Phubbed and Curious: The relation between Partner Phubbing and Electronic Partner Surveillance

Janneke M. Schokkenbroek[1,2,*], Wim Hardyns[2,3], & Koen Ponnet[1]

[1]imec-mict, Department of Communication Sciences, Faculty of Political & Social Sciences, Ghent University, Ghent, Belgium

[2]IRCP, Department of Criminology, Criminal Law & Social Law, Faculty of Law & Criminology, Ghent University, Ghent, Belgium

[3]Faculty of Social Sciences, Antwerp University, Antwerp, Belgium

***Corresponding author**

Janneke M. Schokkenbroek
IMEC-MICT, Ghent University
Miriam Makebaplein 1
9000 Ghent, Belgium
Janneke.Schokkenbroek@UGent.be

ORCiDs

Janneke Schokkenbroek: 0000-0003-3603-8927

Wim Hardyns: 0000-0002-7677-5094

Koen Ponnet: 0000-0002-6911-7632

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Abstract

Partner phubbing (*Pphubbing*) concerns the act of ignoring a romantic partner during a conversation by paying attention to the mobile phone. In previous research, Pphubbing has been associated with several negative relationship outcomes, such as relationship dissatisfaction. In this study, we propose that another consequence of Pphubbing may be that the partner who is being phubbed (i.e., phubbee) engages in electronic partner surveillance (*EPS*) behaviors to check on their partner's online activities. We propose that this relationship is mediated by perceived partner responsiveness and anxiety. Data were collected via online survey among an adult sample in Belgium (n = 346; M_{age} = 40.5 years; 75.7% female). Analyses revealed that a relationship exists between Pphubbing and EPS, and that it can (partially) be explained through the chained mediation pathway of partner responsiveness and anxiety. Specifically, Pphubbing decreases perceived partner responsiveness, which in turn increases anxiety in the phubbee. Consequently, the phubbee may resort to partner surveillance to cope with these feelings and to decrease uncertainty. Our findings imply that research and practice related to digital intrusion within romantic relationships should consider (the interplay between) intra- and interpersonal factors in trying to explain the occurrence and impact of these harmful digital behaviors.

Keywords: Partner phubbing; Electronic partner surveillance; Partner responsiveness; Uncertainty reduction theory; Interpersonal electronic surveillance; Cyber dating abuse

Highlights

1. Phubbing by one's romantic partner (*Pphubbing*) was associated with electronic partner surveillance (*EPS*) by the phubbee
2. Pphubbing was associated with low perceived responsiveness of the partner who phubs
3. Low perceived partner responsiveness was associated with feelings of anxiety in the phubbee
4. Feelings of anxiety were related to EPS behaviors by the phubbee
5. The relation between Pphubbing and EPS can be explained by low perceived partner responsiveness and feelings of anxiety

1. Introduction

Digital technology and the internet are ubiquitous in our daily lives. In 2021, 5.3 billion people (67.1% of the world population) used a mobile phone and on average we spent almost seven hours a day on the internet (DataReportal, 2021). Evidently, such a digital omnipresence has a strong impact on our interpersonal relationships. When intrusive use of technology imposes a negative effect on a relationship, this is called *technoference* (McDaniel & Coyne, 2016). One form of technoference that has received considerable research attention over the past years is *phubbing*. Phubbing concerns the act of ignoring one's conversation partner by paying attention to one's mobile phone instead (Ugur & Koc, 2015). Within romantic relationships, partner phubbing (*Pphubbing*) is described as the extent to which one's romantic partner (the 'phubber') is distracted by their mobile phone at their partner's (the 'phubbee') expense (Chotpitayasunondh & Douglas, 2016). Pphubbing is quite common, as Roberts and David already found in 2016 that nearly half of participants reported that they had experienced phubbing by their romantic partner.

