Health Promotion Perspectives
Almutawa et al, Health Promotion Perspectives 2026;16(3): 440-449
doi:10.34172/hpp.48422
https://hpp.tbzmed.ac.ir
TUOMS PRESS

Original Article

Perceived Impact of Digital Tools on Family Social Relationships and Mental Health: Evidence From the United Arab Emirates

Ayesha Abdulla Ismail Almutawa[1*], **Eman Abdallah Alnaour**[1]

[1]Sociology Department, University of Sharjah, United Arab Emirates

ARTICLE INFO

Article History:
Received: August 7, 2026
Revised: September 2, 2026
Accepted: September 12, 2026
ePublished: November 5, 2026

Keywords:
Digital tools, Family relationships, Mental health, Intergenerational communication, Digital divide, University students

***Corresponding Author:**
Ayesha Abdulla Ismail Almutawa,
Email: almutawa11222@gmail.com

Abstract

Introduction: Digital technologies have become deeply embedded in family life, offering new means of connection while also raising concerns about "technoference" and diminished relational intimacy. This study examined how university students in the United Arab Emirates perceive the role of digital tools in transforming family social relationships, and whether this perception varies by gender, family status, marital status, age, and college affiliation.

Methods: A cross-sectional, descriptive-analytical design was used with a random sample of 330 students (162 male, 168 female) from the University of Sharjah during the 2025–2026 academic year. A 42-item, five-point Likert-scale instrument, developed and validated for this study, measured perceived digital impact across four domains of family life. Independent-samples t-tests were used for dichotomous demographic comparisons (gender, family status, age group, college), and one-way ANOVA was used for marital status. Effect sizes (Cohen's d, η^2) were calculated alongside significance tests.

Results: Students reported a high overall level of perceived digital impact ($M = 3.84$, $SD = 0.893$), significantly above the scale midpoint. Age was the strongest differentiating factor: participants aged 27–35 — more likely to carry family and household responsibilities — perceived a substantially greater role for digital tools than younger, ostensibly more "digitally native" peers ($d = 0.72$), a pattern that runs counter to common assumptions about generational technology competence. Family status was also significant, with resident non-citizens, who often sustain family ties across borders, scoring higher than citizens ($d = 0.33$). Gender, marital status, and college affiliation showed no meaningful differences, and within-group variation consistently exceeded between-group differences. The instrument demonstrated strong psychometric properties (Cronbach's $\alpha = 0.926$; split-half reliability = 0.904).

Conclusion: Perceived digital impact on family life is shaped less by broad demographic categories than by life stage and dependence on mediated communication across distance. These findings point toward life-stage- and needs-oriented interventions rather than generic demographic targeting, and offer a psychometrically sound instrument for future research in non-Western, Gulf-region contexts.

Introduction

Digital technologies have reorganized the texture of contemporary family life, opening new channels of communication, caregiving, and connection that no longer respect the old boundaries of distance and time. Understood broadly as the hardware, software, applications, and online platforms that people use to carry out or enhance everyday tasks, digital tools are now woven into the daily rhythms of families across the world, serving purposes as ordinary as coordinating a household calendar and as consequential as sustaining emotional closeness across continents. This integration is not simply a matter of convenience; it represents a deeper shift in the conditions under which family relationships come into being, are maintained, and change over time. Plummer has observed that sociology must attend not only to changes in the tools people use but to changes in the very contexts in which human interaction takes place.[1]

Because the family functions as a central site of socialisation, emotional attachment, and the passing of values between generations, it has proven especially sensitive to digital mediation — yet how that mediation actually plays out remains far from settled. A large body of systematic-review evidence points to a dual pattern: information and communication technologies (ICTs) can bridge distance and sustain closeness, but they can equally crowd out face-to-face contact and erode relational intimacy. In their systematic review of seventy-three peer-reviewed studies published between 2009 and 2019, Tammisalo and Rotkirch concluded that whether ICT helps or harms a family relationship depends heavily on the type of relationship involved and on how the

© 2026 The Author(s). This is an open access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

technology is actually used.[2] Where personal device use intrudes on shared family time — a pattern often labelled "technoference" — the outcomes tend to be negative, including divided attention, greater conflict, and weakened relational quality. By contrast, communication- and co-use-oriented practices, especially those built on "richer" media that approximate face-to-face contact, tend to produce more positive outcomes. This pattern reframes the underlying question: rather than asking whether digital tools help or harm families, the more useful question is under what conditions each outcome is likely to occur.

Recent theoretical work in digital sociology supplies the conceptual tools needed to specify those conditions. Digital sociology extends classical accounts of interaction to examine how the affordances of particular platforms and devices shape the relationships conducted through them. Zhao and Wang argue that no medium of communication is neutral: messaging platforms set the pace of exchange, make conversations persistent and searchable, and selectively reveal content to different participants, and in doing so actively shape relational dynamics rather than merely transmitting them.[3] The idea of "platformisation" extends this insight, showing that digital platforms are not passive conduits but active structuring forces that, through their design, algorithms, and commercial logics, reorganise family interaction. Sefton-Green, Mannell, and Erstad describe platform power as having "deeply penetrated the nucleus of social life," reshaping everyday routines, intergenerational communication, and the practices through which care and togetherness are enacted.[4] Building on this, Erstad, Hegna, Livingstone, Negru-Subtirica, and Stoilova propose the concept of "platformised relationality": digital technologies become embedded across generations of family life through an intensification of connectedness — particularly around intimacy, belonging, and care — alongside power struggles and tensions rooted in interdependency and vulnerability.[5] This framework resists both techno-optimism and techno-pessimism, calling instead for situated analysis of how the macro-structural conditions of platform society interact with the micro-social relations that unfold within particular families.[6]

