in many places around the world. In Melbourne, foundations have been established for creating and supporting a *One Health* practice community.

At the Operationalizing One Health meeting, held May 4–6, 2010, in Stone Mountain, Georgia, USA, a multidisciplinary working group was formed to assess the state of evidence in support of the *One Health* approach. This Working Group specified the two concepts underlying the *One Health* approach that could be subjected to evidence testing:

- 1) It is feasible to integrate human, animal, and environmental health efforts to predict and control certain diseases at the human–animal–ecosystem interface.
- 2) Integrated approaches that consider human, animal, and environmental health components can improve prediction and control of certain diseases (Rabinowitz et al, 2013).

Apart from these approaches, anthropology may propose a new opening for the *One Health* approach to social forms, cultures and civilizations. The question of the possibility to integrate social or cultural health research into environmental, animal and human health research is logical to go beyond the specification of what is healthy and what is pathological in the social and cultural environment.

Continuity and segmentation

There is no need to build links between man, society, environment, unless the original continuity that has maintained these dimensions of a single (cosmic)whole has been broken. The current concerns for communication, integration, adaptation go to prove no less than the fact that the structures of continuity have been broken. The process of unmaking of this vital monolith that man and his animal, vegetal, mineral or spiritual environment (to be read “divine”) formed began with the systematization of scientific knowledge and with the determination of action through this type of knowledge. The deterioration of credibility of the tradition-supported ways of knowledge and action, based on lived and combined experience of innumerable generations, as well as on revelations, meaning, addition of immediate human experience to the divine

experience has separated the levels of human activity: science from religion, man from animal, humanity from divinity, society from environment etc.

In general, we have witnessed at least a conceptual detachment of man as an individual („the one who can no longer be divided”) of everything else that she or he integrated. Thus, sickness and health have changed, as many other realities, in what regards their reference: man becomes ill and she or he is treated individually and health is an individual experience. Neither the deity, nor the members of the family, none the less the place where she or he is living is any longer involved in the recent experiences of human health or pathology. Only random discoveries still remind us that there are very strong dependences of human health on a balance reached beyond man.

The environment offers natural resources and specific living conditions, thus designating a repertoire of appropriate occupations and habits. Depending on these aspects, a social type, or a dominant family type, is formed. In sociology, schools with large theoretical and methodological contributions (The Le Play School is the best known) explained social or family functioning based on the spatial conditions of the roads that nomadic societies have gone through toward their sedentarisation or settlement sites. A „disease” of the environment causes, according to these explanations, an equally unbalanced relationship between family and, eventually, social and individual relationships. For example, spatial conditions have allowed two main types of families, societies and individuals to be formed in Europe and Asia: the open space, favourable to either farming or agricultural cultivation or animal breeding (or mixed purposes) has generated the strong, patriarchal family type, subordinated to the authority of a single leader or a council assisted leader. Whether it was about work or about waging battle, the well-coordinated action run in force was essential. The narrow area of the fjords in the northern European continent, bordered by forests and sea, has generated the type of private family, independent in its own household, but which cannot support a large number of members. Not work or struggle, but especially the independence and the initiative to create a new household and to make the roads of access through which it was integrated into a form of society, were valued assets.

With the changing environment, urbanization and industrialization, the two formulas are no longer viable. In their place proliferates what sociology describes as the unstable family, in which no value and no orientation are useful anymore. The quality of subordination and that of the initiative are equally absent and, according to Le Play School theorists, the unprepared, incompetent individual becomes „a prey to states and governments.” The place of the family is taken by society and public life. In the society where the unstable family predominates, the young age becomes superior to those more advanced ages, due to higher adaptability to public systems. Also, through the competition process, stimulated by the limitation of the means of livelihood, individualism is accentuated and leads to the assertion of the anarchic spirit. From a lack of solidarity, the elderly, the children and the sick people are actually left unprotected in this type of family organization.

The catastrophic diagnosis of ethology

Within the traditional horizons where the cosmic continuum was not segmented, health was given by stability and coherence, as well as by harmony; disease meant destabilization induced by unfavourable, unnatural manifestations. Concrete illnesses, or major epidemics, or the personalized suffering, or the natural cataclysms were linked to a cosmic imbalance: they betrayed a curse or a sin that affected humans, land and animals alike. Man did not suffer alone, and his suffering was not punctual, but general; purifications, in the sense of restoring the initial, original state, were the recommended health strategies. Various forms of the reactions to the biblical flood (libations, sacrifices, ablations, etc.) could save or heal the disease treated as evil,

or as the maculation of the world. In the tragedies of classical European antiquity or in the vetero-testamentary references, as in many other classical or folkloric sources, this unity in health or illness is emphasized.

The new form of urbanized society has a redefinition of health and illness. In such case, the living space is rationalized, seen in geometric terms, since Le Corbusier has accused cities of bad sanitation, malfunction and aesthetic offence. The result is embodied in uniform settlements as aspect, organized with right angles, looking to submit nature and not in the least to follow it. Developing communication media and travel possibilities has cancelled space as a distance. Along this war, the fight against cosmic and climatic phenomena has also been successful: electric lighting cancels the difference between day and night, the thermal comfort between summer and winter. The environment is loaded with unnatural population agglomerations: according to ethology, the population has increased 100,000 times within the same spatial perimeter, creating „super tribes”; this affects people in the same way in which caging influences wildlife in zoos (Morris, 2010, pp. 11-12).

Other statistics speak about 300,500 generations of gatherers, hunters and farmers, people living in community with the natural environment, and about 10 generations of people living in the highly industrialized industrial environment (Chelcea, Ivan and Chelcea, 2008, p. 32). Recent developments have led the Nobel Prize laureate in psychology and medicine in 1973, Austrian ethnologist, zoologist and ornithologist Konrad Lorenz to identify eight diseases that affect the humanity of the last century and a half: overcrowding, devastation of vital space, man's struggle with herself or himself or the progress to nowhere, the thermal death of senses or the increase in sensitivity to pain and insensitivity to pleasure, genetic decay, the crushing of tradition, the alarming increase in receptivity to indoctrination and (the least dangerous affection, since it is visible and still controllable) the existence of nuclear weapons (Lorenz, 2006).

In conclusion, specialists who investigate the behaviour of man, as a species, being alongside other species, part of nature, believe that man and his life partners suffer from a complex pathology generated by planetary mutations manifested in deviations from its initial biological bases. Unfortunately, health is not seen in this approach, except as an initial, primary condition. This kind of balance can only be restored by a dramatic change in the lifestyle, production and thinking of humanity and at the cost of sacrificing what, for generations, is considered to be its most precious conquest, the western-European civilization.

As such, responsibility for managing companies is becoming more and more difficult for someone who would assume responsibility. „Politicians, administrators, and other super tribal leaders are good social mathematicians, but this is not enough. In the future world, which seems to be even more crowded, they must also be good biologists, because, there is an animal in all of this mass of cables, plastic, cement, bricks, metal and glass that they control, there is there a primitive tribal hunter disguised as a supernatural, civilized citizen, desperately struggling to cope with this extraordinary situation with the old qualities he inherited. If he gets a chance, he will be able to turn the human zoo into a wonderful amusement park. If not, everything could turn into a gigantic asylum of madmen, somewhat similar to the horrible animal husbandry of the nineteenth century. For us, the people living in the current super tribes, it will be interesting to see what will happen. For our children, though, it will be more than interesting. As soon as they take control over the situation, the human species will undoubtedly face such great problems that everything will be a matter of life and death” (Morris, 2010, pp. 360-361).

Deviance and social pathology

In classical sociology, there has been research into social pathology where health was defined as normality, and disease as a social abnormality. Emile Durkheim, a classical sociologist, defined this state as a dysfunction of society, manifested in states or situations of

social abnormality and morbidity. The clearest example that he gave in the assessment of the social disease is his study on suicide as a phenomenon indicating the intensity of the pathological condition of a society or social group (Durkheim, 2001). If health means normality, then what is normality? History and geography show deep differences between what is considered normal in a given space and time and the normality of other space-time coordinates. Durkheim places the definition of normality within societies, related to their size and status of closed communities, with a well-determined specific, with a great homogeneity of values and human behavioural types: normal, thus healthy, is whatever does not deviate from the common type of society, from those feelings and beliefs shared by all members of that society. This common type is a kind of social average, assumed and reproduced by the overwhelming majority of people, an identity that assimilates and neutralizes their distinctive, singular features. „The set of beliefs and feelings common to most members of the same society form a determined system that has a life of its own; we may call it collective or common consciousness. Undoubtedly, it has no substrate as a single organ; it is, by definition, diffused throughout the whole of society; it is no less true that it has specific characters that make it a distinct reality”(Durkheim, 2001, 97).

A common consciousness of all could be manifest under these circumstances, representing in the same way either guilt, abnormality or disease, either virtue, normality or health. Having the same health milestones or representations in all members of society, the same reaction manifests itself in the deviation from this state. A natural sense of justice or morality manifests itself throughout society and identifies crimes (almost all of them being subsumed for treason or sacrilege). The legal or customary law and the common morality provide the means of restoring the social body through two types of „healing” strategies: a repressive one (which indicates what is undesirable, defines the crime in its hypostases and provides punishment for those who commit it) and a restitutive one (describing normality, what is desirable, setting the rewards for those who respect it).

As a form of special social deviance, but closely related to the ideas of social control and social regulation, mental illness is worth mentioning. Irrationality, mental and emotional disturbances that generate unnatural, damaging, or disturbing behaviours, even if they are part of the medical sphere, also depend on the representations of society about whatever is deemed rational, appropriate or normal. The differences medicine operates with to separate mental suffering from the physical one are not always conclusive: a mental illness such as Alzheimer's may have physical causes, and physical suffering can be caused by mental ones, as is the case with psychosomatic diseases. Similarly, it is difficult to set a limit between mental illness and deviance (or between „insanity” and „malice”), such limit being identifiable by different assessment methods: deviance is diagnosed by behavioural pursuit, and mental illness through mind evaluation.

Mental illnesses, from those caused by brain pathology (Alzheimer's) to psychoses (schizophrenia, or the manic forms of depression), neuroses (phobias, anxiety and obsessions) and behavioural disorders (such as alcoholism, addiction, anorexia, perversion) affect an increasing proportion of the population to such an extent that the mental health authorities, in the absence of healing remedies, have found the solution to qualify many of these as normal. By departing from the normality generated by the common conscience of the majority, current societies turn to these professionalized courts that continuously redefine the definitions of normality, transforming it, from an ineluctable criterion discerning between illness and health, into a short-lived social convention.

The diagnosis of Georg Simmel: urbanization and nervous suffering

Specialized studies approach as well the theme of the „normalization of disease” or crime in the present world. According to the characterization that the German sociologist Georg

Simmel (1858-1918) associates to the metropolitan inhabitant, this type is not an „average social type” in the sense of defining normality as an average, but it is one that deviates from this normality. This happens primarily because of a certain abnormality of urban society itself, one that is deficient in solidarity, sociality and spirituality. Metropolitan life is highly **rationalized**, actualized, at the psychological level, through an extraordinarily intense mental life of individuals and by the preponderance of intellect - as our most adaptable force –in relation to sensitivity and feelings (dominant in smaller communities). Intellectual dominance is linked to economic rationality: any quality and particularity became **objective** and quantitatively reduced to the pecuniary notion. Here is another feature that deviates societies from the typology of non-metropolitan societies, namely the **exactness** of relationships, the transposition of the world into numerical models, and the search for accuracy at all costs (in determining equality and inequality, establishing meetings and conventions etc.). This is possible precisely because of the accountable nature of money, the most efficient social vehicle. The accuracy, punctuality, calculus, without which urban life would collapse in chaos, are meant not only to regulate external relations; they must determine the contents of life and exclude the irrational tendencies and impulses that seek to determine themselves, from within, the form of life instead of accepting a general and precisely schematic form imposed from the outside (Dungaciu, 2003, pp. 153-175).

The accuracy and precision of the form of life is manifested at the subjective level by the subjective incapacity of reaction: **being jaded**, as a specific feature of the metropolitan environment, consists in the manifest lack of sensitivity toward things, their significance and their differences, and it comes from the tiredness caused by violent nerve solicitation. It is the subjective reflex of the internalisation of the monetary economy, whereby money becomes the most effective levelling tool, irreparably taking away their substance, their individuality, their specific and incomparable value.

The pathology of urban personality coincides with that of living space. In the culture of dwelling, specific to folkloric and traditional societies, the boundaries included the spaces of concentric interiority; it had successively, continuously and gradually around the social outbreaks: the hearth / the altar / the dwelling centre, respectively the temple / the centre of the fortress. In this continuum, relations of kinship, neighbourhood or civility were polarizing according to the same logic of family life. The walls of the house, the fences, the boundary stones, or the walls (with the adjoining contact areas - thresholds, gates, doors, windows) were beneficial places as they preserved interiority, the order of civilized space. But they were always besieged by the intrusion of exteriority and strangeness (De Coulanges, 1984; Stahl, 2000; Eliade, 1992).

Nowadays, the representation of vastness is cultivated (the feeling of vastness was associated with Leo Frobenius to western civilizations – Frobenius, 1985, p. 140): the spacious, American-style apartments or airy, minimalist interiors that are designed to illusory enlarge the spaces of smaller interiors are types of housing where boundaries are pushed toward the exterior (Schrenk, 2010, p. 150; Scott, 2007, pp. 138-153). In an empty space, the meaning of the boundaries is deleted; nakedness is the very essence of exteriority. Moreover, the boundaries between localities or societies tend to be attenuated. Paradoxically, this chase after transparency has been paid with the mastery of insecurity. „In an artificial environment, calculated in such a way as to ensure the anonymous character and the functional specialization of the space, the townspeople faced an almost impossible problem of identity. The grey monotony and the pharmacy cleanliness of the fabricated space deprive him of the opportunity to exchange meaning and hence the ability to seize the problem...”(Bauman, 1999, p. 48). Urban frights are the ones that double the disappearance of borders, that is, whatever distinguishes the familiar from the stranger, with the proliferation of increasingly sophisticated security systems. The walls are transparent, but alarms are armed. Security systems aim, Bauman noted, unintentional

citizens, but not foreign armies, bandits or other dangers from exterior: „Not living together but mutual avoidance and separation have become the survival strategies in contemporary megalopolis. There is no question of hating or loving your neighbour. If you respect him, settle the dilemma; thus decreasing the likelihood of the occasions where you are forced to choose between love and hate “(ibid., p. 50).

Health: an exhausted resource?

Contemporary sociologists, philosophers and anthropologists confirm the diagnosis of chronic pathology of the social world. Lipovetsky (1944) describes the continued decline of morality, one of the tools for restoring social health. We live today in a „post-society”. The individualist ethic of modernity seems to be in a structural conflict: an „organizing chaos” in which contradictory tendencies (idealism and cynicism, order and anomie) are encountered. The invoked solution is an „intelligent ethic” that favours compromise, experimental, customizable solutions taking into account interests, efficiency criteria, and particular conditions. It would be the project of a „prudent” ethic or a way of „gaining time against the evil and the pain of men” (Lipovetsky, 1996, p. 29).

