

DIFFERENCES IN COMPUTER-MEDIATED COMMUNICATION AND EMOTIONAL EXPRESSION ACROSS DIGITAL GENERATIONS AND GENDER

DOI: <https://doi.org/10.26758/16.1.5>

Flor de María Erari GIL-BERNAL (1), Ana Perla PÉREZ MONTIEL (2), Diego-Oswaldo CAMACHO-VEGA (3)

(1) (2) Psychology Department, Institute of Health Sciences, Autonomous University of the State of Hidalgo, Pachuca de Soto, Mexico, e-mails: (1) flor_gil9802@uaeh.edu.mx, <https://orcid.org/0000-0001-7756-3125>, (2) pe277810@uaeh.edu.mx, <https://orcid.org/0009-0001-8033-5622>

(3) Faculty of Medicine & Psychology, Autonomous University of Baja California, Tijuana Campus, email: diego.camacho@uabc.edu.mx, <https://orcid.org/0000-0001-7751-8113>

Address correspondence to: Diego-Oswaldo CAMACHO-VEGA, Autonomous University of Baja California, Faculty of Medicine and Psychology, Universidad 14418, UABC, Parque Internacional Industrial Tijuana, 22390 Tijuana, B.C. Mexico, e-mail: diego.camacho@uabc.edu.mx, phone: +52 6821233

Abstract

Objectives. This research aims to describe and examine disparities in computer-mediated communication and emotional expression among digital generations (Baby Boomers, Generation X, Millennials, and Generation Z) and between genders.

Methods. The study employed a convergent parallel mixed-methods design, integrating quantitative data from questionnaires and qualitative data from semi-structured interviews conducted in Mexico. The quantitative analysis utilized a comprehensive suite of tests on a sample of 401 participants. The qualitative phase involved interviews with six participants.

Results. The qualitative results indicated that Generation Z participants demonstrated comfort with both online and face-to-face communication. At the same time, Millennials favored face-to-face interaction due to a perceived reduction in emotional depth during online interactions. Generation X valued digital communication for preserving distant familial connections and professional relationships. Baby Boomer participants consistently emphasized the significance of face-to-face communication, perceiving digital tools as supplementary rather than the primary means of social interaction. Across all generations, telephone calls were preferred for conveying critical information, suggesting a desire for personal connection. The quantitative findings revealed more similarities than distinctions among generational groups regarding technology usage and emotional expression. However, substantial gender differences were identified, particularly in emotional regulation and depressive symptoms. Women, across certain generational groups and communication contexts, reported more pronounced challenges in regulating their emotions and exhibited higher levels of depressive symptoms compared to men.

Conclusions. This study concludes that, while generational disparities in technology usage do exist indeed, gender appears to be a more prominent factor in explaining variations in emotional expression and regulation within computer-mediated communication.

Keywords: computer-mediated communication, emotional expression, digital generations, gender.

Suggested citation (APA)

Gil-Bernal, F De M. E., Pérez Montiel, A.P. & Camacho-Vega, D-O. (2026). Differences in computer-mediated communication and emotional expression among digital generations and between genders. *Anthropological Researches and Studies*, 16, 65-79. <https://doi.org/10.26758/16.1.5>

Introduction

The evolution of technology has profoundly transformed societal communication, demanding continuous adaptation to novel tools and methodologies. As technology has progressed, so has human ability to convey emotions, with tools such as emojis, GIFs, and stickers becoming integral to digital communication. This field of study, commonly referred to as computer-mediated communication (CMC) and emotional expression, examines how individuals interact and express their emotions through digital media (Cantón, 2020). Recognizing the importance of this discipline is crucial, as the absence of the non-verbal cues inherent in face-to-face communication can significantly impact the interpretation of messages and emotional expression in a digital environment.

Each digital generation exhibits distinct preferences and comfort levels with these communication tools, a phenomenon shaped by the emergence of Information and Communication Technologies (ICT) that started around 1980 (Carrillo-Durán, 2022). These generations, including Baby Boomers (born 1946–1964), Generation X (born 1965–1980), Millennials (born 1981–1996), and Generation Z (born 1997–2012), each possess unique experiences that have molded their communicative practices within the digital realm. For instance, Generation X, born before the internet's widespread adoption, frequently utilizes technology for more practical purposes, while Millennials and Generation Z, who grew up with it, perceive their online and offline lives as a unified, integrated reality (Betancur, 2019; Carrillo-Durán, 2022).

The proliferation of digital communication has catalyzed the emergence of novel academic disciplines, such as cyberpsychology, which delves into the temporal impact of technology on user behavior (De la Serna, 2018). This specialized research area has incorporated diverse strategies, including virtual and augmented reality, to address mental health concerns such as anxiety and depression. However, the pervasive influence of technology can also engender adverse consequences, with excessive usage leading to "ICT abuse" which has been associated with a decline in physical activity, social isolation, anxiety, and depression (Díaz-Vicario et al., 2019; Pinargote-Baque & Cevallos-Cedeño, 2020; Terán, 2019). The COVID-19 pandemic, which compelled a rapid and extensive adaptation to digital communication, has underscored the imperative to comprehend these psychological and social repercussions (Cervantes & Chaparro-Medina, 2021; United Nations, 2020).

