

**A Cross-Sectional Study of Social Media, Social Relationships, and
Psychological Distress: Exploring Factors Influencing Psychological Well-
Being Among Younger and Older Adults in Singapore**

A0254997E

An Honours Thesis submitted in partial
fulfilment of the requirements for the degree of
Bachelor of Science (Nursing) (Honours)

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AY 2024/2025

4858 WORDS

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Declarations



Alice Lee Centre for Nursing Studies
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Student Matriculation Number: A0254997E

Academic Year: 2025 Semester: 1 / 2

Course Code/Name: NUR4104B/ Honours Project in Nursing

Thesis Title: A Cross-Sectional Study on Social Media, Social Relationships, and Psychological Distress: Exploring Factors Influencing Psychological Well-Being Among Younger and Older Adults in Singapore

Submission Date: 25 February 25 Course Lead: A/Prof Shefaly Shorey

Declaration

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25 February 25

Acknowledgements

I would like to express my sincere appreciation to my advisor, Dr. Jiang Ying, and my research assistant, Leong Qian Ning, for their unwavering support and invaluable guidance throughout this research. My gratitude also extends to the research experts, A/Prof Luo Nan and Ms. Audrey Lee Jia Jia, for their insightful advice and expertise in the analysis process.

Dedications

This thesis is dedicated to my family, whose unwavering support, love, and encouragement have been my greatest source of strength. To my parents, for their endless sacrifices and belief in my dream. To my siblings, for their companionship and motivation.

To my professors and friends, who have guided, inspired, and uplifted me throughout this journey. Your wisdom and encouragement have shaped my path in more way that I can express.

List of Abbreviations

Abbreviations	Definitions
CIT	Comprehensive Inventory of Thriving
IMH	Institute of Mental Health
IPS	Institute of Policy Studies
LKY	Lee Kuan Yew
PWB	Psychological Well-Being
SMU	Social Media Use

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Abstract

Aims: This study explores the patterns of social media use, social relationships, stress, depression and anxiety among younger and older adults in Singapore, and the factors influencing psychological well-being.

Background: Social media has been associated with social relationships, psychological distress, and psychological well-being. However, research examining the combined effects of social media use, social relationships, stress, depression and anxiety on psychological well-being remains scarce in Singapore.

Design: This secondary data analysis used a cross-sectional survey from the third wave of the Institute of Policy Studies Social Lab.

Methods: A total of 1,270 adults, comprising 857 younger adults and 413 older adults, were included from Singapore residential addresses from May 13th, 2024, to July 30th, 2024, using stratified random sampling. Data were collected using a self-administered survey through face-to-face interviews. Sub-analyses of younger and older adults were conducted using descriptive statistics, independent *t*-tests, and univariate and multivariate linear regression.

Results: Younger and older adults used messaging platforms, particularly WhatsApp, for social connections. Bullying and stress were reported in younger adults. Both age groups reported strong social relationships. No significant associations were found between patterns of social media use and psychological well-being. For younger adults, significant factors that influenced psychological well-being included bullying, particularly exclusion and online harassment, student status, family support, close friendships, depression and anxiety, and spiritual practice. For older adults, key factors influenced psychological well-being were family support, access to advice, depression and anxiety, and spiritual practice.

Conclusion: Social media and social relationships were prevalent among younger and older adults to maintain social connections. Depression and anxiety, and spiritual practice were key factors influencing psychological well-being across both age groups, highlighting the importance of mental health resources and spiritual activities by policymakers to improve psychological well-being.

Keywords: Social media, social relationships, stress, depression, anxiety, psychological well-being, adults

Introduction

Social media has become an integral part of communication and interaction in Singapore. In 2024, approximately 5.13 million Singaporeans, primarily aged 18 and above, spent an average of 2 hours and 14 minutes daily on social media platforms (We Are Social, 2024). Butler and Matook (2015) define social media as a set of technologies and applications designed to facilitate communication and content sharing within virtual communities and networks. Platforms such as WhatsApp, Facebook, and Instagram have become ubiquitous in daily life in Singapore, reshaping social connections beyond geographical boundaries (We Are Social, 2024).

We Are Social (2024) reported that many Singaporean users rely on social media to stay connected with family and friends. According to Han et al. (2021), 16 Singaporean older adults aged 60 to 80 who spent mainly one hour daily on social media reported good social relationships and emotional well-being. While social media use (SMU) enhances opportunities for social connections, excessive SMU has been linked to increased psychological distress and unmeaningful social relationships (Lambert et al., 2022; Wang et al., 2024). Findings from the Institute of Mental Health (IMH) revealed that 2,600 Singaporean youths aged 15 to 29 who spent more than three hours daily on social media exhibited higher rates of severe depression, anxiety, and stress. Additionally, about 21.0% of these youths experienced cyberbullying, including threats, harassment, and aggressive messages online (IMH, 2024). These findings highlight the benefits and risks of SMU on psychological health and social relationships across age groups.

Psychological distress, including stress, depression, and anxiety, along with social relationships, are key components of psychological well-being (PWB), which encompasses positive emotions and optimal functioning (Ruggeri et al., 2020). Studies have shown mixed findings on how SMU influences PWB, psychological distress, and social relationships (Nikolinakou et al., 2023; Brailovskaia et al., 2023; Bhatiasevi, 2024). While excessive SMU is often associated with lower PWB, greater psychological distress, and unmeaningful social relationships, Nikolinakou et al. (2023) found that some users with higher PWB engage in excessive SMU to strengthen social relationships and alleviate distress. Additionally, research highlighted that PWB mediated the relationship between SMU, psychological distress, and social relationships, while controlling for demographic factors such as age and gender (Brailovskaia et al., 2023; Bhatiasevi, 2024). Thus, the effects of SMU, psychological distress, and social relationships on PWB vary depending on the purpose and context of SMU.

Literature Review

Patterns of SMU and psychological distress, including stress, depression, and anxiety, have been widely explored in relation to well-being. For example, a longitudinal study involving 189 participants from Italy aged 19 to 70 found a significant increase in excessive SMU and a decrease in well-being. Additionally, stress was negatively associated with well-being after 15 months of the COVID-19 outbreak (Brailovskaia, 2023). Another longitudinal study involving 201 adults from the United Kingdom (U.K.) aged 18 and older highlighted improvements in well-being, and the absence of depression and anxiety after a one-week break from Facebook, Instagram, Twitter, and TikTok (Lambert et al., 2022).

Findings from these studies present varying outcomes on well-being. The direction of these associations is complex and not mutually exclusive, as the impact of SMU patterns and psychological distress on well-being may differ across age groups, platforms, and timelines. Romero (2025) found that younger generations in Singapore are more likely to use social media than older generations. Therefore, findings from these studies should not be generalised across the entire sample population but rather be considered within age groups. Additionally, a cross-sectional study involving 234 younger and older adults from China, aged 18 to 25 and 50 to 82 respectively, revealed that the difference in loneliness with longer Facebook usage was significantly lower in older adults than younger adults, suggesting that older adults are more likely to engage with platforms like Facebook (Wang et al., 2024). The study timeline also plays a role, as the longitudinal study by Brailovskaia (2023) was conducted during the post-pandemic period, which may have influenced well-being outcomes. These differences underscore the need for updated and more nuanced research that accounts for age and various platforms in understanding the effects of SMU, stress, depression and anxiety on PWB.

