

More Attached, Less Stressed: Viewers' Parasocial Attachment to Virtual Youtubers and Its Influence on the Stress of Viewers During the COVID-19 Pandemic

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ABSTRACT. The COVID-19 pandemic is stressful for people, yet it has witnessed an exponential growth in the number of Virtual Youtubers and their viewers in China. Virtual Youtubers (VTubers) are people represented by virtual 2D or 3D avatars on different platforms. From the perspective of media psychology, an online survey of 669 participants was conducted to examine the intensity of Chinese viewers' parasocial attachment to the VTubers and the influence of such attachment on the stress of these viewers during the pandemic. As a result, positive correlations were found between viewers' parasocial attachment to VTubers and the stress relief of these viewers.

1 Introduction

Many people have been suffering from stress in response to COVID-19 pandemic [1]. This is a time when people are discouraged from having face-to-face conversations and have to adapt to a lifestyle restricted within their homes. To satisfy their emotional and interactive needs, more and more people watch VTubers streaming online. They are fascinated by the VTubers with charming voices from the actors behind the avatars (i.e. Nakanohito), with attractive avatars that capture Nakanohito's facial expressions and body movements, and with Nakanohito's charisma as well. As a result, the companies related to VTubers developed rapidly during the pandemic in China. A case in point is ANYCOLOR (a Japanese entertainment company with Virtual Youtuber projects) which owns Vox Akuma whose 1.7-hour debut on Bilibili earned approximately 1,100,000 yuan overnight [2].

Previous research about the VTubers mainly focused on the ontological nature of VTubers and VTubers' relationship with the audience. Zhou suggests that the external form of VTubers' virtual bodies is shaped by the consumer society and hyper-modernity [3]. As for VTubers' relationship with the viewers, Lu discovered that the Otaku community thought that VTubers were mentally more distant to them compared with real-person streamers [4], and Huang claims that fans play a crucial role in shaping the multiplicity of VTubers [5]. In addition, Stein conducted an experiment to prove that despite viewers' more intense parasocial interactions with VTubers, these viewers believed that VTubers had less psychological human-likeness [6]. Furthermore, Luo mentions that the emotional connection between the viewers and VTubers is mainly manifested in the attachment of the viewers to the

avatars of the VTubers when he investigates the embodiment of VTubers with a phenomenological approach [7].

However, it can be seen that though some critics notice the parasocial relationship and even the attachment built between VTubers and viewers, how these connections may affect the audience during the COVID-19 pandemic has not been thoroughly studied. Therefore, from the angle of media psychology, this paper analyses the parasocial attachment formed by the viewers to VTubers and its influence on the stress of these viewers in the COVID-19 era with an online survey, hoping to supplement the parasocial attachment theory with fresh evidence and enrich the research about VTubers' effects on people in these trying times.

2 Literature Review

In the field of media psychology, the relationship between a public figure and his or her audience is usually explored by scholars with parasocial theory. Horton and Wohl observe that when watching television, the viewers are engaged in parasocial interaction (PSI) with the performers on television, and that the two seem to be in a parasocial relationship (PSR) [8]. This work belongs to the early literature in parasocial theory, in which PSI and PSR are used interchangeably to refer to a usually one-sided and nonreciprocal manner in which the spectators interact with the media personae. Then, the two concepts are distinguished more clearly by recent scholars, with PSI meaning the viewers' one-sided perception of the performers during the time of actual viewing; and PSR meaning the lasting processes which include affective and cognitive responses continuing outside the viewing time

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[9].

Parasocial attachment (PSA) refers to the progression of a PSR to the point when the media figure becomes a source of perceived safety and security [10]. Stever argues that many similarities exist between the attachment to parasocial characters and the attachment in face-to-face relationships, and Stever also believes that forming parasocial attachment to celebrities may help ease people’s discomfort and pain [11].