A crucial inquiry within this domain of study concerns the influence of generational and gender disparities on the manifestation of emotions in a digital environment. While specific studies have focused on the role of gender in online emotional expression, demonstrating that women predominantly employ emotional cues such as emoticons (Witmer & Katzman, 1997; Wolf, 2000), other research has explored the challenges encountered by diverse generations in navigating digital communication (Huerta-Álvarez et al., 2020).

This research addresses this gap by examining differences in computer-mediated communication and emotional expression across digital generations and genders, using a mixed-method approach that integrates qualitative analyses and statistical comparisons of emotional variables and technology use patterns. This study, thus provides a novel exploration of not only the favored tools and usage patterns but also the correlations between technology use, emotional regulation, anxiety, and depression. Ultimately, this research offers fresh insights into the role of technology in contemporary emotional processes.

Material and Methods

This study employed a comprehensive convergent parallel mixed-methods design, integrating both quantitative and qualitative data. The research was conducted in two phases to investigate the disparities in computer-mediated communication and emotional expression among digital generations and between genders in the Mexican population.

Phase 1 aimed to elucidate how different digital generations utilize technology for communication. This encompassed an inquiry into the duration of technology usage, its primary applications, and the preferred technological tools for communication, all differentiated by digital generation. Phase 2 focused on ascertaining whether there were disparities in computer-mediated communication and emotional expression among users of Baby Boomers, Generation X, Millennials, and Generation Z, as well as between men and women.

Phase 1: Qualitative Analysis

Participants

The qualitative phase involved six participants selected through a non-probabilistic convenience sampling method. The sample comprised one male and one female representative from each of the following generations: Generation Z (ages 12 and 15), Millennials (ages 33 and 32), and Generation X (ages 49 and 52). This sample size was chosen to allow for in-depth, exploratory analysis across genders within three specific generations (Gen Z, Millennials, and Gen X) in the mixed-methods design, rather than aiming for statistical generalization. The selection focused on maximum variation sampling to capture diverse communication experiences. The characteristics of the sample for the qualitative analysis are shown in more detail in Table 1.

The research ensured ethical compliance by first elucidating the objective and methodology of the interview to all contacted participants. The interview procedure was divided into two segments: the initial segment was dedicated to elucidating the informed consent process and addressing any pertinent inquiries. Regarding anonymity and privacy, participants were granted the autonomy to decide whether or not to utilize their camera, with the sole request being that they use it for the initial few minutes to facilitate a comfortable introduction.

Table 1

Sociodemographic from qualitative analysis

Generation	Sex	Age (Years)	Educational Level	Occupation
Z	Female	12	First year of secondary school	Student
Z	Male	15	Beginning bachelor	Student
Millennial	Female	33	University degree	Employee in a company
Millennial	Male	32	Finishing university degree	University student
X	Female	49	University degree	Public servant
X	Male	52	Completed Secondary School	Merchant/Trader

Instruments and Data Collection

A qualitative interview with 18 open-ended questions was explicitly developed for this study. The interview addressed topics such as the context and duration of electronic device usage, preferred media, emotional expression, communication obstacles, satisfaction levels, and the distinction between mediated and personal interactions. The interviews were conducted via Google Meet and Zoom, with a duration of approximately 40 minutes each.

Data Analysis

Thematic analysis was the chosen method. The analysis was conducted by two independent coders to establish inter-coder reliability. The process involved initial coding of fragments, which were then grouped into categories and themes derived from the data (inductive approach) using the Atlas.ti software. The primary concepts were initially identified and compared within each generation and subsequently between genders to discern patterns and variations in communication styles and emotional expression.

Phase 2: Quantitative Analysis

Participants

The quantitative phase included a sample of 401 participants, comprising 200 men (46.7%) and 201 women (53.3%), with a mean age of 36.73 (SD=18.91). The generational distribution was as follows: Generation Z: 112 participants (61 women, 51 men), Millennials: 126 participants (62 women, 64 men), Generation X: 82 participants (43 women, 39 men), Baby Boomers: 81 participants (34 women, 47 men). The characteristics of the sample for the quantitative analysis are shown in more detail in Table 2.

