








The relationship of social media on quality of life and public health: A cross-sectional study on digital divide across generations

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ABSTRACT

Objectives: This study aims to examine the relationship between social media use (SMU), social media needs (SMN), and quality of life and public health (QoLPH) among middle-aged and older adults in Nepal, highlighting generational aspects of the digital divide.

Methods: A cross-sectional quantitative study design was employed to assess generational differences in SMU and perceived quality of life among middle-aged and older adults in an urban Nepali setting. A purposive sample of N = 1,000 individuals was surveyed. Standardized instruments, including the social networking sites uses and needs questionnaires. Descriptive and inferential statistics, including regression analysis, were performed using SPSS V. 29.

Results: Among participants, 60% used Facebook and 76.5% used YouTube daily. However, over 60% scored low on diversion, cognitive, affective, personal integrative, and social integrative needs. While 64.4% rated their overall QoLPH as good, 63% were dissatisfied with physical health, and 51% reported poor psychological well-being. Environmental quality was rated fair or poor by 55%. Weak correlations were found between socio-demographic factors and QoLPH or SMU/SMN patterns.

Conclusions: Despite frequent use of popular social platforms, older adults in Nepal report low SMNs and dissatisfaction in key health domains. Addressing physical, psychological, and environmental deficits alongside digital literacy and tailored content may improve QoLPH outcomes. Findings suggest targeted interventions across generations.

Keywords: social media, quality of life, digital divide, generations, social sciences, public health policies

INTRODUCTION

The Department of Statistics Nepal revealed that the elderly population in Nepal is increasing [1, 2] and that older adults are increasingly engaging with social media (SM). It is crucial to improve their quality of life and public health (QoLPH) and overall well-being (WB) [3, 4]. Numerous studies have demonstrated that social media use (SMU) can influence QoLPH both positively and negatively, depending on usage patterns [5-7]. Older adults often face challenges such as aging, illness, retirement, and reduced social contact, which may lead them to use SMU to alleviate loneliness and maintain communication [3, 8].

To better understand the impact of SMU on QoLPH among senior citizens, this study focuses on generational differences in digital engagement. Although SMU is increasingly recognized as a tool for addressing societal needs and enhancing living standards, research focusing on its effects among older populations remains limited, as most studies emphasize youth [4, 9-11].

Therefore, aim and scope of this study are to examines patterns of SMU and their relationship with QoLPH among middle-aged and older adults, offering insights into bridging the digital generation gap and enhancing WB across age groups.

METHODS

This study employed a quantitative cross-sectional design to examine the relationship between SMU, social media needs (SMN), and QoLPH among middle-aged and older adults. The research was conducted in Ward No. 3, Maharajgunj, within Kathmandu Metropolitan City, Nepal. The inclusion criteria specified individuals aged 45 years and above who were capable of completing a self-administered questionnaire. The sample size was calculated using Cochran's formula for an unknown population, yielding a total of 1,000 participants. A purposive sampling method was used for data collection. To ensure accessibility and inclusivity, both Nepali and English versions of the questionnaire were administered.

The questionnaire consisted of three sections. The first section collected socio-demographic data, including age, sex, marital status, educational background, and sources of income. The second section measured participants' QoLPH using the World Health Organization quality of life-BREF (WHOQOL-BREF) instrument. This tool includes 26 items covering four domains: physical health (7 items), psychological WB (6 items), social relationships (3 items), and environmental conditions (8 items). The first two items assess general QoL and overall public health satisfaction on a 5-point Likert scale. Based on scoring guidelines, QoLPH outcomes were categorized as very good (76-100%), good (51-75%), medium/fair (26-50%), or poor (0-25%).

The third section assessed SM behavior using the validated social networking sites use and needs (SNSUN) scale. This section included 27 items: eight measuring SMU frequency, nine on general needs, and ten items divided among five need domains—diversion, cognitive, affective, personal integrative, and social integrative. Items were rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Questions 4, 6, and 8 were open-ended and asked in a numeric format. SMU and SMN scores were categorized as low ($\leq 50\%$) and high ($> 51\%$).