The universalization of indiscriminate consumption and the physical and cultural degradation of food, the proliferation of *homo videns*, the emergence of video-children (Sartori, 2005) and *homo connecticus*, subordinated to slightly differentiated or undifferentiated messages and ever farther from within the communication with the global screen (Lipovetsky, 2008) are the diagnoses established by the researchers of European civilization. Globalization, as uniformity and cancellation of natural differences, an unsuccessful antidote to the uncertainty induced by the opening of societies and the promotion of the new is the current social equivalent of medieval pandemics (Bauman, 2001). Moreover, the phenomenon of McDonaldisation, in the name of its benefits – efficiency, accountability, predictability, control – invades in a viral way domains that until very soon were the sources of physical, mental and spiritual balance of man (birth and death, education, medicine or religion) (Ritzer, 2010).

This way of treating social and cultural pathology it is barely productive. But it can be continued towards a positive approach to social health as a rebalancing of natural and cultural resources. One of the proposed solution was developed by George L. Engel in 1978, called the Biopsychosocial Model – an interdisciplinary model that looks at the interconnection between [biology](#), [psychology](#), and [socio-environmental](#) factors (Pleșa, 2017, p.16; Gritti, 2017). Since then, *One Health* as a healthcare current and way of thinking included the results obtained in the field of socio-human sciences in order to restore continuity and integration between man-society-environment.

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"Westernization and Alienation of the State/Social Order": A Pseudo-Scientific Fairy-tale of Turkish Islamists**DOI:** <http://doi.org/10.26758/9.1.13>

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Abstract

Idris Küçükömer (born 1925 in Giresun, dead 1987 in Istanbul) is a well-known Turkish academic, who tried to figure out the controversial character of the Left-wing movement in Turkey. His main book "The Alienation of the State/Social Order" (in Turkish: Batılılaşıma ve Düzenin Yabancılaşması, Küçükömer, 2002) is the dissertation of his principal thesis about contemporary Turkey. Küçükömer is one of the academics/intellectuals who tried to figure out the principal „anomalies” of Turkey with his own perspectives. The controversial character of Kemalism and Left-wing movement of Turkey is the subject of Küçükömer's works. He tried not only to break out the Kemalist discourse's falsification but also to create a pseudo-scientific theoretical base for Islamist "Green Kemalist" narration. Küçükömer's work about the nature of bureaucracy and its transformations between different social systems could be interesting for Post-Soviet countries academic circles. The contribution of the present review is that it brings a present-day perspective on Küçükömer views.

Keywords: Küçükömer, Islamofascism, Kemalist fascism.**Introduction**

Idris Küçükömer is a well-known Turkish academic and writer; he was born in Giresun, in a Turkish Sunni Muslim family in 1925. Giresun was an industrial capital and a multicultural city in Ottoman period till 1915 genocide. After 1915, the city lost the industrial infrastructure and also some of the Christian communities like Armenians and Greeks. Topal Osman, who is "the knight" of Atatürk, was also from Giresun. Topal Osman is accused to organize the massacres/genocides against Black Sea Greeks, Armenians and Alawites in Koçgiri in 1918-1923. Even today Giresun is a racist-Islamist majority populated city. In Giresun, even nowadays, some sub-provinces populations "accuse" each other as "crypto-Armenians". Giresun is a world ranking hazelnut production center. By Ümit Uğur Gungor, before 1915, the sector was dominated by Armenians. By Güngör, the hazelnut sector's annual rate is 3 billion dollars in Giresun (Güngör, 2012). According to Kurtuluş Kayalı, Küçükömer's family was a middle-class/labor family. Küçükömer completed his license at the Economy Faculty of Istanbul University and started to work as an academic in the same university (Kayalı, 2002). He was a "Marxist socialist revolutionary" young man. After the military coup on May 27, 1960, he became an author of the politic-theoretical journal Yön. Yön was managed by Doğan Avcıoğlu. The ideological line was "Left-wing interpretation" of Kemalism. Küçükömer was also a Kemalist. He participated in the scientific/academic committee of the Worker Party of Turkey (TIP). He actively supported the 1963 failed military coup. Avcıoğlu also supported another failed military

coup at 9 Mai 1971. After 1963 failed military coup, Küçükömer changed his ideological line. He refuses Kemalism and accepts the “new left” political-ideological line, under the influence of Gramsci's „civil society” conception. He defines Kemalism as a bureaucratic, elitist, putschist, reactionary ideology of army and bureaucratic elites of Turkey, and promoted the idea that the 1919-21 War is neither anti-imperialist nor progressive, it's just a Turkish – Greek War. He defends that Kemalism is neither left-wing nor revolutionary/progressive, and argued that the civil society couldn't develop in Turkey because of Kemalist's oppressed centralized State concept/practices.

Küçükömer tried to give some references from the Marxist Asiatic mode of production (AMP) theory. The most controversial part of the concept refers to the true Left-wing of Turkey, represented, according to the universal standard, by the “Right-wing” political parties and their supporting Sunni Muslim mass. According to this concept, West is imperialist and alien to Turkey. Turkey represents the East and the Eastern character is the genuine character of the country. He tried to argue and develop his concept by different and inconsistent arguments. He discussed the new ideological line in Socialist Review “Ant” and in 1969 he published the principal book, “The Alienation of the State/Social Order”. He defends that, Left-wing of Turkey is real extreme-right/right-wing by universal standards and definitions, and Right-wing of Turkey is the true Left-wing/relatively most leftist than Left-wing of Turkey by universal standard and definitions as well. In 1972, Bülent Ecevit got the leadership of CHP (Cumhuriyet Halk Partisi, Republican People's Party in English, the political party who is founded by Atatürk), the main political party of Kemalism; Ecevit was one of the students of Henri Kissinger at Harvard University. He benefited a Rockefeller Scholarship. Ecevit gave a new “more Left” political line to CHP. In 1973, after the setting up of CHP (Kemalist) – MSP (Milli Selamet Partisi - National Salvation Party) coalition government and the Küçükömer announcement that the 3rd republic was in place, Kemalism died and Left-Right anomaly was fixed. MSP – the foremost Islamist political party in Turkey was led by Necmettin Erbakan - the historical leader of political Islam in Turkey. From 1973 to 1983 he stopped his writing activities. In 1983 he restarted to write at left-wing-libertarian/New Left oriented review – Yeni Gündem Review, the predecessor of Birikim review. He became a member of the Social Democratic Party before his death in 1987.

Literature Review

Küçükömer's thesis is used as a tool by Islamists and Green Kemalists to canonize the State and to justify the xenophobic oppression and acts of violence of masses. Kösebalan (2011) and Davutoğlu (2001), Akat and Ali Bulaç affirm Küçükömer's theories. Kurtuluş Kayalı writes the biography of Küçükömer (Kayalı, 2002). Murat Belge, as a student of Küçükömer, defends both the Küçükömer's principal point according to which the Left-wing in Turkey is not Left-wing by universal standards, such Küçükömer's statement leading to conclusion that Left-wing doesn't exist in Turkey, and the double character of the mass in Turkey: It means the mass who currently supports the Right political parties in Turkey, is potentially left-wing but practically rightist. If in Turkey, there was a Left-wing by universal standards, the mass was the supporter of it. By Belge, for Küçükömer, the mass in Turkey is just potentially rather than practically left-wing. It's just a potential, that's why he didn't work in a Right political party in Turkey to touch the left-wing mass. But unfortunately, in his book, Küçükömer clearly evaluates that DP (Demokrat Parti, Democratic Party in English) and AP (Adalet Partisi, Justice Party in English) (Right political parties of Turkey) as left-wing parties in the historical Left-wing -Right-wing political parties table (Küçükömer, 2002, p. 44). Another student of Küçükömer, Prof. Dr. Asaf Savaş Akat notices that his principal point of view is clear: cutting all the relations with Kemalism, Army, and bureaucracy, might create a real and massive Left-wing in Turkey

(***Biyografi: İdris Küçükömer). The famous Turkish Armenian Trotskyist Masis Kürkçügil, also a student of Küçükömer, sheltered in Küçükömer house while he was pursued by the police after 12 March 1971 military coup, express that Küçükömer's main problem is why the mass support Right-wing political parties rather than Left-wing. Kürkçügil notices that Küçükömer was a socialist and he creates his theories to support the revolution of Turkey. To get a dogma out of the theories or out of the socialist context is a distortion (Ince, 2007).

Nuray Mert and Ozdemir Ince criticize Küçükömer thesis. Ince defends that Küçükömer never affirmed that "In Turkey Left-wing is Right-wing and Right-wing is Left-wing" (Mert, 2000). His thesis is vulgarised by followers (Ince, 2007). Nevertheless, in his book, Küçükömer shows the political parties in Turkey as Left-wing in his chronological table that they are obviously Right and they describe themselves as Right-wing. By Ince, the first scientific criticism of Küçükömer's thesis was realized by Yalçın Küçük in 1969. But by the book's last chapter, we notice that Küçükömer fully refuted the Küçük meaningless and full of factual errors claims. Mert criticizes that Küçükömer's arguments are inconsistent, the terminology is subjective, the argument: "In Turkey Left-wing is less close to mass than the Right-wing" are not authentic for Turkey and Left-wing and Right-wing are not pure universal concepts. Ince's position could not be evaluated as a real criticism, while Mert's position could be evaluated as a shallow criticism with true points like the critics about inconsistent argumentation, confused about Küçükömer and his subjective terminology using. Mert noticed that Küçükömer criticized Turkish Left-wing as Pro-Western and Turkish Right as pseudo-capitalist/rentier but she does not discuss the main two source of Küçükömer's theories: his personal experiences about Turkish left-wing movement's, racist/xenophobe/putschist theories/practices and his personal silence about Kurds and especially about the negation of genocides in the history of Turkey.

The Resume of the Book

The book consists of eight chapters: 1) Preface/Resume from Yücel Yaman; 2) Preface; 3) Turkey cannot be westernized!; 4) Why could Ottoman not set up Capitalism?; 5) The Pashas of contemporary Turkey's Left-wing and Sultan Albulhamit II; 6) The questions for the Last Bureaucratic Pasha; 7) Statism: Primitive Accumulation of capital and 8) Responses for the Critics

The Preface of Yücel Yaman: The follower of Küçükömer, Yücel Yaman resumes the Küçükömer's thesis in eight points:

1. left-wings of Turkey are reactionaries. They don't support economic progress/productive forces. They defend the centralized, top-down authoritarian regime. They evaluate the mass as a herd.

2. The progressive force of Turkey is the Sunni Muslim mass of Turkey. They have the potential to develop the productive force, they have a tendency for progress and they are pluralist in contrast to the monolithic totalitarian Kemalism.

- 3-4. Army and its military coups, its constitutions (like the one in 1960) and institutions (like National Security Council and OYAK) are reactionaries.

5. "Turkish National Independent War" (1919-21) doesn't really exist. It's just a war between Greece and Turkey without any anti-imperialist sense.

6. Modern Turkey's history should be rewritten.

7. In Turkey, civil society couldn't progress because of the two pseudo-progressive forces: Kemalism and Left-wing.

8. Turkey's people aspirations could not be fulfilled by living under a democratic regime because of their genetic heritage. After very long time despotic regimes, the people could be evaluated as genetically favorable for authoritative regimes.

According to the book, Yaman's resume could be evaluated as a trustworthy resume in a general context.

Preface: In the preface, Küçükömer claims that the westernization is equally an alienation form of the social order and form of the state from traditional Ottoman/Islamic society, and the supporters of the westernization and „progress” are in fact reactionaries. The true progress defenders are the defensive front of people under the flag of Islamism. The book is an expansion of four articles that were already published in the daily newspaper *Akşam* from 14 to 17 October 1968, where he criticized the new “center-left” line of CHP, the political party who founded the Republic of Turkey and the main pillar of Kemalism. The second article/chapter - “Why Ottoman could not set up Capitalism?” - is the main part of the book and Küçükömer gave the undertaking to rewrite this part as an expanded independent work.

The first chapter “Turkey cannot be westernized!”: Küçükömer defends that Ottoman society was an Islamic society. The State had not a social class characteristic; it was neutral for all different social classes and sub-classes. Capitalism is a western institution and it was set up on a feudal social base but Ottoman Empire is not feudal, it's an Asiatic Mode of Production (AMP) society. That's why the westernization as a project to set up a Capitalist system in Turkey is impossible. The central bureaucracy who grabbed this neutral State defended that the Westernization was the unique solution to make the Empire great again, but the Westernization oriented reforms destroyed the local economy and got resistance from local figures and mass people. The flag of these local figures and mass against Pro-Western central bureaucracy is Islamism. Islamists and Pro-Eastern masses are objectively progressive and the central bureaucracy, with all the progressive discourse, is reactionary in Turkey. The central bureaucracy blocks the class differentiation in the Islamist Pro-Eastern social movement. Turkey cannot become capitalist by the central bureaucracy, that's why it cannot be Westernized and even secular: because they are the parts of the superstructure for a capitalist infrastructure. Turkey has not a capitalist society. That's why Left-wing and Right-wing parties' economy politics is not a real capitalist-economy politics, but a statist rentier-economy politics and it's also the main barrier to set up a capitalist system in Turkey. Central bureaucracy is not a real social class, because, bureaucracy as a group confiscates a part of the added-value but a bureaucrat, as individual can benefice it only as a bureaucrat, meaning that he cannot own the means of productions as his personal property. After these theoretical claims, Küçükömer gives a historical presentation of the European evolution from feudalism to capitalism in a sub-chapter: „The appearance of capitalist institutions in the West”.

Küçükömer distorts the AMP. First, an AMP theory like Küçükömer uses does not exist in the Marxist corpus. Especially his two propositions: “Neutral State” as a non-social class State and “the progressive mission of local figures in Turkish history” are obviously not the recognized components of any AMP theory in Marxism. Second, Ottoman society was not a pure Muslim society. They had two parallel laws: secular law for the state and religious law for the citizens. The Ottoman Empire has had also huge non-Muslim populations. Third, the Empire's non-Muslim communities set up a strong industrial base in the late period. Late Ottoman society was a capitalist society. As Lenin says in “The Development of Capitalism in Russia”, if meta-economy is dominant/primary in a country, it's a capitalist country, in the final analysis (Lenin, 1899). Forth, the central bureaucracy was a social class and also the dominant/ruling social class of the Empire in the classical age. Dissolution of an AMP into a feudal society is the classic way. Fifth, there are class differentiations in Islamist Pro-Eastern mass; the local figures became the main columns in the periphery for central bureaucracy political power and they connected capitalism as a network like gas stations franchises, franchise car dealerships and, the white goods distributors. Most of the local figures increased their fortunes by using statist politics for their own interests, especially by wealth transfer from non-Muslim populations. Then they had moved to Istanbul to become a part of central major capitalists. Sixth, Küçükömer does not

notice the Non-Muslim communities and class differentiation in the Ottoman Empire and creates a fictional Islamist paradise. Seventh, he destroys the terminology and concepts. There is no explanation on what Easternism really means or is. Finally, the claims of Küçükömer are mutually contradictory. He recognizes the social class differentiation between local figures and Sunni Muslim mass, but he refuses it in the final analysis. He notices the destruction of productive force in the late period of the Empire and by the statist rentier economy politics, but he hides that the massacres/genocides were the main cause of the destruction and the politics, and not an Ottoman British Free Trade Act (1839), as Küçükömer defends. Also, Küçükömer never approaches consistently the social system of Turkey as an internal and external plundering system against principally non-Muslim communities/population (Estukyan, 2017).