Table 2

Sociodemographic from quantitative analysis

Variable	Category	Frequency (n)	Percentage (%)
Sex	Female	200	53.3
	Male	201	46.7
Generational Group	Generation Z	112	27.9
	Millennial	126	31.4
	Generation X	82	20.4
	Baby Boomer	81	20.2
Marital Status	Single	226	56.1
	Married	101	25.1
	Consensual Union	38	9.4
	Widowed	22	5.5
	Divorced	16	4.0

Variable	Category	Frequency (n)	Percentage (%)
Occupation	Students	123	30.5
	Employees	94	23.3
	Homemakers	54	13.4
	Merchants/Traders	21	5.2
	Teachers	20	5.0
	Retired	17	4.2
	Independent Workers	10	2.5
	Unemployed	9	2.2

Instruments and Data Collection

The participants completed a digital series of tests administered via a Google form. The instruments used were the Scale of Feelings and Emotions in Social Networks and the Internet (SERSI), the Emotional Expressivity Scale (EES), the Spanish version of the Difficulties in Emotion Regulation Scale (DERS), the Beck Anxiety Inventory (BAI), and the Beck Depression Inventory (BDI-II).

Scale of Feelings and Emotions in Social Networks and the Internet (SERSI): The Scale of Feelings and Emotions in Social Networks and the Internet, developed by Peris et al. (2018), is a psychometrically rigorous instrument designed to measure user-expressed emotions on digital platforms. The scale comprises eight items and consists of two dimensions: positive and negative emotions. The results indicate a significant prevalence of both positive and negative emotional states, with severe prevalence ranging from 46.5% to 67.9% for positive emotions and 23.4% to 87.4% for negative emotions. The scale's reliability is strong, with an alpha coefficient (α) of 0.79 for positive emotions and 0.63 for negative emotions. Test-retest item scores ranged from $r = 0.78$ to 0.88 , further demonstrating its reliability. Pearson correlation analyses with other variables confirm the scale's convergent and divergent validity. The established norms for the scale can assist in determining which types of emotions are associated with a greater risk of problematic use of social networks and the internet.

Emotional Expressivity Scale (EES): The Emotional Expressivity Scale (EES), introduced by Kring et al. in 1994, is a 17-item questionnaire designed to assess a person's dispositional emotional expressivity. Each item is scored on a 1-6 scale, resulting in a total score between 17 and 102. To interpret the score, it is compared to the average scores for men and women.

The mean emotional expressivity is approximately 61.15 ± 12.69 for men and 66.60 ± 12.71 for women. A score comparable to or exceeding these averages indicates high emotional expressivity, while a score lower than this suggests reduced expressivity. It is crucial to acknowledge that the level of emotional expressivity can exhibit substantial variation depending on an individual's age, gender, and cultural background.

The Spanish version of the Difficulties in Emotion Regulation Scale (DERS): The Difficulties in Emotion Regulation Scale (DERS), adapted to Spanish by Hervás and Jódar (2008), is a psychological instrument designed to assess the challenges individuals encounter when regulating their emotions. Unlike the original six-factor structure, the Spanish adaptation identifies five distinct dimensions: emotional decontrol, everyday interference, emotional inattention, emotional confusion, and emotional rejection. These domains encompass various aspects of emotional dysregulation, ranging from difficulty in controlling emotional responses to challenges in recognizing, attending to, or accepting emotions. The scale comprises 15 Likert-type items,

ensuring conciseness while maintaining comprehensiveness for research and clinical applications. Psychometric analyses were conducted with two samples: a cross-sectional group of 254 participants and a longitudinal group of 60 participants to evaluate temporal stability. The results demonstrated robust internal consistency, satisfactory test–retest reliability, and adequate convergent validity, with significant correlations to related constructs such as rumination, self-esteem, and anxiety.

Furthermore, the scale exhibited incremental validity, providing predictive power beyond that of related instruments. Subsequent studies conducted in Spanish-speaking populations, including adolescents and Latin American samples, have corroborated its utility, tested alternative factorial structures, and explored abbreviated versions, further reinforcing its robustness. In summary, the DERS adaptation by Hervás and Jódar stands as a reliable tool for identifying specific difficulties in emotion regulation within diverse Spanish-speaking contexts.

Beck Anxiety Inventory (BAI): The Beck Anxiety Inventory (BAI), developed in 1988 by Beck et al. (1988), serves as an assessment tool for evaluating the severity of anxiety symptoms. The inventory comprises 21 items with a Likert-type response scale, categorized as 0 (not at all), 1 (mildly), 2 (moderately), and 3 (severely). The normal range for interpretation spans from 0 to 7, while scores ranging from 8 to 18 indicate mild anxiety, 19 to 29 signify moderate anxiety, and 30 to 63 indicate severe anxiety.

Beck Depression Inventory (BDI-II): The Beck Depression Inventory (BDI-II) (Beck et al., 1996) is specifically designed to identify and measure the severity of typical depressive symptoms in both adults and adolescents. It facilitates the distinction between primary and simple depressive disorders. The scale consists of 21 Likert-type items, and the total score is calculated by summing the selected values, ranging from 0 to 63.

Data Analysis

To ascertain differences between the digital generations, an Analysis of Variance (ANOVA) was conducted to determine disparities between men and women. An independent samples t-test was performed utilizing the SPSS V26 statistical software package.

