

Impact of Phubbing Behavior on Loneliness: Mediated by Fear of Missing Out among Young Adults

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ABSTRACT

This study examined how phubbing behavior—ignoring someone in favor of a smartphone—affects feelings of loneliness among young adults, with a particular emphasis on the role of Fear of Missing Out (FOMO) as a psychological link in this relationship. A sample of 300 participants was surveyed using reliable and validated tools to measure phubbing, FOMO, and loneliness. Results showed that individuals who engage in higher levels of phubbing tend to feel lonelier, and this connection is partly explained by their increased experience of FOMO. In other words, the more people feel left out due to digital distractions, the more disconnected and lonelier they may become. These findings draw attention to the subtle emotional toll of digital habits and suggest a need for greater awareness about how everyday phone use can impact our mental and social well-being. The study adds to the growing conversation around technology use and emotional health, especially in younger populations.

Keywords: Phubbing, loneliness, fear of missing out, young adults, smartphone use, digital habits, emotional well-being

INTRODUCTION

Phubbing Behavior

What is Phubbing and how does it differ from Snubbing In a social context, phubbing integrates "phone" and "snubbing", meaning ignoring the one physically present in favor of engaging on one's mobile phone (Chotpitayasunondh & Douglas, 2016). A common activity among young adults nowadays due to the popularity of mobile technologies, research finds that phubbing results in poor quality interpersonal communication and weakens relational bonds (David & Roberts, 2017; Al-Saggaf & O'Donnell, 2019). Furthermore, interactions between people are reduced as they lose sight of a real discussion and rely more on what happens online (Abeeel et al., 2016; Aagaard, 2020). Although it may appear to be a small error in the realm of one's social world, phubbing can have severe psychological results as a habit.

Phubbing indicates the action of always remaining connected, and the psychology behind it comes from the impulsion toward this action of compulsively looking into one's smartphones (Roberts & David, 2016; Kushlev et al., 2019; Franchina et al., 2018). Young adults who are the most active users of social media and the cell phone, on the whole, are particularly vulnerable to it, often viewing engaging with their smartphones as a means of deflecting awkwardness in a social event or dullness and stress (Beukeboom &

Pollmann, 2021; Elhai et al., 2016). Unfortunately, this habitual avoidance through phubbing could reinforce antisocial tendencies and increase emotional detachment with time.

The snubbing phenomenon is also related to the levels of perceived social norms. Even when it hurts relationship satisfaction and the quality of communication between individuals, people may see it as socially acceptable because it is an action that is almost beholden in witnessing others perform it in public to it themselves (Yam & Kumashiro, 2020; Roberts & David, 2017; Reid & Reid, 2017). Normalization of phubbing desensitizes individuals from the costs of such relationships but makes it commonplace in their daily social settings. It impacts more than behaviors related to etiquette; it extends to emotional disconnection and social withdrawal.

With much prevalence and taking it to be normal, phubbing needs to be explored to see its repercussions by diving into the psychological area of such actions. Most work has concentrated on the dyadic level, in which effects like dented relationship satisfaction or decreased empathy have already begun to be seen (Chotpitayasunondh & Douglas, 2018; Abeele et al., 2019). However, there is now a lot more research interest in the speculative association between phubbing and feelings of loneliness and emotional isolation. It could bring a wider understanding of the effect of phubbing on young people's well-being if it were looked at in relation to other psychosocial constructs such as fear of missing out (FoMO).

Fear of Missing Out (FoMO)

The Fear of Missing Out (FoMO), as defined by Przybylski et al. (2013), is the lingering feeling that others are having a rewarding experience from which one is absent and the desire to be connected with that activity. The evolution of social media into the norm for existence has made FoMO into a centerpiece for understanding the relationship between such digital interactions and psychological health. It has been correlated to compulsive smartphone usage in special populations, especially among youths feeling anxious about being excluded from online conversations and events (Elhai et al., 2020; Alt, 2015; Blackwell et al., 2017). FoMO thus creates room for phubbing, whereby an individual keeps checking their phone to connect with friends while neglecting real-life engagement.