Within this broader landscape, three features of digital mediation stand out as especially consequential for family life. The first is *reach*: digital tools compress geographical distance, letting grandparents watch grandchildren grow up over video calls and allowing transnational families to sustain kinship ties across borders.[7] Studies of intergenerational digital communication during the COVID-19 pandemic found that such tools strengthened family bonds, particularly among older adults who might otherwise have faced social isolation.[8] The second is *tempo and persistence*: because mediated communication is continuous and recorded, it creates new temporal dynamics in which conflicts are less easily resolved simply by allowing them to fade from memory. The third is *permeability and visibility*: professional, social, and communal demands now continuously intrude on family time, while the architecture of platforms creates layered visibilities in which some conversations are open to whole groups and others confined to pairs, producing new internal boundaries within the family itself. These effects are not evenly distributed: Inegbedion describes a "digital gap" that cuts unevenly across populations, meaning that the same technological features can carry very different consequences for different families.[9]

The notion of "technoference" has become a key lens for understanding the disruptive side of digital devices within family systems. The term describes how a parent's media use — smartphone use in particular — can interfere with the parent–child relationship and with everyday interaction between them.[10] Research spanning infancy through adolescence has linked technoference to reduced parental responsiveness, diminished sensitivity to children's bids for attention, and adverse behavioral outcomes in children.[11] Nair, Mengi, and Jose model technology as a subsystem introduced into the family system, offering a multidimensional framework for tracing how technoference affects different dimensions of healthy family functioning and can contribute to dysfunction.[12] At the same time, it is important not to lose sight of technology's supportive functions: device use can relieve parental stress, connect parents to support networks, and provide access to parenting information.[13] Parents themselves report mixed, complicated, and often guilt-laden feelings about their own device use while parenting, which argues for nuanced rather than one-size-fits-all guidance.[14]

Beyond its behavioral and relational consequences, digital mediation of family life carries implications for mental health that are only beginning to be systematically mapped. Tadpatrikar, Sharma, and Viswanath's review of family communication and technology use situates psychosocial wellbeing alongside communication patterns as a core outcome domain, linking unregulated device use to reduced family cohesion and diminished emotional support within the household.[15] This concern sharpens when the focus narrows to parent–child dynamics: Dixon, Sharp, Hughes, and Hughes's scoping review of parental technoference found consistent associations between adolescents' perceptions of a parent's device-related distraction and poorer adolescent mental health, alongside heightened risk of behavioral difficulties.[16] Evidence from the other end of the family life course points toward more protective possibilities: intergenerational digital communication during the COVID-19 pandemic was linked to reduced social isolation and better emotional wellbeing among older adults, particularly where in-person contact would otherwise have been curtailed by distance.[8] Read together, this literature suggests that the mental health consequences of digital mediation trace the same fault line already identified for family relationships more broadly: outcomes appear to hinge less on the mere presence of technology than on whether its use displaces meaningful family contact or extends and enriches it.

A growing body of empirical work maps how unevenly

digital impacts are distributed across family contexts. Bărbuță, Ghețău, and Iovu identify three distinct family postures toward digitalization — resistant, retained, and receptive — showing that it is a family's overall stance toward technology, rather than sheer quantity of use, that determines how digital tools are woven into domestic life.[17] Qualitative work from different settings tells a similar story: in Palestinian households, social media supports couple communication but also compromises privacy as boundaries blur; in Ukrainian households, it improves mutual accountability while simultaneously diverting attention and reshaping the balance of power between partners.[18,19] Taken together, these findings point to household-level regulation — the implicit or explicit rules that govern when, how, and by whom technology is used — as the pivotal factor mediating outcomes.

Scholars have also come to see the domestication of technology within families as an ongoing, never-quite-finished process of negotiation. Work on the home as a site of platformisation shows that families do not simply adopt platforms in the way their designers intended; instead, the uses and meanings of a platform are worked out relationally, through negotiation and collaboration among family members.[6] Sometimes this produces shared understanding, as when a family jointly settles on an app for staying in touch; in other cases meanings remain contested and unresolved, subject to ongoing renegotiation as platform features change and as family members' own needs, interests, and values shift.[6] This raises a further question worth pursuing: when does the value families find in a platform diverge from the value the platform was designed to deliver, and under what conditions do families use platforms merely to extend existing practices rather than to build genuinely new ones?[20]

Even so, notable gaps remain in this literature. Most of the evidence comes from Western settings and tends to treat families as relatively uniform units, leaving comparatively little known about how perceptions of digital tools' role in family life differ across the demographic characteristics that shape family structure and experience — age, gender, education, marital status, and family status. Research on the intergenerational digital divide has documented persistent gaps in digital literacy and access between older and younger generations, with implications for family relationships and intergenerational solidarity.[21] Studies of digital parenting likewise show that factors such as gender, socioeconomic status, ethnicity, family structure, and religion meaningfully shape how families navigate the digital environment.[22] The Gulf region — marked by both high rates of technology adoption and strong norms of family collective duty and authority — remains particularly underexamined. Recent work in the United Arab Emirates suggests that social media plays a central role in sustaining family ties across distance, with platforms such as WhatsApp and Facebook supporting intergenerational solidarity, emotional resilience, and cultural continuity; Farhi and colleagues found that young adults in Dubai use these tools to share daily updates, mark important events, express care, and adapt their digital habits so as to include and guide older relatives.[23] Valuable as these qualitative insights are, they cannot on their own provide the scalable, comparative evidence needed to establish how perceptions of digital tools' impact are distributed across population segments, nor which demographic boundaries most sharply separate one group's experience from another's.