Results

Qualitative Findings

The qualitative analysis provided a nuanced understanding of generational and gender differences in digital communication. Participants from Generation Z exhibited ease in navigating both online and face-to-face interactions. They acknowledged the advantages of digital communication, such as the ability to compose more deliberate responses, while simultaneously recognizing its limitations, including the potential for misinterpretation. Female participants in this generation noted that online communication facilitated their ability to manage impulsivity, enabling greater reflection before responding. This cohort manifested their emotions digitally through the frequent utilization of stickers, memes, and GIFs, indicating a visual and dynamic approach to online expression.

In contrast, Millennial participants exhibited a distinct preference for face-to-face communication, emphasizing that online exchanges frequently lacked emotional depth and were more prone to misunderstanding. Female members of this group found virtual conversations less engaging, yet they demonstrated proficiency in effectively conveying emotions both in person and online. Their communication style reflected a harmonious balance between digital proficiency and a sustained emphasis on in-person interpersonal dynamics.

Generation X participants primarily valued digital communication for its practical applications, such as maintaining connections with distant family members and fulfilling

professional obligations. Their online communication tended to be more formal, often employing explicitly stated language and relying on phone calls for matters of greater significance. Professional roles and workplace norms appeared to significantly influence their communication style, reinforcing a preference for clarity and formality in digital exchanges.

Although the quantitative analysis indicated no statistically significant gender differences among Baby Boomers, qualitative insights provided a more comprehensive understanding of their profile. Baby Boomer participants consistently emphasized the significance of face-to-face communication, perceiving digital tools as supplementary rather than the primary means of social interaction. They reported utilizing digital platforms comfortably for practical purposes, such as scheduling, transmitting brief updates, or sharing photographs. However, they preferred in-person meetings or telephone conversations for emotionally significant discussions.

Regarding emotional expression, Baby Boomers described communication habits influenced by pre-digital interpersonal norms. They appeared less affected by the immediacy or frequency of online interactions and maintained consistent emotional regulation strategies regardless of the communication medium. Many relied on long-standing coping mechanisms, including structured routines, selective social engagement, and direct personal support that remained unchanged with device use. This pragmatic approach to technology, rooted in pre-digital experiences, may contribute to the stability in their quantitative scores and contrasts with the more emotionally charged role that digital communication plays for younger generations.

Across all generational groups, phone calls emerged as the preferred method for conveying important information, highlighting a shared desire for personal connection despite variations in technological adoption. Women across generations reported higher satisfaction with electronic communication and exhibited a greater propensity for emotional expression in digital settings. In contrast, men's digital communication styles tended to be more formal and direct, reflecting gendered patterns that persisted across generational boundaries.

Quantitative Findings

The quantitative analysis of responses from 401 participants revealed no statistically significant differences in communication or emotional expression variables across the four digital generations examined: Generation Z, Millennials, Generation X, and Baby Boomers. Despite the absence of generational variation, significant gender differences emerged in several key areas (Table 3 presents the means and standard deviations for all generations and all instruments).

Table 3

Means and standard deviations by digital generation

Variable	Generation Z (n=112)		Millennial (n=126)		Generation X (n=80)		Baby Boomers (n=81)	
	M	SD	M	SD	M	SD	M	SD
SERSI								
Positive	9.59	2.33	9.27	2.43	9.40	2.58	9.31	2.57
Negative	7.17	2.11	6.91	2.13	6.99	2.59	6.73	2.19
EEE	51.74	7.40	51.58	8.86	51.32	10.38	50.21	8.79
DERS	32.43	12.47	29.71	11.92	29.18	12.41	30.04	11.83
BAI	32.67	10.93	31.62	10.78	31.65	13.12	30.83	10.25

Variable	Generation Z (n=112)		Millennial (n=126)		Generation X (n=80)		Baby Boomers (n=81)	
	M	SD	M	SD	M	SD	M	SD
BDI	32.83	9.49	30.06	8.87	32.24	12.09	29.78	8.56

Note: SERSI = Scale of feelings and emotions in social networks. EEE = Emotional expressiveness scale. DERS = Scale of difficulties in emotional expression. BAI = Beck's Anxiety Inventory. BDI = Beck's Depression Inventory. n = sample, M = Mean and SD = Standard Deviation.

Within Generation Z, women exhibited significantly higher scores than men on multiple psychological measures. Specifically, they obtained higher scores on the Difficulties in Emotion Regulation Scale (DERS; $t = 2.043$, $p = .044$), the Beck Anxiety Inventory (BAI; $t = 2.192$, $p = .031$), and the Beck Depression Inventory (BDI; $t = 1.925$, $p = .050$). For further information, please refer to Table 4.

