




Preference of Online Friends Over Face-To-Face Friends: Effect of Interpersonal Fears on Online Relationship Building Preference

Reza Shabahang¹ , Mara S. Aruguete² , Hyejin Shim³ ,

Benyamin Mokhtari Chirani⁴ 

[1] *Department of Psychology, Faculty of Psychology and Educational Sciences, University of Tehran, Tehran, Iran.*

[2] *Department of Social and Behavioral Sciences, College of Arts & Sciences, Lincoln University, Jefferson City, MO,*

USA. [3] *Department of Educational, School and Counseling Psychology (ESCP), University of Missouri, Columbia, MO,*

USA. [4] *Department of Psychology, Faculty of Literature and Human Science, University of Guilan, Rasht, Iran.*

Interpersona, 2022, Vol. 16(1), 120–135, <https://doi.org/10.5964/ijpr.6711>

Received: 2021-05-10 • **Accepted:** 2021-09-17 • **Published (VoR):** 2022-06-28

Corresponding Author: Reza Shabahang, Department of Psychology, Faculty of Psychology and Educational Sciences, University of Tehran, Jalal Al-e-Ahmad Avenue, Chamran Highway, Tehran, Iran. P.O. Box: 14155-6456. E-mail: Reza.shabahang@ut.ac.ir

Related: This article is part of the Special Issue "Measures in Personal Relationships".

Abstract

The emergence of online social networking has increased development of exclusively online friendships. Individuals in online environments are willing to invest considerable time and effort to develop and maintain relationships as they would in other gathering spaces. In some cases, individuals find it preferable to make friends via the internet over more traditional means of relationship formation. The current study examines preference for online friends over face-to-face friends. Initially, we developed a brief, one-dimensional, 11-item questionnaire assessing online friendship preference based on semi-structured interviews. Confirmatory factor analysis showed support for a one-factor model. Internal consistency was established using inter-item correlation, corrected item-total correlation, and Cronbach's α . Subsequently, we examined the psychological determinants and consequences of preference for online friendship formation. Participants who reported higher fear of intimacy and perceived relationship vulnerability reported greater preference for online friends over face-to-face friends. Preference for online friendship was related to increased risk of problematic internet use. The findings suggest that interpersonal fears, combined with attributes of online communication (e.g., reduced social cues and more personal control) motivate some individuals to prefer online intimacies over face-to-face friendships, thereby increasing time spent online.



Keywords

social connection, online friendship, fear of intimacy, problematic internet use

Friendship is defined as a bond of mutual affection, trust, and support that can increase happiness and help meet basic needs (Demir & Özdemir, 2010). Friendship is vitally important to mental health because it helps individuals handle stress and rebound from failures (Cleary et al., 2018). Self-disclosure, trust, and unconditional support are principal features of friendship (Policarpo, 2015). Though most friendships contain a blend of face-to-face and technology-mediated (e.g., phone, online) interactions, online friendships can be defined as friendships that begin and solely exist on the internet. There is evidence that online friendships serve similar purposes as face-to-face friendships (Huang et al., 2020) and that some individuals prefer online friendships (Valkenburg & Peter, 2007). The present study examines preference for online over face-to-face friendship.

The digitalized era has provided ample opportunity for online connectivity and engagement. Online friendships have increased rapidly (Tang, 2010). Carter (2004) proposed that online friendship is considered “an important aspect of the social life of Cybertown” (p. 114). Individuals in online environments are willing to invest considerable time and effort to develop and maintain relationships as they would in other contexts (Carter, 2005). Extensive internet use has raised concerns that online friendships could interfere with face-to-face intimacy (Smahel et al., 2012). In this article, we argue that online friendship can be viewed as a potential alternative to face-to-face friendship. Some individuals prefer to make friends and pursue relationships via the internet and preference for online relationships may be predicted by psychological variables such as social anxiety (Morahan-Martin & Schumacher, 2003; Valkenburg & Peter, 2007).

Online and face-to-face relationships show many similarities. In an examination of friendships, Chan and Cheng (2004) found that the differences between face-to-face and online relationships diminish over time, which indicates the possibility of replacing face-to-face with online relationships. Carter (2004) argued that online friendship can be evaluated using face-to-face friendship theories since there are many similarities between online and offline intimacies. Yau and Reich (2018) found that the core qualities of friendship identified by Parker and Asher (1993), including self-disclosure, validation, companionship, instrumental support, conflict, and conflict resolution, persist in online friendships. Chan and Lo (2014a) further supported the finding that friendship and intimacy exist in virtual communication and online friendship is similar to face-to-face friendship. Buote et al. (2009) suggest that online friendships present a positive and beneficial alternative to face-to-face intimacies. In addition to having structural similarities, online friendships appear to feature similar psychological processes as face-to-face relationships (Huang et al., 2020).