The SNSUN scale demonstrated strong internal consistency with a Cronbach's alpha of 0.92. The WHOQOL-BREF instrument also showed high reliability across domains, with alpha values of 0.71 for physical health, 0.77 for psychological WB, 0.80 for social relationships, and 0.89 for environmental conditions. Statistical analyses were performed using SPSS v. 29. Descriptive statistics, such as frequencies and percentages, were used to describe the sample. Inferential statistics, including regression analysis, were employed to explore associations between SMU, SMN, and QoLPH. Ethical approval was obtained from the Nepal Health Research Council (ref. no. 3039, May 2022). All participants provided informed consent, and confidentiality and autonomy were maintained throughout the study.

Reliability and Validity

The SNSUN scale demonstrated high internal consistency, with a Cronbach's alpha of 0.92 across its five dimensions: diversion, cognitive, affective, personal integrative, and social integrative needs. These dimensions were evaluated to understand the underlying motivations and patterns of SMU among participants [14, 15].

The WHOQOL-BREF instrument showed strong reliability and discriminatory validity. Domain-specific Cronbach's alpha values were 0.71 for physical health, 0.77 for psychological WB,

0.80 for social relationships, and 0.89 for environmental quality, indicating good internal consistency [12, 13].

Data Analysis

Data were analyzed using IBM SPSS statistics (version 29.0.2). Descriptive statistics were applied to summarize participant characteristics and distribution patterns. Inferential statistical analyses, including regression models, were employed to explore relationships between SMU, SMN, and quality of life (QoL) variables.

Ethical Considerations

The study procedure was reviewed by the IRB or ethics committee of the Nepal Health Research Council (ref no. 3039, May 2022). Informed consent ensured voluntary participation, confidentiality, and respect for autonomy. All participants provided informed consent prior to data collection. The study ensured participant confidentiality, voluntary participation, and full respect for autonomy in compliance with ethical research standards.

RESULTS

This study demonstrated reliability and validity, and conducted data analysis using descriptive and inferential statistics, such as regression, to examine SMN and SMU, as well as QoL, to achieve the study's objectives.

Table 1 shows that 78.1% of participants were aged 45-64, and 58.2% were female. Most were married (92.6%) and had secondary education (33.6%). The primary source of income was work (33.6%).

Table 1. Sociodemographic characteristics of the study participants

Variables	Frequency (n)	Percentage (%)
Age		
45-64	781	78.1
> 65 (older adulthood)	219	21.9
Sex		
Male	417	41.7
Female	582	58.2
Marital status		
Single	2	0.2
Married	926	92.6
Divorced	7	0.7
Widowed	62	6.2
Educational status		
Informal education	85	8.5
Primary	161	16.1
Secondary	336	33.6
Higher secondary	156	15.6
Graduation and above	262	26.1
Income source		
Work	519	33.6
Business/investment	298	29.8
Foreign employment	53	5.3
Agriculture	35	5.3
Others	93	9.3

Based on **Figure 1**, the results demonstrate that the majority of participants use mobile devices for SM.

The results in **Table 2** indicate that 60% of participants use Facebook daily, while 76.5% use YouTube daily. In contrast, Instagram and Twitter see much lower daily usage, with most