Social relationships have also been shown to be associated with SMU. For instance, a cross-sectional study involving 493 youths from Jordan examined the role of trust in social media, revealing a positive relationship between social media engagement and social relationships (Hatamleh et al., 2023). Similarly, a cross-sectional study involving 1,176 adults and older adults from Thailand, aged 45 to 64 and 65 and above respectively, found a positive relationship between SMU, social relationships, and PWB (Bhatiasevi, 2024). In contrast, a cross-sectional study involving 1,787 adults from the United States (U.S.) aged 19 to 32 years found a positive association between higher SMU and greater perceived social isolation (Primack et al., 2017).

These studies present different outcomes and lack in-depth exploration into other variables influencing social relationships and PWB. While Hatamleh et al. (2023) examined the link between social media and social relationships, their study focused solely on the role of trust, limiting broader insights into additional social relationship factors. Meanwhile, the direction of association from Primack et al. (2017) is difficult to interpret, as socially isolated individuals may engage more in SMU, potentially strengthening social relationships rather than SMU causing social isolation. Among these studies, only Bhatiasavi (2024) examined PWB outcomes in relation to SMU and social relationships. These differing findings underscore the need for further research to examine SMU patterns and social relationships on PWB.

Research examining the combined effects of SMU, social relationships, and psychological distress on PWB remains scarce. To date, no research has examined the effects of these factors on PWB among younger and older adults in Singapore. To address these gaps, our study will explore patterns of SMU, social relationships, stress, depression and anxiety among younger and older adults in Singapore, as well as the factors influencing PWB.

Methods

3.1 Study Design

This study employed a secondary data analysis of a cross-sectional survey from the third wave undertaken by the Institute of Policy Studies (IPS) Social Lab, Lee Kuan Yew (LKY) School of Public Policy. The dataset focused on understanding PWB using the Comprehensive Inventory of Thriving (CIT) instrument among youth and the general population in Singapore.

3.2 Participants

Participants recruited were generated by the Singapore Department of Statistics (DOS) from 8,000 Singapore residential addresses using the stratified random sampling method to achieve a final sample of 2,000 individuals, comprising 1,000 youths, aged 15 to 34, and 1,000 adults, aged 35 and above. For this study, the research experts adopted Zhang and Jung's (2022) classification of active internet users to define age groups for subgroup analyses. Therefore, the inclusion criteria were Singapore citizens (SCs) or permanent residents (PRs) aged 18 to 34 and 60 years or older. These two age groups will be classified as younger and older adults respectively. Surveys were available in Singapore's four official

languages, therefore, the exclusion criteria were participants who could not read English, Chinese, Malay, or Tamil.

3.3 Data Collection

Data collection was conducted by the IPS Social Lab from May 13th, 2024, to July 30th, 2024. Selected households were mailed a survey prenotification letter at least one week before the household visit. All participants were informed of the study by trained interviewers from the IPS Social Lab unless they were contacted by the participant to be excluded from visitations. At each assigned address, interviewers made at least three visits to conclude whether the address was found to be invalid, unoccupied, or unresponsive, which were then replaced with a randomly selected unit within the same building.

3.4 Ethical Considerations

Ethical approval was obtained from the Institutional Review Board of the National University of Singapore (NUS-IRB Reference Code: NUS-IRB-2023-168) before the study commenced (see Appendix A). Voluntary informed consent was obtained from all participants through face-to-face interviews before they completed the self-administered survey, which took approximately 20 minutes. Each participant received S\$20 in cash as a token of appreciation. Approval for the use of secondary data was granted from the IPS Social Lab through research experts. Confidentiality was rigorously maintained, with all data anonymised by research experts using unique identification codes prior to data access (see Appendix B).

3.5 Measures

3.5.1 Social Media and Social Relationships

Social media and social relationships were measured using the Social Capital and Participation questionnaire. This 10-item questionnaire was developed by the research team, with two items adapted from the National Youth Survey (NYS), Youth and Their Enduring Bonds. It included five items on SMU and five items on social relationships.

For social media-related variables, the questionnaire assessed experienced of bullying, types of social media platforms used, frequency of SMU, primary purpose of SMU, and perceptions of others' lives on social media. However, experienced of bullying were not assessed for older adults. Items on bullying, platform types, and primary purpose were presented as multiple-choice questions. The frequency of SMU was measured using a 5-point

Likert scale, ranging from 1 (less than once a month) to 5 (everyday), which was later recategorised into daily, weekly, and monthly usage for descriptive analysis. Additionally, perceptions of others' lives on social media were assessed using a 4-point Likert scale, with response options including 1 (better than mine), 2 (worse than mine), 3 (neither better nor worse than mine), and 4 (I don't know).

Following the classification by Yoon et al. (2021), social media platforms were grouped into four types, including messaging (e.g., WhatsApp, WeChat, Telegram, and Discord), media sharing (e.g., YouTube, TikTok, Twitch, Xiaohongshu, and Snapchat), networking (e.g., Facebook and Instagram), and microblogging (e.g., X [formerly Twitter] and Weibo) for descriptive analysis. Additionally, the total number of platforms used and the average frequency of SMU were calculated for their significance in relation to PWB. The primary purpose of SMU was categorised into five broad groups, including social connection, information seeking, entertainment, self-expression, and interest exploration. Experienced of bullying will be summarised as exclusion, online harassment, defamation, outing, cyberbullying, impersonation, cyberstalking, and other unpleasant interactions.

For social relationships-related variables, the questionnaire examined family relationships, family support, number of close friends, diversity of friends, and having someone to seek advice from. Family relationships and family support were measured using a 5-point Likert scale, ranging from 1 (very distant/unsupportive) to 5 (very close/supportive). The number of close friends was measured on a 6-point scale, ranging from 1 (none) to 6 (more than 4). Items on diversity of friends, including race, nationality, religion, income group, and educational background, and having someone to seek advice from were presented as open-ended yes/no questions.

3.5.2 Psychological Distress

3.5.2.1 Stress

The research team developed a single-item stress scale to assess the frequency of feeling stressed at work or school. Participants rated their stress level on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Scores above 3.0 indicate a higher stress level, while below 3.0 indicate a lower stress level.

3.5.2.2 Depression and Anxiety

Depression and anxiety were measured using the 4-item Patient Health Questionnaire (PHQ-4), a validated screening tool. It consists of a 2-item Patient Health Questionnaire

(PHQ-2) for depression and a 2-item Generalised Anxiety Disorder (GAD-2) for anxiety. Each item was rated on a 4-point Likert scale, ranging from 0 (not at all) to 3 (nearly everyday). The scores from all four items were summed. Total scores are interpreted as normal (0-2), mild (3-5), moderate (6-8), and severe (9-12), indicating the level of depression and anxiety (Kroenke et al., 2009). Based on previous research, findings from confirmatory factor analysis supported the PHQ-4's good data-model fit, strong internal consistency, and test-retest internal reliability, validating its use as a screening tool for depression and anxiety (Materu et al., 2020; Christodoulaki et al., 2022; Adzrago et al., 2024).