There is evidence of a preference for online over face-to-face relationships among some internet users. For example, [Morahan-Martin and Schumacher \(2003\)](#) reported that lonely internet users were more likely to prefer online friendships, especially enjoying the anonymity and emotional support. They felt less inhibited in online communication and perceived it as friendly, secure, and entertaining. [Valkenburg and Peter \(2007\)](#) found that socially anxious individuals preferred online to face-to-face friendships. Online social media platforms are assessed as less threatening and more attractive by individuals with high social anxiety than those with lower anxiety ([Caplan, 2007](#); [Shepherd & Edelmann, 2005](#)). Likewise, rejection-sensitive individuals are more likely to use computer-mediated communication ([Blackhart et al., 2014](#); [Farahani et al., 2011](#)). Furthermore, studies have shown that online communication preference is considerable among the “hidden youth” ([Chan & Lo, 2014b](#)), socially isolated and marginalized individuals who are prone to emotional disturbances. They retreat from society, avoid face-to-face interaction, and prefer communication through the internet ([Chan & Lo, 2014b](#)). [Wong \(2020\)](#) argued that hidden youth become attached to online communities in an effort to seek solidarity. [Chan \(2020\)](#) explained that hidden youth prefer online friendships and their virtual intimacies flourish in online environments. Collectively, these studies provide support that psychological variables predict preference for online friendships.

For socially anxious people, formation of face-to-face relationships may be difficult ([Descutner & Thelen, 1991](#); [Vangelisti & Beck, 2007](#)), while online communication may offer fewer obstacles. Fear of intimacy, fear of negative evaluation, and hurt feeling proneness have been shown to negatively impact social performance and relationship building ([Descutner & Thelen, 1991](#); [Feeney, 2004](#); [Kocovski & Endler, 2000](#)). The Hyperpersonal Model of interpersonal communication ([Walther et al., 2015](#)) suggests that computer-mediated communication may offer advantages over traditional face-to-face communication for those who experience interpersonal anxiety. Online communication allows communicators to control self-presentation by selectively posting information to enhance social desirability and avoid negative evaluation. Therefore, we hypothesize that social anxiety might be linked to preference for online friendship. For individuals with interpersonal fears, online relationships may be perceived as more convenient and safer than relationships that include face-to-face interactions.

Considering previous theory and research findings, we expect that individuals showing greater social anxiety (fear of intimacy, fear of negative evaluation, hurt feeling proneness, and perceived relationship vulnerability) will tend to favor online compared to face-to-face friendships. To be more precise, we assume that interpersonal fears, combined with attributes of online communication (e.g., more identity control and less threat), make some individuals prefer online intimacies over face-to-face friendships. After developing and validating a brief self-report measurement to evaluate preference of online friends over face-to-face friends, we sought to understand the predictive roles

of fear of intimacy, fear of negative evaluation, hurt feeling proneness, and perceived relationship vulnerability in online friendship preference.

Method

Participants

The convenience sample consisted of college students of Guilan University in Iran. Initial development of the Online Friendship Preference Questionnaire (OFPQ) was explored using a semi-structured interview with 9 individuals who reported preference for online friends over face-to-face friends. Content validity of the OFPQ was then evaluated for relevance, clarity, and simplicity by 7 psychometric experts. Subsequently, 43 participants were administered the OFPQ for pilot-testing. Eventually, a total of 449 participants, 283 women (63.03%) and 166 men (36.97%), $M_{age} = 22.41$, $SD_{age} = 4.13$, $Range_{age} = 18-39$, received the full online survey. Most participants ($n = 394$; 87.75%) were undergraduate students (18.53% 1st year students, 12.44% 2nd year students, 62.94% 3rd year students, and 6.09% 4th year students).

Procedure

We used a mixed-method design integrating qualitative and quantitative methods. The current study aimed to develop and validate the Online Friendship Preference Questionnaire (OFPQ). Furthermore, the psychological determinants and consequences of preference for online friendship formation were investigated.

The items of OFPQ were generated using related literature, a semi-structured interview, content validity suggestions provided by an expert panel, and a pilot study. The reliability and validity of ONPQ were explored using content validity index (CVI; Waltz & Bausell, 1981), content validity ratio (CVR; Lawshe, 1975), exploratory factor analysis (EFA), confirmatory factor analysis (CFA), inter-item correlation, corrected item-total correlation, and Cronbach's α . The sample was split in half randomly for EFA ($n = 225$; 50.11%) and CFA ($n = 224$; 49.89%) for more precise results. Furthermore, Pearson correlation coefficients and multiple regression analysis were used to explore psychological determinants and consequences of online friendship preference ($n = 449$).

Measures

Online Friendship Preference

Preference of online friends over face-to-face friends was measured through Online Friendship Preference Questionnaire (OFPQ) developed for the current study (see Table 1).