Several studies have demonstrated that Pphubbing negatively impacts people's romantic relationship in several ways, and scholars have identified various intra- and interpersonal factors that play a role in explaining this negative association, such as attachment anxiety (Roberts & David, 2016), low self-esteem (Wang et al., 2021) and jealousy (David & Roberts, 2021; Krasnova et al., 2016). The general premise of these studies is that the loss of attention that the phubbee experiences when their partner is distracted by their phone leads to feelings of distress, such as uncertainty, anxiety, or jealousy, and that this, in turn, has negative consequences for (the phubbee's perception of) the relationship (Krasnova et al., 2016; Vanden Abeele, 2020). Whereas a number of studies has tested this premise with relationship dissatisfaction as the negative outcome of interest, the detrimental impact of Pphubbing on people's romantic relationship can manifest itself in different ways and through different interpersonal behaviors.

In the present study, we propose that Pphubbing may lead to online surveillance behaviors by the phubbee to check on their partner's digital activities. This behavior is also called interpersonal electronic surveillance, or *electronic partner surveillance* (hereafter EPS) for romantic relationships specifically. Through EPS, people surreptitiously try to acquire information about their partner's online communication and activities, for example by extensively monitoring their partner's social media activities (Tokunaga, 2011). Arguably, when one partner spends an increased amount of time on their mobile phone at their partner's

expense, the phubbee may become curious or suspicious about their partner's activities and messages on their mobile phone. Thus, we hypothesize the following:

H1. Pphubbing is positively related to EPS behaviors by the phubbee

However, not all people who experience phubbing by their partner will consequently engage in EPS. The intention and urgency to do so is likely influenced by the degree to which the phubbee feels uncertain about their partner's behavior and commitment as a result of the Pphubbing. According to the uncertainty reduction theory (Berger & Calabrese, 1974), feelings of uncertainty within romantic relationships may prompt people to use passive, active, and interactive strategies to gain information about their partner. EPS may constitute one such strategy. Indeed, several scholars have already argued that the negative effects of phubbing, such as a more negative evaluation of the phubber and the relationship, can be explained by uncertainty arousal within the phubbee (Vanden Abeele, 2020). For the phubbee to feel uncertain as a result of the experience of being phubbed by their partner, we argue that the Pphubbing has affected the phubbee's perception of their partner's responsiveness towards them. In their experimental study, Vanden Abeele and colleagues (2016) found that phubbers are indeed perceived as less attentive as a result of their phubbing behavior. In the context of romantic relationships, a recent study of Beukeboom and Pollmann (2021) revealed that Pphubbing is negatively related to partner responsiveness, meaning that the experience of being phubbed by their partner negatively affects the phubbee's perception that their partner is responding supportively and empathically, making the phubbee feel less understood, validated, and cared for.

Although no previous research has investigated the link between partner responsiveness and EPS, it is likely that the tendency to engage in EPS will increase when a partner is less responsive and does not make the other feel validated. So, following the reasoning of uncertainty reduction theory, we propose that when a phubbee's partner is less communicative and responsive because they are distracted by their phone, phubbees may resort to strategies that involve the collection of information about their partner and their activities, as to reduce uncertainty. We argue that one way for the phubbee to do this, is through electronic partner surveillance. As such, we hypothesize the following:

H2a. Pphubbing is negatively related to perceived partner responsiveness

H2b. Perceived partner responsiveness is negatively related to engagement in EPS behaviors by the phubbee

H3. The relationship between Pphubbing and EPS can be explained by low partner responsiveness

Being phubbed by one's partner might not only decrease the perceived responsiveness of this partner, but it may also increase feelings of distress in the phubbee. Scholars have described phubbing as an expression of social exclusion (e.g., Chotpitayasunondh & Douglas, 2016), and a large amount of research has shown that such social exclusion experiences can have detrimental effects on people's well-being (e.g., Williams, 2009). In line with this, several studies have shown that the experience of being phubbed may increase anxiety in the phubbee (e.g., Stockdale et al., 2018).