Table 4

Gender differences for Gen Z

Variable	Men (n=51)		Women (n=61)		t	p
	M	SD	M	SD		
SERSI						
Positive	9.94	2.66	9.3	1.99	1.432	0.156
Negative	7.06	1.88	7.26	2.29	0.516	0.607
EEE	50.8	7.94	52.52	6.89	1.228	0.222
DERS	29.9	10.06	34.54	13.91	2.043	0.044*
BAI	30.24	8.37	34.7	12.39	2.192	0.031*
BDI	31.02	7.51	34.34	10.7	1.925	0.05*

Note: Independent-samples t-tests were conducted. SERSI = Scale of feelings and emotions in social networks. EEE = Emotional expressiveness scale. DERS = Scale of difficulties in emotional expression. BAI = Beck's Anxiety Inventory. BDI = Beck's Depression Inventory. n = sample, M = Mean and SD = Standard Deviation.

* $p > .05$, ** $p > .01$, *** $p > .001$

The women in this cohort reported greater challenges in regulating emotions, as well as higher levels of anxiety and depressive symptoms compared to their male counterparts. As evident in Table 5, among Millennials, gender differences were less pronounced but still notable: women scored significantly higher on the BDI ($t = 2.351$, $p = .020$), indicating a greater prevalence of depressive symptoms in this group.

Table 5*Gender differences for Gen Millennial*

Variable	Men (n=62)		Women (n=64)		t	p
	M	SD	M	SD		
SERSI						
Positive	9.37	2.57	9.17	2.3	0.458	0.648
Negative	6.71	2.13	7.11	2.13	1.053	0.295
EEE	50.71	9.73	52.42	7.9	1.086	0.28
DERS	28.13	10.66	31.23	12.93	1.468	0.145
BAI	30.84	10.5	32.38	11.08	0.799	0.426
BDI	28.21	8.01	31.86	9.34	2.351	0.020**

Note: Independent-samples t-tests were conducted. SERSI = Scale of feelings and emotions in social networks. EEE = Emotional expressiveness scale. DERS = Scale of difficulties in emotional expression. BAI = Beck's Anxiety Inventory. BDI = Beck's Depression Inventory. M = Mean and SD = Standard Deviation. T = t-value.

*p > .05, **p > .01, ***p > .001

In contrast, for both Generation X and Baby Boomers, no statistically significant gender differences were observed for any of the measured variables (refer to Tables 6 and 7 for comprehensive information).

Table 6*Gender differences for Generation X*

Variable	Men (n=38)		Women (n=42)		t	p
	M	SD	M	SD		
SERSI						
Positive	9.11	2.95	9.67	2.18	0.958	0.342
Negative	7.11	2.97	6.88	2.21	0.385	0.701
EEE	50.45	12.58	52.12	7.95	0.717	0.475
DERS	28.89	13.99	29.43	10.94	0.191	0.84
BAI	31.84	14.03	31.48	12.4	0.124	0.902
BDI	32.26	12.68	32.21	11.673	0.018	0.986

Note: Independent-samples t-tests were conducted. SERSI = Scale of feelings and emotions in social networks. EEE = Emotional expressiveness scale. DERS = Scale of difficulties in emotional expression. BAI = Beck's Anxiety Inventory. BDI = Beck's Depression Inventory. M = Mean and SD = Standard Deviation. T = t-value.

*p > .05, **p > .01, ***p > .001

Table 7*Gender Differences for the Baby Boomer Generation*

Variable	Men (n=34)		Women (n=47)		t	p
	M	SD	M	SD		
SERSI						
Positive	9.35	2.94	9.28	2.3	0.131	0.896
Negative	6.53	2.16	6.87	2.21	0.695	0.489
EEE	51.47	8.23	49.3	9.15	1.099	0.275
DERS	29.44	11.57	30.47	12.12	0.383	0.703
BAI	30.71	10.28	30.91	10.34	0.09	0.929
BDI	29.44	7.45	30.02	9.35	0.131	0.896

Note: Independent-samples t-tests were conducted. SERSI = Scale of feelings and emotions in social networks. EEE = Emotional expressiveness scale. DERS = Scale of difficulties in emotional expression. BAI = Beck's Anxiety Inventory. BDI = Beck's Depression Inventory. M = Mean and SD = Standard Deviation. T = t-value.

* $p > .05$, ** $p > .01$, *** $p > .001$

Further analysis examined the role of communication context, focusing on whether participants used digital devices to interact with friends, family, or a partner. Among those who did not use devices to communicate with friends, women scored higher on the DERS than men ($t = 2.088$, $p = .040$), indicating greater difficulties in emotional regulation. When examining family communication, women who used devices reported higher BDI scores ($t = 1.976$, $p = .050$), while those who did not use devices scored higher on the DERS ($t = 1.986$, $p = .050$). In the context of partner communication, women who used devices scored higher on both the DERS ($t = 2.387$, $p = .018$) and the BDI ($t = 2.193$, $p = .029$).

Overall, these findings suggest that while no significant differences between digital generations were observed, gender disparities, particularly among women in Generation Z and Millennials, were consistently associated with heightened emotional regulation challenges, anxiety, and depressive symptoms. Notably, the context of digital communication appeared to moderate these gender differences, implying that the modality of interpersonal interaction may exert a role in emotional and psychological outcomes.