Table 1*Items of the Initial 12-Item Version of OFPQ*

Item
1. I prefer online friends to real world friends.
2. I would rather search for a friend on the Internet than in the real world.
3. I count more on my online friends than real friends.
4. If I have something important to say, I'm more likely to tell online friends than real-world friends.
5. My online friendships are warmer than my real-world friendships.
6. I enjoy spending time with my online friends more than friends in real life.
7. I feel more intimate with my online friends than I do with my friends in real life.
8. I feel closer to my online friends than my friends in real life.
9. My online friendships tend to be deeper than friendships in the real world.
10. I believe online friends can more truly be friends than real-life friends.
11. I feel more comfortable expressing myself to online friends compared to real-world friends.
12. I prefer to pursue friendships via the internet instead of face-to-face interaction.

Note. Item responses ranged from 1 = *strongly disagree* to 5 = *strongly agree*. The OFPQ was originally developed in Persian. The English version presented here is translated.

Fear of Intimacy

Fear of intimacy in relationships was assessed via the Fear of Intimacy Components Questionnaire (FICQ; Pedro Sobral & Emília Costa, 2015). The FICQ contains 10 items with two subscales including *fear of losing the self* (e.g., I don't like to justify myself to my partners) and *fear of losing the other* (e.g., I try to hide my weaknesses from my partner) that assess individuals' anxiety about close relationships. For the purpose of this study, the word "friends" replaced the word "partner" in each item. Items were rated on a 5-point Likert scale, ranging from 1 (*totally disagree*) to 5 (*totally agree*). A higher score on this scale indicates a higher fear of intimacy. The validity and reliability of the FICQ has been established (Pedro Sobral & Emília Costa, 2015).

Fear of Negative Evaluation

The participants' tolerance for the possibility they might be judged disparagingly or hostilely by others was measured by the Brief Fear of Negative Evaluation Scale, Version 2 (BFNE-II; Carleton et al., 2006). The BFNE-II is a 12-item scale measuring anxiety associated with perceived negative evaluation (e.g., *I am afraid that others will not approve of me*). Response options range from 0 (*not at all characteristic of me*) to 4 (*entirely characteristic of me*), in which higher scores indicate higher fear of negative evaluation. The scale has satisfactory validity and reliability (Carleton et al., 2006).

Hurt Feeling Proneness

Social pain and unhappiness caused by someone's words or actions was assessed through the Hurt Feeling Scale (HFS; Leary & Springer, 2001). HFS is a 6-item scale that measures the ease with which individuals experience hurt feelings. Responses are scored on a 5-point Likert scale (1 = *not at all* and 5 = *extremely characteristic of me*). Higher scores indicate greater fear of hurt feelings. The scale has shown good psychometric properties (Leary & Springer, 2001).

Relationship Vulnerability

To measure perceived relationship vulnerability, the item "how much do you fear being rejected in interpersonal relationships?" was included. Response options were on a 7-point Likert type scale from 1 (*not at all*) to 7 (*very much*).

Problematic Internet Use

Problematic usage of the Internet was measured via the Problematic Internet Use Questionnaire-9 (PIUQ-9; Laconi et al., 2019). PIUQ-9 consists of 9 items (e.g., Does it happen to you that you wish to decrease the amount of time spent online but you do not succeed?) with a Likert-type scale ranging from 1 (*never*) to 5 (*always*). Higher scores indicate higher risk of problematic internet use. A bifactor model of the scale with one general problem factor and two specific factors including obsession and neglect/control disorders showed acceptable fit (Laconi et al., 2019). The satisfactory psychometric properties of the PIUQ-9 were reported across a number of European samples (Laconi et al., 2019).

Results

The Psychometric Properties of the Online Friendship Preference Questionnaire (OFPQ)

Initially, we examined the psychometric properties of the OFPQ. High CVI (.91) and CVR (.92) were found for the 12 items. Tests for normality confirmed that the data were normally distributed prior to running EFA and CFA. After examining the Cronbach's alpha ($\alpha = .94$, 95% CI [.94, .95]) and initial EFA, one redundant item (OFPQ's item 12; "I prefer to pursue friendships via the internet instead of face-to-face interaction") was deleted to obtain the best model fit. Then, psychometric properties of 11-item OFPQ were investigated. The outcomes of Kaiser-Meyer-Olkin (KMO = .95) and Bartlett's test of sphericity ($\chi^2(15) = 1632.83$, $p < .001$) confirmed the suitability of data for factor analysis ($n = 225$). Principal factor analysis was used to explore the structure. EFA ($n = 225$; 50.11%) yielded a one-factor solution as the best fit for the data, accounting for 57.00% of the variance (Table 2).

