Archives of Psychiatric Nursing 40 (2022) 124–131

Contents lists available at ScienceDirect

Archives of Psychiatric Nursing

journal homepage: www.elsevier.com/locate/apnu

Factors influencing attitudes toward cyber-counseling among China's Generation Z: A structural equation model

Jiayi Wang [a,1], Guangzhe Frank Yuan [b,c,1], Xinyi Shi [a], Aoyi Tang [a], Wei Shi [a,*]

[a] Institute for Disaster Management and Reconstruction (IDMR), Sichuan University, Chengdu, Sichuan, China
[b] South Carolina SmartState Center for Healthcare Quality, Arnold School of Public Health, University of South Carolina, Columbia, SC, United States
[c] Department of Health Promotion, Education, and Behavior, Arnold School of Public Health, University of South Carolina, Columbia, SC, United States

ARTICLE INFO

Keywords:
Psychological cyber-counseling
Attitude
Generation Z
Chinese adolescents

ABSTRACT

Information technology developments have combined traditional face-to-face counseling with online- or cyber-counseling. As digital natives, Generation Z has easy access to cyber-counseling. However, their attitudes toward cyber-counseling remain unknown. This study explored these attitudes and relevant influencing factors among 1216 Chinese adolescents using self-report questionnaires. Descriptive analyses and structural equation modeling were used for data analysis. The model explained 27.7 % of the total variance, attitudes toward psychological help was the most influential, followed by attitudes toward the Internet and perceived behavioral control. The model was effective in explaining attitudes toward cyber-counseling, emphasizing the influence of attitudes toward psychological help.

Introduction

Cyber-counseling is the practice of delivering psychological therapy or interventions via cyberspace, using information and communication technology, when the counselor and client are in different locations (Manhal-Baugus, 2001). Similar terms include online mental counseling, e-mental counseling, Internet-based counseling, computer-based counseling, and cyberspace counseling (Maples & Han, 2008). Cyber-counseling, which combines traditional face-to-face psychological counseling and updated Internet technology, has become increasingly popular due to the rapid development of information and communication technology, its various merits (e.g., time-saving, convenience, and privacy protection), and growing mental health needs in modern society (Teo, Shi, Hoi, & Huang, 2020). Today, cyber-counseling resources are increasingly available; however, there is limited knowledge regarding people's attitudes toward and related influencing factors for psychological cyber-counseling use (Situmorang, 2020).

Most prior relevant research has focused on populations in developed countries, such as the United States (Bird et al., 2020), Australia (Augar & Zeleznikow, 2014), and Italy (Cipolletta & Mocellin, 2018), which suggest that online counseling services aimed at young people should be prioritized. However, related research is lacking from developing countries, such as China, with greater and broader needs for psychological cyber-counseling support (Cui et al., 2020; Liu et al., 2020; Richards & Viganó, 2013) Additionally, this study focuses on Generation Z, also known as "Gen Z" or "zoomers," referring to individuals born between the mid-to-late 1990s and the early 2010s. They grew up using various Internet and digital technologies and are often called "digital natives." Compared with earlier generations, Generation Z usually has a more positive attitude toward the transmission and communication of Internet technologies (PrakashYadav & Rai, 2017). Internet-based technology and networked communications are their daily norms; they view electronically mediated communication to be as natural as face-to-face communication (Turner, 2015). Further, adolescent mental health seems to be an increasingly preeminent issue in the twenty-first century (Bor et al., 2014; Sit et al., 2022) Thus, as Generation Z is very familiar with online communication, it is feasible that the Internet could be used as a powerful tool to help them cope with mental health difficulties.

Some theories provide theoretical foundations for explaining the attitude toward cyber-counseling, such as the theory of planned behavior (TPB) and the technology acceptance model (TAM). The TPB was proposed by Ajzen (1991) to explore the theoretical factors influencing intention and actual behavior (Ajzen, 1991). According to the

* Corresponding author at: Institute for Disaster Management and Reconstruction (IDMR), Sichuan University, China.
E-mail address: shiwei19911014@163.com (W. Shi).
[1] Jiayi Wang and G. Frank Yuan contributed equally to this article.

https://doi.org/10.1016/j.apnu.2022.07.011
Received 19 October 2021; Received in revised form 12 June 2022; Accepted 3 July 2022
Available online 6 July 2022
0883-9417/© 2022 The Authors. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).

TPB, three major components, that is, attitude, subjective norm, and perceived behavioral control, shape the intention and actual behavior, with attitude being one of the most important components (Ajzen, 1991). The individual attitude was one of the most important components for shaping intention and actual action (Ajzen, 1991). Furthermore, the attitude is significantly influenced by the perceived behavior control and attitude-related factors in the TPB (Ajzen, 1991). The TPB has been widely used to explore studies about attitudes, behavioral intentions, and behaviors in various human areas (Teo & Lee, 2010). Moreover, some researchers suggested further exploring the attitude to better understand the mechanism of intention and actual behavior (Teo & Lee, 2010; Young, 2005).

Based on the theory of planned behavior (Ajzen, 1991), attitude has been found to be one of the most significant factors that influence both intention and actual action. However, previous research findings have been controversial regarding attitudes toward psychological cyber-counseling use. Some studies found that youth perceived traditional face-to-face counseling more favorably than online counseling services (Rochlen, Beretvas, & Zack, 2004; Teh et al., 2014), while others indicated that young people were more willing to use online counseling to solve mental health problems (Chen & Zhu, 2016; Wong et al., 2018). Moreover, some prior studies explored the correlations between attitude toward cyber-counseling and related factors, such as stigma (Lamela et al., 2020) and attitudes toward counseling (March et al., 2018) and the Internet (Barak et al., 2008). Thus, it is necessary to further examine the relationship between these variables.

TAM is an information systems theory proposed by Davis (1985) to explain the acceptance of using new technology. TAM suggests that some key factors determine individual perception toward using new technology, such as perceived usefulness, perceived ease-of-use, and some external factors (Davis et al., 1989). The external variables include some social or technology-related factors that influence the attitude. In this study, perceived behavioral control represented the perceived usefulness and ease of use toward cyber-counseling. Internet and psychological help were significantly related to cyber-counseling (Teh et al., 2014). Attitudes toward the Internet and psychological help could be vital factors that influence attitudes toward cyber-counseling. Computer use, computer self-efficacy, and stigma could be external factors to influence attitudes toward using psychological cyber-counseling (Lamela et al., 2020).