In fact, the analysis exists in Marx's Eastern Question (Marx, 1897) and Şişmanov's famous book on Turkish society and the history of socialist movements (Şişmanov, 1965) and, in general, in the Marxist literature. Engels notices in Anti-Dühring that "The Turks were the first to introduce a sort of feudal ownership of land in the countries" (Engels, 1877). Marx describes Ottoman/Turkish society as an internal and external plundering motivated war-machine. Şişmanov references to Marx ideas highlighting that Turkey was the unique militaristic-feudal empire of middle age. As a new contribution, Estukyan shows that after the minimizing of external plundering/occupation possibilities - because of several reasons including the profitability as well -, the internal plundering gets a principal position in plundering activities (Estukyan, 2017). Küçükömer notices only the rentier economy of Turkey/Ottoman Empire, but he stops the analysis at that point. He doesn't evaluate the land rent-based economy as a factor to shape the social and cultural characteristic of Turkish society and the dialectic of a state who earns the different proportions of its incomes from occupations, internal/external plundering of lands and an unproductive society who derives its revenue from a rentier economy.

The second chapter "Why Ottoman could not set up Capitalism?": The weakest theoretical part of the book is, at the same time, the "main theoretical part" of the book in Küçükömer's opinion. In this part, the author tries to defend why Ottoman could not set up a capitalist system. The data he uses, unfortunately, incoherent, unrelated, disunited, inconsistent and out of context. Some of the Küçükömer claims are related to the ones of Dr. Hikmet Kıvılcımlı's "History Thesis" (Kıvılcımlı, 1998); such are the ideas that there was no private land ownership in the Ottoman Empire, Ottoman land system was much advantageous for the peasantry, and that is the reason the Empire occupied more easily the Balkan territories. The expenses of the State and consequently the taxes increased year by year. "History Thesis" is a misconduct of dialectic/historical materialisms and economy-politic knowledge. It is a very complex and high intellectual level construction and, in the same time, a ridiculous and disgusting trying to justify of barbarian occupations with results like forced religion changing, mass massacre, colonization of civilized societies, like Küçükömer's thesis. Like Kıvılcımlı, Küçükömer erases the Arab colonialist and assimilationist root of Islam (Tekin, 2008) as well. Unlike Kıvılcımlı, Küçükömer defends that late Ottoman Empire could not be a capitalist society because the lands are not high-quality grounds for agriculture. By this logic, one of the first capitalist societies is established in the UK, because the lands are extremely high-quality there? Also, Küçükömer defends that Ottoman Empire arrived its natural border, for such reason losing its military power, aspect he called the paradox of hegemony. As a counterexample: Roman Empire, as slavery but also an AMD society, which controlled a bigger area than the Ottoman Empire, in this case, how to prove the claim? Küçükömer notices that the Empire set up itself on an external and internal plunder economy, but he hides the real victims of the economy politic. By the essential point of view of Küçükömer, the historical conditions of the Empire were constants. This essentialist point of view is the base of his genetically-based claims that Turkish society is genetically incapable of democratization. As a critic, the history science shows that if capitalism was born 100 years late, it would encounter some feudal states in Ottoman geography

rather than a centralized bureaucratic empire and perhaps the capitalism would have emerged in these geographies.

The third chapter “The Pashas of contemporary Turkey’s Left-wing and Sultan Abdulhamit II”: By Küçükömer, the paradox of hegemony is that the population growth and inefficiency of agriculture created a vicious circle for the productive force of the Empire. In this case, the industrial revolution penetrated the empire, which became a semi-colonial power. Western capitalism found local collaborators in the Empire and was also like supported by the central bureaucracy. Local figures (Ayan) and central bureaucrats support the Westernization to save their property rights against the power of the Sultan. The Westernization separates and transformed different ethnic groups into the nations. The xenophobia of the Islamist Pro-Eastern mass and the defender of the Ancient Regime was just an unconscious representation of anti-imperialism. After the liquidation of the Ancient Regime supporters, the local figures changed the side and become the supporters of the Islamist Pro-Eastern populist front. After 1839 Free Trade Agreement, centralist bureaucracy became a pure Pro-Western collaborative force. Sultan Abdülhamit II, in this case, was not an autocrat dictator. He was the protector of the people against renegades Pro-Western bureaucrats. Küçükömer criticizes the Pro-Western bureaucrats because they allowed publications in the different languages for the non-Turkish nations and because they accepted Jewish and Albanian officials. The non-Muslim members of the bureaucrats were more renegades than Sunni-Muslims in his opinion. By him, the decentralist movement (Prens Sabahattin) had also a significant role in Turkish history. Küçükömer defends that DP and AP (Officially Central Right, Conservative Parties) were Left-wing. He finished this chapter with a chronological presentation of Abdulhamit II and of the 1908-1914 period presented in his own perspective (based on the contradiction between Islamist Pro-Eastern Populist Front and renegade pro-Western bureaucrats).

First of all, Lenin said that a person should be a consistent democrat from A to Z for being a communist. It is imperative. Küçükömer demonstrated his xenophobia and anti-Semitic ideas. In Marxism ideology, self-determination is an absolute right for each oppressed nation. Küçükömer’s “happy Ancient Regime” is no more than a fiction. The local figures were equally the criminals same like central figures in massacres like the 1909 Adana Massacre and the 1915 Genocide and the others. Kemalism gave the non-Muslim victims’ properties to these local figures. Izmir Economy Congress draw the capitalist line of the young Republic and the local figures are the stakeholders of the new States. Prince Sabahattin’s movements have not significant importance in Turkish history until today. Küçükömer’s arguments could be evaluated as just a pseudo-scientific fair-tale.

The Fourth Chapter “The Questions for the Last Bureaucratic Pasha”: Küçükömer gives a presentation of the period of 1923-1938 and criticizes the Kemalist regime as a non-productive and isolated/alienated regime for the mass/people. By Küçükömer, the bureaucracy was not a social class and it had only a reactionary role in the development of the productive forces. He notices that in this period, local figures and bureaucrats were in an alliance. They shared the heritage of the Empire inside as the separatists have already done it the outside, he claims. Nevertheless, Küçükömer notices the local figures and central bureaucracy alliance, but he does not see the social class character of the centralized bureaucracy. It was a social class emerged from AMP, as Kuvâ-yı Milliye notices, having its own authentic historical name Sınıf-ül Devlet and four sub-divisions: Kalemîyye (State Property Department) İlmiyye (Academics), Seyfiyye (Army) and Mülkiyye (even today in Turkey it exists in the same name, it means state officers and governors).

The Fifth Chapter “Statism: Primitive Accumulation of Capital”: In this chapter, Küçükömer argues that the statist regime encourages the local figures to become capitalists. This social group also benefits from states property lands from the Empire time and ‘Greeks and Armenians’ abandoned lands. Under this unproductive system, bureaucrats get the political

power, but they were not still a social-class, although they started to become the capitalist instruments. For the bureaucrats, the main milestone was 1960. After 27 May 1960 military coup, Army set up a monopoly company (OYAK) and it became a model of collective capitalism. Under this statist economy politic regime, the local figures represented the capitalism itself and in 1945 they set up their own party (Demokrat Parti, Democratic Party in English, DP for short); in 1950, with a free election, they got the political power from bureaucrats. Removing the bureaucrats from the political institutions of power was a progressive step to develop the productive forces in Turkey. But DP also had a connection with USA imperialism and that's why DP was pro-imperialist and liberal and at the same time still more left-wing than the bureaucrats. As a conclusion, Küçükömer claims that the Pro-Western bureaucrat looks progressive, but objectively he is reactionary; the bureaucrats might understand this ominous role, and the Islamist mass looks reactionary, but they are actually revolutionary. The bureaucrats and left-wing might have understood and recognized them as a main source of the anti-imperialist struggle to create an independent and socialist Turkey. The Imperialist forces tried to use the Islamist-Modernity contradiction in Turkey to colonized the country.

First, from a critical point of view, in Marxist literature, the "primitive accumulation of capital" is used to describe a statist and plundering system, like British colonialism in India and China and French colonialism in Africa. Küçükömer talks about 'Greeks' and 'Armenians' who have abandoned their properties, but he is in a deep silence about how they "abandoned" them. Even in this chapter, he salutes the founder of DP, Celal Bayar as a "socialist" (sic!!?!). Bayar is the third President of the Republic, the founder of the biggest bank of Turkey (Türkiye İş Bankası) and an ancient member of the İttihat Terakki. He joins the 1919-21 War as a spy began for the Kemalist side. Bayar notices that after WW1, setting up a pure (NB Sunni) Muslim and Turkish State in Anatolia should be the main objective (Bayar, 1967). Bayar actively organized and execute the sharing the Greek and Armenian's properties to the Sunni Muslim local figures in order to create a "national bourgeoisie": The Turkification of the economy (***Celal Bayar, İttihatçı Bir Cumhurbaşkanı). After 27 Mai 1960, Bayar was judged and sentenced to death, but the sentence was shifted due to his age.

Another interesting point in Küçükömer's thesis is that he came up for the first time with Celal Bayar after 1960. Bayar accused the military coup as a "return of Ottoman bureaucratic system to Turkey". But Bayar "forgot" that he and all the ruling group was even the old Ottoman bureaucrats, either in CHP or in DP. There were some secondary and insignificant contradictions between local figures and bureaucrats by culture/daily lifestyle, but both of these two sides are or are trying to become capitalist and Pro-NATO/Pro-Western. While Kırılcımlı was wrong when he found a revolutionary potential in bureaucracy, Küçükömer was also wrong when he sees the same potential in local figures/Islamists/conservators. Military bureaucracy (Army), after the 1960 military coup, sets up OYAK (Ordu Yardımlaşma Kurumu) Holding, and converts into a capitalist one. The author's anti-imperialism even here could be evaluated just as a scarf on the xenophobia.

The Sixth Chapter "Responses for the Critics": In this chapter, Küçükömer responses the academic critics, especially to the critics of Yalçın Küçük. Küçük's critics are about the details, lack of any scientific support and of a systematic approach and have apparent factual errors.

Discussions

Küçükömer's anti-imperialism is a misnaming of xenophobia as anti-imperialism. By universal definitions, Küçükömer's theory could be evaluated as essentialist, and xenophobe. Especially his theory proposes that Turkish society is genetically incapable of democratization is obviously racist. By Küçükömer concept, Islamic Society (Ottoman society, even this claim is a

negation of the existence of non-Muslim communities in the Empire) was calm and wealthy heaven: The State was neutral against different social classes; it was not a violence tool of any social class against another(s). A non-social class character State is not possible by any Marxist formulation, neither for AMP nor feudalism or capitalism. Küçükömer uses the terminology/concepts without any discipline. By this pseudo-scientific fairy-tale, the Kemalists and their precursors İttihatve Terakki Partisi (Party of Union and Progress) stole the political power of State in the chaotic atmosphere of stagnation and collapse periods of Ottoman Empire, oppressed the society, tried to westernized the society politically and culturally but not economically. Küçükömer's theories about anti-imperialism and the pseudo-golden age of the Islamic society could be evaluated as unjust praise on the local usurers/landlords, SMEs, and Sunni Muslim mass without any limitation, especially about lynching, massacres, sexual violence and property transfers/confiscation/plundering. Küçükömer's essentialist arguments about this fake "golden age" look like A. Dugin's Eurasianist arguments about Pan-Slavism. Even Dugin and Küçükömer's "genetic" claims about democracy are totally the same. Dugin also defend that the Oriental societies could not accept universal (Western?) democracy standards. As other historical exceptions, Rousseau could be noticed. He defends that France is highly large for a democracy. France is not Switzerland. For France, a dictatorship will be better.

By Küçükömer, Ottoman Empire promoted an Asiatic Mode of Production Society, in this mode of production, the despotic bureaucracy exploited the peasantry, and the local figures have a progressive role in this scene, in Turkey, the central bureaucracy oppressed the local figures and that's why civil society and capitalism could not develop in Turkey. This bureaucracy now got a Pro-Western role in society, while the opposition wing, meaning the Sunni Muslim mass with local figures, had a majority, that's why they support democracy and economic progress. That is why, in Turkey, the Left-wing is more reactionary than Right-wing, but also, the Right-wing party (DP) is reproducing the position of the Left-wing (CHP): They were rentiers and the rentier economy was supported rather than a productive economy. When scrutinizing the Küçükömer's AMP definition, some mistakes are revealed. Neither Marx nor Engels describes an AMP the way Küçükömer does. By Marx and Engels, the AMP was a strongly centralized bureaucratic state who emerged from the late dissolution of communes and from the need to control the vast lands, irrigation channels, and trade routes; the principal quality of the society was that there was no private property right on the lands. This is an oriental despotic state. Marxist history concept is universal and progressive, assuming evolutions and revolutions. AMP is not only Asiatic. Roman Empire also knew a particular kind of AMP. Ottoman Empire had also slavery plantations. Feudalism chronologically was not the descendant of the social system of slavery/AMP and historically feudalism is more advanced and productive social system than slavery/AMP as well. AMP was not an alternative to Feudalism or slavery. If the history is universal, the exceptions claims are reactionaries - like nowadays Eurasianism. The collapse of slavery and/or AMP great empires creates Feudal societies, colon (free farmers) as a new progress production-force crashed the ancient relation of production, latifundium system was dissolved and in the heart of feudalism, the capitalist mode of production sets up. Ottoman Society's Muslim parts were adopted very late the capitalist system because of unproductive rentier/plundering social-economical system. But non-Muslim peoples of the Empire created the very strong industrial base. Ottoman Empire was the 7th great Industrial country of the World. Armenians, Greeks, and Jewish created a world standard industrial infrastructure. In this case, Küçükömer's "Ottoman was never a capitalist society" claim is historically wrong.

Secondly, by Marxist AMP definition, local figures had a progressive role. The character of primitive agriculture creates usury. Marx wrote that these usuries had an objectively-limited-progressive role to teach and bring the monetary system to a more primitive society. Küçükömer's second mistake is that he defends that the local usuries have a pluralist and subjectively progressive role. That's why Küçükömer accepts a progressive image for Sunni

Muslim mass without any social class differences. This point is improper not only theoretically but also historically. By theory, the usuries could get the lands from indebted peasants and become feudal in an also feudal society. By Marx and Engels, the principal example for the process that a loan shark becomes a landlord is Benjamin D'Israeli (1804-1881) who was two time Prime Minister of United Kingdom. But by an AMP, they could not capture the properties till the AMP collapsed day by day. If the usuries could not capture the lands, they could not become landlords, in this case, these usuries in a late AMP society in a capitalist world could become Small and Medium-sized enterprises (SMEs) and in the capital accumulation process, they became classic bourgeoisie. By history, just as one example from thousands, these local usuries provoked Adana Massacre against Armenians neighbors. Without figure out the external and systematically internal plundering system as a theoretical framework and as a starting point, all the economy-political analysis about Turkey is suffered to stay inconsistent and unreliable. These local usuries and landlords supported the mass massacres against non-Muslim minorities in order to capture their properties. Ottoman Empire periodically „Islamised” the society and captured the properties of the non-Christian communities in the borders of the Empire. For contemporary history, the evolution of Islamist bourgeoisie justifies that this group has not any progressive sense different from other bourgeois. Küçükömer noticed that the Ottoman economic system was set up on spoils of war, the engine of the economy and the main source of public revenue was the spoil of war, that's why the collapse period of the Empire he notice that the State increased the tax rates enormous to replace the spoils of war. Küçükömer perceives the spoils of war just as an isolated phenomenon. He doesn't touch the internal and external effects and the social and economic reflections. But at the same time, Küçükömer also noticed that either Ottoman or modern Turkey's economical-political system was/is set up on the division of the spoils as a rentier economy. If Ottoman Empire and Turkey had/ have not spoiled of war, and if tax collect was/is a permanent difficulty for both states, if the capacity to get the public debt is limited, what was/is the source of the spoils-shared to the different social groups? If these spoils did not come from external wars, they may come from internal prey from different groups. Küçükömer creates a pseudo-scientific fairy-tale about the “peaceful and rich” East/Islamic society, but he ignored the reactionary role of the local usuries/landlords and the transfer of wealth from the oppressed communities to dominant group (Turkish Sunni Muslims include the mass as well and limited allies from oppressed communities). Küçükömer also ignored the relations between the central authority (bureaucracy: the Kemalists and big capitalists) and local collaborator of the authority (local usuries/landlords: Islamists, small-middle capitalists).