The present study takes up these gaps by examining how university students in the United Arab Emirates perceive the impact of digital tools on their family relationships. It is organized around four linked questions. First, how do students at the University of Sharjah view the transformative role of digital technologies in family relationships? Second, do meaningful differences in this perception exist across gender, family status, marital status, age, and college affiliation? Third, how much does each of these factors matter, and which population segments report the strongest perceived impact? Fourth, is the measurement instrument used here reliable and valid for this population?

The study makes three contributions in pursuing these questions. Conceptually, it treats the perceived impact of digital tools on family relations as a single, measurable experience rather than a set of case-specific narratives, bringing quantitative precision to a topic more often explored through qualitative methods. Methodologically, it develops and validates a forty-two-item instrument within a Gulf population, addressing the relative shortage of standardized measures outside Western contexts. Empirically, it reports effect sizes alongside significance tests, which makes it possible to gauge the *magnitude* of demographic disparities in perceived digital impact rather than relying on statistical significance alone. Together, these elements allow individuals to be sorted into interpretive bands — below, within, or above the normative range — offering a more textured picture of who is most touched by, and who remains comparatively insulated from, the digital transformation of family life.

More broadly, this research sits within the sociological project of understanding how technology and social structure evolve together. Digital tools do not enter family life as neutral instruments; they are taken up, resisted, and adapted in ways that reflect and reproduce existing social hierarchies, generational dynamics, and cultural values. By tracing how perceived digital impact is distributed across demographic lines, the study contributes to a more fine-grained understanding of how technological change intersects with the enduring structures of family life — clarifying not only where digital tools are reshaping families, but also where their reach appears comparatively limited.

Methods

Research Design

This study used a cross-sectional, descriptive-analytical design, an approach well suited to capturing the prevalence, distribution, and interrelationships of perceptions within a defined population at a single point in time.[1] The design involves no experimental manipulation and no assignment

of participants to treatment or control conditions; rather, it aims to describe respondents' subjective awareness of the phenomenon under study as it naturally occurs. All findings reported below are therefore correlational, and no causal claims are made about the influence of digital tools on family relationships.

Population and Sample

The target population consisted of students enrolled at the University of Sharjah during the 2025–2026 academic year, from which a random sample of 330 students was drawn. The final sample comprised 162 male participants (49.1%) and 168 female participants (50.9%). The distribution of respondents across the demographic variables of interest — gender, family status (citizen versus resident), marital status, age group, and college affiliation (scientific versus humanities) — appears in Table 1. Complete records of the number of invitations distributed, questionnaires returned, and questionnaires left unreturned were not fully available; this is acknowledged below as a limitation of the data-collection process. The five independent variables were selected for their theoretical relevance to the distribution of family responsibilities and relational dynamics: gender and college affiliation were examined for possible alignment with social roles and academic specialization respectively; marital status allowed comparison across different conjugal states; family status (citizen versus resident) served as a proxy for physical proximity to extended kin networks; and age was included to capture generational differences in digital engagement and family obligation.

Instrumentation

A self-administered questionnaire was developed following an extensive review of the literature on digitalization and family dynamics. An initial pool of 45 items was narrowed to 42 following expert evaluation and assessment of content relevance; all analyses reported here are based on this 42-item version. Responses were recorded on a five-point Likert scale (1 = very low, 2 = low, 3 = moderate, 4 = high, 5 = extremely high). Items addressed four domains of family life: (a) family communication and cohabitation, (b) emotional bonding and intimacy, (c) engagement in daily household responsibilities, and (d) participation in extended family and kin networks. Each item was framed as a declarative statement about the respondent's own family experience rather than as a general opinion about digital technology, so that the scale would capture lived perceptions rather than abstract attitudes. Higher total scores indicate a greater perceived role for digital tools in transforming family relationships.

Table 1. The Participants demographic characteristics (n = 330)

Variable	Category	Frequency	Percent
Gender	Male	162	49.1
	Female	168	50.9
Family status	Citizens	236	71.5
	Residents	94	28.5
Marital status	Single	116	35.2
	Married	132	40.0
	Widowed	33	10.0
	Divorced	49	14.8
Age	18 to 26 years	214	64.8
	27 to 35 years	116	35.2
College	Scientific	160	48.5
	Humanities	170	51.5

Validity

Content validity was established through a structured expert-review process. The preliminary 45-item version was submitted to a panel of subject-matter experts, who rated each item for clarity, relevance, and representativeness; ambiguous or redundant items were revised or dropped, yielding the final 42-item instrument. Construct validity was then assessed through two complementary procedures. Internal consistency was examined via item-total correlation analysis using a pilot sample of 30 students drawn from the same population but excluded from the main study; the correlation between each item and the total instrument score was computed. As Table 2 shows, all item-total correlations were positive and statistically significant, ranging from 0.311 to 0.867 ($P < .05$ or $P < .01$), supporting the internal coherence of the scale and the decision to retain all 42 items.

