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Loneliness Predicts Online Friend Preference: The Moderation Effect of Emotional Stability

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Abstract. During the era of the Internet, online friends became the trend. Different research in the past focused on the effects and the external reasons of online friends in both external ways and internal ways. In this research, researcher assumed that loneliness is positively related to online friend preference, and emotional stability is the moderator of the relationship. Participants finished a questionnaire with 9-point Likert scales, and Jamovi was used to conduct data analysis and moderation analysis. The result verified these hypotheses: there is a positive relationship between loneliness and online friend preference. Also, the moderation effect of emotional stability is significant in low emotional stability, but it is not significant in high emotional stability. The limitations includes limited sample size, gender difference, and limitation of moderators. Future studies can focus on the causual relationship between loneliness and online friend preference and the difference of the relationship between different cultural background.

Keywords: online friend preference, loneliness, emotional stability

1. Introduction

Nowadays, with the rapid development of the Internet, people contact people online more than offline: chatting in social media such as Facebook for breaks [1], commenting on online friends' posts, and even talking about issues of work online. Students also have online friends. They usually talk with their online friends about their common hobbies and other popular topics. In China, even elders can get used to social media and make online friends.

1.1. External reason

There is a possible external reason for this phenomenon. As Cybertown [2] has been built since the beginning of the century, we have more chances to engage in online activities, such as socializing [3]. Thus, we make more friends online and fewer offline. However, the internal motivation for the increasing preference for making online friends should be discovered.

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1.2. Online friend preference

Online friend preference is the tendency of people to make friends online. Friendship is defined as the bond of mutual love, trust, and support, which can enhance happiness and help meet basic needs [4]. Online friendship is a friendship formed online. Online friendship focuses on common interests and common goals. Best et al. [5] did research about online friendship, well-being, and social connection. Through questionnaires and interviews, we can find that well-being was positively related to online friends, which can positively influence social connections. Also, in the research conducted by Shabahang et al. [3], researchers used an 11-item questionnaire to examine the relationship between online friendship and fear of intimacy, finding a positive relationship between online friendship preference and fear of intimacy.

1.3. Loneliness

Loneliness, defined as "perceived social isolation" [6], is the feeling of being ignored in a social environment. Loneliness is a combination of physical, mental, and social pain. Living in a society, people need a sense of belonging [7]. Building relationships is important as relationships can fulfill humans' basic needs, such as intimacy and attachment. In early research, the relationship between social media disorder and loneliness was measured. In the research conducted by Azhari et al. [8], questionnaires were sent to 41 teenage participants. The result shows that more social media disorder will cause more loneliness. Also, social support, an important aspect of loneliness, was measured in another research, showing the positive relationship between online friends and well-being [5].

1.4. Emotional stability

Emotional stability is the ability to keep calm under stress [9]. People who are emotionally stable can revert to a stable mood after a tragedy or adversity. Thus, they are less likely to find others to calm down. However, people who are not emotionally stable are more likely to post their feelings online to get some support.

1.5. Limitations of past research

Past research focused on the field of online socializing has mostly been about the effect of online friendships. Also, the moderator wasn't measured in the past research. Thus, this research will focus on loneliness and online friend preference. Also, the moderating effect of emotional stability should be measured.

1.6. Hypothesis

Based on these information, the researcher had two hypothesis.

1. Loneliness can predict online friend preference. The relationship between these two is positive.
2. Emotional stability can moderate the relationship of loneliness and online friend preference.

The research are expected to measure loneliness, online friend preference and emotional stability. Then, researcher analyzed the relationship between these factors.

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2. Method

2.1. Participants

There are 95 people who participated in the research. 83 valid data were collected (M_{age}=28.3, SD_{age}=16; 22 males, 73 females; senior high students 45.26%, postgraduate 17.89%; all of them are Chinese). Participants are recruited in WeChat (as this is the most popular social media in China), most of them are high school students, and others are their parents. Informed consent was obtained from all participants prior to the research.

2.2. Procedure

Participants answered the questionnaire, including the *Online Friend Preference Questionnaire* [3], U. C. L. A. Loneliness scale [10], and the Chinese Big Five Personality Inventory (CBF–PI) [11]. When calculating the CBF-PI, I deleted some questions to make sure the questionnaire is not too long. All response options were on a 9-point Likert scale from 1 (not at all) to 9 (always). In the Loneliness scale and the Big Five Personality Inventory, there are some reverse scoring questions, so for calculating these questions, the scores of these questions are calculated as the function $y=10-x_{score}$. An attention testing question was also added. Questions are in Appendix 1.

Data collection lasts for almost one week. After collecting data, I used Jamovi to analyze the data. First, I conducted a correlational analysis to test hypothesis 1. Then I conducted a moderated multiple regression analysis to test hypothesis 2. The independent variable was loneliness, the dependent variable was online friend preference, and the moderator was emotional stability.