However, no research to date, to the best of our knowledge, has thoroughly explained the major factors that influence attitude toward using psychological cyber-counseling via the theoretical framework (Erdem et al., 2018). Researchers have suggested that future studies should explore possible factors associated with attitude toward cyber-counseling and its potential mechanism (Teo, Shi, Huang, & Hoi, 2020). Therefore, it is necessary to explore attitudes toward psychological cyber-counseling use and relevant influencing factors among Generation Z in China, and develop a theoretical model to better understand this relationship and its underlying mechanism (Dowling & Rickwood, 2013).

In this study, attitude toward using psychological cyber-counseling (AUC) refers to positive or negative beliefs, feelings, and values toward psychological cyber-counseling use (Young, 2005). Attitude toward the Internet (AI) refers to an individual's positive or negative perceptions of using the Internet. Perceived behavioral control (PBC), in relation to using cyber-counseling, is the perceived ease or difficulty in using cyber-counseling based on available resources, opportunities, and personal ability (Teo, Shi, Huang, & Hoi, 2020). Attitude toward psychological help (APH) refers to the positive or negative perceptions of mental health counseling (Duncan & Johnson, 2007).

Some previous studies have suggested associations among AUC, AI, PBC, and APH (Chang & Chang, 2004; Kim et al., 2019). For example, based on 64 studies, the results of a meta-analysis indicated that young people might prefer online psychological therapy because of their high perception of the Internet (Barak et al., 2008), which suggests that AI may positively affect AUC. Prior research with a sample of 356 youth reported a significant positive relationship between perceived confidence and attitude toward using e-health services (Lam et al., 2014). This suggests that PBC could positively influence AUC. Moreover, some researchers have found that attitude toward psychological support is an important influencing factor for acceptance toward online counseling use (Richards & Viganó, 2013), suggesting the positive influence of APH on AUC. Therefore, we developed the following hypotheses:

Hypothesis 1. AI has a significant positive effect on AUC.

Hypothesis 2. PBC has a significant positive effect on AUC.

Hypothesis 3. APH has a significant positive effect on AUC.

Computer use (CU) refers to an individual's frequency, proficiency, and acceptance of using computers (Subrahmanyam et al., 2001). Computer self-efficacy (CS) refers to individuals' beliefs regarding their ability to successfully use computers to solve tasks and manage situations (Chen, 2017). Self-stigma (SS) refers to awareness of public stigma, agreeing with those stereotypes, and internalizing them by applying them to the self (Corrigan et al., 2010). A previous study with a sample of 753 Taiwanese high school adolescents found that digital devices usage was strongly related to the attitudes toward networks (Tsai & Lin, 2001; Vaala & Bleakley, 2015) suggesting a positive association between CU and AI. Moreover, Ajzen (2002) posited that self-efficacy was one of the most critical components of PBC. Another study conducted with 223 adults found that CS had significant, direct, and positive effects on PBC in e-learning acceptance (Hsia et al., 2014), suggesting a positive correlation between CS and PBC. In addition, several prior studies have demonstrated the negative effects of SS on APH (Cheng et al., 2018; Salim, 2010; Vogel et al., 2017). Therefore, we developed the following hypotheses:

Hypothesis 4. CU has a significant positive effect on AI.

Hypothesis 5. CS has a significant positive effect on PBC.

Hypothesis 6. SS has a significant negative effect on APH.

Methods

Participants

Self-report questionnaires were distributed to all adolescent students aged 11 to 17 at three middle schools in Yibin, Sichuan Province, China. The data were collected from October 20 to November 25, 2015 using convenience sampling. The study was approved by the research ethics committees of the research university and recruited schools. Prior to the survey, all participants and class teachers/guardians signed an informed consent form which explained the study purpose, confidentiality, and data retention.

Measurement

The questionnaire included two parts. The first part collected demographic information (gender and age). The second part comprised seven scales used to examine AUC (3 items), AI (3 items), PBC (3 items), APH (3 items), SS (2 items), CS (5 items), and CU (5 items). Participants rated each of the 24 total items using a seven-point Likert scale (1 = strongly disagree, 7 = strongly agree). Using translation and adaptation tools (World Health Organization, 2015), some items were translated from English to Chinese (Table 1). All original scales have been validated in previous studies (e.g., Mo & Mak, 2009; Rochlen, Zack, & Speyer, 2004; Sam et al., 2005; Torkzadeh & Koufteros, 1994) and adaptive scales showed good reliability in the present study.

Table 1
Summary of measurement scales.

Subscale	Reliability (α)	Adaptations	Sample items	References
AUC	0.685	"Online counseling" was adapted to "cyber-counseling"	Using cyber-counseling helps me learn about myself.	(Rochlen, Beretvas, & Zack, 2004)
AI	0.787	Original items were retained	The use of the Internet has improved our living standard.	(Sam et al., 2005)
CS	0.865	Original items were retained	I have the confidence to use computers to organize information.	(Torkzadeh & Koufteros, 1994)
PBC	0.769	"Mental health service" was adapted to "cyber-counseling"	I can use cyber-counseling if I like.	(Mo & Mak, 2009)
APH	0.602	Original items were retained	If I am anxious or depressed for a long time, I want to get psychological help.	(Zhang & Dixon, 2003)
SS	0.767	Original items were retained	Seeking professional psychological help would make me feel like I'm not smart enough.	(Pinto et al., 2015)
CU	0.787	Original items retained	I use computers to deal with many things in my daily life.	(Panero et al., 1997)

Note: AUC = attitude toward using psychological cyber-counseling; AI = attitude toward the Internet; CS = computer self-efficacy; PBC = perceived behavioral control; APH = attitude toward psychological help; SS = self-stigma; CU = computer use.

Data analysis

Data analysis was performed in two main steps. First, descriptive statistics were conducted using SPSS 23.0 (SPSS, 2015). Second, using AMOS 23.0 (Arbuckle, 2014), structural equation modeling (SEM) was conducted to test the construct relationship between the observed and latent variables in the hypothesized model. In this study, a two-step method was applied for SEM analysis (Anderson & Gerbing, 1988). The first step was to estimate the fit of the measurement model, namely the fit between the observed variables and their corresponding latent variables. The second step was to estimate the structural model fit, based on the relationships of the hypothesized model. Additionally, two covariates (age and gender) were added to further examine model fit.

Results

Participant characteristics

In total, 1721 questionnaires were sent out and 1216 valid questionnaires were received (response rate = 70.66 %). Overall, 505 questionnaires were not collected owing to participants' personal reasons (e.g., unwillingness to participate, absence from school). Consequently, this study included 1216 respondents who completed the full questionnaire without missing data. As shown in Table 1, the participants were 602 (49.51 %) male adolescents and 614 (50.49 %) female adolescents, with an age range of 11–17 years (mean age = 14.21; SD = 1.28).