Reliability

Instrument reliability was assessed through two established methods. Internal consistency, evaluated with Cronbach's alpha, was 0.926 for the 42-item scale, indicating excellent internal consistency. Split-half reliability, computed with the Spearman-Brown formula after dividing items into odd- and even-numbered sets, was 0.904. Together, these estimates indicate that the instrument is highly reliable for the target population, though the high alpha value also points to a degree of item redundancy, a point taken up again in the limitations.

Statistics

Data analysis proceeded in stages aligned with the research questions. Descriptive statistics characterized the sample; internal consistency was assessed through item-total correlations, and reliability through Cronbach's alpha and split-half estimates. The five-point scale was divided into three interpretive bands using a 1.33-point interval: low (1.00–2.33), moderate (2.34–3.66), and high (3.67–5.00). To determine whether the overall mean score was significantly above the neutral midpoint and practically situated within the high range, a one-sample t-test was conducted against a test value of 3.00, and the 95% confidence interval of the mean was examined to confirm whether its lower bound exceeded the high-band threshold of 3.67. Independent-samples t-tests, with Levene's test for equality of variances, were used for the dichotomous variables (gender, family status, dichotomized age, and college), while a one-way ANOVA with post-hoc comparisons (Tukey's HSD) was

Table 2. Item-total correlation coefficients

Items	r	Items	r	Items	r	Items	r	Items	r	Items	r
1	0.610**	8	0.733**	15	0.712**	22	0.764**	29	0.636**	36	0.517**
2	0.651**	9	0.753**	16	0.684**	23	0.674**	30	0.724**	37	0.867**
3	0.692**	10	0.586**	17	0.332*	24	0.577**	31	0.820**	38	0.802**
4	0.761**	11	0.700**	18	0.640**	25	0.789**	32	0.813**	39	0.671**
5	0.572**	12	0.809**	19	0.321*	26	0.716**	33	0.769**	40	0.311*
6	0.605**	13	0.806**	20	0.596**	27	0.722**	34	0.624**	41	0.662**
7	0.667**	14	0.767**	21	0.743**	28	0.690**	35	0.841**	42	0.793**

Note. ** Correlation is significant at the 0.01 level (two-tailed); * correlation is significant at the 0.05 level (two-tailed)

used for marital status. Effect sizes (Cohen's d and η^2) were calculated throughout to gauge practical, and not merely statistical, significance.

Ethical Considerations

Participation was entirely voluntary, and respondents were assured of the anonymity and confidentiality of their responses; no identifying information was collected at any stage. Formal ethical approval was obtained from the Ethics Review Board at the University of Sharjah (REC-23-06-06-03-B) prior to data collection, and written informed consent was secured from all participants after they had been fully informed of the study's purpose and their rights.

Results

The analytical approach for each independent variable followed from its structure. Four of the five demographic variables — gender, family status, age group, and college affiliation — are dichotomous and were compared using independent-samples t-tests. Marital status, comprising four categories, required a one-way analysis of variance. Effect sizes were calculated for every comparison, since a sample of 330 provides enough statistical power to detect even trivial differences,[24] and reporting effect sizes alongside significance tests ensures that both the presence and the practical magnitude of any difference are properly assessed.

Perceived Role of Digital Tools

The overall perceived role of digital tools in transforming family social relationships, measured through the total scale score, produced a mean of 3.84 (SD = 0.893) — squarely within the high interpretive band (3.67–5.00). The 95% confidence interval ran from 3.74 to 3.94, meaning the true population mean lies entirely above the 3.67 threshold that marks the lower boundary of the high band. A one-sample t-test against this threshold was significant, t(329) = 3.46, $P < .001$, confirming that the observed mean sits reliably above the high-band boundary rather than merely near it. The precision of this estimate is worth noting: the confidence interval spans only 0.20 scale points, far narrower than the 1.33-point width of each interpretive band, which suggests the mean is robustly, not marginally, situated within the high category. The standard deviation of 0.893 indicates a moderate spread of individual responses around this mean, with most respondents scoring within roughly one scale point of the average — variability that is examined further through the demographic comparisons that follow.

Differences by Demographic Variable

No significant difference emerged between male and female participants. Men scored marginally higher (M = 3.85, SD = 0.889) than women (M = 3.82, SD = 0.899), but the gap was not statistically significant, t(328) = 0.287, $P = .775$, and the effect size was negligible (d = 0.03), indicating that gender does not meaningfully differentiate perceptions in this sample.

Family status, by contrast, did produce a significant difference. Residents reported a markedly higher mean score (M = 4.04, SD = 0.929) than citizens (M = 3.75, SD = 0.866), t(328) = 2.704, p = .007, with a small-to-moderate effect size (d = 0.33) — a measurable but not large disparity, roughly a third of a standard deviation.

Analysis of variance across the four marital-status categories — single (M = 3.78), married (M = 3.89), widowed (M = 3.74), and divorced (M = 3.87) — revealed no significant differences, F(3, 326) = 0.887, p = .448, with a negligible effect size ($\eta^2 = 0.008$), indicating that marital status accounts for less than one percent of the total variance in scores.

The largest difference observed in the study was between age groups. Participants aged 27 to 35 reported a significantly higher mean score (M = 4.23, SD = 0.811) than those aged 18 to 26 (M = 3.62, SD = 0.863), t(328) = 6.237, $P < .001$, with a moderate-to-large effect size (d = 0.72) — more than double the magnitude of the family-status effect and substantially larger than any other demographic comparison in the study.