3 Methods

3.1 Platforms

An online survey was conducted among participants recruited through posts on different social media platforms in China to increase the diversity within the sample, including Bilibili (a Chinese video website where many VTubers stream), Weibo (the Chinese version of Twitter), and Baidu Tieba (an online forum like Reddit). The survey

was implemented in Chinese in July, 2022.

3.2 Participants

In total, 669 participants completed the questionnaire online. For this study, 4 respondents are excluded from the analysis because they reported that they had never watched the live stream, video clips, or the work of a VTuber during the COVID-19 pandemic, so eventually the answers of 665 respondents are examined in this essay. 21.05 % of the respondents are identified as male ($n = 140$); and 78.95% as female ($n = 525$). All of the audience members of VTubers were under 41 years old, and most viewers were 18 to 25 years old ($n = 445$; 66.92%). The majority reported that they were still attending schools ($n = 217$; 37.27%) or were enrolled in higher education ($n = 346$; 52.03%). About 15.34% of participants reported that they were employed in different sectors or were seeking employment ($n = 102$).

Table 1. Demographic characteristics of respondents ($N = 665$).

| Demographic Characteristics | <i>N</i> | % |
|---|----------|--------|
| Gender | | |
| Male | 140 | 21.05% |
| Female | 525 | 78.95% |
| Age | | |
| Under 18 years old | 191 | 28.72% |
| 18-25 years old | 445 | 66.92% |
| 26-30 years old | 22 | 3.31% |
| 31-40 years old | 7 | 1.05% |
| Occupation | | |
| Primary school students and Junior high school students | 37 | 5.56% |
| High school students | 180 | 27.07% |
| Undergraduates | 305 | 45.86% |
| Postgraduate students and PhD candidates | 41 | 6.17% |
| Civil servants | 9 | 1.35% |
| Business managers and financial industry | 9 | 1.35% |
| Planting, animal husbandry, construction industry | 3 | 0.45% |
| Service, culture and education industry | 10 | 1.5% |
| Internet industry | 19 | 2.86% |
| Medical industry | 6 | 0.9% |
| Other | 46 | 6.92% |

Note. *N* is based on the respondents who have reportedly watched the live stream, video clips or work of a VTuber during the COVID-19 pandemic.

3.3 Variables

Items were adopted from existing literature to measure the constructs in this study. The questionnaire was modified slightly to reflect the context of VTubing. Table 2 demonstrates the descriptive statistics of all items.

Parasocial Attachment (PSA). The first two items for parasocial attachment were derived from Stever’s research [11], and the remaining three items in this category were adapted from the research of Rubin et al. [12],

Tuchakinsky [13], and Wu et al. [14] to measure the intensity of parasocial relationship and the degree of its progression towards parasocial attachment. These items have a 5-point Likert scale that ranged from 1 (strongly disagree) to 5 (strongly agree).

Stress Relief. The three items were adapted from the perceived stress scale [15] and measured on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). A higher score indicates more obvious effects of relieving stress.

Table 2. Mean Scores (*M*) and Standard Deviations (*SD*) of the variables

| Items | <i>M</i> | <i>SD</i> |
|--|----------|-----------|
| Parasocial Attachment (PSA) | | |
| PSA1: On a scale from 1 to 5, watching him/her during the pandemic tends to make me feel: (1 means uncomfortable and insecure; 5 means comfortable and safe) | 4.51 | 0.652 |

| | | |
|--|------|-------|
| PSA2: During the pandemic, his/her presence and companionship is one of the sources of my sense of security. | 3.94 | 0.978 |
| PSA3: I actively search for his/her information. | 4.57 | 0.650 |
| PSA4: I think that he/she could be a friend of mine. | 4.04 | 1.029 |
| PSA5: I often think of him/her, even when I'm not watching him/her. | 4.16 | 0.968 |
| Stress Relief (SR) | | |
| SR1: During the pandemic, when watching him/her, I can temporarily forget about my worries in real life. | 4.32 | 0.814 |
| SR2: During the pandemic, ever since I began watching him/her, I have been more relaxed, and less nervous and stressed, than I was before. | 4.22 | 0.858 |
| SR3: During the pandemic, ever since I began watching him/her, I have been feeling encouraged by him/her and more confident in dealing with the difficulties in real life than I was before. | 4.13 | 0.961 |

Note: $N = 665$.