Table 2*Exploratory Factor Analysis of Items in the OFPQ (n = 225)*

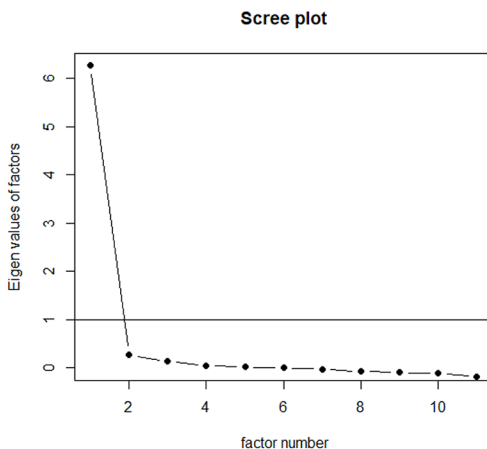
Item	Factor	h^2	<i>M</i>	<i>SD</i>
1. I prefer online friends to real world friends.	.72	.52	2.08	1.06
2. I would rather search for a friend on the Internet than in the real world.	.73	.54	1.85	1.08
3. I count more on my online friends than real friends.	.79	.63	1.82	1.08
4. If I have something important to say, I'm more likely to tell online friends than real-world friends.	.76	.58	2.28	1.34
5. My online friendships are warmer than my real-world friendships.	.84	.70	2.09	1.25
6. I enjoy spending time with my online friends more than friends in real life.	.82	.67	1.99	1.10
7. I feel more intimate with my online friends than I do with my friends in real life.	.89	.79	1.99	1.22
8. I feel closer to my online friends than my friends in real life.	.90	.81	2.01	1.24
9. My online friendships tend to be deeper than friendships in the real world.	.90	.80	1.80	1.12
10. I believe online friends can more truly be friends than real-life friends.	.81	.65	2.01	1.13
11. I feel more comfortable expressing myself to online friends compared to real-world friends.	.47	.22	2.83	1.45

Note. *M* and *SD* were also calculated from the split sample for EFA ($n = 225$).

The scree plot indicated that a large portion of variability was explained by one factor (Figure 1).

Figure 1

The Scree Plot Obtained From Exploratory Factor Analysis



CFA ($n = 224$; 49.89%) was performed by applying the maximum likelihood estimation method to test the factor solution obtained from EFA. The goodness of fit was evaluated through χ^2 and the χ^2/df (cutoff ≤ 3 ; Marsh & Balla, 1994), the comparative fit index (CFI; cutoff ≥ 0.90 ; Bentler, 1990), the Tucker Lewis index (TLI; cutoff ≥ 0.90 ; Bentler & Bonnet, 1980), and the root mean square error of approximation (RMSEA; cutoff $\leq .08$; Browne & Cudeck, 1993). CFA results (Table 3) supported the theorized one-factor model ($\chi^2 = 84.84$, $\chi^2/df = 1.93$, $p < .05$; CFI = .98; TLI = .97; RMSEA = .06).

Table 3

Goodness of Fit Indices for the One-Factor Model of the OFPQ ($n = 224$)

Goodness of fit indices	Tested model
χ^2	84.835
df	44
p -value	< .05
χ^2/df	1.93
Tucker-Lewis Index (TLI)	.97
Comparative Fit Index (CFI)	.98
Root Mean Square Error Of Approximation (RMSEA)	.06

Note. χ^2 and the χ^2/df (cutoff ≤ 3 ; Marsh & Balla, 1994), the comparative fit index (CFI; cutoff ≥ 0.90 ; Bentler, 1990), the Tucker Lewis index (TLI; cutoff ≥ 0.90 ; Bentler & Bonnet, 1980), and the root mean square error of approximation (RMSEA; cutoff $\leq .08$; Browne & Cudeck, 1993).

Item analysis ($n = 449$) indicated excellent inter-item correlation (range = .35 to .82; Table 4), corrected item-total correlation (range = .51 to .86; Table 4), and Cronbach's α ($\alpha = .94$, 95% CI [.93, .95]), supporting the scale's reliability.

Table 4
Item Characteristics and Inter-Item Correlations of the Items in the ONPQ (n = 449)

Item	M (SD)	Corrected item-total correlations	Cronbach's α if item deleted	1	2	3	4	5	6	7	8	9	10	11
1	2.03 (1.07)	.69	.94	1										
2	1.87 (1.09)	.68	.94	.60**	1									
3	1.78 (1.08)	.77	.93	.60**	.59**	1								
4	2.22 (1.37)	.74	.94	.51**	.49**	.56**	1							
5	2.09 (1.27)	.80	.93	.58**	.57**	.68**	.65**	1						
6	1.97 (1.19)	.78	.93	.60**	.58**	.62**	.61**	.67**	1					
7	1.95 (1.21)	.84	.93	.62**	.58**	.68**	.69**	.73**	.71**	1				
8	2.00 (1.27)	.86	.93	.60**	.59**	.69**	.68**	.75**	.72**	.79**	1			
9	1.82 (1.15)	.85	.93	.60**	.58**	.72**	.65**	.74**	.72**	.81**	.82**	1		
10	2.01 (1.19)	.75	.93	.58**	.55**	.65**	.61**	.62**	.64**	.66**	.64**	.69**	1	
11	2.74 (1.48)	.51	.95	.35**	.40**	.39**	.45**	.39**	.41**	.43**	.50**	.44**	.42**	1

* $p < .05$. ** $p < .01$.