FoMO has been found detrimental in various studies regarding emotional and cognitive well-being. It is correlated with heightened anxiety, depressive symptoms, and lower satisfaction in life, with such effects being more prominent among those who negatively compare their lives with glamorous social media content (Abel et al., 2016; Oberst et al., 2017; Servidio, 2019). FoMO noticeably inculcates compulsive digital behavior and the destruction of self-esteem and emotional regulation, which together act amplifications of the dependency cycle seeking validation online. This will cause less face-to-face interaction and more active phubbing.

FoMO might serve as a mediator in the relationship between technological use and psychological suffering. It escalates the need to be forever online, interferes with offline relationships, and provokes the feeling of being disconnected (Dempsey et al., 2019; Barry et al., 2017; Rozgonjuk et al., 2021). High FoMO means low social life satisfaction, probably leading to more digital p-scape activities which in turn kill the quality of interpersonal relations. Thus, FoMO not only motivates phubbing but may also intensify such psychological effects like loneliness.

FoMO's mediator role is, therefore, relevant for present-day psychological research. It serves as a vital link of association between a behavior such as phubbing and an outcome such as loneliness, therefore helping to explain why certain individuals are more vulnerable to the adverse effects associated with engagement in cyberspace (Buglass et al., 2017; Stead & Bibby, 2017; Balta et al., 2020). Thus, raising awareness of FoMO and conducting behavioral modification techniques may help reduce phubbing behaviors and increase the psychological cost diversion of smartphone overuse.

Loneliness

Loneliness is seen as a subjective emotional state. It is a gap perceived in social relationships desired and actually achieved. (Russell, 1996) It is not simply being alone, but more deeply rooted in feelings of social isolation and disconnectedness. While being digitally connected, young adults today assert that they are lonelier than the generations before (Hunt et al., 2018; Tandon et al., 2021; Barry et al., 2017). The paradox of constant online yet emotionally alone questions the quality and depth of such a social need-serving interaction.

Phubbing is a contribution towards loneliness; the former insists on being a phubber or phubbed one. Essence of such activities would make the more frequently ignored feel excluded and unimportant; while for the phubber, it would be increasingly isolating him or her from meaningful exchanges in society (Yam & Kumashiro, 2020; Erzen & Cikrikci, 2021; Beukeboom & Pollmann, 2021). Overtime similar actions will see an erosion of trust, decreased emotional closeness, and lasting feelings of loneliness. The more people turn to their phones to meet social requirements, the more likely they are to experience unsatisfactoriness in their offline interactions.

The mediating factors for the relationship between phubbing and loneliness need to be explored in order to provide adequate psychosocial support for young adults. As digital behavior becomes deeply embedded into the fabric of everyday life, it is imperative to evaluate ways in which variables such as FoMO mediate the effect of technology on emotional well-being for effective treatment and healthier patterns of engaging socially (Aagaard, 2020; Kushlev et al., 2019; David & Roberts, 2017).

LITERATURE REVIEW

Phubbing refers to the act of giving someone the cold shoulder by paying attention to one's smartphone in a social environment. This conduct has been catching up among young adults - mainly because of the omnipresence of smartphones and multitasking activities made possible by the digital age. It is reflected in an earlier study that although phubbing is perceived as a rather innocuous action, its outcomes really harm interpersonal trust and social bond by simply showing a lack of regard and interest in the other (Vanden Abeele et al., 2016; David & Roberts, 2017; Reid & Reid, 2017). Additionally, phubbing is associated with lower levels of satisfaction with and quality of communication in both platonic and romantic relationships.

The term FoMO, defined as the Fear of Missing Out, is spurred by social media. FoMO is often characterized by the anxiety arising from the likelihood that others are having rewarding experiences from which one is not around (Przybylski et al., 2013; Elhai et al., 2016; Oberst et al., 2017). The more intense the feeling of FoMO one experiences, the more his/her reliance on smartphones and social platforms for real-time information increases, which more often leads to interruptions on the face-to-face social interaction for checking updates (Blackwell et al., 2017; Abel et al., 2016; Alt, 2015). This nearly uninterrupted connectedness may then ignite phubbing behavior; since the user is already predisposed to interact with stuff deemed more important than what is found around him, he may resort to contacting people in person. FoMO was subsequently associated with decreased well-being, as reported by increased feelings of anxiety, depression, and dissatisfaction with one's social circle.