Finally, no significant difference was found between students in scientific (M = 3.84, SD = 0.876) and humanities (M = 3.83, SD = 0.911) colleges, t(328) = 0.141, $P = .888$, with a negligible effect size (d = 0.01), indicating that academic discipline does not shape perceptions in this sample (Table 3). Additionally, Table 4 reports the corresponding one-way ANOVA results for marital status, including sums of squares, degrees of freedom, mean squares, the F-ratio, the p-value, and the effect size.

Relative Weight of Variables and the Below-Threshold Segment

Ranked by effect size, the five comparisons fall into a

clear hierarchy: age (d = 0.72) exerts by far the strongest influence, followed at a distance by family status (d = 0.33), while gender (d = 0.03), college (d = 0.01), and marital status ($\eta^2 = 0.008$) contribute negligibly. Age therefore stands out as the primary demographic boundary shaping perceptions of digital tools' role in family life, with family status playing a secondary role and the remaining three variables largely inconsequential.

Table 5 consolidates all five comparisons, reporting the higher-scoring group, the mean difference in scale points, the test statistic, significance level, effect size, and an overall verdict for each variable.

Expressed in the original measurement units, these differences take on a clearer practical meaning. The 0.61-point gap between age groups amounts to roughly half the width of a full interpretive band (1.33 points), placing the younger group at the lower edge of the high band and the older group firmly in its upper reaches. The 0.29-point gap by family status represents about a fifth of a band width. The remaining differences — between 0.00 and 0.03 points — fall below the instrument's rounding precision and carry no substantive interpretation.

Notably, the 18–26 age group was the only demographic segment whose mean (3.62) fell below the lower threshold of the high band (3.67). Every other group — citizens (3.75), residents (4.04), men (3.85), women (3.82), scientific-college students (3.84), humanities-college students (3.83), and all four marital-status categories (3.74–3.89) — scored within or above the high range.

A further pattern deserves attention: the standard deviations across all groups ranged from 0.811 to 0.929, while the largest mean difference observed between any two groups was 0.61 scale points. In other words, variation within demographic categories considerably exceeds variation between them, suggesting that the forces shaping perceptions of digital tools' influence on family relationships operate mainly within demographic segments rather than across them — and that demographic analysis alone captures only part of the underlying picture.

Psychometric Adequacy of the Instrument

The instrument performed well on every psychometric criterion assessed, providing an affirmative answer to the fourth research question.

Item-Total Correlations

All 42 items were retained in the final questionnaire. Item-total correlations ranged from 0.311 to 0.867, with 36 of the 42 items exceeding 0.55 and only two falling below 0.35. Because every correlation was positive and statistically significant ($P < .05$ or $P < .01$), the items can be said to contribute meaningfully to the overall construct, and the pattern of correlations suggests the scale is measuring a single, coherent underlying dimension rather than several unrelated perceptions.

Internal Consistency Reliability

The instrument showed excellent internal consistency: Cronbach's alpha was 0.926 for the full 42-item scale, and split-half reliability (Spearman-Brown corrected) was 0.904. The close agreement between these two independent estimates — a difference of only 0.022 — suggests that this reliability is a stable property of the instrument itself rather than an artefact of the estimation method used. At the same time, an alpha above 0.90 on a 42-item scale can also

Table 4. ANOVA summary for marital status

Source	Sum of squares	*df*	Mean square	*F*	p	η^2
Between groups	2.124	3	0.708	0.887	.448	0.008
Within groups	260.073	326	0.798			
Total	262.197	329				

Table 3. Summary of group comparisons for dichotomous variables

Variable	Group	n	Mean	*SD*	Test statistic	*P*	Effect size (Cohen's d)
Gender	Male	162	3.85	0.889	t (328) = 0.287	.775	0.03
	Female	168	3.82	0.899			
Family status	Citizens	236	3.75	0.866	t (328) = 2.704	.007**	0.33
	Residents	94	4.04	0.929			
Age group	18–26 years	214	3.62	0.863	t (328) = 6.237	<.001***	0.72
	27–35 years	116	4.23	0.811			
College	Scientific	160	3.84	0.876	t (328) = 0.141	.888	0.01
	Humanities	170	3.83	0.911			

Table 5. Summary of all five demographic comparisons

Variable	Higher-scoring group	Mean difference (scale)	Test statistic	*P*	Effect size	Verdict
Gender	Male	0.03	t = 0.287	.775	d = 0.03	No difference
Family status	Residents	0.29	t = 2.704	.007**	d = 0.33	Small to moderate
Marital status	None	0.00	*F* = 0.887	.448	$\eta^2 = 0.008$	No difference
Age group	27–35 years	0.61	t = 6.237	<.001***	d = 0.72	Moderate to large
College	Scientific	0.01	t = 0.141	.888	d = 0.01	No difference

signal a degree of item redundancy.[25] Because the available evidence cannot cleanly distinguish genuinely high internal consistency from simple item overlap, the instrument is best treated as a single composite scale measuring one unified construct, rather than as a multidimensional instrument with distinct subscales; no claims are made here about the reliability or validity of any individual subdomain.