The Determinants and Consequences of Online Friendship Preference

After establishing psychometric properties of the OFPQ, Pearson correlation coefficients and multiple regression analyses were conducted to address the determinants and consequences of online friendship preference ($n = 449$). As expected (Table 5), fear of intimacy ($r = .34$; $p < .01$), perceived relationship vulnerability ($r = .26$; $p < .01$), and problematic internet use ($r = .27$; $p < .01$) were positively correlated with online friendship preference. Contrary to our expectations, there were no significant correlations between fear of negative evaluation ($r = .09$; $p = .06$) and hurt feeling proneness ($r = .07$; $p = .16$) with online friendship preference.

Table 5

Descriptive Statistics and Correlations for Study's Variables ($n = 449$)

Variable	<i>M</i>	<i>SD</i>	α	1	2	3	4	5	6	7	8	9	10
1. Fear of losing the self	14.64	4.81	.77	1									
2. Fear of losing the other	16.49	4.50	.71	.44**	1								
3. Fear of intimacy	31.13	7.90	.80	.86**	.84**	1							
4. Fear of negative evaluation	25.27	13.18	.94	.41**	-.02	.24**	1						
5. Hurt feeling	19.45	4.66	.71	.29**	.02	.19**	.57**	1					
6. Perceived relationship vulnerability	4.33	1.81	—	.34**	.18**	.31**	.43**	.37**	1				
7. Obsession disorder	8.03	3.74	.88	.34**	.06	.24**	.40**	.27**	.32**	1			
8. Neglect/control disorder	17.07	5.82	.82	.31**	.04	.22**	.40**	.22**	.33**	.64**	1		
9. Problematic internet use	25.10	8.70	.88	.36**	.05	.25**	.44**	.26**	.36**	.86**	.94**	1	
10. Online friendship preference	22.48	10.65	.94	.32**	.26**	.34**	.09	.07	.26**	.30**	.21**	.27**	1

Note. Fear of losing the self and fear of losing the other are subscales of the Fear of Intimacy Components Questionnaire; Obsession disorder and neglect/control disorder are subscales of the Problematic Internet Use Questionnaire-9.

The sum of study's variables explained .39 of the unique variance in online friendship preference ($R^2 = .39$, $p < .01$). Fear of losing the self ($\beta = .24$; $p < .01$), fear of losing the other ($\beta = .11$; $p < .05$), and perceived relationship vulnerability ($\beta = .21$; $p < .01$) significantly predicted online friendship preference (Table 6). Further, regression results confirmed the relation between online friendship preference and problematic internet use ($R^2 = .27$, $p < .01$; $\beta = .27$; $p < .01$).

Table 6

Summary Statistics for the Regression Equation Predicting Online Friendship Preference ($n = 449$)

Predictive Variable	R^2	ΔR^2	B	SE	β	t	p
Final model	.39	.15					
Fear of losing the self			.53	.12	.24	4.33	.000
Fear of losing the other			.27	.12	.11	2.21	.028
Fear of Negative Evaluation			-.06	.05	-.07	-1.20	.229
Hurt feeling			-.10	.12	-.04	-.78	.436
Perceived Relationship Vulnerability			1.23	.30	.21	4.13	.000

Note. Total score of fear of intimacy was excluded.

Discussion

The present study confirmed the psychometric properties of the Online Friendship Preference Questionnaire (OFPQ). To our knowledge, the OFPQ is the first scale measuring online friendship preference. We found that participants with high fear of intimacy and perceived relationship vulnerability were more inclined toward online friendship preference. Moreover, results showed that online friendship preference predicted problematic internet use. Our findings support the Hyperpersonal Model of interpersonal communication (Walther et al., 2015) and suggest that online friendship may be a response to social anxiety.