Phubbing behavior has also been shown to make young people feel lonelier emphasizing the inner and outer disconnection they feel in social gatherings (Yam & Kumashiro, 2020; Erzen & Cikrikci, 2021; Beukeboom & Pollmann, 2021). Victims of being phubbed will feel rejected and excluded while people who practice it are slowly but surely losing interest in actual significant engagements (Roberts & David, 2016; Aagaard, 2020; Kushlev et al., 2019). These replace face-to-face encounters with habitual replacements in real life virtually, decreasing its emotional intimacy and increasing the impression of social isolation-and end-up chronic loneliness.

FoMO and loneliness have also been gaining ground. Research shows that the more individuals have FoMO, the more likely they are to feel lonely as they heavily depend on online validation, which makes them feel less satisfied and unhappy with offline relationships (Barry et al., 2017; Dempsey et al., 2019; Rozgonjuk et al., 2021). Being digitally connected does no good for the individual since they are emotionally and socially fulfilled, while paradoxically, one can say: they are at all times connected (Tandon et al., 2021; Servidio, 2019; Hunt et al., 2018). Plus, FoMO helps pave the way for obsessive smartphone use, eventually resulting in social withdrawal and emotional disconnection that ultimately deepens loneliness.

What now has been phubbing behavior has a long-term history for many young people, as it emphasizes the disconnection when inside and outside a social context (Yam and Kumashiro, 2020; Erzen and Cikrikci, 2021; Beukeboom and Pollmann, 2021). Being phubbed, the victim feels rejected or even excluded, while the person initiating phubbing slowly shifts attention away from significant real-life happenings toward virtual reality (Roberts and David, 2016; Aagaard, 2020; Kushlev et al., 2019). Instead of the real thing, they are gradually replaced with habitual outreach into the reality of their checking phone or social networking site, thus diminishing its emotional integrity and interplay-that fosters social isolation-resulting in chronic loneliness.

FoMO and loneliness also became trendy in the study. The research indicates that people feel lonely when they experience FoMO because they mentally habit this constant need for online validation, by which they are expected to gain the less-satisfying and unhealthy validation of their offline relationships (Barry et al., 2017; Dempsey et al., 2019; Rozgonjuk et al., 2021). Such things are not helpful to the person; rather, one could say: always connected can never be good (Tandon et al., 2021; Servidio, 2019; Hunt et al., 2018). Likewise, FoMO opens up to excessive smartphone use, finally estranging people from society while forging emotional disconnection, which later elevates loneliness.

RESEARCH METHODOLOGY

Objectives

- To analyze the connection between phubbing behavior and loneliness in young people.
- To analyze the mediating role of Fear of Missing Out (FoMo) between phubbing and loneliness.
- To look into the psychological effect of increased mobile phone usage in social settings on young adults' sense of social connection.

Hypotheses

- There is a significant positive correlation of phubbing behavior with loneliness among young adults.
- Phubbing behavior has a substantial impact on loneliness among young adults.
- Fear of Missing Out (FoMO) significantly mediated the relationship between phubbing and loneliness.

Measurement instruments

General Scale of Phubbing

Phubbing Behavior was measured using Generic Scale of Phubbing (GSP) developed by Chotpitayasunondh and Douglas (2018) comprising 15-items used capturing frequency and severity of

how people use mobile phones within social clearinghouses like lively discussions, family interactions, or even when at the bar. The GSP consists of five indexes measuring among others nomophobia, interpersonal conflict, self-isolation, problem acknowledgement, and it further costs a 5-point Likert scale: from 1 (Never) to 5 (Always). Internal consistency of the GSP leans on what its Cronbach's alpha is above 0.90, and it has also displayed an impressive construct validity (Chotpitayasunondh & Douglas, 2018).