Pandemic here means the COVID-19 pandemic.

Watching him/her means watching a VTuber's live stream, video clip, or work.

4 Results

The Cronbach's alpha of the essential eight items in this questionnaire ($\alpha = .904$) shows the evidence of reliability among all measures of parasocial attachment and stress relief. As for the validity of these items, the Kaiser-Meyer-Olkin measure verified sampling adequacy ($KMO = .914$) and Bartlett's test of sphericity reached

significance ($p < .001$). Moreover, a correlation analysis (Pearson's r) was conducted to look at the relationship between parasocial attachment and stress relief in general. Results indicate that stress relief was significantly and positively related to parasocial attachment (see Table 3), most notably to the sense of security in parasocial attachment (see PSA2). Generally, the more the respondents were parasocially attached to VTubers, the more they were relieved from stress during the COVID-19 pandemic.

Table 3. Correlations (Pearson's r) between Parasocial Attachment (PSA) and Stress Relief (SR).

| | SR1 | SR2 | SR3 |
|------|--------|--------|--------|
| PSA1 | .533** | .539** | .518** |
| PSA2 | .577** | .594** | .604** |
| PSA3 | .423** | .461** | .484** |
| PSA4 | .508** | .579** | .593** |
| PSA5 | .545** | .544** | .579** |

Note: $N = 665$; ** $p < 0.01$.

Although the general results above clearly proved the positive correlations between parasocial attachment and stress relief, the difference of these correlations among various subgroups in the sampling frame is still worthy of further investigation. Firstly, gender may affect these correlations. To begin with, it can be found in the survey that women tended to form a stronger parasocial attachment to VTubers than men, with higher mean scores in every one of the five items used to measure the parasocial attachment. More importantly, the correlation between parasocial attachment and stress relief was stronger in women than men on the surface, with two bigger Pearson's r among the first two items of PSA and

the first two items of SR. This means that when women were parasocially attached to VTubers, the positive effect of this attachment was more instant and only stayed on the level of mid-term emotional regulation. However, it seems that the effect of parasocial attachment affected men's stress in a more profound way, because when men considered VTubers as one of the sources of their security during the pandemic, they felt more encouraged than women to overcome the difficulties in real life. Therefore, rather than being influenced by the instant effect and mid-term emotional regulation effect of PSA, men were more affected by its motivating effect to address the actual stressful problems in the harsh reality of pandemic.

Table 4. Correlations (Pearson's r) Between Parasocial Attachment and Stress Relief in Men ($n=140$) and Women ($n=525$).

| | SR 1 | | SR 2 | | SR 3 | |
|-------|--------|--------|--------|--------|--------|--------|
| | Men | Women | Men | Women | Men | Women |
| PSA 1 | .493** | .540** | .509** | .545** | .467** | .529** |
| PSA 2 | .514** | .592** | .558** | .601** | .650** | .582** |

Note: ** $p < 0.01$.

Secondly, age can influence the correlations between PSA and SR. It is worthy of note that although children and teenagers under 18 had the second highest mean scores in items related to PSA across all age groups, it was

in the third group with people from 26 to 30 that the correlations between PSA and SR was the most obvious. This means that for people from 26 to 30, forming a strong parasocial attachment to VTubers significantly helps them

ease the stress during the pandemic. In addition, the fourth group with people from 31 to 40 had highest mean scores and the smallest standard deviations in all of the items, but

this group does not worth to be discussed in detail because this group had only seven samples and the significance of all of its correlations was lower than the 0.05 benchmark.