The Hyperpersonal Model of interpersonal communication suggests that computer-mediated communication can offer a range of advantages over traditional face-to-face communication (Walther et al., 2015). When communicating online, individuals can optimize self-presentation by selectively posting information or editing photos and text to enhance social desirability. The delays of asynchronous communication allow for ample planning, editing, and self-censorship to maximize one's impression management strategy and therefore avoid negative evaluation. Moreover, internet communication generally features reduced social cues (e.g., nonverbal behaviors; Parks & Floyd, 1996). In the absence of extensive social cues, communication partners tend to "fill in the gaps" by assuming positive characteristics, which may make the communicator seem even more socially desirable (Parks & Floyd, 1996). In an evaluation of the Hyperpersonal Model, Hian et al. (2004) experimentally varied communication in dyads with some pairs interacting face-to-face and others interacting electronically. They found that relational intimacy developed more rapidly among those using computer-mediated communication (Hian et al., 2004). These results suggest that, under some circumstances, computer-mediated communication may facilitate the development of interpersonal relationships.

In our study, participants with high fear of intimacy including fear of losing the self ($\beta = .24$; $p < .01$) and fear of losing the other ($\beta = .11$; $p < .05$), and also perceived relation-

ship vulnerability ($\beta = .21$; $p < .01$), tended to prefer online over face-to-face friendships. Anxiety over forming relationships may inspire concealment of undesirable aspects of personality or appearance. Online friendships may make it easier to practice image management and hide weaknesses. Face-to-face communication could be perceived as threatening because of the lack of control and greater spontaneity. Our findings concur with previous research showing that rejection-sensitive individuals are more likely to use computer-mediated communication (Blackhart et al., 2014; Farahani et al., 2011). The current study extends the Hyperpersonal Model (Walther et al., 2015) by identifying psychological characteristics of individuals who find computer-mediated communication most advantageous.

We have argued that online friendship may be adaptive for some people. However, it is reasonable to inquire whether there are also maladaptive qualities to online friendships. Though it is tempting to assume that online friendships are less authentic and satisfying than face-to-face relationships, one might reach a more optimistic conclusion if online intimacies are compared to the alternative of social isolation. Research has shown that fear of intimacy predicts loneliness (Descutner & Thelen, 1991) and has negative effect on self-disclosure and perceived responsiveness in interpersonal relationships (Manbeck et al., 2020). Perhaps the pursuit of online friendships among those who fear intimacy reduces loneliness. A more concerning result was that online friendship preference predicted problematic internet use in our study. Further research should explore whether online friendship preference is a cause or consequence of problematic internet use. It could be the case that problematic internet users begin to prefer online friendships as a consequence of particularly intense internet use. Future studies should also include a measure of frequency of internet use.

The present study has some limitations. The sample was homogeneous, consisting of young adult college students in Iran, about two thirds of whom were women. Research on online friendship preference has been limited and we have no way of knowing how our results might compare with more diverse older samples, community samples, and samples selected from other cultural groups. Cross-cultural studies are necessary to investigate how findings from Iran reflect online friendship in other societies. We did not have a sample size that permitted the analysis of a separate subsample for investigating predictors of online friendship preference. Using a different subsample from the EFA and CFA analyses would have led to more concise results. Our measure of perceived relationship vulnerability consisted of a single item and we were therefore unable to evaluate the reliability of that measure. Future research should confirm the relationship between online friendship preference and perceived relationship vulnerability using a multi-item measure. Finally, our design is correlational, making it difficult to conclude the direction of cause and effect. For example, we suggest that fear of intimacy is a cause of online friendship preference. However, it is also reasonable to conclude that online friendship preference increases fear of intimacy through negative reinforcement

associated with the avoidance of face-to-face interactions. In other words, cultivating exclusively online friendships may cause greater apprehension of face-to-face friendships because they are unfamiliar and seem to require an enhanced level of intimacy that one can easily avoid in online interactions.

Conclusion

Despite its limitations, the present research contributes to the literature on online relationships by providing a valid and reliable instrument to measure online friendship preference. Our findings also provide preliminary information about the psychological determinants and consequences of online friendship preference. As the sophistication of internet communication grows, novel strategies of impression management become possible (e.g., digital enhancement of video, use of avatars to create alternative identities). Moreover, global events such as the recent COVID-19 pandemic have the power to severely curtail face-to-face interactions. Further research should continue to explore how technology might enhance or impair the formation of interpersonal relationships.

Funding: The authors have no funding to report.

Acknowledgments: The authors have no additional (i.e., non-financial) support to report.

Competing Interests: The authors have declared that no competing interests exist.