Descriptive statistics

To confirm the normality of the sample data, the means, standard deviations, skewness, and kurtosis of all 24 questionnaire items were analyzed (Table 2). The means of all items ranged from 2.44 to 5.97, the standard deviations ranged from 1.28 to 1.94, the skewness indices ranged from −1.57 to 1.14, and the kurtosis indices ranged from −0.94 to 2.46. The criteria of the reference values for skewness and kurtosis were |3| and |8| (Kline, 2015); thus, both the skewness and kurtosis indices were within the acceptable range to confirm the univariate normality of the sample data.

Measurement model analysis

Confirmatory factor analysis was performed on the measurement model using the maximum likelihood estimation method. Magnitude, direction, and significance were tested for each observed variable using standardized factor loading (SFL) and *t*-values, and the reference standard was SFL $\geq$ 0.50, $p < .001$ (Hair et al., 2011). Composite reliability (CR) and average variance extracted (AVE) were used to evaluate construct reliability and construct validity of the latent variables, respectively. The reference criteria were CR $\geq$ 0.50 (Raines-Eudy, 2000) and AVE $\geq$ 0.50 (Teo & Lee, 2010). The results showed that the SFL, CR, and AVE were acceptable for all variables, except for the AVE for AUC, APH, and CU. However, considering that the acceptable SFL and CR values of these three variables supported the validity of the related items, these variables were retained in the measurement model for further analysis (Table 3. To verify the goodness-of-fit of the measurement model, $\chi 2$, $\chi 2/df$, comparative fit index (CFI), Tucker–Lewis index (TLI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR) were selected. The results suggested the all the indicators met the criteria of the reference indices (χ^2 = 976.269, χ^2/df = 4.226, CFI = 0.923, TLI = 0.908, RMSEA = 0.052, SRMR = 0.049), which indicated good model fit (Table 4).

Table 2
Descriptive statistics.

Item	Mean	SDs	Skewness	Kurtosis
ATC1	4.55	1.46	−0.29	−0.11
ATC2	4.16	1.58	−0.10	−0.56
ATC3	3.51	1.67	0.17	−0.77
ATI1	5.80	1.37	−1.39	1.76
ATI2	5.97	1.28	−1.57	2.45
ATI3	5.73	1.34	−1.20	1.23
CSE1	5.31	1.55	−0.71	−0.26
CSE2	5.38	1.46	−0.77	0.05
CSE3	5.34	1.54	−0.83	0.03
CSE4	5.07	1.48	−0.47	−0.38
CSE5	5.04	1.54	−0.52	−0.31
PBCC1	4.94	1.53	−0.47	−0.32
PBCC2	4.81	1.71	−0.38	−0.77
PBCC3	5.17	1.51	−0.71	0.06
ATMC1	3.63	1.72	0.34	−0.66
ATMC2	4.30	1.62	−0.18	−0.54
ATMC3	4.81	1.60	−0.53	−0.41
SS1	2.44	1.51	1.14	0.88
SS2	2.65	1.54	0.92	0.30
CU1	3.91	1.94	0.15	−1.12
CU2	4.00	1.74	0.09	−0.83
CU3	4.15	1.85	−0.04	−1.03
CU4	4.38	1.82	−0.20	−0.94
CU5	5.08	1.65	−0.72	−0.24

Note: AUC = attitude toward using psychological cyber-counseling; AI = attitude toward the Internet; CS = computer self-efficacy; PBC = perceived behavioral control; APH = attitude toward psychological help; SS = self-stigma; CU = computer use.

Table 3
Results of the measurement model.

	Item	SFL	T	*p*	CR[a]	AVE[b]
AUC	AUC1	0.59			0.70	0.44
	AUC2	0.77	14.90	***		
	AUC3	0.61	14.16	***		
AI	AI1	0.72			0.79	0.56
	AI2	0.80	22.33	***		
	AI3	0.72	20.85	***		
CS	CS1	0.72			0.87	0.56
	CS2	0.82	25.41	***		
	CS3	0.73	22.88	***		
	CS4	0.76	24.96	***		
	CS5	0.71	23.90	***		
PBC	PBC1	0.76			0.77	0.53
	PBC2	0.73	20.92	***		
	PBC3	0.69	19.69	***		
APH	APH1	0.62			0.61	0.35
	APH2	0.68	11.80	***		
	APH3	0.45	10.54	***		
SS	SS1	0.74			0.77	0.63
	SS2	0.84	8.30	***		
CU	CU1	0.50			0.79	0.44
	CU2	0.70	15.27	***		
	CU3	0.75	15.44	***		
	CU4	0.66	14.42	***		
	CU5	0.67	14.39	***		

Note. Criteria: CR and AVE ≥ 0.50: sufficient reliability and construct validity, ***$p < .001$.

[a]$CR = \frac{(\sum\lambda)^2}{\left[(\sum\lambda)^2 + \sum(1-\lambda^2)\right]}$ [b]$AVE = \frac{(\sum\lambda^2)}{\left[(\sum\lambda^2) + \sum(1-\lambda^2)\right]}$.

AVE = average variance extracted; CR = composite reliability; SFL = standardized factor loading; AUC = attitude toward using psychological cyber-counseling; AI = attitude toward the Internet; CS = computer self-efficacy; PBC = perceived behavioral control; APH = attitude toward psychological help; SS = self-stigma; CU = computer use.

Table 4
Fit Indices for the measurement model and structural model.

Model fit indices	Values of the measurement model	Values of the structural model	Reference standards	References
χ2	976.269	1005.20	\	\
χ2/df	4.226	3.709	<5.0	(Schumacker & Lomax, 2004)
CFI	0.923	0.926	≥0.90	(Hu & Bentler, 1998)
TLI	0.908	0.911	≥0.90	(Hu & Bentler, 1998)
RMSEA	0.052	0.047	<0.06	(Hu & Bentler, 1998)
SRMR	0.049	0.058	<0.06	(Hu & Bentler, 1998)

Note. CFI = comparative fit index; TLI = Tucker–Lewis index; RMSEA = root mean square error of approximation; SRMR = standardized root means square residual.