Table 5. Correlations (Pearson’s r) Between Parasocial Attachment and Stress Relief in People who were under 18 ($n=191$), 18-25 years old ($n=445$), 26-30 years old ($n=22$) and 31-40 years old ($n=7$).

| | SR 1 | | | SR 2 | | | SR 3 | | | | | |
|-------|----------|-----------------|-----------------|----------|-----------------|-----------------|----------|-----------------|-----------------|-----------------|--------|-------|
| | Under 18 | 18-25 years old | 26-30 years old | Under 18 | 18-25 years old | 26-30 years old | Under 18 | 18-25 years old | 26-30 years old | 31-40 years old | | |
| PSA 2 | .552** | .575** | .699** | 0.471 | .544** | .604** | .742** | 0.600 | .546** | .600** | .812** | 0.710 |

Note: ** $p < 0.01$.

Thirdly, occupation may also be an influential factor in this correlation. There are differences between people who were studying and working. Students had higher mean scores and smaller standard deviations in the items related to PSA, indicating that students tended to build a stronger

parasocial attachment to VTubers than people who were working. However, it was the people who were working who experienced more effective and deeper stress relief from their parasocial attachment to VTubers during the pandemic.

Table 6. Correlations (Pearson’s r) Between Parasocial Attachment and Stress Relief in People who were studying ($n=563$) and working ($n=102$).

| | SR 1 | | SR 2 | | SR 3 | |
|-------|----------|---------|----------|---------|----------|---------|
| | Studying | Working | Studying | Working | Studying | Working |
| PSA 2 | .564** | .634** | .574** | .674** | .589** | .665** |

Note: ** $p < 0.01$.

5 Discussion

5.1 The Intensity of Parasocial Attachment to VTubers

The parasocial relationship between fans and real-person celebrities has been thoroughly studied in the past, yet the viewers’ parasocial attachment to the rising VTubers on the Internet during the pandemic has not been paid enough attention in the academia. Hence, the present study conducts a survey to look at how intense the parasocial attachment to VTubers is among their audience, and compares such intensity in different subgroups. It has been found that women in the subgroup of gender, people under 18 in the subgroup of age, and students in the subgroup of occupation tended to form a stronger parasocial attachment to VTubers during the COVID-19 pandemic. This may help identify the groups that have a strong parasocial attachment to VTubers more quickly in the future research.

5.2 The Influence of Parasocial Attachment to VTubers on the Audience

The findings in this paper strongly support the soothing effect of parasocial attachment proposed by Stever [11]. It is clear that there were positive correlations between the parasocial attachment (PSA) to VTubers and the stress relief for the audience of VTubers during COVID-19. Moreover, this positive effect of PSA on stress relief during the pandemic was manifest in different aspects in women and men, and more manifest in people from 26 to 30 in the subgroup of age and people who were working. This can help us see how the parasocial attachment to VTubers may positively influence different types of viewers.

6 Conclusion

This study confirms the positive correlations between the viewers’ parasocial attachment to VTubers and the stress relief of these viewers in general. It also provides evidence for Stever’s belief that people’s parasocial attachment to media figures can help reduce people’s discomfort and pain. Moreover, the soothing effects brought by such parasocial attachment to VTubers can vary in aspects and degrees among different subgroups of viewers. These results may inspire the future research related to parasocial attachment and the influence of VTubers, and provide guidelines for the people watching VTubers in the COVID-19 era. Despite these theoretical contributions, the current research has a few limitations that deserve the attention from future researchers. Firstly, since the participants were recruited randomly on the online platforms in China during the pandemic, the sampling profile was inevitably biased to some degree. In the future, it is suggested that a survey using stratified sampling should be conducted to replicate this study in different countries to make sure that there are diversified VTuber viewers from various backgrounds and adequate samples in each subgroups of VTuber viewers. Thus, variations of the correlations between PSA and SR can become clearer and more convincing. Moreover, because this study is based on self-reported data in an online survey, there can be bias caused by dishonest respondents. Therefore, controlled experiments and longitudinal surveys should be conducted to further test and refine these findings in the future.