Discussion

Overall, the objectives of this mixed-methods study were achieved by integrating qualitative insights and quantitative statistical analysis, allowing for a comprehensive examination of communication patterns and emotional variables across generational and gender groups.

Generational Preferences and Technology Use

This objective was achieved through the qualitative analysis of six in-depth interviews, which provided nuanced profiles of each generation's relationship with technology.

The qualitative findings of this study highlight a significant theme related to the inherent limitations of Computer-Mediated Communication (CMC), particularly the absence of non-verbal cues when compared to face-to-face interaction, because the comparison between face-to-face and digital communication has evolved beyond a mere absence of cues. It now encompasses a comprehensive examination of how cues are generated, replaced, and adapted within the digital context (Baskota & Poudel, 2024).

In the initial phase, it was observed that Generation Z respondents were adept at online communication, valuing both virtual and in-person interactions. They acknowledged, however, the limitations of virtual communication, such as the potential for message misinterpretation and asynchrony, and emphasize the significance of body language in face-to-face interactions. This aligns with studies conducted by Carrillo-Durán (2022), which characterizes Generation Z as frequent and versatile users.

The Millennial generation, on the other hand, exhibited a preference for face-to-face communication, perceiving virtual communication as susceptible to a decline in interest and misinterpretations, as the emotional state of the recipient influences it. Nevertheless, the participants demonstrated adaptability to novel technologies, as they indicated that they primarily utilized WhatsApp, Facebook, Twitter, and video conferencing platforms for both personal and professional purposes. These findings are consistent with studies conducted by Betancur (2019), which underscores the critical role of technology in the lives of Millennials.

Generation X participants particularly valued the utilization of digital devices for maintaining contact with distant family members and professional purposes. Noteworthy differences in usage and emotional expression were observed, influenced by their respective professions. All generations concurred on the use of telephone calls for communicating significant matters from a distance due to the sense of closeness they generate. These findings contrast with previous studies, such as those conducted by Calvo-Porrá and Pesqueira-Sánchez (2019), which indicated a more utilitarian use of technology by Generation X rather than as a means of emotional expression.

Although we identified disparities in the usage of ICTs among the various generations, a common thread emerged. Respondents from all generations have adapted to such an extent that their use appears to be prevalent for personal, familial, and professional communication.

Gender and Generational Differences in Emotional Expression

This objective was addressed through the quantitative analysis of a sample of 401 participants using ANOVA and independent samples -tests.

In the subsequent phase, statistical analysis revealed that mobile phones and WhatsApp were the most utilized communication tools. Interactions with family and friends held a central position in the device usage.

Regarding gender differences, significant discrepancies were observed in the scales assessing difficulties in emotional regulation and depression. Women exhibited higher scores on these scales compared to men, suggesting a greater intensity in experiencing negative emotions and challenges in regulating them. These findings partially align with the research conducted by Gordillo-León and collaborators (2021), which suggests a heightened experience of negative emotions in women. However, they diverge from the study by Morales and Martín-Mora (2024), which proposes that women employ more emotional regulation strategies.

It is crucial to acknowledge that gender disparities in emotional expression and regulation are intricate and multifaceted phenomena. Numerous studies have investigated the potential influences of socialization, cultural norms, and gender roles on these disparities (Angeles-Arteaga & Olvera-Juanianico, 2022; Gordillo-León et al., 2021; Raposo-Camacho et al., 2023). Consequently, future research endeavors are warranted to explore these factors comprehensively.

Conversely, research has revealed that Generation Z exhibits challenges in emotional regulation, anxiety, and depression. In contrast, the Millennial generation exhibits statistically significant deviations in the Beck Depression Inventory scale. Individuals who refrain from utilizing digital media for social interactions encounter difficulties in regulating their emotions. Conversely, those who employ digital media for familial communication exhibit depressive symptoms. This pattern is consistent with those who do not use digital media for the same purpose, demonstrating emotional regulation challenges. Finally, individuals who use electronic devices for familial communication also exhibit emotional regulation difficulties.

Limitations and Future Research Directions

The current investigation presented certain limitations. The sample size in Phase 1 did not adequately represent each generation, requiring future studies to match the samples to achieve greater representativeness. Additionally, the research was conducted during the COVID-19 pandemic, which may have influenced participants' technology usage and emotional expression. Consequently, it is imperative to analyze this usage in the post-pandemic context, particularly considering the impact of the mandatory lockdown. Furthermore, technical difficulties during video call interviews prevented the control of certain variables, such as oral and corporal expressions, which would have enabled the capture of more nuanced generational differences.

Furthermore, the Digital Future Society (2024) suggests considering the socioeconomic context in greater depth when examining technology usage.

The research started with an examination of the correlations between technology use and emotional variables. However, we chose mean comparison analysis between generational and gender groups for this study. The decision to analyze quantitative data through mean comparisons was based on the characteristics of the available data and the goal of comparing qualitative phase patterns with statistical differences in the quantitative phase. This research method allowed for straightforward interpretation of group differences. However, future studies should employ correlational techniques and multivariate models to explore technology use patterns, emotional regulation, and their effects on anxiety and depression symptoms, as well as their relationship to perceptions during the qualitative phase.