References

- Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, *107*(2), 238–246. <https://doi.org/10.1037/0033-2909.107.2.238>
- Bentler, P. M., & Bonnet, D. C. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, *88*(3), 588–606. <https://doi.org/10.1037/0033-2909.88.3.588>
- Blackhart, G. C., Fitzpatrick, J., & Williamson, J. (2014). Dispositional factors predicting use of online dating sites and behaviors related to online dating. *Computers in Human Behavior*, *33*, 113–118. <https://doi.org/10.1016/j.chb.2014.01.022>
- Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136–162). Sage.
- Buote, V. M., Wood, E., & Pratt, M. (2009). Exploring similarities and differences between online and offline friendships: The role of attachment style. *Computers in Human Behavior*, *25*(2), 560–567. <https://doi.org/10.1016/j.chb.2008.12.022>
- Caplan, S. E. (2007). Relations among loneliness, social anxiety, and problematic Internet use. *Cyberpsychology & Behavior*, *10*(2), 234–242. <https://doi.org/10.1089/cpb.2006.9963>

- Carleton, R. N., McCreary, D. R., Norton, P. J., & Asmundson, G. J. G. (2006). Brief Fear of Negative Evaluation Scale-Revised. *Depression and Anxiety, 23*(5), 297–303.
<https://doi.org/10.1002/da.20142>
- Carter, D. (2005). Living in virtual communities: An ethnography of human relationships in cyberspace. *Information Communication and Society, 8*(2), 148–167.
<https://doi.org/10.1080/13691180500146235>
- Carter, D. M. (2004). Living in virtual communities: Making friends online. *Journal of Urban Technology, 11*(3), 109–125. <https://doi.org/10.1080/10630730500064448>
- Chan, D. K. S., & Cheng, G. H. L. (2004). A comparison of offline and online friendship qualities at different stages of relationship development. *Journal of Social and Personal Relationships, 21*(3), 305–320. <https://doi.org/10.1177/0265407504042834>
- Chan, G. H. (2020). Intimacy, friendship, and forms of online communication among hidden youth in Hong Kong. *Computers in Human Behavior, 111*, Article 106407.
<https://doi.org/10.1016/j.chb.2020.106407>
- Chan, G. H. Y., & Lo, T. W. (2014a). Do friendship and intimacy in virtual communications exist? An investigation of online friendship and intimacy in the context of hidden youth in Hong Kong. *Revista de Cercetare si Interventie Sociala, 47*, 117–136.
- Chan, G. H., & Lo, T. (2014b). Quality of life of the hidden youth in Hong Kong. *Applied Research in Quality of Life, 9*, 951–969. <https://doi.org/10.1007/s11482-013-9279-x>
- Cleary, M., Lees, D., & Sayers, J. (2018). Friendship and Mental Health. *Issues in Mental Health Nursing, 39*(3), 279–281. <https://doi.org/10.1080/01612840.2018.1431444>
- Demir, M., & Özdemir, M. (2010). Friendship, Need Satisfaction and Happiness. *Journal of Happiness Studies, 11*, 243–259. <https://doi.org/10.1007/s10902-009-9138-5>
- Descutner, C. J., & Thelen, M. H. (1991). Development and validation of a fear-of-intimacy scale. *Psychological Assessment, 3*(2), 218–225. <https://doi.org/10.1037/1040-3590.3.2.218>
- Farahani, H. A., Aghamohamadi, S., Kazemi, Z., Bakhtiarvand, B., & Ansari, M. (2011). Examining the relationship between sensitivity to rejection and using Facebook in university students. *Procedia: Social and Behavioral Sciences, 28*, 807–810. <https://doi.org/10.1016/j.sbspro.2011.11.147>
- Feeney, J. A. (2004). Hurt feelings in couple relationships: Towards integrative models of the negative effects of hurtful events. *Journal of Social and Personal Relationships, 21*(4), 487–508.
<https://doi.org/10.1177/0265407504044844>
- Hian, L., Chuan, S., Trevor, T. & Detenber, B. (2004) Getting to know you: Exploring the development of relational intimacy in computer-mediated communication. *Journal of Computer Mediated Communication, 9*(3), Article JCMC935.
<https://doi.org/10.1111/j.1083-6101.2004.tb00290.x>
- Huang, S. A., Ledgerwood, A., & Eastwick, P. W. (2020). How do ideal friend preferences and interaction context affect friendship formation? Evidence for a domain-general relationship initiation process. *Social Psychological & Personality Science, 11*(2), 226–235.
<https://doi.org/10.1177/1948550619845925>