3.5.3 Psychological Well-Being

PWB was assessed using the Comprehensive Inventory of Thriving (CIT), a 54-item self-reported questionnaire measuring PWB across 18 subscales, each with three items rated on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). These subscales were grouped into seven key domains of PWB (Su et al., 2014). Based on previous research, findings from confirmatory factor analysis indicated that CIT has demonstrated acceptable data-model fit, adequate-to-strong internal reliability, and validated concurrent and predictive validity (Su et al., 2014; Wiese et al., 2018; Sorgente et al., 2021).

First, to calculate the total PWB score, items in the loneliness, lack of control, and negative emotions subscales were reverse-scored to ensure consistency with the positive subscales. Second, the three items within each subscale were averaged to obtain a subscale-level score. Third, subscale scores within each domain were averaged to determine the domain-level score. Finally, the seven domain scores were averaged to derive the total PWB score. The final score ranged from 1.0 to 5.0, with scores above 3.0 indicating greater PWB, while scores below 3.0 indicating lower PWB.

3.6 Statistical Analysis

All statistical analyses were performed using Jamovi software version 2.3.28.0. Descriptive statistics, such as frequency, percentage, mean (*M*), and standard deviation (*SD*), were used to summarise the variables. An independent samples *t*-test was conducted to identify differences in investigated variables between younger and older adults.

Subgroup analyses for younger and older adults were conducted using univariate and multivariate linear regression analysis to examine the associations between PWB and various predictors related to social media, social relationships, psychological distress, and demographics. Before conducting these analyses, categorical variables, such as gender,

ethnicity, and income level, were recoded into dummy variables for regression. Cases with missing data were excluded. Significant variables with $p < .05$ in the univariate analysis were considered potential predictors for inclusion in the multivariate regression model, which was conducted using a backward elimination method. Statistical significance was set at $p < .05$.

A-priori power analysis was calculated using G*Power version 3.1.9.7. The univariate linear regression analysis included an estimated 76 predictors. Following Cohen (1992), a power analysis was conducted to determine the required sample size. With a medium effect size ($f^2 = 0.15$), a significance level of $\alpha = 0.05$, and a desired power of 80%, a sample size of 293 participants was required. Thus, the sample size is sufficient to conduct the secondary sub-analyses in this study.

Results

4.1 Demographic Characteristics

This study included 1,270 participants, comprising younger adults ($n = 857$) and older adults ($n = 413$) aged between 18 and 93 years. The mean age of younger adults was 26.9 years ($SD = 4.8$), while the mean age of older adults was 70.1 years ($SD = 7.7$).

Among younger adults, the majority were female ($n = 429$, 50.1%), of Chinese ethnicity ($n = 614$, 71.6%), SCs ($n = 769$, 89.7%), and born in Singapore ($n = 712$, 83.1%). Most were single ($n = 628$, 73.3%), had no children ($n = 711$, 83.0%), had one to two siblings ($n = 584$, 68.1%) and lived with family ($n = 827$, 96.5%). Less than half were Buddhists ($n = 233$, 27.2%) and sometimes spiritual ($n = 371$, 43.3%). Many were employed ($n = 529$, 61.7%) and reported an average financial status ($n = 660$, 77.0%). A smaller proportion were full-time students ($n = 202$, 23.6%) across secondary ($n = 2$, 0.8%), tertiary ($n = 102$, 40.3%), and advanced ($n = 149$, 58.9%) education levels. Less than half had attained advanced education ($n = 394$, 46.0%), lived in 4-room HDB flats ($n = 350$, 40.8%), and reported a monthly income between \$2,000 to \$5,999 ($n = 316$, 36.9%).

For older adults, the majority were female ($n = 215$, 52.1%), of Chinese ethnicity ($n = 337$, 81.6%), SCs ($n = 403$, 97.6%), and born in Singapore ($n = 346$, 83.8%). Most participants were married ($n = 284$, 68.8%), had 1 to 2 children ($n = 184$, 44.6%), had more than 2 siblings ($n = 338$, 81.8%), and lived with family ($n = 348$, 84.3%). Less than half were Buddhists ($n = 152$, 36.8%) and sometimes spiritual ($n = 151$, 36.6%). Many were retired ($n = 193$, 46.7%) and reported an average financial status ($n = 284$, 68.8%). A few were part-time students ($n = 2$, 0.5%) enrolled in tertiary education ($n = 2$, 100%). The majority had attained primary or secondary education ($n = 313$, 75.8%). Less than half lived in larger

residences ($n = 139$, 33.7%) and reported a monthly income of less than \$2,000 ($n = 158$, 38.3%). A detailed summary of participants' demographic characteristics is presented in Table 1.

Table 1

Participants' Demographic Characteristics ($N = 1,270$)

Variables	Total (<i>N</i> = 1,270)	Younger Adults (Aged 18-34) (<i>n</i> = 857)	Older Adults (Aged ≥60) (<i>n</i> = 413)
Demographic Characteristics			
Age, <i>M</i> (<i>SD</i>)		26.9 (4.8)	70.1 (7.7)
Gender, <i>n</i> (%)			
Male	626 (49.3)	428 (49.9)	198 (47.9)
Female	644 (50.7)	429 (50.1)	215 (52.1)
Ethnicity, <i>n</i> (%)			
Chinese	951 (74.9)	614 (71.6)	337 (81.6)
Malay	188 (14.8)	143 (16.7)	45 (10.9)
Indian	111 (8.7)	85 (9.9)	26 (6.3)
Others (Myanmar/ Nepalese/ Caucasian/ Filipino/ Eurasian/ Japanese/ Arab)	20 (1.6)	15 (1.8)	5 (1.2)
Citizenship, <i>n</i> (%)			
Singapore Citizen	1,172 (92.3)	769 (89.7)	403 (97.6)
Singapore Permanent Resident	98 (7.7)	88 (10.3)	10 (2.4)
Place of Birth, <i>n</i> (%)			
Singapore	1,058 (83.3)	712 (83.1)	346 (83.8)
Others	209 (16.5)	144 (16.8)	65 (15.7)
Religion, <i>n</i> (%)	1,015 (79.9)	657 (76.7)	358 (86.7)
No Religion	255 (20.1)	200 (23.3)	55 (13.3)
Buddhism	385 (30.3)	233 (27.2)	152 (36.8)
Islam	225 (17.7)	175 (20.4)	50 (12.1)
Christianity	232 (18.3)	140 (16.3)	92 (22.3)
Hinduism	65 (5.1)	49 (5.7)	16 (3.9)
Taoism	106 (8.3)	59 (6.9)	47 (11.4)
Sikhism	2 (0.2)	1 (0.1)	1 (0.2)
Spiritual Practice, <i>n</i> (%)			
Never	207 (16.3)	136 (15.9)	71 (17.2)
Sometimes	522 (41.1)	371 (43.3)	151 (36.6)
Often	286 (22.5)	150 (17.5)	136 (32.9)
Marital Status, <i>n</i> (%)			
Single	664 (52.3)	628 (73.3)	36 (8.7)
Married	505 (39.8)	221 (25.8)	284 (68.8)
Divorced/ Widowed/ Separated	100 (7.9)	8 (0.9)	92 (22.3)
Siblings, <i>n</i> (%)			
0	123 (9.7)	107 (12.5)	16 (3.9)
1-2	643 (50.6)	584 (68.1)	59 (14.3)
>2	504 (39.7)	166 (19.4)	338 (81.8)
Children, <i>n</i> (%)			
0	776 (61.1)	711 (83.0)	65 (15.7)
1-2	299 (23.5)	115 (13.4)	184 (44.6)
>2	195 (15.4)	31 (3.6)	164 (39.7)
Living Arrangement^a, <i>n</i> (%)			
Living with Family	1,175 (92.5)	827 (96.5)	348 (84.3)
Living with Non-Family	168 (13.2)	127 (14.8)	41 (9.9)
Living Alone	57 (4.5)	5 (0.6)	52 (12.6)