3. Results

3.1. Correlations

After collecting all the data, some answers that answered the attention testing incorrectly are excluded. Initially, online friend preference and loneliness are measured to find the relationship. The average score of every statement in each scale is calculated. Online friend preference (measured in a 9-point Likert scale, range 1-9) was moderately low (M_{OFP}=2.92, SD_{OFP}=1.56). This means that people in China are more likely to make friends offline. Loneliness (measured in a 9-point Likert scale, range 1-9) was moderately low ($M_{loneliness}$=3.80, $SD_{loneliness}$=1.58). As H1 hypothesized, loneliness (df=81, $r_{loneliness}$=0.485, p<.001) is moderately correlated to online friends preference, which means when people are lonelier, they are more likely to make online friends and talk to them.

Table 1. Correlation matrix

		online friends preference	loneliness	emotional stability	conscientiousness	agreeableness	openness	extraversion
online friends preference	Pearson's r	—						
loneliness	Pearson's r	0.485 (p<.001)	—					
emotional stability	Pearson's r	0.445 (p<.001)	0.671 (p<.001)	—				

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Table 1. (continued)

conscientiousness	Pearson's r	0.041 (p=0.711)	-0.248 (p=0.024)	-0.076 (p=0.496)	—			
extraversion	Pearson's r	-0.25 (p=0.023)	-0.553 (p<.001)	-0.311 (p=0.004)	0.054 (p=0.625)	-0.448 (p<.001)	0.393 (p<.001)	—

3.2. Moderation

The indirect effect of emotional stability was not significant (b=-0.0637, SE=.0579, 95%CI=[.0902, 0.5897], p=0.002). However, in the simple slope estimate, results show that, when emotional stability is high, the relationship between loneliness and online friends preference was not significant, b=0.22, SE=0.174, 95%CI=[-.1114, .582], p=.207, while when emotion stability is low, the relationship was significant, b=0.418, SE=0.133, 95%CI=[.1778, .707], p=0.002. This means that when people have lower emotional stability, they are more likely to make online friends when they are lonely.

Table 2. Moderation estimates

Moderation Estimates						
			95% Confidence Interval			
	Estimate	SE	Lower	Upper	Z	p
loneliness	0.3189	0.1244	0.0993	0.5897	2.56	0.010
emotional stability	0.2340	0.1576	-0.0817	0.5288	1.48	0.138
loneliness ✻ emotional stability	-0.0637	0.0579	-0.1670	0.0634	-1.10	0.272

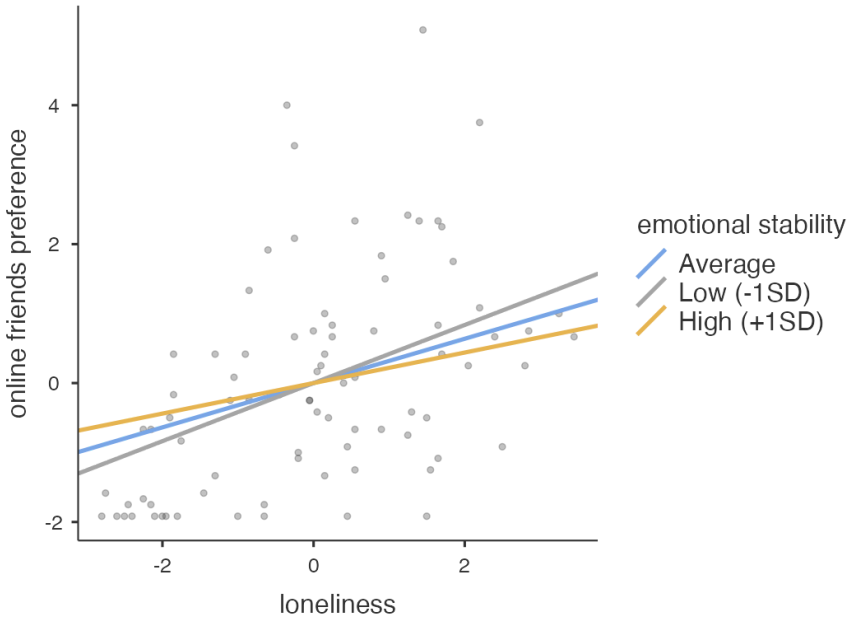

Figure 1. Simple slope graph

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Table 3. Simple slope analysis

Simple Slope Estimates						
			95% Confidence Interval			
	Estimate	SE	Lower	Upper	Z	p
Average	0.319	0.126	0.0902	0.587	2.54	0.011
Low (-1SD)	0.418	0.133	0.1778	0.707	3.15	0.002
High (+1SD)	0.220	0.174	-0.1114	0.582	1.26	0.207

Note. shows the effect of the predictor (loneliness) on the dependent variable (online friends preference) at different levels of the moderator (emotional stability)

4. Discussion & conclusion

The main result can be summarized. Firstly, there is are positive relationship between loneliness and online friend preference. When people feel lonely, the online friends will be higher. Secondly, emotional stability has a moderating effect on loneliness and online friend preference. People with low emotional stability are more likely to have higher online friend preference when they feel lonely. The result is significant. This result is in contrast to Azhari's result.