With regard to EPS, previous research has shown that feelings of anxiety predict partner surveillance behaviors (Marshall et al., 2013). Such feelings of distress initiate healthy and unhealthy coping mechanisms, and, as is suggested by Fox and Tokunaga (2015), one such coping mechanism could be to engage in partner surveillance behaviors. Drawing from these findings, we propose that:

H4a. Pphubbing is positively related to feelings of anxiety in the phubbee

H4b. Anxiety is positively related to EPS by the phubbee

H5. The relationship between Pphubbing and EPS can be explained by feelings of anxiety

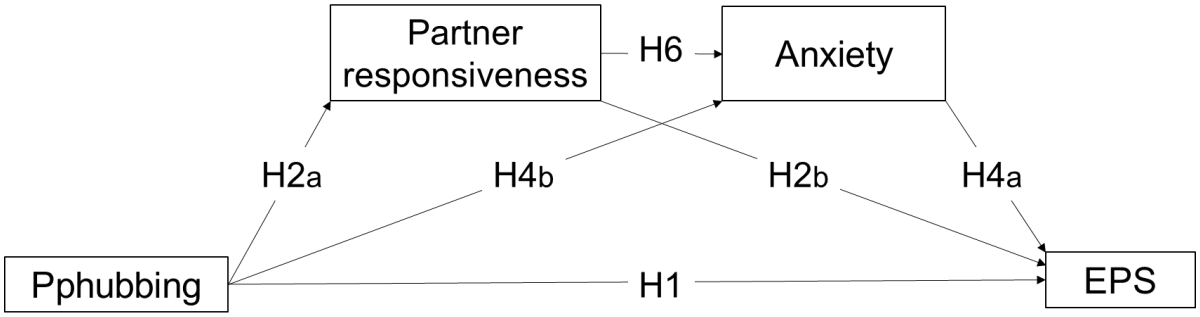
Lastly, as partner responsiveness relates to feeling supported and cared for, people who perceive their partner as less responsive may experience more psychological distress, such as anxiety (Slatcher & Selcuk, 2017). Arguably, the phubbee's perception of their partner's responsiveness is likely to explain EPS particularly when it increases feelings of worry and uncertainty in the phubbee, thus increasing the need for the phubbee to reduce this uncertainty. As such, our sixth and final hypothesis is:

H6. Perceived partner responsiveness is negatively related to feelings of anxiety

To summarize, the present study aims to examine whether Pphubbing predicts EPS within romantic relationships, and if this can be explained through intra- and interpersonal processes concerning perceived partner responsiveness and feelings of anxiety. A schematic overview of the hypothesized effects is presented in Figure 1. To our knowledge, no study today has examined if and why a relationship exists between these two intrusive digital phenomena that are known to occur within people's romantic relationships.

Figure 1

Schematic overview of hypothesized effects



Note. Hypotheses 3 and 5 are not presented in the figure as these concern mediation pathways, representing multiple arrows within the displayed model.

2. Materials and methods

2.1 Procedure & Sample

Data were collected via an online survey study that took place from the 2nd to the 16th of April, 2021. The survey was distributed online via social media accounts of the researchers and their affiliated departments, as well as via websites of these departments. Ethical approval for the study was granted by the institutional review board of the [concealed for review purposes]. The survey was part of a large scale survey study on well-being and relationships during the COVID-19 pandemic in Belgium.[1] In total, 512 respondents (77.1% female, M_{age} = 38.7 years) participated in the study over the course of two weeks (April 2nd to 16th). All respondents were 18 years or older, spoke Dutch, and resided in Belgium. Prior to answering the survey, respondents were informed about the purpose of the study and filled out the informed consent form. Filling out the survey took approximately 15 minutes and respondents were able to stop participation at any moment during the survey. Of the 512 respondents who completed the survey, 346 (67.6%) were in a romantic relationship. As such, the sample for the present study consisted of 346 respondents (75.7% female; M_{age} = 40.45 years; SD_{age} = 15.84; age range was 20-85 years). The average relationship length was 14.53 years.