References

1. C. Wang, R. Pan, X. Wan, Y. Tan, L. Xu, C.S. Ho, R.C. Ho, Immediate psychological responses and

- associated factors during the initial stage of the 2019 coronavirus disease (covid-19) epidemic among the general population in China, *International Journal of Environmental Research and Public Health*, 17(5), 2020, 1729. doi: 10.3390/ijerph17051729.
2. Z. Zhao, J. Zhang, Virtual Youtuber earns a million in a 2.5-hour stream, *Ifeng*, June 28, 2022, Retrieved July 15, 2022, from <https://i.ifeng.com/c/8HBorXQAQ6HF>.
 3. B. Zhou, Body-technology Interaction: the Example of Virtual Youtubers, *Public Communication of Science & Technology*, 13(20), 2021, pp. 161–164. doi: 10.16607/j.cnki.1674-6708.2021.20.049.
 4. Z. Lu, C. Shen, J. Li, H. Shen, D. Wigdor, More kawaii than a real-person live streamer: Understanding how the Otaku Community engages with and perceives virtual youtubers, *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*, 2021. doi: 10.1145/3411764.3445660.
 5. Y. Huang, H.Chen, K. Fang, A Study on the Influence of Fan Participatory Culture on the Development of Virtual Youtubers, *New Media Research*, 8(09), 2022, pp. 101–105. doi: 10.16604/j.cnki.issn2096-0360.2022.09.012.
 6. J.P. Stein, B.P. Linda, N. Anders, Parasocial interactions with real and virtual influencers: The role of perceived similarity and human-likeness, *New Media & Society*, 2022, doi: 10.1177/14614448221102900.
 7. W. Luo, The Embodied Communication of Virtual Youtuber in the context of Technological Philosophy, *Public Communication of Science & Technology*, 14(05), 2022, pp. 131–133. doi: 10.16607/j.cnki.1674-6708.2022.05.033.
 8. D. Horton, R.R. Wohl, Mass communication and para-social interaction, *Psychiatry*, 19(3), 1956, pp. 215–229. doi: 10.1080/00332747.1956.11023049.
 9. J.L. Dibble, T. Hartmann, S.F. Rosaen, Parasocial interaction and parasocial relationship: Conceptual clarification and a critical assessment of measures. *Human Communication Research*, 42(1), 2016, pp. 21–44. doi: 10.1111/hcre.12063.
 10. G.S. Stever, Parasocial Theory: Concepts and Measures, In P. Rössler, C.A. Hoffner, & L. van Zoonen (Eds.), *The International Encyclopedia of Media Effects*, essay, John Wiley & Sons, Inc., 2017, pp. 1–11.
 11. G.S. Stever, Mediated vs. Parasocial Relationships: An Attachment Perspective, *Journal of Media Psychology*, 17(3), 2013, pp. 1–31.
 12. A.M. Rubin, E.M. Perse, R.A. Powell, Loneliness, Parasocial Interaction, and Local Television News Viewing, *Human Communication Research*, 12(2), 1985, pp. 155–180. doi: 10.1111/j.1468-2958.1985.tb00071.x.
 13. R.H. Tukachinsky, Para-romantic love and para-friendships: Development and assessment of a multiple-parasocial relationships scale, *American Journal of Media Psychology*, 2011, pp. 73–94.
 14. Y. Wu, Y. Sun, N. Zhu, X. Shi, The Influence of Otome Video Games on Female Gamers' Views of Ideal Love, *Youth Studies*, 2020, pp. 50–70, 96.
 15. S. Cohen, G.M. Williamson, Perceived Stress in a Probability Sample of the United States, *The Social Psychology of Health*, 1988, pp. 31–67.