Structural model analysis

Fig. 1 shows the results of the structural model analysis. All the indicators reached the criteria of the goodness-of-fit indices with gender and age as covariates ($\chi^2 = 1005.20$, $\chi^2/df = 3.709$, CFI = 0.926, TLI = 0.911, RMSEA = 0.047, SRMR = 0.058), indicating that the structural model was acceptable. Further, the results showed that the exogenous variable CU had a significant effect on the endogenous variable AI ($\beta_{CU} = 0.30$, $t_{CU} = 8.03$, $p < .001$), which supported Hypothesis 4. The exogenous variable CS positively affected the endogenous variable PBC ($\beta_{CS} = 0.58$, $t_{CS} = 14.98$, $p < .001$), which supported Hypothesis 5. The exogenous variable SS negatively affected the endogenous variable APH ($\beta_{SS} = -0.36$, $t_{SS} = -3.72$, $p < .001$), which supported Hypothesis 6. The exogenous variables AI, PBC, and APH had a positive effect on the endogenous variable AUC ($\beta_{AI} = 0.18$, $t_{AI} = 4.22$, $p < .001$; $\beta_{PBC} = 0.11$, $t_{PBC} = 2.55$, $p < .05$; $\beta_{APH} = 0.43$, $t_{APH} = 8.28$, $p < .001$), which supported Hypotheses 1–3. In addition, the exogenous variable CU explained 15.3 % of the total variance of the endogenous variable AI, exogenous variable CS explained 35.9 % of the total variance of endogenous variable PBC, exogenous variable SS explained 12.9 % of the total variance of endogenous variable APH, and exogenous variables AI, PBC and APH jointly explained 27.7 % of the total variance of endogenous variable AUC. In addition, age was positively related to AUC ($\beta_{age\text{-}AUC} = 0.10$, $t_{age\text{-}AUC} = 3.00$, $p < .01$), AI ($\beta_{age\text{-}AI} = 0.24$, $t_{age\text{-}AI} = 7.61$, $p < .001$), and PBC ($\beta_{age\text{-}PBC} = 0.10$, $t_{age\text{-}PBC} = 3.37$, $p < .001$), while negatively associated with APH ($\beta_{age\text{-}APH} = -0.08$, $t_{age\text{-}APH} = -1.99$, $p < .05$). Gender was negatively related to AI ($\beta_{gender\text{-}AI} = -0.10$, $t_{gender\text{-}AI} = -3.24$, $p < .01$), but had no significant effects on other latent variables.

Discussion

Overall, the model in the present study was effective for evaluating AUC among Chinese adolescents in Generation Z. The results showed that AI, PBC, and APH, the core construction factors in the model, could explain 27.7 % of the total variance in AUC in the study's population. This indicated that positive AI, better PBC perceived ease of use of, and positive APH will improve AUC among adolescents. In addition, CU, CS, and SS had significant effects on AI, PBC, and APH, and could explain 15.3 %, 35.9 %, and 12.9 % of the variance for these variables, respectively. The results indicated that the degree of CU was related to AI, CS related to PBC, and SS was correlated with APH. Further, the results supported that the Internet, computer, and self-confidence play vital roles in AUC among adolescents.

Consistent with previous research (Becker & Jensen-Doss, 2013; Brown, 2012; Nair & Das, 2012; Rochlen, Zack, & Speyer, 2004), the present study found that the three core construction factors in the model (AI, PBC, and APH) were significantly related to AUC. However, a previous study conducted with participants from Generation Y (i.e., individuals born between 1981 and 1996) discovered no relationship between AI and AUC (Chang & Chang, 2004), which was inconsistent with the findings of the present study. The focus of the present study was Generation Z, who unlike Generation Y, have lived with the global prevalence of the Internet since birth (Kane, 2017). Further, the Internet has penetrated all aspects of their life, and is not only a tool but also lifestyle for them (Mastroianni, 2016; Turner, 2015). Moreover, Generation Z generally perceives the online world to be as important as the real world (Jabłońska, 2017). Thus, most of them maintain positive AI and, therefore, more positive attitudes toward Internet services and technologies (Arkhipova et al., 2019). Hence, in the present study, AI significantly and positively affected APH. Further, APH was the strongest potential predictor of AUC, followed by AI and PBC. Psychological cyber-counseling is still essentially a form of psychological help (Direktör, 2017); therefore, this may account for why APH can be the most important influencing factor for AUC.

Moreover, for Generation Z, online services are ubiquitous (e.g., mobile payment, online shopping), and the majority of them are highly capable of learning and accepting new online services (Sakashita, 2020); thus, AI and PBC were not the most influential factors for AUC. Therefore, to affect AUC among adolescents, it is necessary to focus on changing their APH. Although prior studies have demonstrated that Chinese adolescents mostly hold negative attitudes toward seeking professional psychological help, media publicity (Harman & Heath, 2017; Jorm, 2012) and education on identifying psychological disorders (e.g., depression and anxiety), improving perceptions of psychological help-seeking, and eliminating stigma can help adolescents develop positive attitudes toward psychological help (Coles et al., 2016; Do et al.,

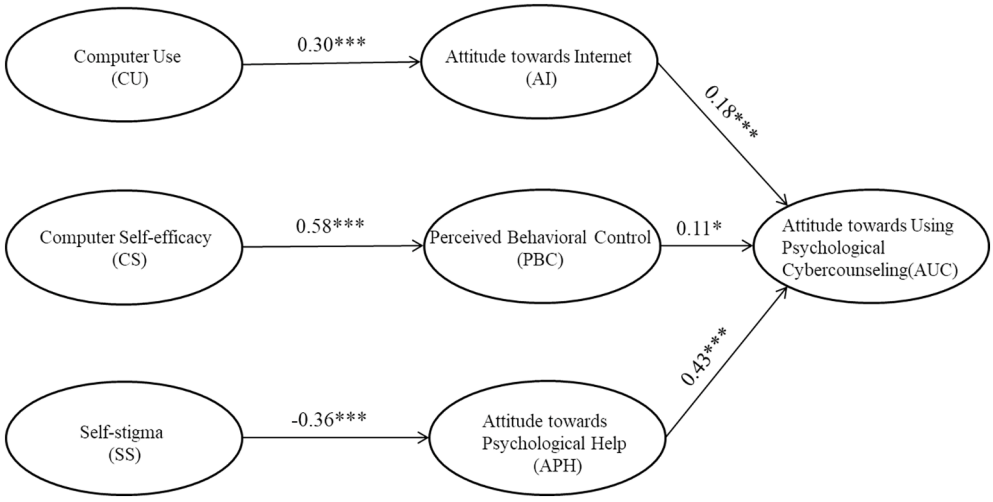

Fig. 1. Structural model path diagram.
Note. ***$p < .001$, *$p < .05$.

2019; Orji & Abikoye, 2019; Yelpaze & Ceyhan, 2020). Some methods that can improve these attitudes among Chinese adolescents include using various old and new media (e.g., TV/Internet advertisements, push notifications, newspapers or pamphlets) to promote the professionalism and usefulness of professional help to society as a whole, providing relevant mental health education videos and publicly releasing channels (online and offline) related to professional help, and giving more attention in schools to psychological health education for students and correctly guiding adolescents' perceptions of psychological health to improve their mental health literacy (Chen et al., 2020; Li et al., 2020; Naslund et al., 2017).