Despite these limitations, the research offers several notable benefits. It contributes to a deeper understanding of how different generations utilize technology for communication and emotional expression. This aspect is typically analyzed through generational differences rather than the pursuit of a common ground that facilitates the generation of strategies to promote its continued use for this type of expression. Additionally, it enables the identification of novel mechanisms that enhance assertiveness in this form of communication.

Conclusions

This research investigated computer-mediated communication and emotional expression across different digital generations. While some differences were observed in the preferences and usage patterns of technology between Generations Z, Millennial, and X, they were not as pronounced as initially hypothesized. Generation Z exhibited greater comfort with online communication, while the Millennial generation favored face-to-face communication. Generation X valued technology for connecting with family from a distance and for work-related purposes. Overall, all generations agreed on the use of telephone calls to communicate in critical situations, underscoring the necessity of fostering a more personal connection at pivotal moments. Statistical analysis revealed that women exhibited greater challenges in emotional regulation and exhibited higher levels of depression compared to men.

These findings suggest that while nuances exist in the use of technology between generations, individual and gender differences may have a more significant impact on emotional

expression and online communication. The limitations of the investigation, including the sample size, the pandemic context, and the evaluation format, could explain the absence of more pronounced generational differences. Consequently, future research could benefit from larger and more representative samples, as well as evaluation tools that are more sensitive to generational disparities.

In summary, this study provides valuable insights into how different generations utilize technology for communication and emotional expression, emphasizing the importance of considering individual and gender differences in the design of digital interventions and tools.

Competing interests

The authors declare no competing interests.

Ethics Committee Approval

This research was conducted within the framework of a larger study approved by the Ethics Committee of the Institute of Health Sciences of the Autonomous University of the State of Hidalgo, Mexico (No. CEI-ICSa-2025/R003).

Consent to participate

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 they were assured of confidentiality.

References

1. Ángeles Arteaga, Z. S., & Olvera Juanico, J. (2022). Discrepancia de género y malestar emocional en varones universitarios [Gender Discrepancy and Emotional Distress in College Boys]. *DIVULGARE: Boletín Científico de la Escuela Superior de Actopan*, 9(17), 1–9. <https://doi.org/10.29057/esa.v9i17.8020>
2. Beck, A. T., Steer, R. A., & Brown, G. (1996). *Beck Depression Inventory–II (BDI-II)*. APA PsycTests. <https://doi.org/10.1037/t00742-000>
3. Beck, A. T., Epstein, N., Brown, G., & Steer, R. (1988). *Beck Anxiety Inventory*. APA PsycTests. <https://doi.org/10.1037/t02025-000>
4. Betancur, J. D. (2019). Los millennials: Una generación diferente e innovadora: Aspectos psicológicos y emocionales [Millennials: A Different and Innovative Generation: Psychological and Emotional Aspects]. *Funlam Journal of Students' Research*, 4, 6–11. <https://doi.org/10.21501/25007858.3455>
5. Calvo-Porrá, C., & Pesqueira-Sánchez, R. (2019). Generational differences in technology behaviour: Comparing Millennials and Generation X. *Kybernetes*, 49(11), 2755–2772 <https://doi.org/10.1108/K-09-2019-0598>
6. Cantón Tébar, M. C. (2020). El lenguaje no verbal en las redes sociales [Non-verbal language on social networks]. *Sabir: International Bulletin of Applied Linguistics*, 1(2), 5–32. <https://doi.org/10.25115/ibal.v1i2.3485>
7. Carrillo-Durán, M. V., Ruano-López, S., Fernández-Falero, R., & Trabadela-Robles, J. (2022). Understanding how Baby Boomers use the Internet and social media to improve the engagement with brands. *Comunicación y Sociedad*, 35(4), 261–284. <https://journals.openedition.org/cs/6400>
8. Cervantes Hernández, R., & Chaparro Medina, P. M. (2021). Transformaciones en los hábitos de comunicación y sociabilidad a través del incremento del uso de redes sociodigitales en