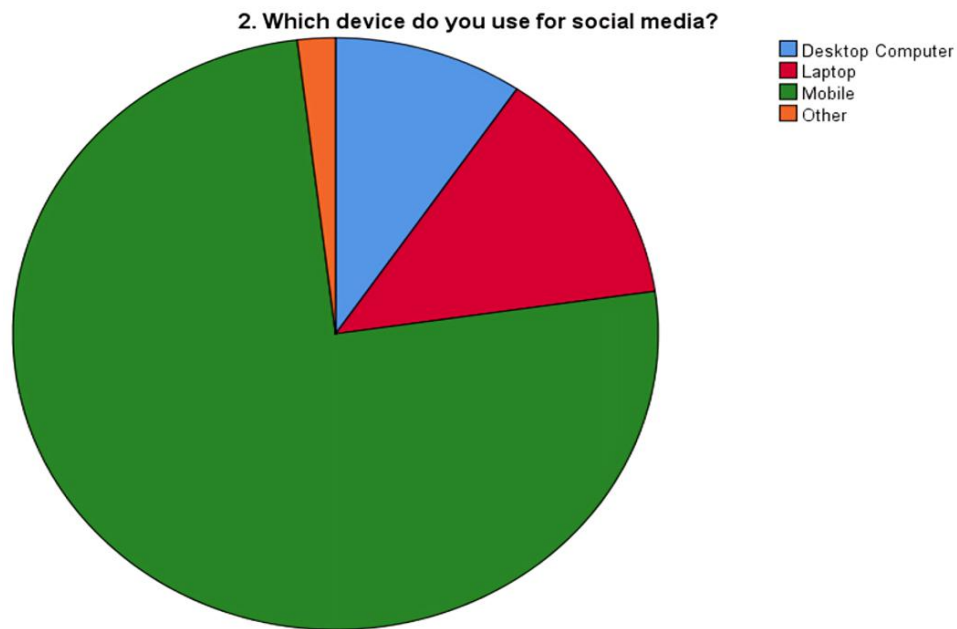


Figure 1. The device you use for SM (Source: Authors' own elaboration)

Table 2. Illustration of social networking sites used by participants

	Never	R	O	3-5	Everyday
Facebook	51	84	89	176	600
Twitter	491	127	120	155	107
Instagram	885	26	25	39	25
YouTube	29	47	53	106	765
WhatsApp	490	127	121	155	107
Google+	49	246	645	28	32
Others	25	65	99	63	748

Note. R: Rarely (a few times in a year); O: Occasionally (a few times in a month); & 3-5: 3 to 5 times a week

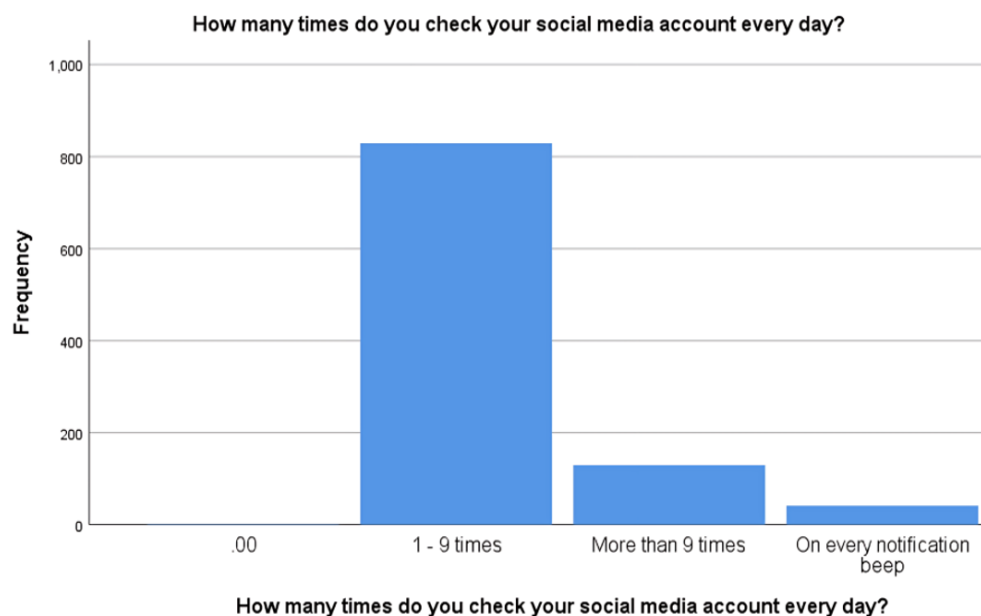


Figure 2. Participants indicated varying frequencies of notification checks (Source: Authors' own elaboration, using SPSS v29)

participants never using Instagram (88.5%) and Twitter (49.1%).

Figure 2 shows the participants indicated varying frequencies of notification checks: 75.4% reported doing so 1-9 times, 11.7% more than 9 times, and 3.7% checked on every notification beep.

Table 3 shows that the majority of participants reported low levels of SMN and SMU, with more than 50% scoring low across all domains: 68.2% for diversion, 71.0% for cognitive needs, 62.9% for affective needs, 60.9% for personal integrative needs, and 62.1% for social integrative needs. High levels of need were considerably lower, with no domain

Table 3. SMU and SMN

SMU/SMN	Frequency (n)	Percentage (%)
Diversions (escapism and tension release)		
Low	682	68.2
High	318	31.8
Cognitive needs (acquire information & knowledge)		
Low	710	71.0
High	290	29.0
Affective needs (emotions, pleasure, & feelings)		
Low	629	62.9
High	371	37.1
Personal integrative (enhance credibility & status)		
Low	609	60.9
High	391	39.1
Social integrative needs (interaction with friends/family) (n = 994)		
Low	617	62.1
High	377	37.9