Discussion

The first research question can be answered directly: students at the University of Sharjah perceive digital tools as playing a significant role in their family lives (M = 3.84, SD = 0.893), with the average response falling firmly within the high interpretive band. This finding is consistent with Hanandini's observation[26] that digital technologies now constitute an important medium for social relations, and with Khaeriyah and Natsir's conclusion[27] that digital tools serve as vital mechanisms for maintaining family relationships across distance. It does not, however, follow that digital tools have improved family life; rather, the finding indicates that respondents recognize these tools as important instruments in managing contemporary family life. As Tammisalo and Rotkirch showed, the effect of ICT on family relationships depends heavily on both the type of relationship and the mode of use.[2] The prominence of digital tools makes their connective function readily apparent, while their disruptive counterpart — what McDaniel and Radesky term technoference — tends to surface more unevenly, in the asymmetry between different effects rather than as a uniform pattern.[11] A high overall score may therefore describe families that have successfully integrated these tools just as easily as it may describe families that have substituted digital interaction for face-to-face engagement. Nair, Mengi, and Jose's proposal that technology use can both support and disrupt healthy family functioning underscores the need for a correspondingly nuanced reading of this result.[12]

The second research question produced an informative pattern of results. Gender, marital status, and college affiliation showed no statistically significant differences, and their effect sizes were small enough to be practically negligible — gender (d = 0.03) and college (d = 0.01) both fell below the instrument's rounding precision. The absence of a gender gap is worth noting: although prior research has documented gendered patterns in digital usage, the present results suggest that perceived impact has become mainstream enough, in this population, that it no longer tracks gender lines.[2] Hu and Qian similarly found that although women are somewhat more likely to engage in family-only digital communication, such differences tend to be context-dependent rather than fixed.[28] In the same way, the absence of a college-based difference implies that perception is shaped less by curricular content than by immersion in everyday life, which fits the domestication perspective advanced by Erstad et al, who argue that digital technologies become embedded in family life through processes of negotiation that cut across institutional boundaries.[5] The null finding for marital status ($\eta^2 = 0.008$) similarly suggests that, at least within this population, marital status on its own is not a reliable predictor of perceived digital impact.

Two significant distinctions did emerge, and age was by far the more consequential of the two. Participants aged 27 to 35 reported a substantially higher mean score (M = 4.23, SD = 0.811) than those aged 18 to 26 (M = 3.62, SD = 0.863), with a moderate-to-large effect size (d = 0.72). Several interpretations seem plausible here: older participants may be more deeply engaged in the organizational demands of family life, which makes digital tools feel like essential infrastructure rather than optional convenience; younger respondents, having grown up surrounded by these technologies, may simply take them for granted; socio-emotional selectivity theory suggests that older adults tend to prioritize emotionally meaningful goals, including family connection, over other pursuits; and life-course stage — with the older group more likely to have children and household responsibilities of their own — may make digital tools more visible and more clearly indispensable.[5,12] That the older group perceives a more transformative role despite presumably lower "digital nativeness" runs against the usual assumptions about generational digital competence, and echoes Erstad and colleagues' observation that platforms are constructed relationally, differently, across different generations.[11]

The second significant finding concerned family status: residents (M = 4.04, SD = 0.929) reported a greater perceived role for digital tools than citizens (M = 3.75, SD = 0.866), with a small-to-moderate effect size (d = 0.33). This is consistent with research on transnational families showing that digital communication helps offset isolation while also generating new dynamics of connection and ambivalence.[28,29] Because residents — non-citizens living in the UAE — are more likely to have family members living abroad, digital communication is often essential to maintaining kinship ties for this group. Their higher scores may thus reflect greater dependence on mediated communication rather than simply greater appreciation of it, a pattern consistent with research on transnational caregiving.[30] This speaks directly to the idea of "platformised relationality," in which digital technologies become embedded through an intensification of connectedness that runs alongside power struggles rooted in interdependency.[17]

Importantly, these two significant distinctions — age and family status — do not divide the sample into sharply separate groups so much as reveal a continuum of perceived impact, since nearly every group scored within or close to the high band. Within-group variation substantially exceeds the differences observed between groups, indicating that the largest sources of variation lie within demographic categories rather than between them. This continuum, rather than any clean dichotomy, is itself a substantive finding: it suggests that interventions are better tailored to individual and household circumstances than to broad demographic categories.

The null findings are, in their own way, as informative as the significant ones. Gender, college, and marital status

showed no meaningful differences, which challenges easy assumptions about who is most affected by digital transformation. The gender finding suggests that, at least in this population, perceived impact is not gendered — perhaps reflecting a UAE context in which digital access is relatively equitable across genders. The absence of a college effect supports the view that digital technologies are "domesticated" within the home in ways that operate independently of formal education. And the null finding for marital status suggests that digital tools are not narrowly "marriage-specific" in their perceived importance but rather family-specific in a broader sense.

The fourth research question was answered affirmatively: the instrument's psychometric properties held up well, with all 42 items retained, item-total correlations ranging from 0.311 to 0.867, a Cronbach's alpha of 0.926, and split-half reliability of 0.904. As Tavakol and Dennick caution, however, such a high alpha value can also point to item redundancy, and the instrument is therefore best understood as a single composite scale measuring a unified construct rather than a multidimensional instrument with separable subscales.[25] Its principal contribution is to supply a standardized measure that has been largely missing from the literature on digital family relationships, particularly outside Western contexts.