- tiempos de pandemia [Transformations in communication and sociability habits through the increase in the use of socio-digital networks in times of pandemic]. *Ámbitos: Revista Internacional de Comunicación*, 52, 37–51. <https://doi.org/10.12795/Ambitos.2021.i52.03>
9. De la Serna, J. M. (2018). Ciberpsicología: La nueva psicología [Ciberpsychology: The new Psychology]. In J. M. De la Serna (Author), *CiberPsicología: Relación entre Mente e Internet* (1st ed., chap. 1). Babelcube Inc. <https://doi.org/10.6084/m9.figshare.13503447>
 10. Digital Future Society. (2024). *Generación Z e inclusión digital: Superar el mito de los nativos digitales para abordar el acceso digital de los jóvenes [Gen Z and Digital Inclusion: Overcoming the Myth of Digital Natives to Address Digital Access for Young People]*. Red.es. Retrieve August 10, 2024. https://digitalfuturesociety.com/app/uploads/2024/08/DFS_GENERACION_Z_CAST.pdf
 11. Díaz-Vicario, A., Mercader Juan, C., & Gairín Sallán, J. (2019). Uso problemático de las TIC en adolescentes [Problematic use of ICT in adolescents]. *Revista Electrónica de Investigación Educativa*, 21, 1-11. <https://doi.org/10.24320/redie.2019.21.e07.1882>
 12. Baskota, P., & Poudel, T. (2024). Artificial intelligence and computer-mediated communication: The text analysis and undergrad's class observation. *Discover Education*, 3(1), Article 131. <https://doi.org/10.1007/s44217-024-00187-7>
 13. Gordillo-León, F., Mestas-Hernández, L., Pérez-Nieto, M. A., & Aranda-Martínez, J. M. (2021). Diferencias de género en la valoración de la intensidad emocional de las expresiones faciales de alegría y tristeza [Gender differences in the assessment of the emotional intensity of facial expressions of joy and sadness]. *Escritos de Psicología*, 14(1), 26-38. <https://doi.org/10.24310/espiescpsi.v14i1.12675>
 14. Hervás, G., & Jódar, R. (2008). The Spanish version of the Difficulties in Emotion Regulation Scale. *Clínica y Salud*, 19, 139–156. Retrieved August 10, 2025, from https://www.researchgate.net/publication/317482758_The_spanish_version_of_the_Difficulties_in_Emotion_Regulation_Scale
 15. Huerta-Álvarez, R., Cambra Fierro, J. J., & Blasco, M. (2020). The interplay between social media communication, brand equity, and brand engagement in tourist destinations: An analysis in an emerging economy. *Journal of Destination Marketing & Management*, 16, 100413. <https://doi.org/10.1016/j.jdmm.2020.100413>
 16. Kring, A. M., Smith, D. A., & Neale, J. M. (1994). Individual differences in dispositional expressiveness: Development and validation of the Emotional Expressivity Scale. *Journal of Personality and Social Psychology*, 66(5), 934–949. <https://doi.org/10.1037//0022-3514.66.5.934>
 17. Morales Sanhueza, J., & Martín-Mora Parra, G. (2024). Anxiety and avoidance in attachment as predictors of emotional regulation difficulties in university students. *Psychiatry International*, 5(4), 949–961. <https://doi.org/10.3390/psychiatryint5040065>
 18. Peris Hernández, M., Maganto Mateo, C., & Kortabarría Kortazar, L. (2018). Escala de sentimientos y emociones en las redes sociales e internet, SERSI: fiabilidad y validez [Scale of feelings and emotions in social networks and the internet, SERSI: reliability and validity]. *EJIHPE: European Journal of Investigation in Health, Psychology and Education*, 8(3), 143–155. <https://doi.org/10.30552/ejihpe.v8i3.274>
 19. Pinargote-Baque, K. Y., & Cevallos-Cedeño, A. M. (2020). El uso y abuso de las nuevas tecnologías en el área educativa [The use and abuse of new technologies in the educational área]. *Revista Científica Dominio de las Ciencias*, 6(2), 145–158. <http://dx.doi.org/10.23857/dc.v6i3.1297>
 20. Raposo-Camacho, R., Arroyo-Mora, E., & Sampedro-Martín, S. (2023). La deconstrucción de los roles de género a través del patrimonio cultural en Educación Infantil [The deconstruction of gender roles through cultural heritage in Early Childhood Education]. *REIDICS*, 12, 67–84. <https://doi.org/10.17398/2531-0968.12.05>

21. Terán, A. (2019). Ciberadicciones: Adicción a las nuevas tecnologías [Addiction to new technologies] (NTIC). En AEPap (Ed.), *Congreso de Actualización Pediatría 2019* (pp. 131–141). Lúa Ediciones 3.0. Retrieved October 3, 2025 from https://www.aepap.org/sites/default/files/pags.131-142_ciberadicciones.pdf
22. United Nations. (2020). Digital technologies critical in facing COVID-19 pandemic [Digital technologies critical in facing COVID-19 pandemic]. *UN Department of Economic and Social Affairs*. Retrieved August 2, 2025 from <https://www.un.org/development/desa/en/news/policy/digital-technologies-critical-in-facing-covid-19-pandemic.html>
23. Witmer, D. F., & Katzman, S. L. (1997). On-line smiles: Does gender make a difference in the use of graphic accents? *Journal of Computer-Mediated Communication*, 2(4). <https://doi.org/10.1111/j.1083-6101.1997.tb00192.x>
24. Wolf, A. (2000). Emotional expression online: Gender differences in emotion use. *CyberPsychology & Behavior*, 3(5), 827–833. <https://doi.org/10.1089/10949310050191809>