Table 4. Participant perspectives on QoL variations

QoLPH	Frequency (n)	Percentage (%)
Overall QoLPH		
Very good	43	4.3
Good	551	55.1
Neither poor nor good	93	9.3
Poor	198	19.8
Very poor	115	11.5
General health quality		
Very satisfied	31	3.1
Satisfied	584	58.4
Neither satisfied/dissatisfied	89	8.9
Dissatisfied	229	22.9
Very dissatisfied	67	6.7
Physical health quality		
Very good (76-100)	131	13
Good (51-75)	239	24
Medium/fair (26-50)	297	30
Poor (0-25)	333	33
Psychological health quality		
Very good (76-100)	214	21
Good (51-75)	275	28
Medium/fair (26-50)	151	15
Poor (0-25)	360	36
Environment quality		
Very good (76-100)	232	23
Good (51-75)	217	22
Medium/fair (26-50)	232	23
Poor (0-25)	319	32

exceeding 40%, suggesting that most participants engage with SM only minimally for these specific purposes.

Table 4 indicates a generally positive perception of the overall QoL, with 64.4% of participants rating it as very good or good. However, this contrasts with notable dissatisfaction in health-related domains: 63% rated their physical health and 51% their psychological health as fair or poor. Additionally, 55% of participants assessed their environmental quality as fair or poor, highlighting significant room for improvement in this area.

Table 5 presents the results of the regression analysis, showing that age had a small positive correlation with physical health ($r = 0.064$) and environmental health ($r = 0.052$). Gender demonstrated a modest positive correlation with environmental health ($r = 0.075$), while income source showed a slight positive correlation with physical health ($r = 0.032$).

Table 5. Correlation of sociodemographic factors with QoLPH

Variables	Physical health	Psychological health	Environmental health
Age	.064	.041	.052
Gender	.059	.020	.075
Marital status	-.033	.009	.036
Qualification level	-.009	-.013	-.075
Income source	.032	-.014	.010

Note. $p < 0.05$

DISCUSSION

The findings of this study offer valuable insights into the relationship between SMU, SMN, and QoLPH among middle-aged and older adults in Nepal. Using validated tools and robust statistical methods, this research contributes to the growing body of evidence exploring digital engagement in aging populations. It provides context-specific data relevant to South Asia. The results on SMU, and SMN show that most participants primarily accessed SM through mobile devices, with Facebook (60%) and YouTube (76.5%) being the most frequently used platforms. This pattern aligns with global studies, including those in [13, 16, 17], which identified Facebook and YouTube as the dominant platforms among older adults. In contrast, Instagram and Twitter were significantly underutilized, with 88.5% and 49.1% of participants, respectively, reporting no use.

These differences may stem from age-related preferences, perceived relevance, and usability concerns associated with specific platforms [3, 17, 18]. Participants also demonstrated consistently low SMN across all dimensions: diversion (68.2%), cognitive (71.0%), affective (62.9%), personal integrative (60.9%), and social integrative (62.1%). These findings are consistent with prior research indicating that older adults often engage with SM for specific, limited purposes rather than broad social interaction or entertainment [8, 13, 19]. The pattern observed suggests a selective and goal-oriented use of SM, as previously noted in studies of aging populations [4, 5]. The perceived overall QoLPH was relatively positive, with 64.4% of participants rating it as very good or good. However, there was notable dissatisfaction in the domains of physical health (63% rated it as fair or poor) and psychological health (51% rated it as fair or poor). This divergence highlights the complexity of aging: while older adults may express general satisfaction with life, underlying health challenges often diminish specific aspects of WB. This observation is consistent with prior literature suggesting that subjective WB may not fully capture latent public health issues [6, 20, 21].

The environmental quality shows the results from 55% of participants rated environmental quality as fair or poor, suggesting that many older adults perceive deficiencies in their immediate surroundings. These results align with research from both urban and rural settings in China, where environmental conditions significantly influenced older adults' QoLPH [22, 23].