Data collection for this study took place as part of a larger survey study, and the hypotheses proposed in the present study were not composed prior to data collection. As such,

[1] More detailed information on the study's overarching purpose as well as some additional study findings about well-being and relationship during the COVID-19 pandemic in Belgium can be found in our research report [reference concealed for review purpose].

we did not conduct *a priori* power analyses to determine which sample size would yield sufficient power for the proposed effects and analyses of the present study. Post-hoc or retrospective power analyses are heavily disputed, however, for their inability to inform readers about sample size adequacy (Lenth, 2007; Levine & Ensom, 2001; Zumbo & Hubley, 1998). As such, following recommendations from Dziak and colleagues (2020) and Levine & Ensom (2001), the effects found in our study are evaluated on their statistical consistency with the data using confidence intervals. As the upper and lower bounds of confidence intervals are affected by the sample size of the study and the variance of the data (Levine & Ensom, 2001), reported confidence intervals provide important information on the (in)adequacy of the sample size and on the magnitude of the effects.

2.2 Measures

Partner phubbing. Pphubbing was measured using an adapted version of the partner phubbing scale by Roberts & David (2016). The scale comprised three items that examined the occurrence of phubbing behaviors by one's partner during the past two weeks. Items had to be answered on a 5-point frequency scale ranging from 1 = 'never' to 5 = 'very often'. The measured items are: "My partner uses his or her cell phone when we spend time together", "My partner uses their cell phone when we are having a conversation", and "When my partner's cell phone rings or beeps, they check it even if we are in the middle of a conversation." For the present sample, the Pphubbing scale demonstrated very good reliability with a Cronbach's alpha of .88.

Partner responsiveness. Partner responsiveness was measured using the 'supportive dyadic coping of the partner' subscale from the Dyadic Coping Inventory (DCI; Bodenmann, 2008; Dutch version by Ponnet, 2012). Respondents reported on the perceived responsiveness of their partner during the past two weeks. The scale consists of 4 items, which had to be answered on a 5-point frequency scale ranging from 1 = 'never' to 5 = 'very often'. An example of an item is "My partner listens to me and gives me the opportunity to communicate what really bothers me." For the present sample, the scale demonstrated excellent reliability (α = .92).

Anxiety. Anxiety was measured with an abbreviated version of the Generalized Anxiety Disorder Scale (GAD-7; Spitzer et al., 2006). The GAD-7 measures feelings of worry, nervousness, and anxiety. The scale comprised four items, which had to be answered on a 4-point frequency scale from 1 = 'not at all' to 4 = 'almost every day'. Respondents indicated

how frequently they had experienced the described feelings over the past two weeks. An example of an item is "Over the last 2 weeks, how often have you been bothered by not being able to stop or control worrying?" For the present sample, the anxiety scale demonstrated excellent reliability, with a Cronbach's alpha of .94.

Electronic partner surveillance. EPS was measured with the Hertlein and Van Dyck's surveillance scale (2020). Respondents indicated how often they engaged in partner surveillance behaviors during the past two weeks. The scale consists of four[2] items, which were answered on a 5-point frequency scale ranging from 1 = 'never' to 5 = 'very often'. An example of an item is "how frequently, if at all, did you check up on your partner by reading their instant messages (e.g., WhatsApp, SMS, social media)." In the present sample, the EPS scale demonstrated acceptable reliability (α = .63).

Confounding variables. Additionally, we accounted for respondents' sex (1 = 'man'; 2 = 'woman')[3], age (continuous variable ranging from 20 to 85 years), and relationship length (continuous variable ranging from less than one year to more than 50 years) as control variables.

2.3 Statistical plan

All analyses were conducted using the statistical software program SPSS (version 26). Statistical significance was determined at $p \leq .05$ and confidence intervals were set at 95%.

First, descriptive statistics were examined for Pphubbing and EPS behaviors. To determine how many respondents had experienced Pphubbing and EPS, these variables were recoded into dichotomous variables, distinguishing between people who never experienced the behavior (= 0) versus people who experienced it at least once (= 1) during the past two weeks. In subsequent analyses, however, Pphubbing and EPS were included as continuous variables.