Conclusions

Küçükömer as an academic made his research on the main problems of Turkey and Turkey's Left-wing. As an ex-Kemalist and putschist, he had sufficient direct experiences about Kemalism pseudo-progressive discourse having any positive value. As a „socialist”, he saw that the Turkish Left-wing was not a true Left-wing by universal standards and descriptions, being simply red-colored Kemalism, and stayed isolated from masses. In this context, he tried to use two theoretical instruments to solve the problem: Marx and Engels's Asiatic Mode of Production (AMP) and Gramsci's Civil Society idea. By Communist Manifesto, Marx and Engels describe the different socialisms like Aristocrat Socialism or Petit-bourgeois Socialism. Kuvâcımılı notices that even the finance-capital has its own form of socialism: National Socialism (Nazism)! Küçükömer's socialism could be evaluated as a „socialism” of Turkey's local usuries/landlords, xenophobes, anti-Semites, and genocide criminals like Kemalists and Ittihadists on the way of capitalism. He could be evaluated as an ideological illegitimate child of Doğan Avcıoğlu and Necî Fazık Kısakürek, and an ideological grand-father of Yigit Bulut who defends that President Erdogan is the greatest socialist and revolutionary of Turkey and Rıdvan Dilmen who

claims that President Erdogan is the new Deniz Gezmiş of Turkey without guerrilla clothes. (Gezmiş is one of the 68 revolutionary youth symbol leaders in Turkey. He was a guerrilla combatant in Turkey and in Palestine as well. He was executed by a Turkish military court in 1972.)

Küçükömer criticizes Kemalism's pseudo-progress, but he designs an Islamist pseudo-progress as well. His theories are used as a tool to create a pseudo-progressive image for the Islamists and their allies. The same two categories, Islamists and Kemalist and their social bases are studied by Dr. Hikmet Kıvılcımlı (relations between the central bureaucracy and the local usuries) and by Serif Mardin (center-periphery relations) (Mardin, 1973), from different perspectives, but assuming the same mistakes. As a final point, the definition of Ottoman Empire/Turkish social system as an external and systematically internal plundering process might be crowned at the same time as the definition of the Turkish colonial system (Beşikçi, 2016). To ignore the Ottoman Empire /Turkey's imperialist, colonialist, assimilationist, occupying and genocide perpetrator character and avoid the confrontation could be evaluated as the root source of all the confusions.

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Age variation of cephalic index according to cross-sectional studies of schoolchildren**DOI:** <http://doi.org/10.26758/9.1.14>

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Abstract

Objective. The objective of the study is to reveal the age-related variability of the cephalic index in schoolchildren according to the cross-sectional and longitudinal studies.

Material and methods. The basis for the study was data on the head shape of schoolchildren from town of Miory, Vitebsk Region, aged 6-17 (transverse study in 2002-2003, 1194 children) and schoolchildren from Minsk, aged 7-17 (longitudinal study of the 1980th, 254 children, 1223 measurements). Two craniofacial measurements were taken: head length (g-op), head breadth (eu-eu), the cephalic index was calculated.

Results. The leading morphotype for the two studied groups is brachycephalic. In Miory, the frequency of occurrence of the mesocephalic head shape is higher ($p < 0.05$) and the frequency of the hyperbrachycephalic and ultrabrachycephalic shape is lower compared to Minsk. From 7 to 17 years, in Miory both in boys and the girls, the average values of the cephalic index increased by 1.6 units, in Minsk – decreased by 0.4-0.8. The age variability of head sizes is due to the different growth rates of the head length and breadth and regional features of this process. According to a longitudinal study, in 23% the head shape type between the ages of 6-7 differed from the shape between the ages of 16-17 years, usually (19.2%) it was a transition from higher values to lower values (from brachymorphic to mesomorphic shape, etc.).

Conclusions. Changes in the head shape during the growth period should be taken into account when analyzing the variability of the cephalic index.

Keywords: head length and breadth, cephalic index, transverse and longitudinal studies, age variability.

Introduction

Since the very beginning of the development of anthropological science, the study of changes with time of the overall size and shape of the head (circumference, head length and breadth, cephalic index) in humans was of special interest of scientists: “It all started in 1844, when a famous Swedish anthropologist Anders Retzius began to measure skulls. He did this in an extremely primitive way – he measured the width and the length of the braincase and then calculated the width to length ratio, which he named cephalic index” (Alekseev, 1972; Franco et al., 2013). Later, these dimensions began to be used when comparing living people and their ratio became known as the cephalic index. People were subdivided into dolichocephalic (long headed) and brachycephalic (round headed). This marked the start for the measurement of individual elements of the head and face structure, and the introduction of the first measurement properties into anthropology that were considered the most important among all others for a long time.

One of the most striking tendencies in the shape change of the cerebral part of skull in the Slavic population of the East European Plain during the last millennium, noted by the Russian anthropologists Bogdanov, Debets, Alekseeva and others, was a tendency of brachycephalization, i.e., “rounding” of the skull shape due to the shortening of the longitudinal and expansion of the transverse diameters (Khit, 1968; Purunjan et al., 2002). The issues of epochal variability of the skull size and shape in people living in Belarus were identified by Salivon, who, based on the craniological and cephalometric data received by her, showed a directional process of brachycephalization that was occurring throughout the 2nd millennium AD, which made it possible to express a hypothesis about its microevolutionary nature (Salivon, 2011). However, the 20th century made some adjustments to this process. More and more authors in different countries began to talk about the opposite tendency of structural transformation – towards dolichocephalization (or debrachycephalization) of the head in modern humans (Kouchi, 2000; Pavlica et al., 2018; Salivon, 2008; Tineshev and Dimov, 2013).

In addition to studying the epochal variability of the cephalic index, it is also important to study its age variability. The patterns in the development of head and face size in children in the process of growth were discussed by anthropologists as exemplified in the cross-sectional studies in the middle of the 20th century (Miklashevskaya, 1968; Miklashevskaya, Solovyova and Godina, 1988). The main type of the growth curve expressing the growth patterns of the majority of head and face sizes in children in postnatal development is a parabola of the 3rd order. The most intensive growth of the head occurs in the first years of life, then the growth gradually decreases, reaching a minimum. During puberty, the growth begins again, which ends with the end of puberty. Great similarity was found in the age dynamics among the members of different ethnic and racial groups. However, there is not enough information on the age dynamics of the head size and the braincase shape obtained as a result of the longitudinal studies. Often, children of different ages are combined into one group, without taking into account possible changes in the shape of child head during growth (Akinbami, 2014; Vojdani et al., 2009). The objective of our study is to reveal the age-related variability of the cephalic index in schoolchildren according to the transverse and longitudinal studies.

Material and methods

In 2002-2003, Hurbo conducted an anthropometric measurement of the head and face sizes in children aged 6-17 in the town of Miory, Vitebsk region, Belarus. Miory is a small district center with a population of 9.3 thousand people; the industry is represented by food, mixed feed and flax processing facilities. Miory district is a border area, having a common border with Latvia in the north. In total, the city has 3 schools, where 1194 children were examined (593 boys and 601 girls) according to the standard anthropometric program.

From 1982 to 1991, Salivon performed a longitudinal anthropometric study of 149 boys and 105 girls of Minsk, the capital of the Republic of Belarus. In total, 1223 measurements have been carried out within 11 years. Minsk is the largest city in Belarus, is a political, economic, cultural and scientific center of the republic. According to the 1989 census, the population of Minsk was more than 1 million 600 thousand people.

Due to the fact that only 6-89 children represented a group of the same age, and at classifying them by morphotypes, the subgroups obtained were very small, we distinguished four age intervals to trace the age variability of the morphotypes: 6-9, 10-12, 13-15 and 16-17 years of age.

When considering the properties of the head shape based on the cephalic index value, different variants of the head shape are distinguished. There are various classifications of the head shape. For example, one of them distinguishes 3 shape types. With a cephalic index of not more than 74.9, it is dolichocephaly (long head), with a cephalic index ranging from 75.0 to 79.9

– it is mesocephaly (moderate head), and with a cephalic index greater than 80.0 – it is brachycephaly (short head, or round head). However, more extensive classifications are used quite often, for example, Broca's one, with 5 morphotypes, and others (Rauten et al., 2014).

We have used the following scheme for classifying the morphotypes: variations of the cephalic index from 70.0 to 74.9 inclusively belong to the dolichocephalic morphotype, from 75.0 to 79.9 – to the mesocephalic, from 80.0 to 84.9 – to the brachycephalic; to the hyperbrachycephalic – from 85.0 to 89.9, and to the ultrabrachycephalic – from 90.0 and more (Williams et al., 1995).

In order to trace how the cephalic index of one person changes with age, we selected from the whole group of children of Minsk those whose head sizes were measured during the entire observation period, i.e. between the ages of 7 to 17 (these are 10-11 years of observations). We obtained a group of 28 boys and 24 girls. Since the differences by the cephalic index were statistically insignificant, we united them into one group of 52 children.

All studies were carried out in accordance with the procedures of bioethics. The same measurement protocol was used in our investigations. The head and face sizes were measured according to the standard anthropometric method (Bunak, 1941; Williams et al., 1995). The large spreading calipers were used for the measurements. Two craniofacial measurements were taken: head length (g-op), head breadth (eu-eu). The cephalic index was calculated from head breadth (eu-eu) and head length (g-op) as:

$$CI = \text{Head breadth (eu-eu)} \times 100 / \text{Head length (g-op)}.$$

Statistical analyses of the obtained data were conducted by mean Statistica 7 software. Basic descriptive statistics were computed: Means and standard deviation values (SD). The Student's t-test and Pearson's chi-square test were used for evaluating age differences between groups. P value < 0.05 was considered statistically significant. As the numbers per age group are small, confidence intervals (95%CI) for all percent values were determined.

Results

Tables 1 and 2 present the age variability of the head length and breadth, as well as the cephalic index in Minsk and Miory.

The head's length of Miory boys aged between 6 and 17 years old increased by 9.9 mm (almost 1 cm), respectively by 5.9 mm in girls. Since we conducted the transverse study, and the individual variability of the head sizes, including the diameters, could be more significant than the age variability, we also indicated negative dynamics of values in certain periods. For example, the average intergroup values of the head length in girls decreased at the age of 6-8, 9-10, 11-12 (at 7-8 and 11-12 at $p < 0.05$), in boys – at the age of 9-10, 12-13. A certain increase in the average group values was recorded in girls at the age of 8-9 and 10-11 (by 3.9 and 2.8 mm, respectively, $p < 0.001$), in boys – at the age of 7-8 (by 3.4 mm, $p < 0.001$), and 10-11, 13-15 (by 1.9-2.2 mm annually, $p < 0.05$).

The head's length of Minsk boys aged between 7 and 17 years old increased by 14.1, respectively by 10.2 mm in girls. The most active period of increase in the head length in boys was recorded at the age of 12-16, when its average value was increasing by 1.8-2.3 mm each year. In girls, the maximum increments of the average values of this diameter were observed at 11-12 (+2.8 mm, $p < 0.05$) and 13-14 (+2.0 mm); at the age of 12-13, there was a negative trend, which was probably influenced by the small number of children examined at the age of 12 (only 26 children).

The head's breadth of Miory boys increased between the ages of 6 and 17 years old by 8.5 mm, respectively by 7.7 mm in girls. The maximum increments of the average group values of the index in girls were observed at the age of 10-11 and 12-13 (by 3.0-3.3 mm, $p < 0.001$); significant gains were also observed at the age of 8-9 (by 1.9 mm, $p < 0.01$) and 16-17 (by 1.5

mm, $p < 0.05$). For boys, the head's breadth most actively incremented at the age of 7-8 years old (by 2.7 mm, $p < 0.001$), 10-11 and 12-13 years old (by 1.5 and 1.6 mm, respectively, $p < 0.05$), as well as 13-14 years old (by 2.2 mm, $p < 0.01$).

The head's breadth of Minsk boys increased by 10.1 mm, respectively by 7.6 mm in girls. In both the boys and the girls, the maximum increments of the average values of this diameter occurred at the age of 7-8 (by 1.8 and 1.3 mm, respectively) and at the age of 12-13 (by 1.7 and 2.7 mm, in girls – $p < 0.05$). A slight negative trend was recorded at the age of 10-11 in boys and at the age of 13-14 and 15-16 in girls. Apparently, such trend took place due to the fact that the composition of the examined children varied, and it was not always possible to measure each child annually.

The cephalic index in boys of Miory was in the range of 80.0-82.2, in girls – in the range of 80.1-82.1, still showing a slight increase in values: for example, while at the age of 6-11 years the cephalic index was 80-81 both in boys and the girls, while it was mainly 81-82 at the age of 12-17 years old. In boys, an increase in the cephalic index at the age of 9-10 and 12-13 years old (by 1.1 and 1.5 units) reached a level of statistical significance ($p < 0.05$, respectively $p < 0.01$).

In boys of Minsk, the cephalic index varied in the range of 81.4-83.1: while it was predominantly increasing in the age range of 7-10, reaching its maximum at the age of 10, it was steadily declining between the ages of 12 to 17, reaching the minimum value of 81.4. Perhaps the reason for such dynamics of the index is the alternation of the acceleration of the growth of either longitudinal, or transverse head sizes, that is, in a wavelike growth process. In general, the average value of the cephalic index decreased by 0.8 between 7 and 17 years of age. In girls, the cephalic index was in the range of 81.7-83.4, increasing and decreasing, and reducing in general by 0.4 between the ages of 7 to 17. The maximum increase in the value of the cephalic index took place at 12-13 years old (+1.7, $p < 0.05$), after which there was a tendency to decrease in its values.

Regarding the head shape of Miory boys, the dolichocephalic head shape was extremely rare (2.8-5.8% in certain age periods, 4.6% in the total sample). The mesocephalic head shape was typical for 22.4-45.5% (34.4% in the total sample) of the boys. Its occurrence is maximum at the age of 6-9 and minimum at the age of 16-17 years old. The brachycephalic morphotype was more common than the others: its frequency varied in the range of 40.4-48.6% (45.4% in the total sample). The hyperbrachycephalic shape of the head was typical for 7.7-24.3% (14.8% on average) of the boys of Miory, progressively increasing from 6-9 to 16-17 years old. The ultrabrachycephalic morphotype was encountered in isolated cases (0.6-1.3%).

The girls of Miory, like the boys, had extremely rare cases of dolichocephalic and ultrabrachycephalic shapes of the head: 0.9-6.4% in certain age samples of the examined children (3.8% in the total sample), and 0.6-2.9% (1.0%), respectively. Mesocephalic shape was encountered in 27.9-39.2% of cases (33.0% in the total sample). The most typical head shape in girls of Miory is brachycephalic (43.7-51.4% at certain ages, 46.9% in the total sample), and the hyperbrachycephalic shape is somewhat rarer (10.2-20.6% at certain ages, 15.3% in the total sample).

As with certain ages, the following trend can be observed when grouping the data into intervals. With aging (between 6 and 17 years of age), the proportion of dolichocephalic and mesocephalic shapes decreases, while the proportion of brachycephalic and hyperbrachycephalic shapes increases.