- Kocovski, N. L., & Endler, N. S. (2000). Social anxiety, self-regulation, and fear of negative evaluation. *European Journal of Personality*, 14(4), 347–358.
[https://doi.org/10.1002/1099-0984\(200007/08\)14:4<347::AID-PER381>3.0.CO;2-7](https://doi.org/10.1002/1099-0984(200007/08)14:4<347::AID-PER381>3.0.CO;2-7)
- Laconi, S., Urbán, R., Kaliszewska-Czeremska, K., Kuss, D. J., Gnisci, A., Sergi, I., Barke, A., Jeromin, F., Groth, J., Gamez-Guadix, M., Ozcan, N. K., Siomos, K., Floros, G. D., Griffiths, M. D., Demetrovics, Z., & Király, O. (2019). Psychometric evaluation of the nine-item Problematic Internet Use Questionnaire (PIUQ-9) in nine European samples of internet users. *Frontiers in Psychiatry*, 10, Article 136. <https://doi.org/10.3389/fpsy.2019.00136>
- Lawshe, C. H. (1975). A quantitative approach to content validity. *Personnel Psychology*, 28(4), 563–575. <https://doi.org/10.1111/j.1744-6570.1975.tb01393.x>
- Leary, M. R., & Springer, C. A. (2001). Hurt feelings: The neglected emotion. In R. M. Kowalski (Ed.), *Behaving badly: Aversive behaviors in interpersonal relationships* (pp. 151–175). American Psychological Association. <https://doi.org/10.1037/10365-006><https://doi.org/10.1037/10365-006>
- Manbeck, K. E., Kanter, J. W., Kuczynski, A. M., Maitland, D. W. M., & Corey, M. (2020). Fear-of-intimacy in the interpersonal process model: An investigation in two parts. *Journal of Social and Personal Relationships*, 37(4), 1317–1339. <https://doi.org/10.1177/0265407519898267>
- Marsh, H. W., & Balla, J. (1994). Goodness of fit in confirmatory factor analysis: The effects of sample size and model parsimony. *Quality & Quantity*, 28(2), 185–217.
<https://doi.org/10.1007/BF01102761>
- Morahan-Martin, J., & Schumacher, P. (2003). Loneliness and social uses of the Internet. *Computers in Human Behavior*, 19(6), 659–671. [https://doi.org/10.1016/S0747-5632\(03\)00040-2](https://doi.org/10.1016/S0747-5632(03)00040-2)
- Parker, J. G., & Asher, S. R. (1993). Friendship and friendship quality in middle childhood: Links with peer group acceptance and feelings of loneliness and social dissatisfaction. *Developmental Psychology*, 29(4), 611–621. <https://doi.org/10.1037/0012-1649.29.4.611>
- Parks, M.R. & Floyd, K. (1996). Making friends in cyberspace. *Journal of Computer-Mediated Communication*, 1(4), Article JCMC144. <https://doi.org/10.1111/j.1083-6101.1996.tb00176.x>
- Pedro Sobral, M., & Emilia Costa, M. (2015). Development of the Fear of Intimacy Components Questionnaire (FICQ): Embracing a dependence component. *European Journal of Psychological Assessment*, 31(4), 302–309. <https://doi.org/10.1027/1015-5759/a000238>
- Policarpo, V. (2015). What is a friend? An exploratory typology of the meanings of friendship. *Social Sciences*, 4(1), 171–191. <https://doi.org/10.3390/socsci4010171>
- Shepherd, R.-M., & Edelman, R. J. (2005). Reasons for internet use and social anxiety. *Personality and Individual Differences*, 39(5), 949–958. <https://doi.org/10.1016/j.paid.2005.04.001>
- Smahel, D., Brown, B. B., & Blinka, L. (2012). Associations between online friendship and Internet addiction among adolescents and emerging adults. *Developmental Psychology*, 48(2), 381–388.
<https://doi.org/10.1037/a0027025>
- Tang, L. (2010). Development of online friendship in different social spaces: A case study. *Information, Communication & Society*, 13(4), 615–633.
<https://doi.org/10.1080/13691180902998639>

- Valkenburg, P. M., & Peter, J. (2007). Preadolescents' and adolescents' online communication and their closeness to friends. *Developmental Psychology, 43*(2), 267–277.
<https://doi.org/10.1037/0012-1649.43.2.267>
- Vangelisti, A., & Beck, G. (2007). Intimacy and fear of intimacy. In L. L. Abate (Ed.), *Handbook of low-cost interventions to promote physical and mental health: Theory, research, and practice* (pp. 395–414). Springer.
- Walther, J. B., Van Der Heide, B., Ramirez, A., Jr., Burgoon, J. K., & Peña, J. (2015). Interpersonal and hyperpersonal dimensions of computer-mediated communication. In S. S. Sundar (Ed.), *The handbook of the psychology of communication technology* (pp. 3–22),
<https://doi.org/10.1002/9781118426456.ch1>
- Waltz, C. F., & Bausell, R. B. (1981). *Nursing research: Design, statistics, and computer analysis*. F.A. Davis.
- Wong, M. (2020). Hidden youth? A new perspective on the sociality of young people 'withdrawn' in the bedroom in a digital age. *New Media & Society, 22*(7), 1227–1244.
<https://doi.org/10.1177/1461444820912530>
- Yau, J. C., & Reich, S. M. (2018). Are the qualities of adolescents' offline friendships present in digital interactions? *Adolescent Research Review, 3*, 339–355.
<https://doi.org/10.1007/s40894-017-0059-y>