After the descriptive analyses, bivariate associations between study variables were assessed. As preliminary analyses revealed that the variables EPS and perceived partner responsiveness were not normally distributed, non-parametric Spearman rank correlations were conducted. Lastly, we tested a chained mediation model using Hayes' PROCESS Macro (Model

[2] The original scale of Hertlein and Van Dyck (2020) is comprised of five items. However, for the fifth item of the scale (i.e., "how frequently, if at all, did you check up on your partner by pretending to be another person"), principal axis factor analysis revealed concerningly low factor loading (λ = .212). As such, we decided to omit item 5 from further analyses, resulting in an EPS scale with four items for this study.

[3] In the survey, we also included the third answer option 'other'. Of the respondents who indicated they were in a romantic relationship, only one respondent chose this answer to describe their sex. With a group size for this third sex category of n = 1, we would not be able to examine a main effect or sex differences relating to this particular group. As such, we decided to omit this respondent from the final study sample.

6; 2013) with 10,000 bootstrap samples. PROCESS applies a nonparametric bootstrapping resampling technique and as such does not require normality in the study variables (Preacher & Hayes, 2008). In the model, Pphubbing was included as predictor variable, partner responsiveness and anxiety as mediators, and EPS as outcome variable. Respondent age and sex as well as relationship length were included as control variables[4].

3. Results

3.1 Prevalence of Pphubbing and EPS

First, we examined how frequent Pphubbing and EPS experiences were among our study sample. The frequency rates for the total sample and per sex are presented in Table 1. For Pphubbing, we found that, overall, 92.2% of people reported that their partner had paid attention to the phone at their expense. Specifically, 93.1% of women and 89.3% of men were at least once phubbed by their partner. With regard to EPS, we found that 34.1% of respondents had surveilled their partner's online behaviors during a period of two weeks. Specifically, 38.2% of women and 21.4% of men reported to have surveilled their partner's online behaviors at least once in the past two weeks.

INSERT TABLE 1 HERE

3.2 Bivariate associations between study variables

Next, we assessed the bivariate associations between the study variables by conducting Spearman rank correlation analyses. The correlation coefficients are presented in Table 2. We found significant positive associations between EPS and Pphubbing and between EPS and anxiety. Pphubbing was also positively associated with anxiety and was found to be negatively correlated with partner responsiveness. For anxiety, we also found a significant negative correlation with partner responsiveness. Perceived partner responsiveness was not significantly related to EPS.

For the control variables, we found that age and relationship length were negatively associated with EPS. Additionally, we found a significant positive association with sex. Given that sex was coded 1 for men and 2 for women, a positive association indicates that women engaged more in partner surveillance behaviors than men. For Pphubbing, we found a

[4] Preliminary analyses revealed that EPS was significantly associated with age (ρ = -.180) and relationship length (ρ = -.118), and that women conducted EPS significantly more than men (Mann Whitney U-test statistic = 12850.00; p = .006). Thus, inclusion of age, sex and relationship length as control variables is warranted.

significant negative association with age and a significant positive association with sex. Relationship length was not significantly associated with Pphubbing. Partner responsiveness and feelings of anxiety were both negatively associated with age and relationship length. Lastly, anxiety was positively associated with sex.

INSERT TABLE 2 HERE

3.3 Mediation analyses

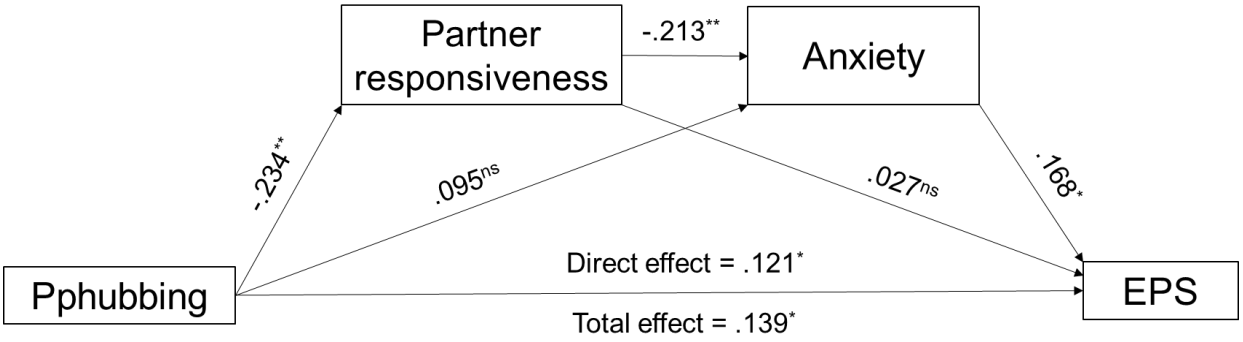
To test our hypotheses, we measured the relationship between Pphubbing and EPS using a mediation model that tested three indirect effects of Pphubbing on EPS: 1) mediated by partner responsiveness; 2) mediated by feelings of anxiety; and, lastly, 3) mediated by anxiety through partner responsiveness. Respondents' sex, age, and relationship length were included as covariates in the model. The results of the mediation analysis are presented in Table 3. The completely standardized coefficients for the tested effects (including significance levels) are presented in the schematic overview of the assessed model in Figure 2 and are described below.