Employment Status, n (%)			
Unemployed	106 (8.3)	70 (8.2)	36 (8.7)
Working	659 (51.9)	529 (61.7)	130 (31.5)
Full-time student	202 (15.9)	202 (23.6)	0 (0.0)
Serving National Service (NS)	41 (3.2)	41 (4.8)	0 (0.0)
Housewife	67 (5.3)	13 (1.5)	54 (13.1)
Retired	193 (15.2)	0 (0.0)	193 (46.7)
Others (Awaiting university appeal results/ Part-time working and studying)	2 (0.2)	2 (0.2)	0 (0.0)
Student, n (%)			
Part-Time Student	53 (4.2)	51 (6.0)	2 (0.5)
Full-Time Student	202 (15.9)	202 (23.6)	0 (0.0)
School^b, n (%)			
Secondary	2 (0.8)	2 (0.8)	0 (0.0)
Tertiary	104 (40.8)	102 (40.3)	2 (100.0)
Advanced	149 (58.4)	149 (58.9)	0 (0.0)
Highest Educational Level, n (%)			
Primary/ Secondary Education	442 (34.8)	129 (15.1)	313 (75.8)
Tertiary Education	381 (30.0)	334 (39.0)	47 (11.4)
Advanced Education	447 (35.2)	394 (46.0)	53 (12.8)
Living Condition, n (%)			
HDB 1-3 Room	371 (29.2)	235 (27.4)	136 (32.9)
HDB 4 Room	488 (38.4)	350 (40.8)	138 (33.4)
Larger Residences	411 (32.4)	272 (31.7)	139 (33.7)
Monthly Income (SGD), n (%)			
<\$2,000	238 (18.7)	80 (9.3)	158 (38.3)
\$2,000 - \$5,999	416 (32.8)	316 (36.9)	100 (24.2)
≥\$6,000	344 (27.1)	292 (34.1)	52 (12.6)
Financial Status, n (%)			
Below Average	219 (17.2)	117 (13.7)	102 (24.7)
Average	944 (74.3)	660 (77.0)	284 (68.8)
Above Average	104 (8.2)	78 (9.1)	26 (6.3)

Note. ^aValues may not total 100% as multiple selections were allowed. ^bPercentage is based on respondents who are full-time or part-time students. Values may also not total 100% due to rounding or missing data.

4.2 Social Media, Social Relationships, and Psychological Distress

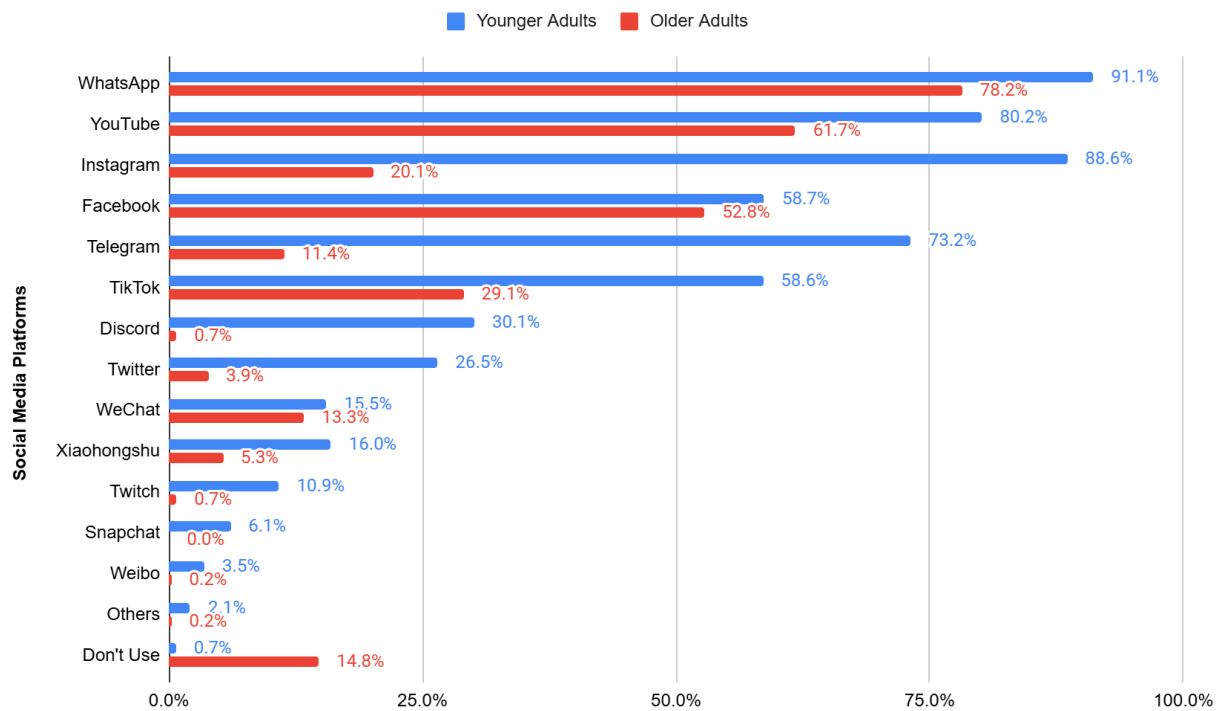


Figure 1

Social Media Platforms Used Among Younger ($n = 857$) and Older Adults ($n = 413$)

Note. Values across younger and older adults may not total 100% as multiple selections were allowed.

Figure 1 shows the percentage of social media platforms used among younger and older adults. Among younger adults, more than half reported having used WhatsApp ($n = 781$, 91.1%), Instagram ($n = 759$, 88.6%), YouTube ($n = 687$, 80.2%), Telegram ($n = 627$, 73.2%), Facebook ($n = 503$, 58.7%), and TikTok ($n = 502$, 58.6%). In comparison, older adults predominantly used WhatsApp ($n = 323$, 78.2%), YouTube ($n = 255$, 61.7%), and Facebook ($n = 218$, 52.8%). On average, younger adults used 5 platforms ($n = 5.6$, $SD = 2.1$) whereas older adults used 2 platforms ($n = 2.8$, $SD = 2.0$). Only 6 younger adults (0.7%) and 61 older adults (14.8%) reported not having used social media.