These patterns also carry implications for family mental health, an outcome this study did not measure directly but that the wider literature suggests is closely bound up with perceived digital impact. A high overall score cannot by itself be read as a sign of wellbeing: prior work links unregulated or intrusive technology use within families to reduced cohesion and weaker emotional support, and more specifically ties parental technoference to poorer adolescent mental health and behavioral difficulties.[15,16] At the same time, the age pattern observed here — with the 27-to-35 group, more often managing family responsibilities and coordinating care, reporting the strongest perceived impact — sits comfortably alongside evidence that digital communication can buffer against isolation and support emotional wellbeing when family members are separated by distance or circumstance, as documented among older adults during the COVID-19 pandemic and among transnational families more broadly.[8,29] The elevated scores among residents, who often sustain family ties across borders, plausibly reflect a similar protective use of technology rather than exposure to its more disruptive forms. Because this study measured perceived transformative impact rather than psychological outcomes directly, it cannot adjudicate between these possibilities; pairing perceived digital impact with validated mental health measures in future research would help clarify whether, and for whom, high perceived impact corresponds to better or worse family wellbeing.

Several limitations should be borne in mind when interpreting these results. The cross-sectional design precludes causal inference, and the measure captures perception rather than actual behavior or relationship quality. The sample was drawn from a single institution, the University of Sharjah, which limits how far the findings can be generalized, and the two-category age grouping conflates life-stage effects with cohort effects that could in principle be disentangled with different data. The high Cronbach's alpha (0.926) may indicate a degree of item redundancy, suggesting the scale may not capture the full breadth of the underlying construct. Finally, the study lacks detailed documentation of the sampling process, including response rates and the handling of incomplete responses, which limits any assessment of how representative the final sample actually is.

Conclusion

Percieved digital impact of family life is shaped less by broad demographic categories than by life stage and dependence on mediated communication across distance. These findings point toward life-stage- and needs-oriented interventions rather than generic demographic tergetting, and offer a psychometrically sound instrument for future research in non-Western Gulf-region contexts.

Theoretical Implications

These findings carry several implications for theory. First, they support understanding digital mediation as a form of relational labor — work undertaken to maintain and coordinate family relationships — that is shaped by life stage (age) and by physical proximity to extended family (family status). That younger, more "digitally native" participants perceive a lesser role for digital tools challenges assumptions about generational competence, suggesting instead that perception is driven more by responsibility and necessity than by mere exposure. Second, the findings extend the concept of "platformised relationality" by showing that different generations experience the same technologies differently, owing to differences in relational context and responsibility — underscoring the need to study digital family life as a differentiated phenomenon shaped jointly by technology, life stage, and social structure.[4] Third, the null findings challenge the assumption that demographic categories such as gender and marital status are universally predictive of technology-related perceptions; their absence of effect here may instead reflect the particular cultural context of the UAE, pointing to the need for more cross-cultural research on digital family relationships.

Practical Implications

The practical implications of this study favor targeted, life-stage-oriented interventions over broad demographic ones. First, digital-literacy and family-guidance programs should prioritize adults with family responsibilities — particularly those aged 27 to 35, who perceive digital tools as substantially more transformative than younger cohorts do — rather than assuming that adolescents and young adults are the natural audience for such programs. Universities and community organizations might accordingly offer workshops on digital family management aimed specifically at older students and parents. Second, residents (non-citizens) represent a population with heightened

needs around digital boundaries and privacy: because their reliance on mediated communication to sustain transnational family ties is greater, they may be particularly exposed to boundary blurring, privacy violations, and communication overload, making targeted programming for this group especially valuable. Third, given how small the effect sizes for gender and college affiliation were ($d = 0.03$ and $d = 0.01$, respectively), interventions need not be differentiated along these lines; directing resources toward gender-specific or discipline-specific programming would likely be inefficient and would be unlikely to produce meaningful benefit.

Authors' Contribution

Conceptualization: Ayesha Abdulla Ismail Almutawa, Eman Abdallah Alnaour
Data Curation: Ayesha Abdulla Ismail Almutawa
Methodology: Ayesha Abdulla Ismail Almutawa, Eman Abdallah Alnaour
Supervision: Ayesha Abdulla Ismail Almutawa
Writing–Original Draft: Ayesha Abdulla Ismail Almutawa, Eman Abdallah Alnaour
Writing–Review & Editing: Ayesha Abdulla Ismail Almutawa, Eman Abdallah Alnaour

Competing Interests

The authors declare no conflict of interest

Data Availability Statement

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

Declaration of use of AI

The authors used AI-assisted tools selectively during manuscript preparation. Grammarly was used for language refinement and proofreading. Methodological decisions, validation procedures, statistical analyses, interpretation of results, and the final manuscript remained under the authors' direct responsibility and supervision.

Ethical Approval

Ethical Approval was received from Ethics Review Board from the University of Sharjah (REC-06-06-03-B).