In addition, CU and CS were positively associated with AI and PBC, which was consistent with previous research (Liaw, 2002; Rochlen, Beretvas, & Zack, 2004). This suggested that computer experience and personal confidence in using computers could improve AUC among Chinese adolescents. Further, SS was negatively related to APH, which implied that negative SS improved APH and AUC among adolescents, which was also consistent with previous studies (Bathje et al., 2014; Chen et al., 2014; Wrigley et al., 2005). APH was the most influential factor for AUC, and SS can negatively influence APH; therefore, an efficient way to improve AUC among adolescents would be to reduce their SS related to psychological help-seeking, thereby improve their attitudes toward seeking such help. First, education and publicity could help spread mental health care literacy and normalize psychological help-seeking. Second, prior studies found that students sought non-professionals (e.g., friends, family) for help when facing psychological problems (Drum et al., 2009; Eisenberg et al., 2011), which may indicate that social support (e.g., peers, family) could reduce SS and increase psychological help-seeking among adolescents. Although some studies have found previous use of mental health services was associated with a positive attitude toward or actual mental health service use (e.g., Jang et al., 2009; March et al., 2018; ten Have et al., 2010), other studies have found individuals who have received mental health counseling and psychotherapy hold more negative attitudes toward psychological help (e.g., Çebi & Demir, 2020). Therefore, clinicians should include anti-stigma interventions in treatment; understanding the components of patient SS may help improve treatment attendance and reduce withdrawal rates (Tucker et al., 2013).

Further, there were several findings related to the covariates of age and gender in the present study. The results showed that age was significantly and positively related to AUC, suggesting that older adolescents hold more positive views regarding cyber-counseling. In China, preparing and taking college entrance examinations represents an extremely important period in one's life. As adolescents grow up, they enter a more advanced stage of study, and academic stress gradually increases (Deng et al., 2010; Ren et al., 2021), making them sensitive and vulnerable during this period (Zhang et al., 2009). Adolescents living under greater stress may be more likely to develop psychological disorders (Deb et al., 2015; Quach et al., 2015). A study found that students with a high level of stress were more likely to seek psychological help (Cramer, 1999). Moreover, another study evidenced that adolescents were more likely to use online counseling than face-to-face counseling because of public stigma; therefore, they may hold a more positive attitude toward psychological cyber-counseling (Sweeney et al., 2019). In addition, this study showed that gender did not significantly affect AUC, which conflicts with some research on face-to-face counseling (Lewis et al., 2015; Zainudin & Yusop, 2018). This may be related to the anonymity and disinhibited nature of cyber-counseling (Richards & Viganó, 2013), which could help to decrease gender role conflicts and the differences between men and women in relation to AUC.

Limitations

Although strict procedures for investigation were used in this study, there are still some limitations that should be considered in future studies. First, the results of this study could only explain 27.7 % of the total variance in AUC among adolescents. The remaining 72.3 % of the total variance could not be explained, indicating that more explanatory variables, such as personal characteristics (Tsan & Day, 2007), psychological counseling experience (Cipolletta & Mocellin, 2018), and family counseling orientation (Tuason et al., 2012), should be added in future studies. Second, this study adopted a cross-sectional method and did not follow the survey participants over a period of time. Therefore, as AUC among Generation Z may change over time, future studies should focus on longitudinal research. Finally, there may be some differences among adolescents in different regions in China. Accordingly, as the sample in this study was mainly concentrated in Sichuan, caution should be taken when generalizing the results to the whole country, and the sample source region should be expanded in future studies. Additionally, as the internal consistency of some scales in the current study was insufficient, a qualitative study was suggested to explore the item appropriateness and improve the scale reliability in the future.

Implications

This study filled gaps in previous studies conducted on AUC, and provided theoretical and empirical support for future research on psychological cyber-counseling intention and behavior. The findings helped

identify core factors (APH, AI, PBC) that affect AUC among adolescents in Generation Z, as well as the correlates of those factors (SS, CU, CS), which can be useful for exploring the unique characteristics of Generation Z's AUC. Further, this study could provide a reference for strategy development related to improving attitudes among adolescents. The most significant path (SS→APH→AUC) in the current model indicated that reducing SS related to psychological help-seeking and mental health disorders among adolescents and then enhancing their APH could be effective for improving their AUC. This approach can help strengthen mental health literacy and promote the widespread use of psychological cyber-counseling among adolescents. In the future, researchers should continue to explore the potential mechanism between these linkages. Moreover, the possible mediators and moderators should be given priority in the relevant empirical research, such as social support and Internet accessibility (Hall et al., 2018). Finally, these results could be expanded to other populations to develop a relevant psychological intervention, such as nurses, doctors, and community workers who work on the COVID-19 frontline and need cybercounseling support.

Conclusion

This study was the first to use SEM to explore AUC among adolescents in Generation Z. We found that the current model was able to explain 27.7 % of the total variance of AUC among Chinese adolescents, in which APH was the strongest possible predictor, followed by AI and PBC, while SS, CU, and CS were significantly related to APH, AI, and PBC, respectively. Additionally, age was a potential predictor of AUC. These results emphasize the importance of the influencing factors for AUC and provide a basis for improving the attitudes of Chinese adolescents in Generation Z toward psychological cyber-counseling, which will contribute to the better development of cyber-counseling services.

Funding

This work was supported by the Fundamental Research Funds for the Central Universities (20827044B4020).

Declaration of competing interest

The authors declare no conflict of interest.

Acknowledgment

We are sincerely thankful to all participants, research assistants, and administrative staff of this research for the data collection, survey coordination, and project completion.