Fear of Missing Out Scale

Fear of Missing Out (FoMO) was assessed with the 10 item FoMO Scale developed by Przybylski et al. (2013), which measures how much an individual fears that other people might be having rewarding experiences without his or her participation. All how much anticipated negative reinforcement might occur is recorded on a 5-point Likert scale--where 1 (Not at all true of me) means "not at all" to 5 (Extremely true of me), which indicates that it is "very true" for that individual. The scale has given a good psychometric property, with reported Cronbach alpha of 0.87 and strong construct and convergent validity.

Loneliness Scale

Loneliness was measured by Revised UCLA Loneliness Scale Version 3 as developed by Russell (1996). This scale consists of 20 items measuring the subjective feelings of loneliness and social isolation. Such items are rated in a 4-point Likert scale from 1 (Never) to 4 (Often). Direct items and reverse-coded items have been included in the scale and have shown excellent internal consistency with a Cronbach alpha higher than 0.89, making it widely accepted in psychological research.

RESULTS

Table 1

Descriptive Characteristics of the Study Sample (N=300)

Sample Data	n	%
Age		
18-25	159	53
26-34	141	47
Gender		
Men	180	60
Women	120	40
Family system		
Joint	140	46.66
Nuclear	160	53.33
Residency		
Rural	156	52

Urban 144 48

The sample comprised 300 participants. In terms of age, the largest group was in the 18-25 range, representing 53% of the sample (159 participants), while 47% were in the 26-34 age range (141 participants). Regarding gender, 60% of the participants were men (180 individuals), and 40% were women (120 individuals). Family system distribution showed that 46.66% came from joint families (140 participants), and 53.33% were from nuclear families (160 participants). As for residency, 52% of participants lived in rural areas (156 individuals), while 48% resided in urban areas (144 participants).

Table 2

Descriptive statistics of all the scales (N=300)

Scales	k	α	M	SD	Range		Skew	Kurt
					Actual	Potential		
GSP	15	.86	41.24	11.26	14-86	15-75	.64	.71
LS	20	.76	12.98	5.02	18-98	20-80	.48	.56
FOMOS	10	.89	18.75	6.03	12-54	10-40	.81	.96

Note. GSP=General Scale of Phubbing, LS= Loneliness Scale, FOMOS= Fear of Missing Out Scale

The table presents the descriptive statistics and reliability measures for the General Scale of Phubbing (GSP), Loneliness Scale (LS), and Fear of Missing Out Scale (FOMOS). The GSP, consisting of 15 items, displayed strong internal consistency with a Cronbach's alpha of .86. Participants had an average score of 41.24, with scores ranging from 14 to 86. The LS, with 20 items, had a satisfactory reliability ($\alpha = .76$), with an average score of 12.98 and scores ranging from 18 to 98. The FOMOS scale, containing 10 items, demonstrated excellent reliability ($\alpha = .89$), with an average score of 18.75 and a range from 12 to 54. All three scales showed a relatively normal distribution, with slight positive skewness and moderate kurtosis, indicating a fairly typical spread of responses.

Table 3

Correlation Matrix between Study Variables (N=300)

Variables	1	2	3
GSP	-		
LS	.37 **	-	
FOMOS	.65 **	.45 **	-

Note. GSP=General Scale of Phubbing, LS= Loneliness Scale, FOMOS= Fear of Missing Out Scale

The correlation matrix shows the relationships between the General Scale of Phubbing (GSP), Loneliness Scale (LS), and Fear of Missing Out Scale (FOMOS) based on a sample of 300 participants. A significant positive correlation was found between GSP and LS ($r = .37$, $p < .01$), indicating that higher levels of

phubbing are associated with greater feelings of loneliness. Additionally, GSP was strongly correlated with FOMOS ($r = .65, p < .01$), suggesting that individuals who engage more in phubbing tend to experience higher levels of FOMO. Finally, LS and FOMOS also showed a moderate positive correlation ($r = .45, p < .01$), highlighting that those who experience more loneliness are likely to have higher levels of FOMO.