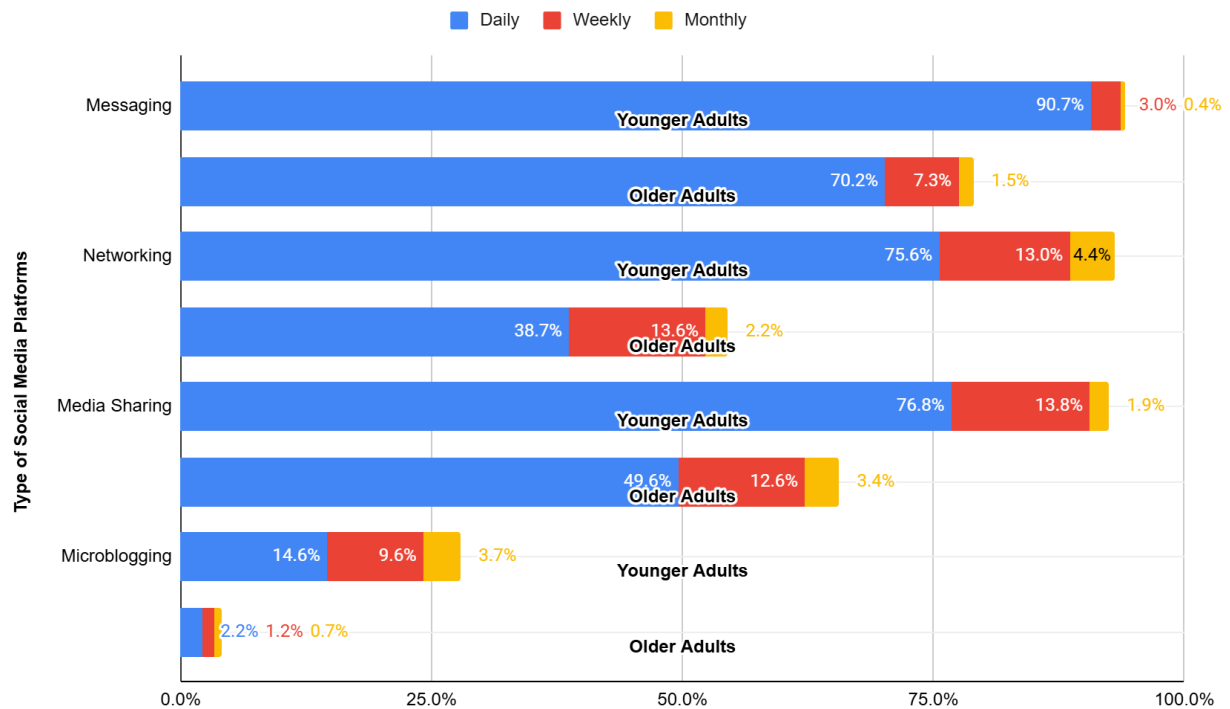


Figure 2

Frequency of Social Media Usage By Platform Type Among Younger and Older Adults

Note. Values may not total 100% as multiple selections were allowed.

Figure 2 illustrates the frequency of social media usage categorised by platform type. Messaging platforms ($n = 777$, 90.7%) were the most frequently used among younger adults, followed by media sharing ($n = 658$, 76.8%), networking ($n = 648$, 75.6%), and microblogging ($n = 125$, 14.6%). Older adults also reported having used messaging platforms ($n = 290$, 70.2%) most frequently, followed by media sharing ($n = 205$, 49.6%), networking ($n = 160$, 38.7%), and microblogging ($n = 9$, 2.2%). On average, younger ($n = 4.5$, $SD = 0.6$) and older adults ($n = 4.5$, $SD = 0.7$) spent more than once a week on social media.

Many younger adults reported using social media for social connections ($n = 725$, 84.6%), entertainment ($n = 684$, 79.8%), and information seeking ($n = 637$, 74.3%). Meanwhile, older adults reported using social media primarily for social connections ($n = 292$, 70.7%), information seeking ($n = 236$, 57.1%), and entertainment ($n = 233$, 56.4%). Finally, many younger ($n = 507$, 59.2%) and older adults ($n = 175$, 42.4%) reported perceiving others' lives on social media as neither better nor worse. Additionally, over a quarter of younger adults reported having been bullied ($n = 215$, 25.1%), with the most frequent experienced being online harassment ($n = 86$, 40.0%), defamation ($n = 84$, 39.1%), and exclusion ($n = 81$, 37.7%).

On average, younger adults reported having had close relationships ($M = 4.2$, $SD = 0.9$) and supportive families ($M = 4.2$, $SD = 0.9$), and two close friends ($M = 3.7$, $SD = 1.3$). Most of these friends were of different racial ($n = 480$, 56.0%), religious ($n = 628$, 73.3%), income ($n = 655$, 76.4%), and educational ($n = 576$, 67.2%) backgrounds, though the majority shared the same nationality ($n = 474$, 55.3%). Similarly, older adults reported having had close relationships ($M = 4.2$, $SD = 0.9$) and supportive families ($M = 4.2$, $SD = 0.9$), and two close friends ($M = 3.3$, $SD = 1.6$). Most of these friends came from different religious ($n = 220$, 53.3%), income ($n = 240$, 58.1%), and educational ($n = 244$, 59.1%) backgrounds, but the majority were of the same race ($n = 267$, 64.6%) and nationality ($n = 282$, 68.3%). Additionally, both younger ($n = 773$, 90.2%) and older adults ($n = 351$, 85.0%) had someone they could seek advice from.

On average, younger adults reported stress levels ($M = 3.4$, $SD = 0.9$) than older adults ($M = 2.5$, $SD = 1.0$). However, no depression or anxiety was reported in both younger ($M = 2.8$, $SD = 2.6$) and older adults ($M = 1.1$, $SD = 1.9$). Appendix C provides full details of social media, social relationships, and psychological distress characteristics among younger and older adults.

4.3 Factors Influencing Psychological Well-Being

Multivariate linear regression analysis among younger adults revealed that bullying, particularly exclusion ($\beta = -0.257$, $p < .001$) and online harassment ($\beta = -0.166$, $p = .025$), family support ($\beta = 0.083$, $p = .003$), having close friends ($\beta = 0.072$, $p < .001$), and depression and anxiety ($\beta = -0.056$, $p < .001$) were shown to be significant factors influencing PWB. Additionally, spiritual practice ($\beta = 0.105$, $p < .001$) and full-time students ($\beta = -0.116$, $p = .035$) were shown to be significant demographic variables influencing PWB. Social media platforms, frequency of SMU, purposes of SMU, family relationships, diverse friends, seek advice, stress, and other demographics and bullying factors, such as ethnicity, income, and defamation, did not have any significant association with PWB. The multivariate regression model explained 47.1% of the variance in PWB among younger adults (Adjusted $R^2 = .451$). Details of the significant variables of the multivariate linear regression analysis among younger adults are presented in Table 2.