References

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179–211.
Ajzen, I. (2002). Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior. *Journal of Applied Social Psychology, 32*(4), 665–683.
Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin, 103*(3), 411.
Arbuckle, J. L. (2014). *Amos (version 23.0)[computer program]*. Chicago: IBM SPSS.
Arkhipova, M. V., Belova, E. E., Gavrikova, Y. A., Pleskanyuk, T. N., & Arkhipov, A. N. (2019). Reaching generation Z. attitude toward technology among the newest generation of school students. In E. G. Popkova, & V. N. Ostrovskaya (Eds.), *Perspectives on the use of new information and communication technology (ICT) in the modern economy* (pp. 1026–1032). Cham: Springer.
Augar, N., & Zeleznikow, J. (2014). Developing online support and counseling to enhance family dispute resolution in Australia. *Group Decision and Negotiation, 23*(3), 515–532.
Barak, A., Hen, L., Boniel-Nissim, M., & Shapira, N. A. (2008). A comprehensive review and a meta-analysis of the effectiveness of internet-based psychotherapeutic interventions. *Journal of Technology in Human Services, 26*(2–4), 109–160.
Bathje, G. J., Kim, E., Rau, E., Bassiouny, M. A., & Kim, T. (2014). Attitudes toward face-to-face and online counseling: Roles of self-concealment, openness to experience, loss of face, stigma, and disclosure expectations among korean college students. *International Journal for the Advancement of Counselling, 36*(4), 408–422.
Becker, E. M., & Jensen-Doss, A. (2013). Computer-assisted therapies: Examination of therapist-level barriers to their use. *Behavior Therapy, 44*(4), 614–624.
Bird, M. D., Chow, G. M., & Yang, Y. (2020). College students' attitudes, stigma, and intentions toward seeking online and face-to-face counseling. *Journal of Clinical Psychology, 76*(9), 1775–1790.
Bor, W., Dean, A. J., Najman, J., & Hayatbakhsh, R. (2014). Are child and adolescent mental health problems increasing in the 21st century? A systematic review. *Australian & New Zealand Journal of Psychiatry, 48*(7), 606–616.
Brown, C. (2012). *Online counseling: Attitudes and potential utilization by college students*. Humboldt State University [Unpublished master's thesis].
Çebi, E., & Demir, A. (2020). Help-seeking attitudes of university students in Turkey. *International Journal for the Advancement of Counselling, 42*(1), 37–47.
Chang, T., & Chang, R. (2004). Counseling and the internet: Asian american and asian international college students' attitudes toward seeking online professional psychological help. *Journal of College Counseling, 7*(2), 140–149.
Chen, I.-S. (2017). Computer self-efficacy, learning performance, and the mediating role of learning engagement. *Computers in Human Behavior, 72*, 362–370.
Chen, J., & Zhu, S. (2016). Online information searches and help seeking for mental health problems in urban China. *Administration and Policy in Mental Health and Mental Health Services Research, 43*(4), 535–545.
Chen, H., Fang, X., Liu, C., Hu, W., Lan, J., & Deng, L. (2014). Associations among the number of mental health problems, stigma, and seeking help from psychological services: A path analysis model among Chinese adolescents. *Children and Youth Services Review, 44*, 356–362.
Chen, S., Li, F., Lin, C., Han, Y., Nie, X., Portnoy, R. N., & Qiao, Z. (2020). Challenges and recommendations for mental health providers during the COVID-19 pandemic: The experience of China's first university-based mental health team. *Globalization and Health, 16*(1), 1–10.
Cheng, H. L., Wang, C., McDermott, R. C., Kridel, M., & Rislin, J. L. (2018). Self-stigma, mental health literacy, and attitudes toward seeking psychological help. *Journal of Counseling & Development, 96*(1), 64–74.
Cipolletta, S., & Mocellin, D. (2018). Online counseling: An exploratory survey of Italian psychologists' attitudes towards new ways of interaction. *Psychotherapy Research, 28*(6), 909–924.
Coles, M. E., Ravid, A., Gibb, B., George-Denn, D., Bronstein, L. R., & McLeod, S. (2016). Adolescent mental health literacy: Young people's knowledge of depression and social anxiety disorder. *Journal of Adolescent Health, 58*(1), 57–62.
Corrigan, P. W., Larson, J. E., & Kuwabara, S. A. (2010). Social psychology of the stigma of mental illness: Public and self-stigma models. In J. E. Maddux, & J. P. Tangney (Eds.), *Social psychological foundations of clinical psychology* (pp. 51–68). The Guilford Press.
Cramer, K. M. (1999). Psychological antecedents to help-seeking behavior: A reanalysis using path modeling structures. *Journal of Counseling Psychology, 46*(3), 381.
Cui, Y., Li, Y., & Zheng, Y. (2020). Mental health services for children in China during the COVID-19 pandemic: Results of an expert-based national survey among child and adolescent psychiatric hospitals. *European Child & Adolescent Psychiatry, 29*(6), 743–748.
Davis, F. D. (1985). *A Technology Acceptance Model for Empirically Testing New End-User Information Systems: Theory and Results*. Doctoral Thesis. Massachusetts Institute of Technology.
Deb, S., Strodl, E., & Sun, H. (2015). Academic stress, parental pressure, anxiety and mental health among Indian high school students. *International Journal of Psychology and Behavioral Science, 5*(1), 26–34.
Deng, H. C., Yang, J. Y., & Deng, B. (2010). Correlation between mental health and blood pressure of adolescents in urban Guiyang Chinese. *Journal of School Health, 31*(01), 55–57.
Direktör, C. (2017). A new area of mental health care: Online therapy, counseling and guidance. *Journal of Research in Humanities and Social Science, 5*(2), 78–83.
Do, R., Park, J.-R., Lee, S.-Y., Cho, M.-J., Kim, J.-S., & Shin, M.-S. (2019). Adolescents' attitudes and intentions toward help-seeking and computer-based treatment for depression. *Psychiatry Investigation, 16*(10), 728.
Dowling, M., & Rickwood, D. (2013). Online counseling and therapy for mental health problems: A systematic review of individual synchronous interventions using chat. *Journal of Technology in Human Services, 31*(1), 1–21.
Drum, D. J., Brownson, C., Burton Denmark, A., & Smith, S. E. (2009). New data on the nature of suicidal crises in college students: Shifting the paradigm. *Professional Psychology: Research and Practice, 40*(3), 213.
Duncan, L. E., & Johnson, D. (2007). Black undergraduate students attitude toward counseling and counselor preference. *College Student Journal, 41*(3), 696–720.
Eisenberg, D., Hunt, J., Speer, N., & Zivin, K. (2011). Mental health service utilization among college students in the United States. *The Journal of Nervous and Mental Disease, 199*(5), 301–308.
Erdem, A., Bardakci, S., & Erdem, Ş. (2018). Receiving online psychological counseling and its causes: A structural equation model. *Current Psychology, 37*(3), 591–601.
Hair, J. F., Jr., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. (2011). *Multivariate data analysis*. New Jersey: PrenticeHall.
Hall, B. J., Shi, W., Garabiles, M. R., & Chan, E. W. (2018). Correlates of expected eMental health intervention uptake among filipino domestic workers in China. *Global Mental Health, 5*, Article e33.
Harman, G., & Heath, J. (2017). Australian country perspective: The work of beyondblue and SANE Australia. In W. Gaebel, W. Rössler, & N. Sartorius (Eds.), *The stigma of mental illness - End of the story?* (pp. 289–315). Springer International Publishing.
Hsia, J. W., Chang, C. C., & Tseng, A. H. (2014). Effects of individuals' locus of control and computer self-efficacy on their e-learning acceptance in high-tech companies. *Behaviour & Information Technology, 33*(1), 51–64.