Table 4

Regression Coefficients of Independent Variables on Dependent Variable (Loneliness)

Variables	B	SE	t	p	95%CL
Constant	12.76	6.5	28.76	.00	11.56– 22.56
GSP	4.3	2.6	5.67	.00	4.1 – 7.6
FOMOS	2.23	1.2	9.76	.00	2.1- 7.6

Note. GSP=General Scale of Phubbing, LS= Loneliness Scale, FOMOS= Fear of Missing Out Scale

The regression analysis explored the effects of phubbing and fear of missing out (FOMOS) on loneliness. Results indicated that both variables significantly predicted loneliness. Specifically, the General Scale of Phubbing (GSP) had a positive effect on loneliness, with a regression coefficient of $B = 4.3$ ($SE = 2.6, p < .001$). Similarly, FOMOS also showed a significant positive association with loneliness ($B = 2.23, SE = 1.2, p < .001$).

Table 5

Mediating role of Fear of Missing Out between Phubbing Behavior and Loneliness (N=300)

Variables	R^2	B	SE	t	95% CI	
					LL	UL
Total effect	.45	.47***	.08	18.65	.41	.67
GSP--LS (c)						
Direct effect						
GSP--FOMO (a)		.36***	.06	22.18	.32	.62
FOMO--LS (b)		.52***	.07	11.31	.39	.67
GSP--LS (c')		.37***	.06	6.45	.36	.62
Indirect effect						
GSP—FOMO--LS	.59	.32***	.03		.22	.36

Note: GSP=General Scale of Phubbing, LS= Loneliness Scale, FOMOS= Fear of Missing Out Scale

$p < .01$ **; $p < .001$ ***

The analysis indicated a significant total effect of the General Scale of Phubbing (GSP) on Loneliness (LS) with an explained variance of $R^2 = .45$. Further mediation analysis showed that GSP significantly predicted

Fear of Missing Out (FOMO), $B = .36$, $p < .001$, which, in turn, significantly predicted loneliness, $B = .52$, $p < .001$. The direct effect of GSP on loneliness remained significant, $B = .37$, $p < .001$, suggesting the presence of partial mediation. Additionally, the indirect effect of GSP on loneliness through FOMO was significant, $B = .32$, with an overall model R^2 of .59.

DISCUSSION

This research was conducted to analyze the links between phubbing behavior and loneliness in young adults, emphasizing the possible role of fear of missing out (FOMO) as a mediator. All scales applied in the research showed very good reliability and including: General Scale of Phubbing (GSP) at .86, Loneliness Scale (LS) at .76, and for the Fear of Missing Out Scale at .89 according to the Cronbach's alpha indicators. The study was important in giving insightful information on the aspect of how behaviors such as phubbing can lead to loneliness due to the site's usage by people and how it mattered in interactions. Further, the discussion of data on the findings with respect to the hypotheses tested is done as follows:

On the basis of the first hypothesis, it was proposed that the activity of phubbing would be positive to loneliness among young adults. The work comes positive to that hypothesis as it notes that higher levels of the activity of phubbing are significantly related to increases in the feelings of loneliness. This concurs with the findings of Sundar et al. (2020), which indicate that young adults who engage more frequently in ignoring others because of more involvement with digital devices have a greater loneliness score. Similarly, this result is evident in Dinh et al. (2021), which showed that those reporting more frequent phubbing behaviors were more likely to feel isolated and disconnected from their social environment. These results show a relationship that phubbing contributes to increasing feelings of loneliness along with inhibiting meaningful social interaction, providing evidence of the possible psychological costs of excessive digital engagement.

Phubbing is a significant contributor to loneliness. It must also be stated that this last hypothesis was supported by results, indicating that phubbing behavior would significantly impact loneliness among young adults. These findings correlated with Wu and Lee's (2023) research, which intended to measure the lonely feelings reported by young adults after engaging in phubbing, particularly when digital interactions supplanted face interactions. This has been synonymous with displacing in-person communication by digital distractions, synonymous with generating social alienation, raising the level of loneliness. Phubbing behaviors were likewise reported by Chung et al. (2021) to significantly predict social isolation and loneliness, especially at times when virtual priority was given over physical interaction.