INSERT TABLE 3 HERE

We found a significant total effect of partner phubbing on EPS, accounting for 4.9% of the variance in EPS. Feelings of anxiety did not significantly mediate the relationship between Pphubbing and EPS by itself. Similarly, lower perceived partner responsiveness as a result of Pphubbing also did not predict EPS by itself. However, when the significant pathway between partner responsiveness and anxiety was included, mediation analysis revealed that the relationship between Pphubbing and EPS was partly mediated by anxiety through decreased partner responsiveness. In total, the serial mediation model explained 7.0% of the variance in EPS. Additionally, a significant direct effect of Pphubbing on EPS remained.

Figure 2

Standardized coefficients for the total, direct, and indirect effect of Pphubbing on EPS



Note. *$p \leq .05$; **$p \leq .001$; *ns* = not significant. Respondents' age, sex, and relationship length were included as control variables.

4. Discussion & Conclusion

4.1 Discussion

The aim of our study was to assess whether the experience of being phubbed by a romantic partner predicted electronic partner surveillance. To our knowledge, this is the first study to identify a link between these two intrusive digital phenomena. Based on the uncertainty reduction theory (Berger & Calabrese, 1974), which proposes that people use active and passive strategies (such as EPS) to gain information about their partner's activities when faced with feelings of uncertainty in their relationship, we expected that the experience of being phubbed was related to partner surveillance behaviors. Similar to what we hypothesized, we found that the experience of being phubbed by a romantic partner significantly predicted engagement in electronic partner surveillance by the phubbee.

Additionally, we hypothesized that the relation between Pphubbing and EPS could be explained through perceptions of low partner responsiveness and through feelings of anxiety in the phubbee as a result of the Pphubbing experience. Contrary to what we expected, our findings show that, separately, neither perceived partner responsiveness nor anxiety explained the relation between Pphubbing and EPS behaviors. This indicates that low perceived partner responsiveness as a result of the partner's phubbing behaviors in itself does not necessarily increase the desire and intent to engage in partner monitoring behaviors, nor do increased feelings of anxiety. When these two factors are considered together as a chained pathway within the model, however, we do find a significant partial mediation effect. This means that one

explanation for EPS to occur as a result of Pphubbing is that, first, the experience of being phubbed by the partner may decrease perceived partner responsiveness. This is in line with previous research showing a negative association between Pphubbing experiences and perceived partner responsiveness (Beukeboom & Pollmann, 2021). This feeling of being less validated and less cared for by the partner, in turn, may increase psychological distress such as feelings of worry and stress (i.e., anxiety) in the phubbee. As one of the basic functions of partner responsiveness is to "downregulate negativity and bolster feelings of security" (Stanton et al., 2019), it is not surprising that a decrease in perceived partner responsiveness would increase anxiety. Consequently, and as is suggested by our findings, one way the phubbee may cope with these feelings of relational and psychological distress is by engaging in electronic partner surveillance.