Hu, L.-T., & Bentler, P. (1998). Índices de ajuste en el Modelo de estructura de covarianza: Sensibilidad a la especificación errónea del Modelo subparamizado. *Métodos psicológicos, 3*(4), 424–453.
Jabłońska, M. R. (2017). Modern consumer in cyberspace: Internet and psychology approach. *Foundations of Management, 9*(1), 111–122.
Jang, Y., Chiriboga, D. A., & Okazaki, S. (2009). Attitudes toward mental health services: Age-group differences in Korean American adults. *Aging & Mental Health, 13*(1), 127–134.
Jorm, A. F. (2012). Mental health literacy: Empowering the community to take action for better mental health. *American Psychologist, 67*(3), 231.
Kane, L. (2017). Meet generation Z, the 'millennials on steroids' who could lead the charge for change in the US. Business Insider. https://www.businessinsider.com/generation-z-profile-2017-9.
Kim, M. N., Yoo, Y. S., Hwang, K. H., & Cho, O. H. (2019). The effects of office workers' attitudes to internet health information, e-health literacy on health information seeking behavior and health-related behavioral intention. *Journal of Digital Convergence, 17*(11), 357–367.
Kline, R. B. (2015). *Principles and practice of structural equation modeling*. Guilford publications.
Lam, M. K., Nguyen, M., Lowe, R., Nagarajan, S. V., & Lincoln, M. (2014). " I can do it": Does confidence and perceived ability in learning new ICT skills predict pre-service health professionals' attitude towards engaging in e-healthcare? *Studies in Health Technology and Informatics, 204*, 60–66.
Lamela, D., Cabral, J., Coelho, S., & Jongenelen, I. (2020). Personal stigma, determinants of intention to use technology, and acceptance of internet-based psychological interventions for depression. *International Journal of Medical Informatics, 136*, Article 104076.
Lewis, J., Coursol, D. H., Bremer, K. L., & Komarenko, O. (2015). Alienation among college students and attitudes toward face-to-face and online counseling: Implications for student learning. *Journal of Cognitive Education and Psychology, 14*(1), 28–37.
Li, W., Yang, Y., Liu, Z. H., Zhao, Y. J., Zhang, Q., Zhang, L.Xiang, Y. T., … (2020). Progression of mental health services during the COVID-19 outbreak in China. *International Journal of Biological Sciences, 16*(10), 1732.
Liaw, S.-S. (2002). An internet survey for perceptions of computers and the world wide web: Relationship, prediction, and difference. *Computers in Human Behavior, 18*(1), 17–35.
Liu, S., Yang, L., Zhang, C., Xiang, Y. T., Liu, Z., Hu, S., & Zhang, B. (2020). Online mental health services in China during the COVID-19 outbreak. *The Lancet Psychiatry, 7*(4), e17–e18.
Manhal-Baugus, M. (2001). E-therapy: Practical, ethical, and legal issues. *Cyberpsychology & Behavior, 4*(5), 551–563.
Maples, M. F., & Han, S. (2008). Cybercounseling in the United States and South Korea: Implications for counseling college students of the millennial generation and the networked generation. *Journal of Counseling & Development, 86*(2), 178–183.
March, S., Day, J., Ritchie, G., Rowe, A., Gough, J., Hall, T., & Ireland, M. (2018). Attitudes toward e-mental health services in a community sample of adults: Online survey. *Journal of Medical Internet Research, 20*(2), Article e9109.
Mastroianni, B. (2016). How Generation Z is changing the tech world. CBS News. https://www.cbsnews.com/news/social-media-fuels-a-change-in-generations-with-the-rise-of-gen-z/.
Mo, P. K., & Mak, W. W. (2009). Help-seeking for mental health problems among Chinese. *Social Psychiatry and Psychiatric Epidemiology, 44*(8), 675–684.
Nair, I., & Das, V. M. (2012). Using technology acceptance model to assess teachers' attitude towards use of technology as teaching tool: A SEM approach. *International Journal of Computer Applications, 42*(2), 1–6.
Naslund, J. A., Aschbrenner, K. A., Araya, R., Marsch, L. A., Unützer, J., Patel, V., & Bartels, S. J. (2017). Digital technology for treating and preventing mental disorders in low-income and middle-income countries: A narrative review of the literature. *The Lancet Psychiatry, 4*(6), 486–500.
Orji, L. C., & Abikoye, G. E. (2019). Perceived social support and stress as predictors of help-seeking attitude for mental health among young adults. *Covenant International Journal of Psychology, 4*(1).
Panero, J. C., Lane, D. M., & Napier, H. A. (1997). PART I: The computer use scale: Four dimensions of how people use computers. *Journal of Educational Computing Research, 16*(4), 297–315.
Pinto, M. D., Hickman, R. L., & Thomas, T. L. (2015). Stigma scale for receiving psychological help (SSRPH) an examination among adolescent girls. *Western Journal of Nursing Research, 37*(12), 1644–1661.
PrakashYadav, G., & Rai, J. (2017). The generation Z and their social media usage: A review and a research outline. *Global Journal of Enterprise Information System, 9*(2), 110–116.
Quach, A. S., Epstein, N. B., Riley, P. J., Falconier, M. K., & Fang, X. (2015). Effects of parental warmth and academic pressure on anxiety and depression symptoms in chinese adolescents. *Journal of Child and Family Studies, 24*(1), 106–116.
Raines-Eudy, R. (2000). Using structural equation modeling to test for differential reliability and validity: An empirical demonstration. *Structural Equation Modeling, 7*(1), 124–141.
Ren, Z., Wang, Q., Xiong, W., Fan, X., Guo, X., Ma, J.Zhang, X., … (2021). Association between lifestyle factors and depressive symptoms among Chinese middle school students: A cross-sectional study. *Psychology, Health & Medicine, 26*(10), 1266–1273.
Richards, D., & Viganó, N. (2013). Online counseling: A narrative and critical review of the literature. *Journal of Clinical Psychology, 69*(9), 994–1011.
Rochlen, A. B., Beretvas, S. N., & Zack, J. S. (2004). The online and face-to-face counseling attitudes scales: A validation study. *Measurement and Evaluation in Counseling and Development, 37*(2), 95–111.
Rochlen, A. B., Zack, J. S., & Speyer, C. (2004). Online therapy: Review of relevant definitions, debates, and current empirical support. *Journal of Clinical Psychology, 60*(3), 269–283.