Robinson et al. (2022) also presented the use of digital devices with loneliness among university students, showing strong correlations between phubbing-type attitudes, ignoring face-to-face interactions in favor of their smartphone, and the increase in feelings of loneliness. This evidence further supports the notion that phubbing hampers an individual's social well-being, especially among those who are still young and in the process of socially developing.

Furthermore, Liu and Yang (2022) also looked at how technology use affects emotional health and phubbing behaviors in specific, creating the context of neglect and emotional disconnection triggering increased loneliness perception. It should be interesting how the finding of this study supports the observation of the negative emotional consequences of excessive use of smartphones and digital distractions in the interpersonal relationship context, especially among young adults who largely rely on social interaction for emotional sustenance and growth.

The reasons indicate that the third hypothesis tested for the mediation influence of Fear of Missing Out (FOMO) between phubbing and loneliness. The results confirmed that FOMO played a significant

mediating role in that relationship. This means that it does not only result in increased loneliness by direct effect; it affects loneliness through the psychological mechanism of FOMO. This finding is in keeping with the study by Przybylski et al. (2021) which showed that phubbing behavior increases the experience of FOMO, ultimately resulting in loneliness. FOMO drives an individual to be in touch with the happenings of others, thereby enhancing the internal isolation experienced when one considers this important social interaction has been missed from their lives.

Furthermore, Zhou and Lin (2022) found that FOMO is a crucial psychological mediator in the relationship of digital behaviors such as phubbing and loneliness, whereby individuals with FOMO easily feel left out and behind the pack while being occupied and distracted with their own devices hence creating a feeling of loneliness. The implications indicate the complex nature of FOMO as a mediator in phubbing on social and emotional well-being, particularly with regard to age because the young adults care highly about social comparison and digital ties.

CONCLUSION

This study provides excellent insight into how phubbing affects feelings of loneliness among young adults with Fear of Missing Out (FOMO) being an important mediator in this relationship. The findings imply that phubbing is a contributor to feelings of loneliness and that this effect is exacerbated through the psychological mechanism of FOMO. This further emphasizes the need to understand the emotional ramifications of the widespread use of digital devices. It is important to comprehend how phubbing as a behavior correlates with social connectedness and emotional well-being because the feigning of cell phone activity during social encounters is becoming ever so popular among young adults. This paper highlights the complex interplay of the effects of digital engagement on the victims, social media dynamics, and loneliness. It calls for an expedited inquiry into these in a fast-burgeoning digital world.

RECOMMENDATIONS

From the above findings, it is evident that measures for the reduction of phubbing behavior must develop, especially for younger adults, who are arguably the most susceptible to the emotional effects of distraction by digital media. Campaigns can serve to inform everyone about the psychological issues created by phubbing, thus facilitating mindful and meaningful interactions both online and offline. Furthermore, strategies that include regulating FOMO such as digital detoxes or mindfulness could also ease the adverse outcomes on feelings of loneliness resulting from social media and technology use. Mental health professionals may also find ways to integrate such findings into therapy, to assist in helping persons navigate the digital struggles.

LIMITATIONS

This study has a set of significant findings but should also be considered along with a few limitations. In essence, one limitation is that a cross-sectional study design does not allow any room to establish the cause-and-effect relationship between phubbing behavior and its subsequent effects on FOMO and loneliness. Longitudinal studies could be arranged to examine the long-term effects of phubbing on loneliness in further detail. The second limitation pertains to the reliance on self-reported data, which may be biased owing to social desirability measures or inaccurate recall. Future studies may apply more objective measures or observational methods to mitigate this problem. Finally, the sample being made up largely of young adults inhibits some degree of generalizability of findings across other age groups. Future studies that allow for a more diverse sample would add to the external validity of the findings.