In children of Minsk, the least common is ultrabrachycephalic and dolichocephalic head shape. In boys of different age groups, the ultrabrachycephalic morphotype was noted in 2.7-4.5% of cases (4.0% in the total sample), in girls – in 0.0-2.3% (1.7% in total), dolichocephalic morphotype – in 2.8-6.8 (4.4%) and 1.7-3.2% of cases (2.3%), respectively. Most often, the children living in the capital had a brachycephalic head shape: in boys, at different age periods,

its frequency varies in the range of 42.4-51.9% (46.6% in the total sample), in girls – in the range of 47.1-57.0 % (53.0% on average). The mesocephalic morphotype was typical for 19.1-29.1% of boys (24.7% in the total sample) and 17.3-24.7% of girls (21.2% in total), hyperbrachycephalic – for 18.2-23.7% (20.3%) and 15.1-25.7% (21.8%) of children, respectively.

With aging, there was a decrease in the proportion of children with hyperbrachycephalic shape, and an increase of brachycephalic head shape in girls and dolichocephalic head shape in boys.

The analysis of the variability of the cephalic index in children of Minsk between the ages of 7 to 17, who were observed over all 10-11 years, showed that the value of the cephalic index decreased with age in children in 75% of cases, increased in 21.2%, and remained unchanged in 3.8%. The range of variability is significant – from -4.3 to +5.9, i.e. the cephalic index could both decrease by 4.3, and increase by 5.9, and on average the cephalic index decreased by 0.8. In 21.2%, the cephalic index changed by more than ± 2.0 (fig. 1).

In most cases (53.9%), the value of the cephalic index varied within the same morphotype; in 23.1% of cases, the morphotype returned to the original category by the end of the observation period, even if it changed during the school period. Only in 23%, the head shape type between the ages of 6-7 differed from the shape between the ages of 16-17 years, usually (19.2%) it was a transition from higher values to lower values (from brachymorphic to mesomorphic shape, etc.).

Figure 1. Shifts of cephalic index values from 7 to 17 years at children of Minsk

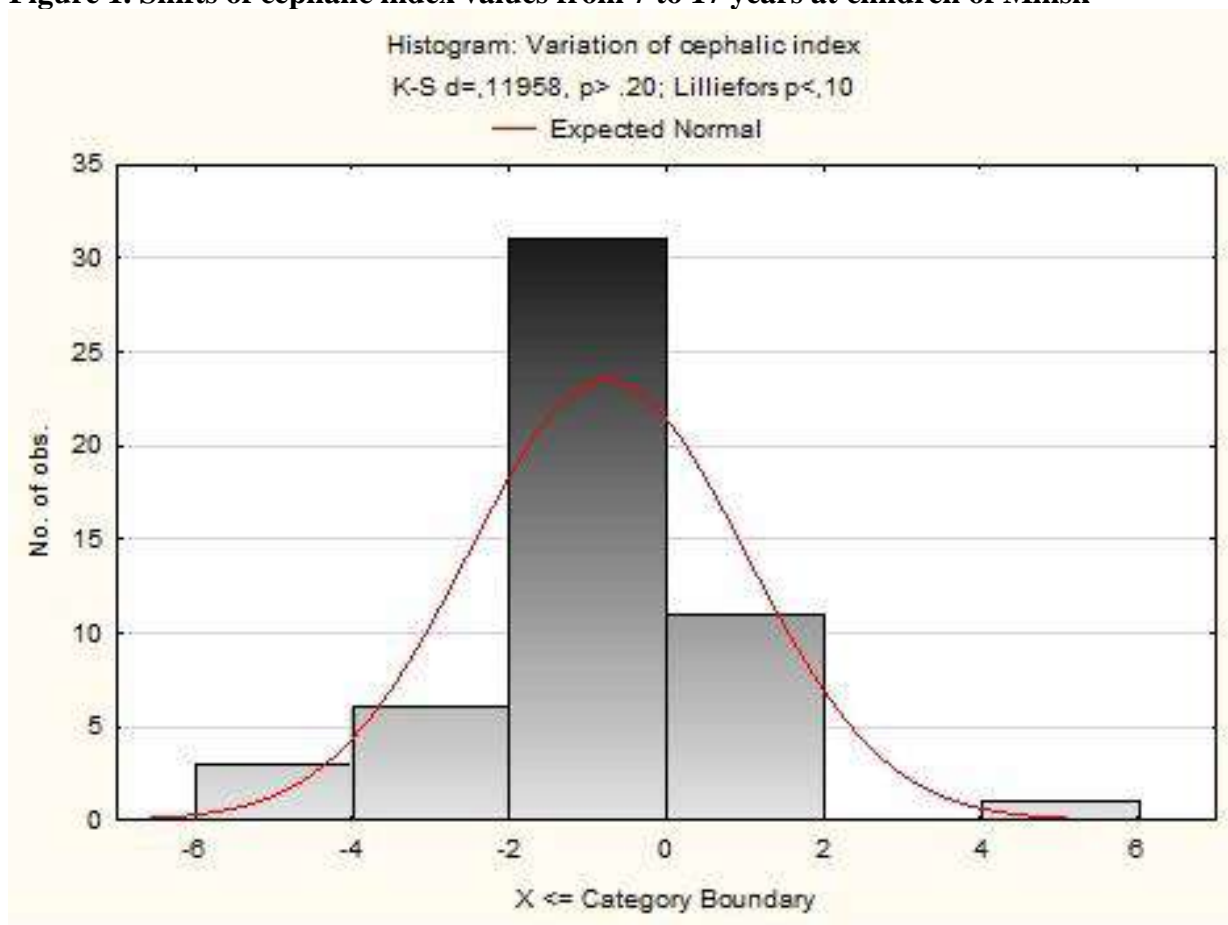


Table 1. Head dimensions and cephalic indices of studied boys

Age, years	Minsk							Miory						
	N	head length, mm		head breadth, mm		cephalic index		N	head length, mm		head breadth, mm		cephalic index	
		Mean	SD	Mean	SD	Mean	SD		Mean	SD	Mean	SD	Mean	SD
6								9	177.3	5.2	144.6	6.4	81.6	4.0
7	40	178.5	5.8	146.5	5.8	82.2	3.9	46	178.5	5.9	143.2	5.4	80.3	3.6
8	70	179.5	6.9	148.3	5.1	82.7	4.0	46	181.9	7.0	145.9	4.7	80.3	3.4
9	67	180.5	7.0	149.4	5.8	82.9	4.4	55	182.1	5.6	145.6	4.6	80.0	3.6
10	36	181.6	7.6	150.8	6.0	83.1	4.5	52	180.8	5.2	146.3	5.5	81.1	3.8
11	57	182.4	6.2	150.3	5.8	82.5	4.1	49	182.7	6.5	147.8	4.6	81.0	3.4
12	38	183.3	6.6	151.6	6.2	82.8	4.0	51	183.6	7.3	147.4	4.6	80.4	3.8
13	73	185.6	6.7	153.3	6.0	82.7	4.4	68	182.1	8.5	149.0	6.8	81.9	3.1
14	83	187.5	7.4	154.4	6.1	82.5	4.3	64	184.3	7.8	151.2	3.7	82.2	3.9
15	88	189.6	7.0	155.4	6.4	82.0	4.2	46	186.5	8.0	151.3	5.1	81.2	4.4
16	89	191.4	6.9	156.6	7.1	81.9	4.4	54	186.6	5.2	153.0	7.3	82.0	4.2
17	59	192.6	6.9	156.6	6.7	81.4	4.2	53	187.2	7.8	153.1	4.4	81.9	3.7

Table 2. Head dimensions and cephalic indices of studied girls

Age, years	Minsk							Miory						
	N	head length, mm		head breadth, mm		cephalic index		N	head length, mm		head breadth, mm		cephalic index	
		Mean	SD	Mean	SD	Mean	SD		Mean	SD	Mean	SD	Mean	SD
6								6	177.0	4.6	142.2	5.4	80.4	3.6
7	24	174.0	6.0	142.8	4.5	82.2	4.2	46	176.1	6.3	141.5	4.1	80.4	3.7
8	57	175.1	5.9	144.1	4.8	82.4	3.7	47	173.8	7.6	140.3	4.9	80.8	3.1
9	59	175.8	6.1	145.3	4.7	82.7	3.7	59	177.7	6.2	142.2	5.2	80.1	3.9
10	43	177.0	6.0	145.9	4.7	82.5	3.3	50	177.6	5.9	142.2	5.3	80.2	3.6
11	48	177.4	5.6	146.4	5.2	82.6	3.8	53	180.4	5.5	145.2	5.1	80.5	3.0
12	26	180.2	5.6	147.0	4.8	81.7	3.5	54	178.6	5.8	144.8	5.2	81.2	3.5
13	52	179.5	5.7	149.7	5.0	83.4	3.0	66	180.6	6.0	148.1	5.0	82.1	3.5
14	59	181.5	5.9	149.4	5.5	82.4	3.3	48	180.6	7.0	148.2	5.5	82.1	3.8
15	62	182.5	5.4	150.5	4.8	82.6	3.4	61	181.2	7.0	147.6	5.1	81.6	4.3
16	54	183.1	6.1	150.3	4.4	82.2	3.5	56	181.5	6.5	148.4	5.8	81.9	3.9
17	39	184.2	6.1	150.4	4.2	81.8	3.3	55	182.9	6.5	149.9	4.5	82.0	3.1

Table 3. Frequencies of the categories of head types according to boys cephalic index values

Age groups	N	Dolichocephalic			Mesocephalic			Brachycephalic			Hyperbrachycephalic			Ultrabrachycephalic		
		n	%	95%CI	n	%	95%CI	n	%	95%CI	n	%	95%CI	n	%	95%CI
Minsk																
7-9	177	5	2.8	1.2-6.4	47	26.6	20.6-33.5	75	42.4	35.3-49.7	42	23.7	18.1-30.5	8	4.5	2.3-8.7
10-12	131	5	3.8	1.6-8.6	25	19.1	13.3-26.7	68	51.9	43.4-60.3	28	21.4	15.2-29.2	5	3.8	1.6-8.6
13-15	244	11	4.5	2.5-7.9	58	23.8	18.9-29.5	119	48.8	42.6-55.0	45	18.4	14.1-23.8	11	4.5	2.5-7.9
16-17	148	10	6.8	3.7-12.0	43	29.1	22.3-36.8	64	43.2	35.5-51.3	27	18.2	12.9-25.2	4	2.7	1.1-6.7
7-17	700	31	4.4	3.1-6.2	173	24.7	21.7-28.0	326	46.6	42.9-50.3	142	20.3	17.5-23.4	28	4.0	2.8-5.7
Miory																
6-9	156	9	5.8	3.1-10.6	71	45.5	37.9-53.3	63	40.4	33.0-48.2	12	7.7	4.5-13.0	1	0.6	0.1-3.5
10-12	152	8	5.3	2.7-10.0	53	34.9	27.8-42.7	71	46.7	39.0-54.6	18	11.8	7.6-17.9	2	1.3	0.4-4.7
13-15	178	5	2.8	1.2-6.4	56	31.5	25.1-38.6	83	46.6	39.5-54.0	32	18.0	13.0-24.3	2	1.1	0.3-4.0
16-17	107	5	4.7	2.0-10.5	24	22.4	15.6-31.2	52	48.6	39.3-58.0	26	24.3	17.2-33.2	0	0.0	0.0-3.5
6-17	593	27	4.6	3.2-6.5	204	34.4	30.7-38.3	269	45.4	41.4-49.4	88	14.8	12.2-17.9	5	0.8	0.4-2.0

Table 4. Frequencies of the categories of head types according to girls cephalic index values

Age groups	N	Dolichocephalic			Mesocephalic			Brachycephalic			Hyperbrachycephalic			Ultrabrachycephalic		
		n	%	95%CI	n	%	95%CI	n	%	95%CI	n	%	95%CI	n	%	95%CI
Minsk																
7-9	140	4	2.9	1.1-7.1	31	22.1	16.1-29.7	66	47.1	39.1-55.4	36	25.7	19.2-33.5	3	2.2	0.7-6.1
10-12	117	2	1.7	0.5-6.0	27	23.1	16.4-31.5	60	51.3	42.3-60.2	26	22.2	15.6-30.6	2	1.7	0.5-6.0
13-15	173	3	1.7	0.6-5.0	30	17.3	12.4-23.7	98	56.7	49.2-63.8	38	22.0	16.4-28.7	4	2.3	0.9-5.8
16-17	93	3	3.2	1.1-9.1	23	24.7	17.1-34.4	53	57.0	46.9-66.6	14	15.1	9.2-23.7	0	0.0	0.0-4.0
7-17	523	12	2.3	1.3-4.0	111	21.2	17.9-24.9	277	53.0	48.7-57.2	114	21.8	18.5-25.5	9	1.7	0.9-3.2
Miory																
7-9	158	9	5.7	3.0-10.5	62	39.2	32.0-47.0	69	43.7	36.2-51.5	18	11.4	7.3-17.3	0	0.0	0.0-2.4
10-12	157	10	6.4	3.5-11.3	53	33.8	26.8-41.5	77	49.0	41.3-56.8	16	10.2	6.4-15.9	1	0.6	0.1-3.5
13-15	175	3	1.7	0.6-4.9	52	29.7	23.4-36.9	79	45.1	38.0-52.5	36	20.6	15.3-27.2	5	2.9	1.2-6.5
16-17	111	1	0.9	0.2-4.9	31	27.9	20.4-36.9	57	51.4	42.2-60.5	22	19.8	13.5-28.2	0	0.0	0.0-3.4
6-17	601	23	3.8	2.6-5.7	198	33.0	29.3-36.8	282	46.9	43.0-50.9	92	15.3	12.7-18.4	6	1.0	0.5-2.2

Discussions

The town of Miory is located in the northern part of Belarus, in the geochemical province of Poozerye, Minsk is located in the central part of Belarus. In the course of previous studies of the head size and shape of both the adult and child population of Belarus, it was found that the maximum values of the head length were observed in the Belarusians of the north region, especially in the north-west, and the minimum values – in the south of Belarus. The head breadth, on the contrary, is minimum in the north and south-east regions, and maximum in the west and in the center of the republic. Accordingly, the cephalic index is maximum in the south-west and west regions, and minimum – in the north-west and north-east (Salivon, 2011).

In our study, children of both sexes from Minsk throughout the whole period of the study had higher values of the head breadth (for boys 7–17 and girls 8–10 and 15 years old – from $p < 0.05$ to $p < 0.001$). Starting from the age of 13 in boys and 14 years in girls, the size of the head length of the Minsk dwellers is also greater (in boys – from $p < 0.05$ to $p < 0.001$). By the beginning of the definitive period (16–17 years), both young males and females of Minsk (the central region of Belarus) are distinguished by larger sizes of the head length and breadth, compared with their age mates from Miory (north-west). This may be due to different factors. Minsk is a megapolis, the center where people from all regions of Belarus come to. Due to such active population mixing, the results obtained can vary considerably. In Minsk economic prosperity is also much higher, living standards are higher, what could affect the magnitude of morphological parameters in Minsk children (their higher values).

By the size of the cephalic index from 7 to 15 years for boys (7–12 years old – from $p < 0.05$ to $p < 0.001$) and from 7 to 16 years for girls (at 8–11 years old – from $p < 0.05$ to $p < 0.001$) children from Minsk are superior to their peers from Miory. By the beginning of the definitive period, somewhat high values of the cephalic index are observed in children of Miory, compared with their age mates from Minsk. The age variability of head sizes is due to the different growth rates of the head length and breadth and regional features of this process.