Sakashita, M. (2020). *Generation Z in Japan: Raised in anxiety. New generation Z in Asia: Dynamics, differences, digitalisation*. Emerald Publishing Limited.
Salim, S. (2010). Psychological help seeking attitudes among malaysian college and university students. *Procedia-Social and Behavioral Sciences, 5*, 426–430.
Sam, H. K., Othman, A. E. A., & Nordin, Z. S. (2005). Computer self-efficacy, computer anxiety, and attitudes toward the internet: A study among undergraduates in unimas. *Journal of Educational Technology & Society, 8*(4), 205–219.
Schumacker, R. E., & Lomax, R. G. (2004). *A beginner's guide to structural equation modeling*. Psychology Press.
Sit, H. F., Hong, I. W., Burchert, S., Sou, E. K. L., Wong, M., Chen, W.Hall, B. J., … (2022). A feasibility study of the WHO digital mental health intervention step-by-step to address depression among Chinese young adults. *Frontiers in Psychiatry, 12*, Article 812667.
Situmorang, D. D. B. (2020). Online/cyber counseling services in the COVID-19 outbreak: Are they really new? *Journal of Pastoral Care & Counseling, 74*(3), 166–174.
SPSS, I. (2015). *IBM SPSS Statistics for Windows (Version 23.0)*. Armonk: IBM Corp.
Subrahmanyam, K., Greenfield, P., Kraut, R., & Gross, E. (2001). The impact of computer use on children's and adolescents' development. *Journal of Applied Developmental Psychology, 22*(1), 7–30.
Sweeney, G. M., Donovan, C. L., March, S., & Forbes, Y. (2019). Logging into therapy: Adolescent perceptions of online therapies for mental health problems. *Internet Interventions, 15*, 93–99.
Teh, L. A., Acosta, A. C., Hechanova, M. R. M., Garabiles, M. R., & Alianan, A. S., Jr. (2014). Attitudes of psychology graduate students toward face-to-face and online counseling. *Philippine Journal of Psychology, 47*(2), 65–97.
ten Have, M., de Graaf, R., Ormel, J., Vilagut, G., Kovess, V., Alonso, J., & ESEMeD/MHEDEA 2000 Investigators. (2010). Are attitudes towards mental health help-seeking associated with service use? Results from the European Study of Epidemiology of Mental Disorders. *Social Psychiatry and Psychiatric Epidemiology, 45*(2), 153–163.
Teo, T. K. G., & Lee, C. B. (2010). Examining the efficacy of the Theory of Planned Behavior (TPB) to understand pre-service teachers intention to use technology [Conference session]. In *Australasian Society for Computers in Learning in Tertiary Education (ASCILITE) Conference, Sydney, Australia*.
Teo, T., Shi, W., Hoi, C. K. W., & Huang, F. (2020). Predicting the intention to use cybercounseling among chinese adolescents: An extended theory of planned behavior. *Cyberpsychology, Behavior, and Social Networking, 23*(9), 627–634.
Teo, T., Shi, W., Huang, F., & Hoi, C. K. W. (2020). Intergenerational differences in the intention to use psychological cybercounseling: A Chinese case study. *Patient Education and Counseling, 103*(8), 1615–1622.
Torkzadeh, G., & Koufteros, X. (1994). Factorial validity of a computer self-efficacy scale and the impact of computer training. *Educational and Psychological Measurement, 54*(3), 813–821.
Tsai, C.-C., & Lin, S. S. (2001). Analysis of attitudes toward computer networks and internet addiction of Taiwanese adolescents. *Cyberpsychology & Behavior, 4*(3), 373–376.
Tsan, J. Y., & Day, S. X. (2007). Personality and gender as predictors of online counseling use. *Journal of Technology in Human Services, 25*(3), 39–55.
Tuason, M. T. G., Galang-Fernandez, K. T., Catipon, M. A. D., Trivino-Dey, L., & Arellano-Carandang, M. L. (2012). Counseling in the Philippines: Past, present, and future. *Journal of Counseling & Development, 90*(3), 373–377.
Tucker, J. R., Hammer, J. H., Vogel, D. L., Bitman, R. L., Wade, N. G., & Maier, E. J. (2013). Disentangling self-stigma: Are mental illness and help-seeking self-stigmas different? *Journal of Counseling Psychology, 60*(4), 520.
Turner, A. (2015). Generation Z: Technology and social interest. *The Journal of Individual Psychology, 71*(2), 103–113.
Vaala, S. E., & Bleakley, A. (2015). Monitoring, mediating, and modeling: Parental influence on adolescent computer and internet use in the United States. *Journal of Children and Media, 9*(1), 40–57.
Vogel, D. L., Strass, H. A., Heath, P. J., Al-Darmaki, F. R., Armstrong, P. I., Baptista, M. N. Zlati, A., … (2017). Stigma of seeking psychological services: Examining college students across ten countries/regions. *The Counseling Psychologist, 45*(2), 170–192.
Wong, K. P., Bonn, G., Tam, C. L., & Wong, C. P. (2018). Preferences for online and/or face-to-face counseling among university students in Malaysia. *Frontiers in Psychology, 9*, 64.
World Health Organization. (2015). *Process of translation and adaptation of instruments*. Geneva: World Health Organization.
Wrigley, S., Jackson, H., Judd, F., & Komiti, A. (2005). Role of stigma and attitudes toward help-seeking from a general practitioner for mental health problems in a rural town. *Australian & New Zealand Journal of Psychiatry, 39*(6), 514–521.
Yelpaze, I., & Ceyhan, A. A. (2020). The prediction of personality, culture and coping strategies on university students' psychological help seeking attitudes. *Turkish Journal of Education, 9*(2), 134–153.
Young, K. S. (2005). An empirical examination of client attitudes towards online counseling. *Cyberpsychology & Behavior, 8*(2), 172–177.

Zainudin, Z. N., & Yusop, Y. M. (2018). Client's satisfaction in face-to-face counselling and cyber counseling approaches: A comparison. *International Journal of Academic Research in Business and Social Sciences, 8*(3), 677–684.

Zhang, N., & Dixon, D. N. (2003). Acculturation and attitudes of Asian international students toward seeking psychological help. *Journal of Multicultural Counseling and Development, 31*(3), 205–222.

Zhang, W., Zhang, Z., Ma, X., Li, J., & Liu, Y. (2009). Investigation and analysis on social adaptation and mental health of secondary/school students. *Chinese Health Service Management, 26*(04), 270–271.