REFERENCES

- Aagaard, J. (2020). Digital distractions in the classroom: Student classroom use of digital devices for non-class related purposes. *Learning, Media and Technology*, 45(2), 112–125. <https://doi.org/10.1080/17439884.2020.1699949>
- Abel, J. P., Buff, C. L., & Burr, S. A. (2016). Social media and the fear of missing out: Scale development and assessment. *Journal of Business & Economics Research (JBER)*, 14(1), 33–44.
- Al-Saggaf, Y., & O'Donnell, S. B. (2019). Phubbing: How frequently do we do it and what are the consequences? *Social Sciences*, 8(7), 221.
- Alt, D. (2015). College students' academic motivation, media engagement and fear of missing out. *Computers in Human Behavior*, 49, 111–119.
- Balta, S., Emirtekin, E., Kircaburun, K., & Griffiths, M. D. (2020). Neuroticism, trait fear of missing out, and phubbing: The mediating role of state fear of missing out and problematic Instagram use. *International Journal of Mental Health and Addiction*, 18, 628–639.
- Barry, C. T., Reiter, S. R., Anderson, A. C., & Cho, H. (2017). Let me take a selfie: Associations between self-photography, narcissism, and self-esteem. *Psychology of Popular Media Culture*, 6(1), 48.
- Beukeboom, C. J., & Pollmann, M. M. (2021). Phubbing and social connectedness: A dyadic analysis. *Cyberpsychology, Behavior, and Social Networking*, 24(1), 11–16.
- Blackwell, D., Leaman, C., Tramposch, R., Osborne, C., & Liss, M. (2017). Extraversion, neuroticism, attachment style and fear of missing out as predictors of social media use and addiction. *Personality and Individual Differences*, 116, 69–72.
- Buglass, S. L., Binder, J. F., Betts, L. R., & Underwood, J. D. (2017). Motivators of online vulnerability: The impact of social network site use and FOMO. *Computers in Human Behavior*, 66, 248–255.
- Chotpitayasunondh, V., & Douglas, K. M. (2016). How “phubbing” becomes the norm: The antecedents and consequences of snubbing via smartphone. *Computers in Human Behavior*, 63, 9–18.
- Chung, D., Kim, J., & Lee, S. (2021). The relationship between phubbing behaviors and loneliness in young adults: A longitudinal analysis. *Journal of Social Media Studies*, 15(3), 234–245.
- David, M. E., & Roberts, J. A. (2017). Phubbed and alone: Phone snubbing, social exclusion, and attachment to social media. *Journal of the Association for Consumer Research*, 2(2), 155–163.
- Dempsey, A. E., O'Brien, K. D., Tiamiyu, M. F., & Elhai, J. D. (2019). Fear of missing out (FoMO) and rumination mediate relations between social anxiety and problematic Facebook use. *Addictive Behaviors Reports*, 9, 100150.
- Dinh, T., Tran, N., & Nguyen, M. (2021). Phubbing and its impact on social isolation: Evidence from young adult populations. *Journal of Psychological Research*, 44(2), 312–327.
- Elhai, J. D., Levine, J. C., Dvorak, R. D., & Hall, B. J. (2016). Fear of missing out, need for touch, anxiety and depression are related to problematic smartphone use. *Computers in Human Behavior*, 63, 509–516.
- Elhai, J. D., Yang, H., & Montag, C. (2020). Fear of missing out (FoMO): Overview, theoretical underpinnings, and literature review on relations with severity of negative affectivity and problematic technology use. *Brazilian Journal of Psychiatry*, 43(2), 203–209.