The leading morphotype for the two studied groups is brachycephalic. In Miory, the frequency of occurrence of the mesocephalic head shape is slightly higher, differences reach a high level ($p < 0.05$) at 6–12 years, as well as in the in the total sample. At the same time in Miory the frequency of the hyperbrachycephalic (in children 6–9 years old of both sexes and in girls in the total sample – $p < 0.05$) and ultrabrachycephalic shape (in boys in the total sample – $p < 0.05$) is lower compared to Minsk. This corresponds to the tendency of a slightly more elongated head shape among the population in the north of the country, compared with the regions lying to the south, which was noted earlier by researchers (Salivon, 2011; Salivon, Polina and Marfina, 1989).

The head circumference and the skull capacity as early as at the age of 3–4 are very close to the “adult” values. It is known that the head length grows more intensively than its width. This results in elongation of the braincase shape, which does not occur immediately after birth, but, as a rule, somewhat later. After 12 months, in the opinion of the overwhelming majority of authors, there comes a period of very slow decrease in the index value, which lasts until maturity. The difference in the cephalic index between six months and 20 years rarely exceeds 1.5 units of the index (Khit, 1968; Miklashevskaya, Solovyova and Godina, 1988; Salivon, Polina and Marfina, 1989).

In our case, in Miory between 7 and 17 years of age, both in boys and the girls, the average values of the cephalic index increased by 1.6 units (groups of 6 year-old children are small in number), in Minsk – decreased by 0.4–0.8. In general, there is a significant percentage of cases (slightly less than a quarter) when the head shape changes in the process of growth. It was determined that the growth process of the cranial part of the head mainly in vertical and transversal directions continues over the period of adolescence (Kuzmenko and Usovich, 2016).

Obviously, most often this process is recorded in the case when the value of the cephalic index is close to the values delimiting adjacent morphotypes.

Conclusions

Thus, even within the limits of a fairly compact territory of one country, there are significant regional peculiarities in the variability of head shape indices (longitudinal and transverse diameter of the head, cephalic index). According to a longitudinal study, there was a decrease in the cephalic index between the ages of 7 to 17 in Minsk (by 0.4-0.8), and according to a transverse study, there was an increase in Miory (by 1.6).

The leading morphotype for the two studied groups is brachycephalic. In Miory, the frequency of occurrence of the mesocephalic head shape is slightly higher and the frequency of the hyperbrachycephalic and ultrabrachycephalic shape is lower compared to Minsk.

According to a longitudinal study, in 23% the head shape type between the ages of 6-7 differed from the shape between the ages of 16-17 years, usually (19.2%) it was a transition from higher values to lower values (from brachymorphic to mesomorphic shape, etc.).

The results of the longitudinal study are more informative when analyzing the dynamics of a child's development, including basic head sizes. Changes in the head shape during the growth period should be taken into account when analyzing the variability of the cephalic index. The cephalometric studies in children and adults are important to clarify the epochal and regional variability of physical development, as well as necessary for practical medicine (injuries to the skull, oral and maxillofacial surgery, etc.).

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Aspects regarding the influence of the family and the social peer group on drug use in a lot of pupils and students from Bucharest**DOI:** <http://doi.org/10.26758/9.1.15>

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Abstract

Objectives. This paper aims at presenting the prevalence of illicit drug use among a group of pupils and students in Bucharest, as well as the influence of family and friends on drug use.

Material and methods. This quantitative transversal study was carried out in Bucharest between December 2017 and December 2018, with the participation of a group of 459 pupils and students from Bucharest (83 male and 376 female), aged from 14 to 23 years old. An „omnibus” questionnaire was applied, for which eight items were selected for this work. The results were statistically processed using SPSS version 21.

Results. Out of the participants in the study, 72.9% were from organized families and 27.1% of reorganized or disorganized families. In 75.5% of cases, family relations were balanced, tense in 3.7% of cases and acceptable in 20.7% of participants. Among the subjects, 82.3% were satisfied with the relationship they had with their parents and only 1.8% were dissatisfied. There are strict family rules in 73.9% of cases and in 26.1% there are not. 84.0% respect the family rules and 16.0% do not respect them. In the circle of friends, there are 12.2% drug users, 35.5% smokers or gamblers and 34.4% alcoholic. The statistical difference is very significant ($p < 0.001$) in the sense that their number was higher among friends of study participants who have consumed an illegal drug at least once in their life.

Conclusions. This study showed that there is a large number of pupils and students from Bucharest, participants in the study, who took illegal drugs at least once in their life. In this matter, the influence of the group is very strong, although within the family there are harmonious relations, strict rules, and supervision by parents. At this age, careful supervision is required in choosing the circle of friends.

Keywords: drugs, pupils, students, family, friends.

Introduction

Drugs can be classified into two types: prohibited drugs (hallucinogens, cannabis/marijuana/hashish, cocaine, heroin, methadone, amphetamine, etc.) and legal drugs (caffeine, tobacco, ethanol/alcohol, opioids, etc.). The negative effects of illegal drugs are very severe, and they are manifested through irreversible injuries of various internal organs and through behavioural disorders affecting the social life (Bălăceanu Stolnici et al., 2012).

Consumption of legal and illegal drugs has increased since the 1970s and has become a permanent medical and psychosocial problem of the world, requiring new strategies (the National Anti-Drug Strategy 2013-2020).

According to the European Drug Report, drafted in 2016, one in four European citizens took one time an illegal drug. Thus, one-quarter of the population in the target group, consisting of 88 million people (54.3 million men, 34.8 million women), aged between 15 and 64, tried prohibited substances at least once in their life (European Drugs Report, Trends, and Trends, 2016).

Until 1989, Romania was a transit country, and then it became a drug outlet of drug use. Consumption of illicit drugs has mainly developed in Bucharest, and there is a receptive population to try out drugs, especially heroin (Mihai, 2005).

In Romania, the consumption of any illicit drug shows twice the prevalence among young adults (the age group 15-34 years) compared to those in the general population (15-64 years), but the rates are similar to those found in the school population (16 years). Cannabis is the most consumed drug in our country, although it has the lowest values in Europe (National Report on the Drug Situation 2018).

The objectives of this paper are to present: the prevalence of illicit drug use among a group of pupils and students in Bucharest, as well as the influence of family and friends on drug use.

The hypotheses laid out at the beginning of this study are:

1. If a young person comes from a disorganized family with tense relationships, is dissatisfied with one's parents' relationship, in which one is aggrieved or neglected, such person has greater chances of taking drugs;
2. If a young person has friends that are drug users, such person has greater chances of taking drugs;
3. The family has a greater influence than friends regarding drug use.

Material and methods

This transversal quantitative study was carried out in Bucharest between December 2017 and December 2018 with the participation of a group of 459 pupils and students from Bucharest (83 male - 18.1% and 376 female - 81.9%). The age of the volunteers was between 14 and 23 years old (mean age, 23.47 ± 9.35 years). An „omnibus” questionnaire was applied, with several themes, containing 90 items. The questions were both closed and open. In this paper we used eight items that refer to: illegal drug use in the study participant group, family organization, family atmosphere, relationships with parents, rules within the family and how to respect them, the degree of parents' interest in leisure spending by children, and the presence of illicit drug users, alcohol addicted persons, smokers and gamblers in the circle of friends.

The results were statistically processed using the Statistical Package for Social Sciences (SPSS) version 21. The statistical instrument used is the non-parametric Chi-square test.

The addition of the participants in the study is on a voluntary basis, following written, informed and freely expressed consent. The study complied with the ethical norms of scientific research, always according to the principles of anonymity and confidentiality, and the subjects can withdraw at any time in the study. The study was conducted by the Ethics Commission of the Institute of Anthropology, Fr. I. Rainer „of the Romanian Academy, number 890 / 23.11.2017.

Results

Table 1. The distribution of the group based on drug use

		Frequency		Valid Percent	Cumulative Percent
Valid	yes	46	8,7	10,0	10,0
	no	412	78,3	90,0	100,0
	Total	458	87,1	100,0	
Missing	System	68	12,9		
Total		526	100,0		

Frequencies

Table 2. The distribution of the group based on gender and drug use

Have you ever taken drugs?		yes	no	Total
Gender	male	6	76	82
	female	40	336	376
Total		46	412	458

Tables 1 and 2 have demonstrated that one in 10 participants of both genders has consumed drugs, with no significant statistically difference (Pearson Chi-Square = 0.822, $p = 0.365$).

Table 3. Distribution of the lot depending on the drug use and the way of organizing the family

Have you ever taken drugs?	The family is:			Total
	organized (mother and father)	reorganized (a parent remarried)	disorganized (single parent, divorce, death, others)	
yes	28	5	11	44
no	300	20	85	405
Total	328	25	96	449

Table 3 revealed that over one-third of users of both genders came from single-parent families or reorganized families where one of the parents had remarried following the divorce or death of the other parent. Concerning drug consumption / non-consumption according to family organization, there was no statistically significant difference (Pearson Chi-Square = 3.834, $p = 0.147$).

Table 4. Distribution of the batch according to the drug consumption and the family atmosphere

Have you ever taken drugs?	The family atmosphere is			Total
	balanced, harmonious	tense	acceptable	
yes	30	4	12	46
no	316	13	82	411
Total	346	17	94	457

Table 4 shows that within the family of most study participants who consumed drugs, the atmosphere was balanced, harmonious, without high tension, and there was no statistically significant difference (Pearson Chi-Square = 4.905, $p = 0.086$) between those who had consumed drugs and those who have never consumed an illegal drug.

Table 5. Drug distribution and relationship with parents

Have you ever taken drugs?	How satisfied are you with the relationship with your parents				Total
	satisfied	nor satisfied nor dissatisfied	I'm not satisfied	No parents	
yes	33	10	1	2	46
no	343	49	7	11	410
Total	376	59	8	13	456

Table 5 showed that most of the study participants who consumed illegal drugs were content with their parenting relationships. There was no statistically significant difference (Pearson Chi-Square = 4.229, $p = 0.238$) in terms of satisfaction with parenting.

Table 6. Drug distribution according to drug use and family rules

Have you ever taken drugs?	Are there strict rules in the family about what you can do at home and outside the house?					Total
	Almost always	Often	Sometimes	Almost never	Never	
yes	4	1	24	2	15	46
no	30	60	216	7	95	408
Total	34	61	240	9	110	454

Table 6 shows that there were some rules on what study participants were allowed to do at home or outside the home, with no statistically significant difference (Pearson Chi-Square = 7.864, $p = 0.97$) between those who consumed drugs and those who never consumed an illegal drug.

Table 7. Drug distribution according to drug use and compliance with rules within the family

Have you ever taken drugs?	Do you follow these rules?					Total
	Almost always	Often	Sometimes	Almost never	Never	
yes	9	13	8	2	8	40
no	129	101	92	13	44	379
Total	138	114	100	15	52	419

Table 7 highlighted that most of the study participants, whether they had consumed illegal drugs at least once in their lifetime or they had not consumed, often respected family rules, and there was no statistically significant difference (Pearson Chi-Square = 4.496, $p = 0.343$).

Table 8. Drug distribution based on drug use and parental information on leisure time

Have you ever taken drugs?	Do your parents know where and with whom do you spend your free time?					Total
	Almost always	Often	Sometimes	Almost never	Never	
yes	22	9	9	2	2	44
no	239	72	70	15	2	398
Total	261	81	79	17	4	442

From Table 8, it was noted that parents often knew where and with whom their children spent their free time. There was no statistically significant difference (Pearson Chi-Square = 8,199, $p = 0.085$) between those who consumed drugs and those who never consumed an illegal drug.

Table 9. Drug distribution according to drug use in the studied group and the circle of friends

Have you ever taken drugs?	The circle of friends you have: - Are they drug users?			Total
	Yes	No	Do not know	
yes	22	21	3	46
no	33	348	25	406
Total	55	369	28	452

Table 10. Drug distribution based on drug use and presence of smokers and gamblers in the circle of friends

Have you ever taken drugs?	The circle of friends you have: - are they heavy smokers or gamble constantly?			Total
	Yes	No	Do not know	
yes	31	12	2	45
no	130	247	31	408
Total	161	259	33	453

Table 11. Drug distribution according to drug use in the studied group and the presence of alcohol users in the circle of friends

Have you ever taken drugs?	The circle of friends you have:- Are they alcohol consumers?			Total
	yes	no	do not know	
yes	33	12	1	46
no	121	250	33	404
Total	154	262	34	450

Tables 9, 10 and 11 showed that in the case of drug users who consumed illegal drugs, the number of drug and alcohol users, as well as smokers and gamblers in the circle of friends, was higher than those who did not use any illicit drug, the statistical difference being highly significant ($p < 0.001$).

Discussions

This study found that most of the participants who had consumed drugs at least once in their life came from families with a harmonious, balanced, or at least acceptable family atmosphere and were pleased with the relationship that they had with their parents.

There are risk and protection factors of drug use. Risk factors include disorganized families or groups of peers with deviant behaviour. Protective factors include harmonious family relationships, close supervision of children, rules to be respected in the family, parents actively involved in children's activities and problems (Hird et al., 1997). In Romania, empowering families to become involved in children's lives and providing them with positive models is one of the main objectives of public policies in the field of drug abuse prevention in the country (National Report on Drug Situation 2015 Romania New Developments and Trends, REITOX, p. 77), contributing to formation of young people's personality (<http://referat-referate.blogspot.ro/2013/02/familia-ca-grup-social.html>).

For many participants in the study, there were strict rules on what they were allowed to do at home and outside the house, rules that were most often respected. In an article, Frisher et al. (2007) showed the importance of family cohesion, but especially of parental monitoring and strict discipline rules imposed by parents on drug-related factors.

Also, in most cases, parents knew where and with whom their children spent their free time. The leisure activities are constantly changing according to age (Rada, 2017), during childhood leisure time is often under the supervision of grandparents, who can provide a positive model to children and future adolescents and young people, thus contributing to the strengthening drug protection factors (Rada, 2018).

However, a fairly high percentage of 10% has consumed drugs at least once in a lifetime. Most of them said they smoked cannabis at parties, at concerts, with friends, and the majority of the time out of curiosity. The main causes of drug use are curiosity, the desire to try something new, to experience everything, to increase intellectual performance and even the desire to be modern (Bălăceanu Stolnici et al., 2012).

From the data presented in this paper, more than half of the friends of those who have consumed illegal drugs were drug users, alcohol or smokers or constant gamblers. Thus, one in 10 study participants consumed drugs, often under the influence of the entourage.

In adolescence, the group of peers had great influence (Brown, 1989, apud Morton et al, 2010), often becoming more important than the family (Bălăceanu Stolnici et al., 2012). At this stage in life in the circle of friends, there are common interests and behaviours (Eiser et al., 1991, apud Morton et al., 2010). Frequently, to be accepted in a group of peers, the adolescent will adapt to the group's requirements (Evans, Hersey and Renaud 2006, apud Morton et al, 2010).

Even if the circle of friends or family determines drug use, they are those who have an important role in determining who should quit drug use (Baciu and Pungă, 2017).

As a result of this study, most of the participants came from peer groups in which drug, alcohol, tobacco use was common. If the family and the group of peers had unfavourable influences on the onset of drug abuse amongst the closest, most drug users who sought treatment or turned to drug-related emergency services did so at the urge of the family or friends, according to the National Report on the Drug Situation 2015 Romania presented by the National Anti-drug Agency.