Table 2

Multivariate Linear Regression on Significant Variables of Psychological Well-Being Among Younger Adults ($n = 857$)

Predictors	β	p	R^2	Adjusted R^2
Psychological Well-Being			47.1%	0.451
Bullying				
Exclusion	-0.257	< .001***		
Online Harassment	-0.166	.025*		
Family Support	0.083	.003**		
Close Friends	0.072	< .001***		
Depression and Anxiety	-0.056	< .001***		
Spiritual Practice	0.105	< .001***		
Student				
Part-Time Student	Ref			
Full-Time Student	-0.116	.035*		

Note: * $p < .05$; ** $p < .01$; *** $p < .001$.

For older adults, the multivariate linear regression analysis revealed that family support ($\beta = 0.127$, $p < .001$), having someone to seek advice from ($\beta = 0.112$, $p = .013$), and depression and anxiety ($\beta = -0.064$, $p < .001$) were shown to be significant factors influencing PWB. Additionally, spiritual practice ($\beta = 0.100$, $p < .001$) was shown to be a significant positive demographic variable influencing PWB. Similarly, social media platforms, frequency of SMU, purposes of SMU, family relationships, close and diverse friends, stress, and other demographics did not have any significant association with PWB. The multivariate regression model explained 36.3% of the variance in PWB among older adults (Adjusted $R^2 = .356$). Details of the significant variables on multivariate linear regression analysis among older adults are presented in Table 3.

Table 3

Multivariate Linear Regression on Significant Variables of Psychological Well-Being Among Older Adults ($n = 413$)

Predictors	β	p	R^2	Adjusted R^2
Psychological Well-Being			36.3%	0.356
Family Support	0.127	< .001***		
Seek Advice	0.122	.013		
Spiritual Practice	0.100	< .001***		
Depression and Anxiety	-0.064	< .001***		

Note: * $p < .05$; ** $p < .01$; *** $p < .001$.

Discussion

The study explored patterns of SMU, social relationships, and psychological distress, including stress, depression, and anxiety, among younger and older adults in Singapore. It

also examined associations between these factors and the demographic characteristics in relation to PWB.

Descriptive analyses revealed that younger adults engaged with more social media platforms daily than older adults, aligning with previous research (Romero, 2025; Yoon et al., 2021). Among all platforms, WhatsApp was the most widely used by participants, which is similar to Singapore's digital report in 2024 (We Are Social, 2024). Consistent with a Singapore study by Yoon et al. (2021), messaging platforms, including WhatsApp, WeChat, Telegram, and Discord, were frequently used across both age groups. This finding suggests that messaging platforms, particularly WhatsApp, may serve as a common medium for communication across generations in Singapore. Both younger and older adults primarily used social media for social connections, which is supported by studies highlighting the positive relationship between SMU and social connection (Bhatiasevi, 2024; Rochelle & Chan, 2024). Participants across age groups also reported close family relationships and support, an average of two close friends, and access to advice, suggesting the presence of social relationships, including social networks and support systems. Research emphasised that SMU facilitates social connections with family and friends, particularly when in-person interactions are challenging (Bhatiasevi, 2024; We Are Social, 2024). Given that younger adults were primarily working or studying, while older adults were mostly retired, work or academic commitments among younger adults and age-related limitations among older adults may have constrained their ability to meet in person. Consequently, these findings suggest that messaging platforms may play a crucial role in maintaining social relationships.

However, SMU was also associated with risks such as online harassment. In line with IMH (2024), over a quarter of younger adults reported experienced bullying, particularly online harassment, defamation, and exclusion. This suggests the potential vulnerability of SMU to cyberbullying incidents. Additionally, as expected, higher stress levels were reported among younger adults than older adults, likely due to academic or work-related pressures. Interestingly, no significant reports of depression and anxiety were found in either age group.

Regression analyses found no significant associations between patterns of SMU and PWB among younger and older adults except, experienced of exclusion and online harassment were significant negative predictors of PWB in younger adults. Additionally, being a full-time student was also associated with lower PWB in younger adults compared to part-time students. Full-time students may be more vulnerable to such experiences due to longer school hours and increased peer interactions, heightening exposure to exclusion and online harassment. However, given that the sample included only 53 part-time students,

further research is needed to better understand the relationship between student status and PWB.

On the other hand, social relationships played a key role in PWB. Among younger adults, family support and close friendships were positively associated with PWB, whereas for older adults, family support and having someone to seek advice from were positively associated with PWB. Research found that younger adults prioritised social relationships for mental health, while older adults focused more on health-related concerns for PWB (Sikstrom et al. 2022; Bhatiasevi, 2024). Given that younger adults in this study were more likely to socialise, especially at work or school, and older adults were more likely to stay at home and experience age-related changes, these findings suggest that younger adults may rely on social connectedness to enhance PWB, whereas older adults benefit from social support for overall quality of life.

Regression analyses indicated that depression and anxiety negatively impacted PWB in both age groups. Although no depression and anxiety were noted in younger and older adults, Brailovskaia et al. (2023) highlighted the detrimental effects of psychological distress on PWB. This suggests that even mild depression and anxiety may influence PWB, reinforcing the importance of mental health support across both age groups. However, in both younger and older adults, spiritual practices positively influenced PWB. Previous research suggests that spiritual practices help individuals navigate life's challenges by fostering meaning and purpose, thereby enhancing PWB (Villani et al., 2019; Graca and Brandao, 2024). Hence, integrating spiritual activities may serve as a protective factor against psychological distress and enhance overall PWB.

Strengths and Limitations

This study has several strengths. First, this is the first study to provide valuable comparisons of patterns of SMU, social relationships, stress, depression and anxiety between younger and older adults in Singapore, as well as factors influencing PWB. Second, this study offers a broader perspective of SMU by examining a variety of social media platforms and the frequency of use for each type of platforms than studies that focus on only a few. Lastly, while this study did not find significant associations between social media platforms, frequency of SMU, family relationships, and stress in relation to PWB, the findings still shed light on the key factors influencing PWB for both younger and older adults.

Despite these strengths, certain methodological limitations must be acknowledged. First, the sampling framework of the IPS Social Lab was originally designed to target 2,000

SCs and PRs, equally distributed between 1,000 individuals aged 15 to 34 and 1,000 individuals aged 35 and above. However, the final sample included 1,270 participants, with a higher proportion of younger adults. This imbalance may limit the generalisability of the findings, particularly for older adults. Second, the study used a cross-sectional design with univariate and multivariate linear regression analyses. While these methods identify associations, they do not establish causation. For instance, while spiritual practice was linked to higher PWB, it is also possible that individuals with higher PWB are more inclined to engage in spiritual practices. This bidirectional relationship makes causality difficult to determine. Third, the self-administered survey method may be subject to biases such as social desirability or recall errors. Participants may underreport sensitive experiences like depression and anxiety, and younger adults may hesitate to disclose certain experiences due to guardian consent requirements, while older adults may avoid revealing vulnerabilities.

Future Research

Future research should aim for more balanced age group distributions to improve the generalisability of findings across younger and older adults. Longitudinal designs could provide stronger evidence of causality between SMU, social relationships, and psychological distress. To reduce biases, anonymous surveys or interviews can be useful to encourage accurate self-reporting. Additionally, mixed-methods approaches could offer deeper insights into the experiences behind the data.