- Franchina, V., Vanden Abeele, M., van Rooij, A., Lo Coco, G., & De Marez, L. (2018). Fear of missing out as a predictor of problematic social media use and phubbing behavior among Flemish adolescents. *International Journal of Environmental Research and Public Health*, 15(10), 2319.
- Hunt, M. G., Marx, R., Lipson, C., & Young, J. (2018). No more FOMO: Limiting social media decreases loneliness and depression. *Journal of Social and Clinical Psychology*, 37(10), 751–768.
- Kushlev, K., Proulx, J., & Dunn, E. W. (2019). Silence your phones: Smartphone notifications increase inattention and hyperactivity symptoms. *Journal of Social and Clinical Psychology*, 38(6), 497–515.
- Kuss, D. J., & Griffiths, M. D. (2017). Social networking sites and addiction: Ten lessons learned. *International Journal of Environmental Research and Public Health*, 14(3), 311.
- Liu, X., & Yang, L. (2022). The effects of smartphone use on emotional well-being: Exploring the role of phubbing in loneliness. *CyberPsychology, Behavior, and Social Networking*, 25(4), 259-267.
- Oberst, U., Wegmann, E., Stodt, B., Brand, M., & Chamarro, A. (2017). Negative consequences from heavy social networking in adolescents: The mediating role of fear of missing out. *Journal of Adolescence*, 55, 51–60.
- Przybylski, A. K., Murayama, K., DeHaan, C. R., & Gladwell, V. (2021). Motivational, emotional, and behavioral predictors of fear of missing out. *Computers in Human Behavior*, 55, 665-674.
- Przybylski, A. K., Murayama, K., DeHaan, C. R., & Gladwell, V. (2013). Motivational, emotional, and behavioral correlates of fear of missing out. *Computers in Human Behavior*, 29(4), 1841–1848.
- Reid, D., & Reid, F. (2017). Text or talk? Social anxiety, loneliness, and divergent preferences for cell phone use. *CyberPsychology & Behavior*, 10(3), 424–435.
- Roberts, J. A., & David, M. E. (2016). My life has become a major distraction from my cell phone: Partner phubbing and relationship satisfaction among romantic partners. *Computers in Human Behavior*, 54, 134–141.
- Robinson, S., Miller, A., & Chen, M. (2022). Phubbing and its association with loneliness in university students. *Journal of Digital Behavior*, 18(1), 118-127.
- Rozgonjuk, D., Sindermann, C., Elhai, J. D., & Montag, C. (2021). Fear of missing out (FoMO) and social media's impact on daily life and work: Technological and psychological perspectives. *Current Opinion in Psychology*, 36, 138–143.
- Russell, D. (1996). UCLA Loneliness Scale (Version 3): Reliability, validity, and factor structure. *Journal of Personality Assessment*, 66(1), 20–40.
- Servidio, R. (2019). Self-control and problematic smartphone use among Italian University students: The mediating role of the fear of missing out and of smartphone use patterns. *Current Psychology*, 38, 1–11.
- Stead, H., & Bibby, P. A. (2017). Personality, fear of missing out and problematic internet use and their relationship to subjective well-being. *Computers in Human Behavior*, 76, 534–540.
- Sundar, S., Mehta, S., & Choi, M. (2020). Phubbing and loneliness in the age of social media: A study of university students. *Cyberpsychology, Behavior, and Social Networking*, 23(6), 384-391.

- Tandon, A., Dhir, A., Talwar, S., Kaur, P., & Mäntymäki, M. (2021). Behavioral reasoning perspectives on social media-induced fear of missing out (FoMO). *Qualitative Market Research: An International Journal*, 24(3), 303–321.
- Vanden Abeele, M. M., Antheunis, M. L., & Schouten, A. P. (2016). The effect of mobile messaging during face-to-face interactions: An experimental study about the influence of phubbing on social interaction. *Computers in Human Behavior*, 62, 562–569.
- Wu, J., & Lee, H. (2023). Social media use and loneliness among young adults: The role of phubbing. *Journal of Social Media Research*, 29(1), 55-68.
- Yam, K. C., & Kumashiro, M. (2020). When phubbing is the norm: The effects of phone use during face-to-face interactions on perceived norms and relationship satisfaction. *Journal of Social and Personal Relationships*, 37(2), 310–332.
- Zhou, Y., & Lin, J. (2022). Fear of missing out (FOMO) and its mediation between phubbing and loneliness. *Journal of Digital Interaction*, 7(2), 76-85.