It can be seen from these data that at this age curiosity, the desire to imitate friends are very high and can lead to drug use, even if the young people were supervised, educated and had no family problems.

Conclusions

This study showed that among the pupils and students in Bucharest, the number of those who consumed illegal drugs at least once in their life was quite high.

Harmonious family relationships, good relationships with young people who participated in the study, parents' involvement in education by enforcing rules and supervising leisure were factors that determined that 90% of study participants not use illegal drugs at least once in their life.

It has also been demonstrated how strong the influence of the peer group is at this age, and that careful supervision is required in choosing a circle of friends, as well as an open, sincere communication of students and young people with their parents. Both family and friends have major influences on the consumption or non-consumption of illicit drugs.

The high percentage of subjects who took drugs at least once in their life, even if in families with positive models or harmonious relationships with parents, were closely monitored. They have respected most of the time the rules imposed and invalidate the hypothesis from which we started the study, namely that a family with problems determines drug use. We noticed that the example of friends affects the behaviour of adolescents and young people more than that offered by the family. The hypothesis expressed towards a stronger influence of the family rather than that of the friends is denied by the data obtained during this research.

Most of the participants who took drugs have also use due to the influence of friends' example or at their insistence („to become a peer,” „to be cool,” „to discover cannabis”). This proved the hypothesis formulated on the influence of the peer group on drug use.

It can be said that information on the harmful effects of drugs is absolutely necessary both among young people and among parents. Parents should not neglect this issue and should talk with children in detail, make them understand that it is not just a teenage game. But it can lead to addiction and can have many severe consequences.

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Child-to-parent violence: a study of socio-demographic causes in Ilorin Metropolis, Kwara State**DOI:** <http://doi.org/10.26758/9.1.16>

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Abstract

Objectives. Child-to-parent violence (CPV) is gradually attracting interest all over the world. Therefore, it is becoming a social problem. It has severe effects on the parents and the children. This study observed the socio-demographic causes of CPV in Ilorin metropolis of Kwara State. The study examines the association between the offender's religion and engagement in financial CPV. Also, there is an interest in the association between offender's age and involvement in psychological violence. Finally, there is an interest in the association between offender's gender and engagement in physical CPV.

Material and methods. In 2018, data were retrieved using a questionnaire with 258 copies found to be valid. The respondents were selected using multistage sampling, entailing cluster, simple random and purposive stages of sampling. In terms of gender, 57% of the respondents were male with 43% being female. In terms of age, 2% of the respondent were aged 18 and below; 25% aged 19-29; 33% aged 30-40, 32% aged 41-51, and 8% aged 52 and above.

Results. Offender's religion is not related to engagement in financial CPV, [$C^2(1, N=258) = 0.59, p=0.44$]. Offender's age is related to involvement in psychological violence [$C^2(1, N=258) = 18.4, p=0.001$]. Offender's gender is related to engagement in physical CPV [$C^2(1, N=258) = 32.1, p=0.001$].

Conclusions. The study revealed that religion is not a significant factor influencing CPV. Age and gender on the other hand are significant factors. Grounded on this, the study recommends that non-governmental organizations could be established to educate the general public on the issue of CPV and its dangers.

Keywords: Child-to-parent violence (CPV), socio-demographic causes, Ilorin Metropolis.

Introduction

Violence has perhaps always been a constant occurrence in human lives. Its devastating effect can be globally observed in innumerable forms. The cost in sorrow and pain, anguish and distress is inestimable. As a matter of fact, a great proportion of it is virtually invisible. Certainly, satellite technology reveals some forms of violence such as civil unrest and terrorism, detectable to television viewers on a frequent basis. A great proportion of violence however occurs out of sight in offices, homes or even in the health and social institutions established to care for the general public. Child-to-parent violence (CPV) is an issue that is gradually gaining prominence. In the discussion about domestic violence, large portions of literatures address issues such as spousal mistreatment, spousal abuse and so on. In most scenarios, the perpetrator of domestic violence is either one of the adults in the family. Now, cases are being reported all

over the world in which children are no longer the victims, but the aggressors. They are no longer timid, but malicious. Cottrell (2001) regarded CPV to be actions intentionally carried out by children to obtain control over parents, elicit monetary, psychological or physical harm. Literatures on CPV are somewhat restricted. This is largely due to the sacredness accorded to privacy in a family. However, researches have been carried out specifically on the issue nonetheless.

An issue of debate is the distinction between CPV and typical adolescent behaviour. Pereira (2006) clarified this by defining CPV to be recurrent fits of violence, which could be verbal (bullying, insults, shaming), physical (flinging of objects, shoving, striking, assault), and non-verbal (demolition of cherished possessions, threatening gestures) against parents or guardians. Distinction can as well be obtained from power dynamics. Child-to-parent-abuse entails the blatant disregard for authority from the part of the child, involving repeated attempts to control, strong-arm and dictate over other members of the family. This is largely distinguishable from behaviours that can be labelled to be associated with a child's developmental stages. According to Gallagher (2008), the worldwide prevalence of CPV is pegged at 18 percent. Victims of CPV often keep mute due to a desire to keep the family image intact, fear of embarrassment and fear of the child's reaction (Perez and Pereira, 2006).

According to Cottrell and Monk (2004), CPV is more likely to occur in low income families. It was however argued by Calvete, Orue and Sampedro (2011) that it can be found in all families, being it low income, middle income or high income. Experts in clinical practices have stated that CPV is on the rise. The situation is getting so acute that parents/guardians feel weak. The power dynamics have been overturned and they are more or less at the mercy of the children, having lost the capacity to assert authority (Omer, 2011).

CPV can have severe consequences for the child, parents, and other members of the society as indicated by Cottrell and Monk (2004), Nock and Kazdin (2002). On the part of the child, a constant abuse of parents/guardians indicates reduced frustration tolerance, increased hostile behaviours and more arduous personalities in comparison to the general populace, inclusive of parents and other children. According to Walsh and Krienert (2007), this culminates into attacks on parents. Attacks on parents may break the filial bond, creating distance between parents/guardian and the child within a short time. Children will no longer be able to learn from parents/guardians. The latter might be too scared to make an attempt. All they would want is for the pain to end. People need bonds to survive in the society and the parental bond is the most significant of all. When the ties with the parents are cut off, the effectiveness of the family institution comes into question. The children could become prone to bouts of tantrums and rages, which taints their personality in the outside world. Pagani et al. (2004) cited destructive behaviours at school being a precursor to CPV. According to Agnew and Huguley (1989), Kratcoski and Kratcoski (1982), CPV could result in the children hanging out with other violent juveniles. CPV could result in the child feeling insecure, distrustful, and hypersensitive. A constant occurrence of CPV could lead to mental health problems (Kennedy et al., 2010).

Then, the parents would be in a constant state of terror. Asides from this, they could be physically injured and psychologically unhinged. A psychologically unhinged parent cannot properly raise a child. CPV could even result into parents/guardians being afraid of their own children/wards. This was documented in the work of Gallagher (2004) in which the case of a mother, named Anna was cited. Anna was physically, verbally and psychologically traumatized by her son. A physically injured parent will remain scared and scarred, never forgetting the abuse, always lingering in his/her mind. Sleepless nights could set in and restless days could become the norm. Generally, physical abuse suffered by the parents could be assault, hazing, battered person syndrome (a scenario in which the victims murder the aggressor), sleep deprivation, sleep distortion, withdrawal of food, recurrent slapping, withholding medical care for injuries, etc. Psychological abuse suffered by parents/guardians includes insults, tantrums,

gas-lighting, and so on. Possible consequences of abuse on parents also include chronic depression, anxiety, acute physical injuries and even death.

Possible effects on the society could be a sizeable reduction in labour force resulting from the death of parents which is likely with the frequent occurrence of CPV. In addition there is a significant possibility to be an increase in deviant acts (Agnew and Huguley, 1989) as children are not raised in line with established values in the society, as the parents/guardians are too scared to impose authority on the children/wards (Gallagher, 2004). Furthermore, unborn babies could even be caught in the crossfire. This can be seen in a situation where a teenager physically abuses his/her pregnant biological/foster mum or guardian. It could become so acute that she suffers a miscarriage. Then, other children are at risk of being influenced by witnessing cases of CPV. In line with these, it becomes relevant to ascertain the causes of CPV.

In a bid to establish the causes of CPV, the study seeks to determine the association between the offender's religion and engagement in financial CPV. Also, there is an interest in the association between offender's age and involvement in psychological violence. Finally, there is an interest in the association between offender's gender and engagement in physical CPV. The literatures addressing CPV in Nigeria are deficient. This study will provide greater comprehension of CPV in general and CPV in Nigeria specifically.

In the view of Aroca-Montolío, Lorenzo-Moledo and Miró-Pérez (2014), CPV has three forms:

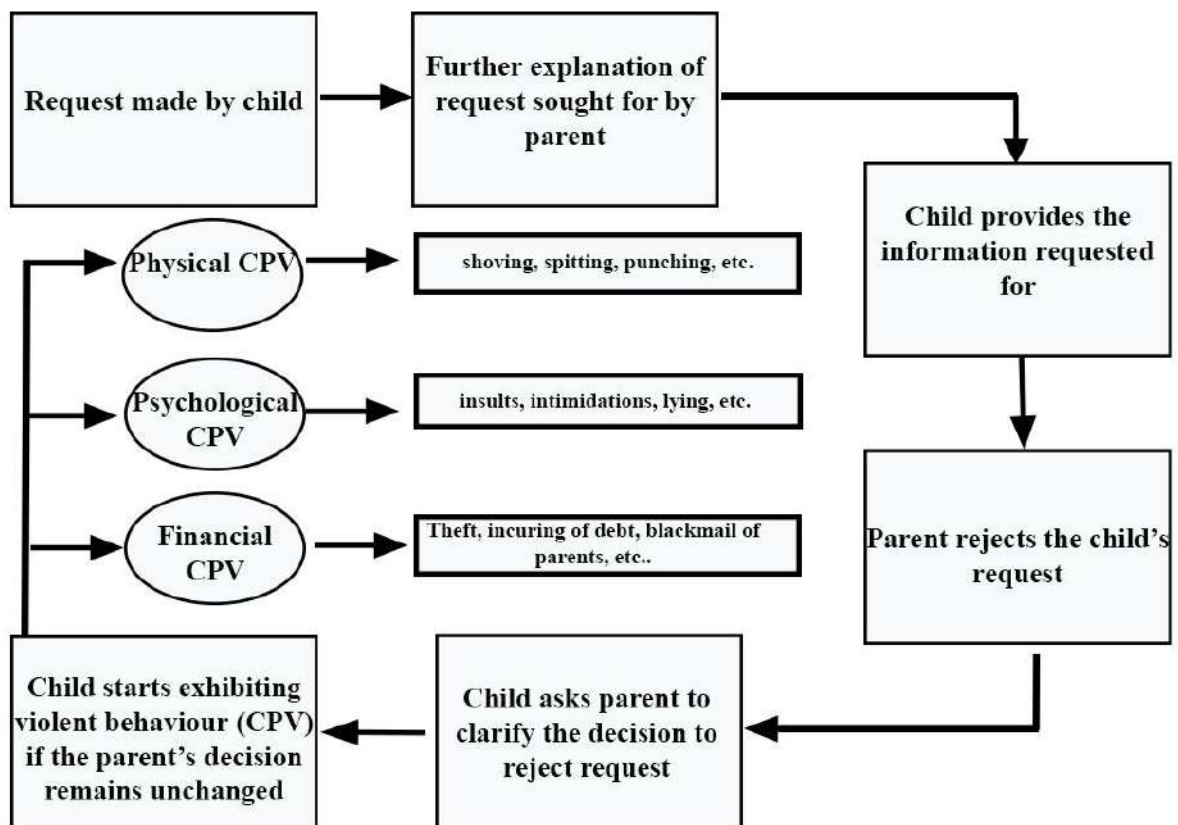
1. Physical: This consists of acts aimed at the parents/guardians, including shoving, spitting, punching, making threats with harmful objects, attacking with harmful objects, destroying or threatening to destroy the family house.
2. Psychological: This could be emotional, verbal or non-verbal. Engaging in CPV of this sort entails intimidation, insults, spiteful teasing, demanding unreasonable acts or items, lying, running away from home, making threats to commit suicide.
3. Financial or Economic: This involves theft of funds, prized possessions, incurring unreasonable debts to be paid by guardians/parents or blackmailing guardians/parents to pay for what is beyond their economic power.

According to Bailín, Tobeña and Sarasa (2007), scenarios of CPV start with some form of economic violence, and then moves to psychological violence and finally reaching physical violence, attaining a level in which all three forms are at play. Spitzberg and Cupach (2011) conceptualized a model of interaction resulting to CPV. Consult figure 1 for a pictorial representation of the model in conjunction with the forms of CPV stated by Aroca-Montolío, Lorenzo-Moledo and Miró-Pérez (2014). The stages are as follows:

1. A request is made by the child
2. Illuminating information is asked for by the parent.
3. The child politely responds, providing the information requested for.
4. The parent recognizes the child's viewpoint but chooses to say "no" centered on the provided information, while probably continuing the discussion regarding a likely "next time".
5. The child attempts to alter the parent's mind by requesting the parent to clarify the decision, at times making use of the information to persistently test the parent until convinced that the answer would not be altered.
6. If the parent stands firm to his or her resolution, the child may start using insulting comments and threats, pester the parent by stalking the parent, and finally retorting with verbal intimidations, emotional abuse, physical force, and often demolition of property or monetary ruin.

The model in Figure 1 represents a diagrammatic representation of the stages involved in the exhibition of CPV as given by Spitzberg and Cupach (2011) combined with the forms of CPV stated by Aroca-Montolío, Lorenzo-Moledo and Miró-Pérez (2014).

Figure 1. A model depicting the relationship between Sociodemographic Factors and Engagement in CPV



Source: Researchers' conception, constructed from the works of Spitzberg and Cupach (2011), Aroca-Montolío, Lorenzo-Moledo and Miró-Pérez (2014).

Furthermore, studies have sought to determine the profiles of abusive children, such as those conducted by Routt and Anderson (2011), Edenborough et al. (2008) and Gallagher (2009). These studies revealed male teenage offenders to be between 60 percent and 80 percent of the total offenders. A study carried out by Ibabe and Jaureguizar (2011) revealed that male adolescents dominate the sphere of physical violence and the female adolescents dominating psychological violence. As respect to age, studies by Walsh and Krienert (2007) and Sánchez (2008) pegged the age of offenders to be in the range of 14 to 17. A review carried out by Perez and Pereira (2006) shows that a child leaning towards CPV will start showing signs of violence around the age of eleven.

Studies have as well sought to peg the profile of the parents/guardians who are victims of CPV. According to Romero et al (2005) and Walsh and Krienert (2007), female guardians/parents or other members of the family are usually the assaulted. This, according to Cottrell and Monk (2004) is because females are assumed to be weak by the aggressors. Gallagher (2004) stated that this is because females spend more time in the parenting role than males. As to the age of victims, Edenborough et al. (2008) stated the most common age bracket of victims to be between 40-50 years.