Funding

Nil

References

1. Plummer K. Sociology: The Basics. Routledge; 2016.
2. Tammisalo K, Rotkirch A. Effects of information and communication technology on the quality of family relationships: a systematic review. J Soc Pers Relat 2022;39(9):2724-65. doi:10.1177/02654075221087942
3. Zhao Y, Wang M. Digital sociology: origin, development, and prospects from a global perspective. J Chin Sociol 2023;10(1):19. doi:10.1186/s40711-023-00198-1
4. Sefton-Green J, Mannell K, Erstad O. The Platformization of the Family: Towards a Research Agenda. Cham: Palgrave Macmillan; 2025.
5. Erstad O, Hegna K, Livingstone S, Negru-Subtirica O, Stoilova M. How digital technologies become embedded in family life across generations: scoping the agenda for researching 'platformised relationality'. Fam Relatsh Soc2024;13(2):164-80. doi:10.1332/20467435y2024d000000023
6. Livingstone S, Sefton-Green J. The Platformization of the Family. Cham: Palgrave Macmillan; 2025.
7. Demirsu I. Watching them grow: intergenerational video-calling among transnational families in the age of smartphones. Glob Netw (Oxf) 2022;22(1):119-33. doi:10.1111/glob.12334
8. Vlachantoni A, Falkingham J, Evandrou M, Qin M. Has COVID-19 been the great leveler? The changing use of intergenerational digital communications amongst older people in England during the pandemic. J Appl Gerontol 2023;42(7):1517-29. doi:10.1177/07334648231153385
9. Inegbedion HE. Digital divide in the major regions of the world and the possibility of convergence. The Bottom Line 2021;34(1):68-85. doi:10.1108/bl-09-2020-0064
10. McDaniel BT, Linder L, Vanden Abeele MMP, Ventura AK, Coyne SM, Barr R. Technoference in parenting and impacts on parent-child relationships and child development. In: Christakis DA, Hale L, eds. Handbook of Children and Screens: Digital Media, Development, and Well-Being from Birth Through Adolescence. Cham: Springer; 2025. p. 411-7. doi:10.1007/978-3-031-69362-5_56
11. McDaniel BT, Radesky JS. Technoference: parent distraction with technology and associations with child behavior problems. Child Dev 2018;89(1):100-9. doi:10.1111/cdev.12822
12. Purushothaman Nair RK, Mengi N, Jose SA. Domestication of information and communication technologies into family systems: a conceptual framework evaluating family health. Soc Work 2024;69(4):356-66. doi:10.1093/sw/swae033
13. Radesky JS, Weeks HM, Ball R, Schaller A, Yeo S, Durnez J, et al. Young children's use of smartphones and tablets. Pediatrics 2020;146(1): e20193518. doi:10.1542/peds.2019-3518
14. Hiniker A, Schoenebeck SY, Kientz JA. Not at the dinner table: parents' and children's perspectives on family technology rules. In: Proceedings of the 19th ACM Conference on Computer-Supported Cooperative Work & Social Computing. New York: Association for Computing Machinery; 2016. p. 1376-89. doi:10.1145/2818048.2819940
15. Tadpatrikar A, Sharma MK, Viswanath SS. Influence of technology usage on family communication patterns and functioning: a systematic review. Asian J Psychiatr 2021;58:102595. doi:10.1016/j.ajp.2021.102595
16. Dixon D, Sharp CA, Hughes K, Hughes JC. Parental technoference and adolescents' mental health and violent behaviour: a scoping review. BMC Public Health 2023;23(1):2053. doi:10.1186/s12889-023-16850-x
17. Bărbuță A, Ghețău C, Iovu MB. Digital technology and family dynamics: the 3Rs conceptual model regarding the acceptance and use of digital technology in everyday family routines. Intersections EEJSP 2023;9(1):120-44. doi:10.17356/ieejsp.v9i1.1049
18. Jabali O, Hamamra B, Mahamid F. Modern relationships and social media: exploring the digital dynamics of husband-wife interactions. Humanit Soc Sci Commun 2024;11(1):1727. doi:10.1057/s41599-024-04289-3
19. Tkachenko L, Gumennykova T, Pletenytska L, Kholokh O. Transforming the role of modern family: ethical challenges. Futurity Philosophy 2023;2(3):17-38. doi:10.57125/FP.2023.09.30.02
20. Shaw A. Encoding and decoding affordances: Stuart Hall and interactive media technologies. Media Cult Soc 2017;39(4):592-602. doi:10.1177/0163443717692741
21. Wu N, Mustafa SE. The current situation and influential factors of bottom-up technology transmission in Chinese rural families. e-Bangi J Soc Sci Humanit 2023;20(2):46-59. doi:10.17576/ebangi.2023.2002.05
22. Syukur Y, Putra AH, Ardi Z, Nuzila Zahri T, Eva Putri J. Global perspectives on digital parenting: challenges and opportunities in improving family well-being. E3S Web Conf

2024;568:04014. doi:10.1051/e3sconf/202456804014
23. Farhi F, Jeljeli R, Setoutah S, Zamoum K, Boukhenoufa A, Saidani S, et al. Social media and intergenerational bonding through young adults' communication with older family members. Front Sociol 2025;10:1643296. doi:10.3389/fsoc.2025.1643296
24. Cohen J. Statistical Power Analysis for the Behavioral Sciences. Routledge; 2013.
25. Tavakol M, Dennick R. Making sense of Cronbach's alpha. Int J Med Educ 2011;2:53-5. doi:10.5116/ijme.4dfb.8dfd
26. Hanandini D. Social transformation in modern society: a literature review on the role of technology in social interaction. Jurnal Ilmiah Ekotrans & Erudisi 2024;4(1):82-95. doi:10.69989/j0m6cg84
27. Khaeriyah K, Natsir N. The role of family in shaping social values in the digital era. J Adm Soc Sci 2025;6(2):1-16. doi:10.55606/jass.v6i2.1844
28. Hu Y, Qian Y. Gendering digital labor: work and family digital communication across 29 countries. Community Work Fam 2024;27(5):588-611. doi:10.1080/13668803.2024.2373852
29. Erfani G, Steven A, Young-Murphy L, Charlton W, De Luca H, Wilson-MenzFeld G. Intergenerational patterns of digital use: evidence from a large cross-sectional study. PLoS One 2026;21(7): e0353185. doi:10.1371/journal.pone.0353185
30. Barros C. Connection in transnational families. face-to-face and digital spaces in Portuguese emigrants. Trends Psychol 2025;33(4):1314-33. doi:10.1007/s43076-023-00309-4