In earlier research, the relationship between loneliness and online friends is indirect. Loneliness and social media [12], social connection and online friend preference [3]; these relationships are discussed in past experiments, but they are only some aspects of loneliness and online friend preference. This research focuses on the direct relationship between loneliness and online friend preference.

This research answers the question of why people have more online friends. First of all, the feeling of loneliness pushes people to gain social connections. People need social connections, and with the development of the Internet, people can find social connections online. Thus, people have a greater tendency to have friends online. The second reason is about personality. Emotional stability is the ability to keep calm. Friends can support people emotionally. When people have stable emotions, they are less likely to find friends for support. On the contrary, people who lack emotional stability are more likely to find friends because they need emotional support from friends.

There are some applications for these results. Loneliness is the negative feeling of being ignored in relationships. In the research, we can find a positive correlation between online friend preference and loneliness. Thus, to reduce the negative feeling of loneliness, building online friendships may be a suitable way for people to rebuild social relationships. For high schools, making online friends can be used to reduce the loneliness of students. For individuals who are of low emotional stability, they can moderately use social media to make more friends and communicate with them.

This research also has a boundary condition. As the average age of participants is 28.3, the research mostly focuses on young adults and teenagers. Teenagers face changes such as identity and physical changes, and their emotions are less stable. They are less likely to talk with their parents for help. Thus, they are more likely to have online friends. Also, the gender difference influences the result. According to the "tend-and-befriend" theory, women are more likely to make friends to face stress. As the majority of all participants are women, the tendency to make online friends will be higher than in real life. Cultural factors can also influence the result. Thus, the result can only be applied to teenagers and females.

There are some limitations to the research. First of all, the sample size is limited. Future research can focus on more than 200 people in different individualistic areas to examine the cultural

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differences. Also, gender differences should be examined in further research. Secondly, further research can conduct an experiment to examine the cause and effect of loneliness and online friend preference. For instance, researchers can manipulate the feeling of loneliness and observe the behavior of participants connecting with online friends. Thirdly, more moderators should be examined in the research to consider more. For instance, perfectionism and anxiety can also be measured in future research.

With the development of the Internet, online friendship will be more and more common. Realizing the benefits of making online friends helps us make better use of the Internet and build a better self through it. Thus, one of the things you can do if you feel lonely is to try making friends online.

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Appendix

Online Friends Preference

Compared with offline friends, I tend to value my online friends more.

When looking for new friends, I am more likely to seek them online than offline.

I rely more on online friends for support than on friends in real life.

When something important happens, I usually prefer sharing it with online friends.

My relationships with online friends often feel more emotionally warm than those with offline friends.

I generally enjoy interacting with online friends more than spending time with offline friends.

I feel a stronger sense of intimacy with online friends than with people I know face-to-face.

I feel more connected to my online friends than to my offline friends.

My online friendships are usually more meaningful than my offline friendships.

I believe that friendships formed online can be as genuine as, or even more genuine than, those formed offline.

I find it easier to express my thoughts and feelings to online friends.

Given the choice, I would rather build friendships online than through face-to-face interaction.

Loneliness

How often do you feel connected with the people around you?

How often do you feel that you do not have enough companionship?

How often do you feel that there is nobody you can depend on?

How often do you feel lonely?

How often do you feel that you belong to a circle of friends? *

How often do you feel that you share common interests and experiences with people around you? *

How often do you feel disconnected from people who were once close to you?

How often do you feel that others do not understand or share your interests and opinions?

How often do you feel sociable and approachable? *

How often do you feel emotionally close to others? *

How often do you feel excluded by others?

How often do you feel that your relationships lack meaning?

How often do you feel that nobody truly understands who you are?

How often do you feel socially isolated?

How often do you feel able to find company when you want it? *

How often do you feel understood by the people around you? *

How often do you feel shy or hesitant in social situations?

How often do you feel surrounded by people but still disconnected from them?

How often do you feel that there are people you can have a meaningful conversation with? *

How often do you feel that there are people you can seek help from when needed? *

Big Five Personality Traits

I frequently experience feelings of fear or anxiety.

Once I set a goal, I work hard until I achieve it.

I generally believe that people are kind and well-intentioned.

I often imagine things vividly in my mind.

I do not enjoy being in large social gatherings.

At times, I feel that I am not very useful or capable.

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I usually think carefully before making decisions.
I am not particularly concerned when I see others being treated unfairly.
I enjoy challenging conventions and trying new approaches.
At social events, I tend to actively engage with others.
I often interpret other people's casual remarks as being related to me.
People usually describe me as careful and prudent.
I often feel detached from the suffering of others.
I enjoy exciting and adventurous experiences.
I prefer to stay away from crowded and noisy places.
Under stress, I sometimes feel overwhelmed.
I like organizing and planning things in advance.
I mainly focus on my own needs rather than those of others.
I am curious about a wide range of topics.
I can usually keep conversations going without creating awkward silences.
Demographic Information
If you are answering this questionnaire attentively, please select "1".
Age: _____
Gender: _____
Educational Level: _____