Different researches have also been carried out to determine the rate at which CPV occurs. Browne and Hamilton (1998) in a study of UK undergraduate students revealed that 14%

of students had behaved violently to parents. Van Langenhove (2004) revealed in a research carried out among Belgian school students that 14.8% of students abused their parents in some way with a great proportion of being emotional in nature with 3.9% of the students ceding to physically abusing their parents. Wakabayas (1982) in Japan estimated that 3.4% of youth were violent to parents. Helin, Chevalier and Born (2004) carried out a study among Belgian youths in a domestic training centre, revealing that 22% exhibited violent behaviours toward their mothers. According to Birnbauer (2005), a local newspaper article on CPV in Sydney reported a prevalence figure of 70%. This was based on incidents of intimidation, physical, psychological abuse, financial and verbal torment. According to Rand (1997), out of 213,000 emergency department calls documented regarding domestic violence 1994, 5.4% had the culprit branded as a child of the casualty.

Consistent behaviour is determined by the related fruitfulness (rewards or absence of punishment). This is the basic premise of social learning theory, as is found in the work of Akers (1998). In essence, social behaviour is attained by imitating others or through direct conditioning. Behaviour is more likely to be repeated if found to be rewarding (positive reinforcement) or there is a removal of punishment (negative reinforcement). Therefore, the history of rewards/punishments determines the consistency of an action. Adolescents study the reaction of the parents/guardians to CPV with their reaction (positive or negative) determining if the abuse continues. For instance, an adolescent could continually pester his/her parents to purchase an expensive item that is beyond their spending power (an example of financial CPV). If the parents/guardians cave in and gratify the desire, it serves as a positive reinforcement, making it more plausible for the adolescent to repeat such an act. A negative reinforcement entails the parents/guardians putting an end to reservations they might have had concerning the adolescent's demands.

Furthermore, a juvenile offender could shove parents/guardians in order to stop them from interfering in his/her actions. If the parents/ guardians back down, the offender learns to repeat such an action in the future and could even make threats. A scenario as such involves physical and psychological violence. According to Rada (2014a, 2018), parents are the most vital spring of support for children. Even the parents often end up depending on their grown-up children for support. In essence, parent-child relation is a natural part of life. The family is meant to be a safe space. It ought to be an abode wherein members find support in one another. It ought to be filled with love and affection. A situation where violence is experienced is so unnatural. Violence impedes the love, support and care that ought to be found in a family. It replaces it with fear, hate and uncertainty.

Another aspect in social learning theory is imitation. Karami (2007) conceived imitation to be the repetition of an action by man after perception. The youth, middle age and even the elderly people are all engaged in imitation. Abbas (2008) defined imitation to be a behaviour grounded on a pattern.

According to Mehdi, Nariman and Alireza (2014), the following are the stages involved in imitation:

1. Unknown imitation, commencing at birth till age two.
2. Imitation in a precise meaning, starting at age two till age seven. This is more or less same as unknown imitation.
3. Known imitation, commencing after age seven. This is the apex form of imitation

Following these stages as found in the work of Mehdi, Nariman and Alireza (2014), a child can consciously imitate actions of his/her friend whose parents/guardians got an expensive item for after consistent tantrums. The aggressors in CPV are above the age of seven as that is where the stage of known imitation commences. The theory becomes relevant to the study as many aggressors imitate their deviant friends or peers and in turning to become deviants themselves. An issue worthy of note is the concept of intergenerational transmission of violence.

When an offender learns violent conduct by observing parents/guardians, intergenerational transmission of violence is said to have taken place. Rada (2014b) “found in the correlation between violence in the family of origin and that in the family of procreation, the greatest manifestation of violence in the family of procreation was reported by subjects who were both witnesses and victims of violence in the family of origin.” Empirical backing for social learning theory is delivered by statistics indicating that a large fraction of children who commit CPV have been abused by their parents, or observed domestic violence (Boxer, Gullan and Mahoney, 2009; Kennair and Mellor 2007). Explicitly, sons may pick up the role of perpetrators when abused by their fathers or when they see their fathers injuring their mothers. In divergence, daughters may pick up the victim role from observing their mothers in that position. Corresponding with this theory, Boxer, Gullan and Mahoney, (2009) corroborated empirically that sons were more likely to demonstrate aggressiveness against their mothers if the mother was abused by the father.

Material and methods

In 2018, the study was carried out in Ilorin metropolis of Kwara State, Nigeria. Ilorin is divided into three local governments; Ilorin South, Ilorin West and Ilorin East. Ilorin can be found roughly 291 kilometres north of Lagos and roughly 488.7 kilometres west of Abuja (Nigeria’s capital city). When the 2006 population census was conducted, it was established that 777,667 people are in Ilorin.

The multistage sampling technique was used to select 270 respondents. This commenced with the use of cluster sampling to partition the study area into three; Ilorin south, Ilorin west and Ilorin east. Ilorin south has 11 wards, Ilorin west has 12 wards and Ilorin east has 12 wards. Following this, the simple random sampling technique was used to select three wards from each local government areas, making a total of nine selected wards. Finally, the purposive sampling technique was used to select 30 respondents from each selected ward. This makes a total of 270 respondents. The purposive sampling technique was used because of the need to select respondents who have a direct association with CPV offenders and have witnessed the act in person, such as parents, brothers, close friends, teachers, etc. Written informed consent was acquired from all respondents of the study. The respondents were informed that withdrawal from the study at any time was possible. Furthermore, utmost confidentiality was guaranteed to the respondents. The study was approved by the Ethical Review Committee of University of Ilorin (UERC/ASN/2017/945). The presented results are based on the 258 copies of questionnaire retrieved from the field and found to be valid. Chi square was used to test the hypotheses of study.

Results

Table 1 shows the basic structure of the analyzed sample.

Table 1. Structure of respondents

Socio-demographic factors	Percentage (%)
Age	
18 and below	2
19-29	25
30-40	33
41-51	32
52 and above	8

Socio-demographic factors	Percentage (%)
Gender	
Male	57
Female	43
Educational Level	
No formal education	9
Primary	18
Employment category	
Public/civil employment	29
Private employment	23
Self-employment	31
Unemployed	17
Ethnic Group	
Yoruba	48
Hausa	25
Ibo	15
Others	12
Income Category	
Low income	37
Middle income	53
High income	10
Total	100

Source: Researchers' Fieldwork (2018)

Test of Hypotheses

Hypothesis One

Ho: CPV offender's religion is not related to engagement in financial violence.

H1: CPV offender's religion is related to engagement in financial violence.

Table 2. Perception of Engagement in Financial Violence on the Basis of Religion

Offender's Religion	Engagement in Financial Violence		Total N (%)
	Yes N (%)	No N (%)	
Islam	70 (54)	60 (46)	130 (100)
Christianity	75 (59)	53 (41)	128 (100)

Source: Researchers' Fieldwork (2018) $C^2(1, N=258) = 0.59, p = .44$

According to religion, 59% of Christian offenders engage in financial violence compared with 54% of Muslim offenders. The calculated value of the chi square stands at 0.59. The degree of freedom is 1 and the level of significance is 0.44. Based on this, no significant association was found between CPV offender's religion and engagement in financial violence.

Hypothesis Two

Ho: CPV offender's age is not related to engagement in psychological violence.

H1: CPV offender's age is related to engagement in psychological violence.

Table 3. Perception of Engagement in Psychological Violence on the Basis of Age

Offender's Age	Engagement in Psychological Violence		Total N (%)
	Yes N (%)	No N (%)	
14 and Below	56 (43)	75 (57)	131 (100)
15-17	88 (69)	39 (31)	127 (100)

Source: Researchers' Fieldwork (2018) $\chi^2(1, N=258) = 18.4, p = .001$

According to age, 43% of offenders aged 14 and below engage in psychological violence compared with 69% of offenders aged 15-17. The calculated value of the chi square stands at 18.4. The degree of freedom is 1 and the level of significance is 0.001. Based on this, a significant association exists between CPV offender's age and engagement in psychological violence.

Hypothesis Three

Ho: Males are not likely to engage in physical CPV.

H1: Males are likely to engage in physical CPV.

Table 4. Perception of Engagement in Physical Aggression on the basis of Gender

Offender's Gender	Engagement in Physical Aggression		Total N (%)
	Yes N (%)	No N (%)	
Male	74 (61)	48 (39)	122 (100)
Female	35 (26)	101 (74)	136 (100)

Source: Researchers' Fieldwork (2018) $\chi^2(1, N=258) = 32.1, p = .001$

According to gender, more men than women engage in physical aggression (61% versus 26%). The calculated value of the chi square stands at 32.1. The degree of freedom is 1 and the level of significance is 0.001. Based on this, a significant association exists between CPV offender's gender and engagement in physical violence.

Discussions

The result of hypothesis one indicates the absence of a significant association between the CPV offender's religion and engagement in financial violence in Ilorin metropolis. This shows that religion is not a significant factor influencing CPV offenders. This builds on the findings of Rada, Turcu and Bucinschi (2011) who established that perpetrators of domestic violence are orthodox Christians though the rate of church attendance is low. In essence, CPV knows no boundary in terms of religion. It occurs among both Christian and Muslim families in Ilorin metropolis. A study carried out by Boxer, Gullan and Mahoney, (2009) established that CPV occurs largely in families riddled with domestic violence. This could be between the spouses or between the parent(s) and the child. Boxer, Gullan and Mahoney, (2009) further stated that CPV was likely to occur frequently between the opposite sexes i.e. a male child is

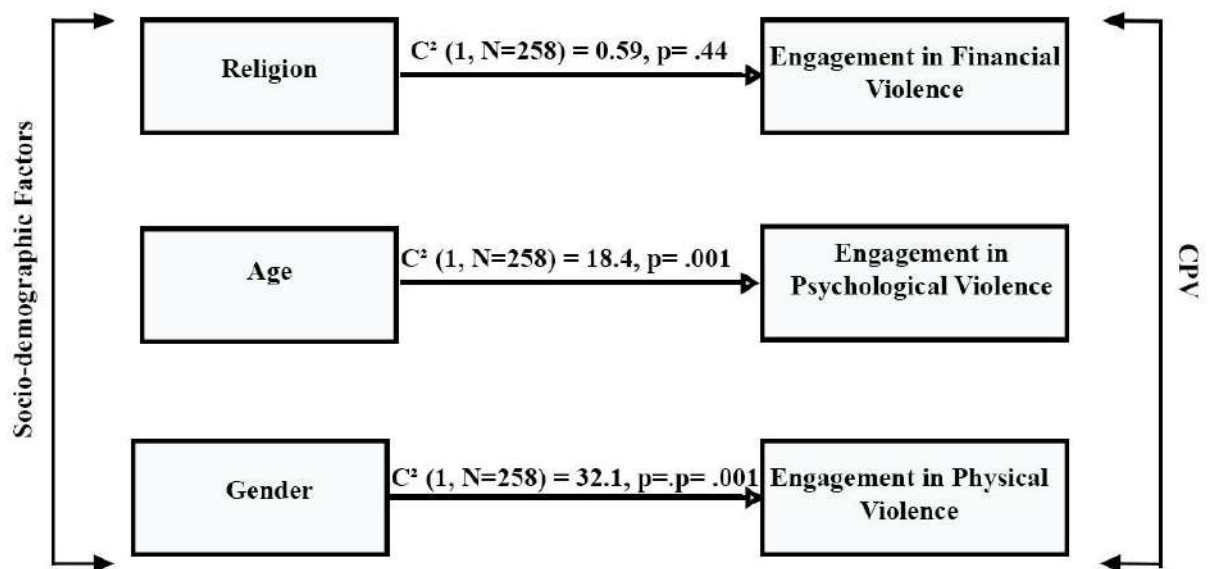
aggressive towards the mother and a female child is aggressive towards the father. In support of Boxer, Gullan and Mahoney, (2009), Cottrell and Monk (2004) established that children who abuse their parents have themselves been abused at a tender age. When the adolescents grow older, the aggression experienced is then directed towards the abusive parent(s).

Hypothesis two reveals a significant association between age and engagement in psychological violence. In line with this, the results show that children between the age range of 15-17 are more likely to engage in psychological violence against parents. Psychological CPV entails threats, insults, intimidation addressed against parents by children. This is somewhat in line with the findings of Pagani et al. (2009) that children between 14-17 years are the most likely to be involved in CPV in USA and UK. Perez and Pereira (2006) also discovered the peak age of violence to be in the range of 15-17 years. The present study found what is similar to the work of Figueira-McDonough (1985), in which a study was carried out among 15-year-olds, revealing that they exhibited violent behaviour towards their parents. A study by Evans and Warren-Sohlberg (1989) presented a different result, revealing that 11 percent of CPV offenders were under 10 years old. Other findings different from the revelations of this study include those by González-Álvarez (2012) and Cottrell and Monk (2004) who have traced CPV to the presence of a low compassion in children. In the view of Ibabe and Jaureguizar (2011), the significant factor causing CPV is the psychopathological disorders in adolescents who attack their guardians/parents. Cottrell and Monk (2004) further established such factors as attachment disorders, conduct disorder, intermittent explosive disorder, antisocial personality disorder, anxiety disorder, etc. to be factors influencing engagement in CPV.

The result from hypothesis three indicates that males are more likely to engage in physical CPV. Aroca-Montolío, Lorenzo-Moledo and Miró-Pérez (2014) established physical CPV to include slapping, shoving, destruction of parents' property, punching, etc. The present study found what is similar to the researches undertaken by Walsh and Krienert (2009), Pagani et al. (2009), Condry and Miles (2014), Humphreys and Mullender (2002) and Gallagher (2008). Walsh and Krienert (2009) established that out of 100,000 CPV offenders, 63 percent of them were male with 37 percent being female. In addition, Pagani et al. (2009) established that males engage in CPV more than females. This was based on a study of physical and verbal aggression towards fathers. Condry and Miles (2014) also discovered that male adolescents are more aggressive towards parents than female counterpart. Humphreys and Mullender (2002) revealed what is similar to this study when the findings indicate a boy hitting his mother. In an analysis of 3,600 participants, Gallagher (2008) revealed that male perpetrators of CPV were 72%. As a contrast to the findings of this study, numerous researches, such as those by Agnew and Huguley (1989), World Health Organization (2002) have made known that gender does not play a significant in the total number of CPV perpetrators; though, males have been indicated to be more likely to impose physical violence with females more likely to impose psychological violence. The present study found what is different compared to the works of Cottrell (2001) and Bobic (2004). Their research traced the causes of CPV to factors that "transcend" socio-demographic factors such as age, gender and religion. In their studies, the stated causes of CPV are arguments, aggressive behavioural tendencies, uncontrolled feelings, frustration, gang culture, fear, drugs and alcohol, lack of respect for parents, mental illness, witnessing abuses at home, absence of adequate role models, and corporal punishment.

The model in Figure 2 represents the nature of relationship between the three socio-demographic factors explored in relation to the three types of CPV stated in the study.

Figure 2. A model depicting the relationship between Socio-demographic Factors and Engagement in CPV



Source: Researchers' conception, adapted from fieldwork (2018)

Conclusions

CPV has adverse effects on the parents. They are affected physically, mentally and financially. Physically, they are injured by their children. They bear scars of abuse, which can be psychologically unnerving. The parents become scared of their children. Financially, children extort their parents of funds that could have been used to foster their growth and well-being. The parents could have to settle debts with funds that could have been used to foster the child's development, the family's well-being, and so on.

Based on the findings, the study recommends that non-governmental organizations could be established to educate the public on CPV. There is a dearth of available literatures on CPV in Africa. This could largely be a consequence of the continent's culture. An event such as CPV is seen to be shameful and to be settled within the family. Also, the government could establish juvenile rehabilitation facilities to socialize the CPV offenders on the acceptable behaviours in the society and how they ought to relate with their parents. Then, further researches should be carried out on the issue of CPV in African societies as the available literatures severely are lacking.

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