Conclusion

This study provided valuable comparative insights into exploring SMU, social relationships, and psychological distress and examined factors influencing PWB among younger and older adults. SMU, particularly messaging platforms, and social relationships were prevalent among both age groups to maintain social connections. However, bullying and stress were further noted among younger adults. No significant association of patterns of SMU were found with PWB. For younger adults, key factors influencing PWB included bullying, specifically exclusion and defamation, student status, family support, close friends, depression and anxiety, and spiritual practice. In contrast, for older adults, family support, access to advice, depression and anxiety, and spiritual practice were significant factors. As depression and anxiety, and spiritual practice were key factors influencing PWB across both age groups, findings highlight the protective role of frequent religious participation in mitigating depression and anxiety to promote positive PWB outcomes.

Implications

Policymakers could consider public health initiatives that enhance support services, such as mental health resources and spiritual activities, to improve PWB across both age groups. Additionally, organisational and educational institutions can leverage these insights to create supportive environments for younger adults, emphasising social inclusion and stress relief to enhance PWB in work and school settings.

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Appendix A

Ethical Approval

Ethical approval for this study was obtained from the Institutional Review Board of the National University of Singapore (NUS-IRB Reference Code: NUS-IRB-2023-168) prior to the commencement of the research.

Audrey Lee Jia Jia

From: do_not_reply@cayuse.com
Sent: Friday, July 14, 2023 5:25 PM
To: Luo Nan; Le Ann Chen; Audrey Lee Jia Jia
Cc: Funding Opportunities for Research; SSHSPH Vice Dean (Research); Mavis Lee En Qi; NUS-IRB
Subject: NUS-IRB-2023-168 - Initial: NUS Initial - S Exp

- External Email -

Office of the Deputy President (Research and Technology)
 Institutional Review Board



NUS-IRB Reference Code: NUS-IRB-2023-168

July 13, 2023

A/Prof Luo Nan
 Associate Professor
 Saw Swee Hock School Of Public Health
 National University of Singapore

Dear A/Prof Luo,

NUS INSTITUTIONAL REVIEW BOARD (NUS-IRB) APPROVAL

Protocol Title: Understanding psychological well-being: validation and application of the comprehensive inventory of thriving instrument in the youth and general populations in Singapore
Simplified Title: Psychological Well-Being Survey

Principal Investigator: A/Prof Luo Nan
Co-Investigator(s): Dr Shou Yiyun, A/Prof Subramaniam Mythily

Source of Funding: Ministry of Culture, Community and Youth

We refer to your application for ethics review.

We are pleased to inform you that the NUS Institutional Review Board (NUS-IRB) has approved the above-mentioned research to be carried out in accordance to the details provided in your IRB application.

The approval shall remain valid until its expiry on **July 31, 2028**, unless NUS-IRB has provided its written approval for an extension of the research, or unless the research is terminated earlier for any reason whatsoever.

The following documents have been reviewed and approved by the NUS-IRB: -

Documents

1. MCCY Online Baseline (English)
2. MCCY Online Follow-up (English)
3. MCCY Household (English)
4. MCCY Household AMT (English)
5. Survey Prenotification Letter (Household)
6. PIS Online - Self (Adult and Minor)
7. PISICF Household - Self (Adult)
8. PISICF Household - Self (Minor)
9. PIS Online - Parent Guardian
10. PISICF Household - Parent Guardian
11. List of Helplines
12. Household Acknowledgement Form
13. Investigators' Curricula Vitae

Please note that:

1. The NUS-IRB is organized and operated according to GCP guidelines, BAC guidelines and the applicable laws and regulations of Singapore.
2. Approval will be withdrawn if there is non-compliance by the Principal Investigator to the regulation on:
 - Reporting of serious adverse events (“SAEs”) on patients/participants in Singapore within the specific time frame;
 - Submission of the Renewal submission via iRIMS-IRB to the NUS-IRB within the specified time frame (if requested).
3. No deviation from, or changes of, the protocol should be initiated without prior written NUS-IRB approval of an appropriate amendment, except when necessary to eliminate immediate hazards to the subjects.
4. The Principal Investigator should promptly inform the NUS-IRB of:
 - Deviations from, or changes of, the protocol to eliminate immediate hazards to the trial participants;
 - Changes increasing the risk to participants and/or affecting significantly the conduct of the trial;
 - All adverse events that are both serious and unexpected;
 - New information that will affect adversely the safety of the participants or the conduct of the trial;
 - The completion of the research.

Any protocol non-compliance/deviation from the approved protocol or other events (expected or unexpected events which may have an impact on the conduct or results of the research study, including but not limited to complaints and accidents, which occurred during the study) must be reported within two (2) working days. The Principal Investigator shall provide the necessary details by completing the Incident submission via iRIMS-IRB.

5. The Principal Investigator should submit the Closure submission via iRIMS-IRB within 3 months after the completion of the research. The Renewal submission is to be submitted via iRIMS-IRB at least 8 weeks prior to the expiry of the approval period. Please note that failure to submit the Renewal submission for the research may result in the IRB's termination of its approval for your research.

6. The Principal Investigator is responsible to inform the NUS-IRB should he tender resignation from NUS and notify us of any changes to the study status, e.g. change in Principal Investigator or study termination. Otherwise, the IRB approval will lapse 3 months from the date of your official departure from NUS.

7. All applicable forms/reports can be completed and submitted via the online system (iRIMS-IRB).

Thank you.

Yours sincerely,

*Professor Lorenz Goette Co-Chair,
Institutional Review Board
National University of Singapore*

cc:

Organisational Approver (iRIMS-IRB), Saw Swee Hock School Of Public Health, NUS
Director, Research Policies and Administration, ODPRT, NUS

This is a system generated approval letter. No signature is required.

Block MD 11, #05-09, 10 Medical Drive, Singapore 117597

Tel: 65-6516 4311

Website: <http://www.nus.edu.sg/research/irb>

Company Registration No: 200604346E

Appendix B

Approval for Use of Secondary Data and Data Anonymisation

Approval for the use of secondary data was obtained from the Institute of Policy Studies (IPS) Social Lab through research experts. Data were anonymised by research experts prior to access.

Monday, February 17, 2025 at 10:46:05 Singapore Standard Time

Subject: MCCY household dataset and codebook
Date: Friday, 27 September 2024 at 6:33:51 AM Singapore Standard Time
From: Audrey Lee Jia Jia
To: Jiang Ying
CC: Luo Nan
Attachments: image001.png

Dear Dr Jiang,

Please note that the updated dataset and codebook have been saved in the MCCY shared folder in Dropbox.

Dataset: P.Well Being Data n=2005 Final_2024-09-27.dta
Codebook: MCCY Household Data Codebook_2024-09-27.xls

Please note that following the migration from nBox to Dropbox, all future files will be saved in Dropbox instead of nBox. Feel free to let me know if you have any questions.

Thank you.