This highlights the need for improved infrastructure, safer neighborhoods, and more age-friendly community services. Regression analysis findings revealed minimal but noteworthy correlations between socio-demographic factors and both SMU and QoLPH outcomes. Age showed small positive correlations with physical health ($r = 0.064$) and environmental health ($r = 0.052$), possibly reflecting the stability and

adaptation found in older cohorts with established routines and social support [22]. Gender also exhibited a slight positive correlation with environmental health ($r = 0.075$), echoing previous findings that suggest gender differences in health-related perceptions [22]. Marital status displayed a positive correlation with diversion ($r = 0.041$) and a negative correlation with personal integrative needs ($r = -0.070$), implying that married individuals may use SM more for social interaction than for enhancing status or self-promotion [23, 24].

These findings are supported by prior research demonstrating that relationship status influences both the frequency and motivation behind SMU [25, 26]. Research on climate change and extreme weather events with dust transport reveals that airborne particulate matter can exacerbate chronic inflammatory conditions and modulate immune responses [27, 28], potentially contributing to hematologic malignancies like adverse effects on QoLPH via indirect pathways [29]. AI-driven assessments of occupational hazards highlight the complex burden faced by at-risk professionals, emphasizing the need to investigate social life as a direct risk factor on public health, especially students and the healthcare workforce [30]. The sensitive population at educational institutions is part of a complex exposure correlated with the link between emotional intelligence, education level, and QoL [30, 31]. The study investigates the relationship between SMU, SMN, QoL, and public health in middle-aged and elderly people, emphasizing the importance of focused interventions. The relationship between health education and digital distractions in the classroom among students, together with the ethical considerations of employing technology for medical education, plays an important role [32].

The QoL is also reflected in organizational behavior in the healthcare setting, particularly in psychiatric services, and hospital integration public health sector [30, 33]. In the age of medical technology, mobile learning has been incorporated into educational settings and training needs [34, 35]. A significant correlation with new technological innovations such as Artificial Intelligence on powered robotic technology for improving palliative care are vital for public health and catastrophe medicine on climate justice, and adaptation policies [36, 37]. QoLPH has a negative influence on adults, affecting job satisfaction, burnout, stress, and the likelihood of workplace risks [38-40]. While policy innovation is ongoing, there is limited comparative evidence on which interventions consistently deliver impact and also the distribution and contamination from pulutan like microplastics [41, 42]. Using new technological advancements to predict and minimize the hazards with a novel AI-based modeling with bias, a significant field is about to address climate change and adaptation behavior to combat the negative effects correlated with classifying and mitigating occupational risks for public health [43, 44].

Future Research and Suggestions

SM platforms have the potential to play a significant role in promoting health and wellness among middle-aged and older adults. By developing tailored content, integrating digital health programs, and addressing environmental challenges, these platforms can help improve user engagement and overall QoL. Such initiatives include virtual exercise classes, mental health resources, and online community support groups. Additionally, educational campaigns can empower older

adults to use SM safely and effectively, thereby enhancing their digital participation and access to beneficial content. Policy interventions that promote inclusivity and protect against ageism are also essential for creating a more supportive and equitable online environment for older users.

Limitations of the Study

This study has several limitations that should be acknowledged. First, the sample was predominantly composed of middle-aged and older adults, which may limit generalizability to younger populations. Second, the study relied on self-reported data, which may introduce response bias. Third, the cross-sectional design precludes any inference of causality between SMU and QoL. Additionally, the study did not investigate platform-specific features that may influence user satisfaction or engagement. Future research should consider longitudinal designs to explore causal relationships and include comparative analyses across different SM platforms. Cross-cultural studies are also recommended to broaden the understanding of digital behavior and its effects on QoL in diverse sociocultural contexts.

CONCLUSION

This study examined the relationship between SMU, SMN, and QoLPH among middle-aged and older adults. Although engagement with platforms such as Facebook and YouTube was high, overall SMN within this demographic remained relatively low. Despite a generally positive perception of QoLPH, participants reported notable challenges in physical and psychological health as well as environmental quality. The complexity of these associations, particularly in relation to age, gender, and marital status, underscores the need for targeted interventions. These may include age-sensitive SM content, health and wellness programs, environmental improvements, and digital literacy campaigns aimed at enhancing WB among older adults. Future research should incorporate more diverse populations, utilize objective assessment tools, and employ longitudinal designs to explore further how SM engagement can support QoLPH in aging communities.

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AI statement: The authors stated that no generative AI or AI-assisted technologies were used.

Declaration of interest: No conflict of interest is declared by the authors.

Data sharing statement: Data supporting the findings and conclusions are available upon request from the corresponding author.

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