Kind regards,

LEE Jia Jia, Audrey (Ms) 李家佳 :: Research Associate, PhD Student :: Saw Swee Hock School of Public Health
 :: National University of Singapore :: +65 9735 3862 (DID) :: lee.jia.jia@nus.edu.sg ; lee.jia.jia@u.nus.edu (E) ::
www.sph.nus.edu.sg (W) :: Company Registration No: 200604346E



Upcoming examination leave:
 30 Sep 2024 – 3 Oct 2024

Appendix C

Social Media, Social Relationships, and Psychological Distress Among Younger and Older Adults

This table presents the results for social media use, social relationships, and psychological distress, including stress, depression and anxiety of both younger and older adults.

Variables	Younger Adults (Aged 18-34)	Older Adults (Aged ≥60)	Independent Samples T-Test	
	(<i>n</i> = 857)	(<i>n</i> = 413)	Student's <i>t</i>	<i>p</i>
Social Media and Social Relationships				
Social Media Platforms^a, <i>n</i> (%)				
Facebook	503 (58.7)	218 (52.8)	1.99	.047*
Instagram	759 (88.6)	83 (20.1)	32.89	< .001***
Twitter	227 (26.5)	16 (3.9)	9.96	< .001***
YouTube	687 (80.2)	255 (61.7)	7.16	< .001***
TikTok	502 (58.6)	120 (29.1)	10.25	< .001***
Twitch	93 (10.9)	3 (0.7)	6.50	< .001***
Xiaohongshu	137 (16.0)	22 (5.3)	5.44	< .001***
Weibo	30 (3.5)	1 (0.2)	3.54	< .001***
Snapchat	52 (6.1)	0 (0.0)	5.16	< .001***
WhatsApp	781 (91.1)	323 (78.2)	6.50	< .001***
WeChat	133 (15.5)	55 (13.3)	1.04	.301
Telegram	627 (73.2)	47 (11.4)	25.35	< .001***
Discord	258 (30.1)	3 (0.7)	12.90	< .001***
Others	18 (2.1)	1 (0.2)	2.56	.011*
I Don't Use Social Media	6 (0.7)	61 (14.8)	-10.99	< .001***
Average Number of Platforms Used, <i>M</i> (<i>SD</i>)	5.6 (2.1)	2.8 (2.0)	23.15	< .001***
Frequency of Social Media Use, <i>M</i> (<i>SD</i>)				
Facebook	4.0 (1.4)	4.4 (1.0)	-4.17	< .001***
Instagram	4.6 (0.9)	4.2 (1.2)	4.26	< .001***
Twitter	4.0 (1.3)	3.9 (1.5)	0.39	.695
YouTube	4.6 (0.8)	4.5 (0.9)	1.16	.245
TikTok	4.5 (1.0)	4.3 (1.2)	1.96	.051
Twitch	3.5 (1.4)	2.0 (1.7)	1.71	.091
Xiaohongshu	4.0 (1.3)	3.5 (1.7)	1.62	.107
Weibo	3.0 (1.4)	5.0 (NA)	-1.36	.185
Snapchat	3.6 (1.7)	NA (NA)	NA	NA
WhatsApp	4.8 (0.5)	4.8 (0.5)	0.20	.842
WeChat	3.8 (1.5)	3.5 (1.5)	1.32	.190
Telegram	4.6 (0.8)	3.9 (1.3)	5.77	< .001***
Discord	3.7 (1.4)	3.3 (1.5)	0.43	.665
Average Frequency of Social Media Use, <i>M</i> (<i>SD</i>)	4.5 (0.6)	4.5 (0.7)	-0.61	.539
Purpose for Social Media Use^a, <i>n</i> (%)				
Social Connection (Ref: Remain connected with my family and friends, Participate in online discussion)	725 (84.6)	292 (70.7)	5.88	< .001***
Information Seeking (Ref: Follow news and current events, Know other's achievement)	637 (74.3)	236 (57.1)	6.28	< .001***
Entertainment (Ref: Watch or read entertaining content [i.e. videos, articles, etc], Play games, I don't know, I use social media whenever I feel bored)	684 (79.8)	233 (56.4)	8.99	< .001***
Self-Expression (Ref: Record and share special moments of my life, Share achievement that may enhance my reputation)	314 (36.6)	49 (11.9)	9.47	< .001***
Interest Exploration (Ref: Follow celebrities or political figures, Look for activities to participate or things to buy)	388 (45.3)	99 (24.0)	7.47	< .001***

Perception of Others' Lives, <i>n</i> (%)			-4.39	< .001***
Better than Mine	147 (17.2)	36 (8.7)		
Worse than Mine	10 (1.2)	13 (3.1)		
Neither Better nor Worse	507 (59.2)	175 (42.4)		
I Don't Know	187 (21.8)	128 (31.0)		
Bullying^b, <i>n</i> (%)	215 (25.1)			
Exclusion (Ref: Being intentionally left out of groups activities)	81 (37.7)	-		
Online Harrassment (Ref: Someone sharing negative or insulting comments about you on social media, gamming platforms, chat rooms, or in school, workplace, neighbourhood, etc)	86 (40.0)	-		
Defamation (Ref: Someone spreading false information about you)	84 (39.1)	-		
Outing (Ref: Someone sharing embarrassing photos or videos of you without your permission)	18 (8.4)	-		
Cyberbullying (Ref: Received messages or posts that are threatening, intimidating, or made you feel unsafe)	31 (14.4)	-		
Impersonation (Ref: Someone pretending to be you online to spread lies or damage your reputation)	14 (6.5)	-		
Cyberstalking (Ref: Repeatedly received messages or friend requests from someone you don't know or don't want to talk to, even after you asked them to stop)	49 (22.8)	-		
Other Unpleasant Interactions (Ref: Rudeness, Gender Discrimination, Traumatic Incidents, Mental Health Crisis, Workplace Harassment, Online Conflicts, National Service (NS) Basic Military Training (BMT) Harassment, Parental Criticism)	8 (3.7)	-		
Family Relationship, <i>M</i> (<i>SD</i>)	4.2 (0.9)	4.2 (0.9)	-0.6	.562
Family Support, <i>M</i> (<i>SD</i>)	4.2 (0.9)	4.2 (0.9)	1.2	.220
Close Friends, <i>M</i> (<i>SD</i>)	3.7 (1.3)	3.3 (1.6)	5.0	< .001***
Diverse Friends^a, <i>n</i> (%)				
Different Race	480 (56.0)	146 (35.4)	7.0	< .001***
Different Nationality	383 (44.7)	131 (31.7)	4.4	< .001***
Different Religion	628 (73.3)	220 (53.3)	7.2	< .001***
Different Income Group	655 (76.4)	240 (58.1)	6.8	< .001***
Different Education Background	576 (67.2)	244 (59.1)	2.8	.005**
Seek Advice, <i>n</i> (%)	773 (90.2)	351 (85.0)	2.7	.006**
Psychological Distress, <i>M</i> (<i>SD</i>)				
Stress	3.4 (0.9)	2.5 (1.0)	9.88	< .001***
Depression and Anxiety	2.8 (2.6)	1.1 (1.9)	11.39	< .001***

Note. ^aValues may not total 100% as multiple selections were allowed. Values may also not total 100% due to rounding or missing data.