It should be noted that despite the inclusion of these mediated effects, a significant direct effect between Pphubbing and EPS remained in the mediation model. This means that the effect of Pphubbing on EPS can only partially be explained by partner responsiveness and feelings of anxiety, and that other intra- and interpersonal factors yet to be identified also play a role in this relationship. Although this study is the first to examine processes of Pphubbing and EPS together, several factors have been identified as predictors or outcomes of both Pphubbing and EPS in separate studies, such as feelings of jealousy (*Pphubbing*: David & Roberts, 2021; *EPS*: Elphinston & Noller, 2011), attachment style (*Pphubbing*: Roberts & David, 2016; Bröning & Wartberg, 2022; *EPS*: Fox & Warber, 2014; Marshall et al., 2013), and low self-esteem (*Pphubbing:* Wang et al., 2021; *EPS*: Langlais et al., 2020). We encourage researchers in these fields of study to expand on our model by identifying and including additional factors associated with both partner phubbing and partner surveillance, increasing our understanding of these phenomena.

Lastly, with regard to the characteristics age, sex, and relationship length, our findings revealed that EPS was reported more by people who were younger, in shorter relationships, and female. These findings are in line with previous research on sex and age differences in electronic partner surveillance and monitoring behaviors (e.g., Tokunaga, 2011; Schokkenbroek et al., 2021b; Smoker & March, 2017). Few studies have addressed the role of relationship length in relation to EPS, however. Among existing studies, results vary, with some studies concluding that relationship length is a protective factor of partner surveillance (e.g., Darvell et al., 2011), whereas others found the inverse (e.g., Van Ouytsel et al., 2018) or did not find any effect at all (e.g., Hertlein & Van Dyck, 2020; Marshall et al., 2013; Van Ouytsel et al., 2020). These diverse findings suggest that relationship length is a highly relevant concept

in discussions on intrusive digital behaviors: Newer relationships may be vulnerable because they are more uncertain, but longer relationships provide more time, opportunity, and perhaps reason for partners to engage in digital intrusive behaviors (Reed et al., 2016). Future research should further investigate whether relationship length is a protective or risk factor in intrusive digital behaviors, and why. Additionally, we encourage scholars to further disentangle the (differentiating) role of these and other intra- and interpersonal characteristics in Pphubbing, EPS, and the relationship between these two phenomena.

4.2 Limitations and directions for future research

Whereas the study findings provide important insights into Pphubbing and its detrimental impact on romantic relationships, the present study has several limitations that should be considered. First, as the data were collected through self-report measures, they are susceptible to personal biases, such as social desirability bias and recall bias. However, as the timeframe for which respondents indicated their emotional and behavioral experiences merely concerned a period of two weeks, the impact of recall bias on the present data is probably rather low. Second, data collection took place in April 2021, when governmental lockdown measures for the COVID-19 pandemic were in place in Belgium. During lockdown, many couples spent an increased amount of time together compared to before, likely increasing the frequency of positive but also negative partner interactions (e.g., Ahuja & Khurana, 2021; Rodríguez-Domínguez et al., 2021; Schokkenbroek et al., 2021a). Pphubbing prevalence and its consequences may have been magnified during this challenging period, implicating the findings presented here. Indeed, Schokkenbroek and colleagues (2021a) found that people, particularly women, experienced more stress in their relationship during lockdown because they felt neglected by their partner. Arguably, this could (in part) be explained by increased experiences of being phubbed by their romantic partner. On the other hand, it could be that individuals find their partner's phubbing behaviors less intrusive during lockdown compared to other (non-pandemic) contexts, as the amount of time spent together strongly increased because of the lockdown measures. We encourage scholars to further assess these phenomena in a time period and context that more closely resembles customary, pre-pandemic life.

Third, as we measured feelings of worry and stress in a general sense rather than examining feelings that specifically concern the relationship and the Pphubbing behavior, it remains rather vague which psychological processes can specifically be linked to Pphubbing experiences and low perceived partner responsiveness. For example, specifically asking respondents how often they worry about their relationship or their partner's online activities

may have provided a more detailed insight into why Pphubbing triggers feelings of distress and why these feelings, in turn, lead to partner surveillance. The same limitation applies for our measure of perceived partner responsiveness. While the items of the supportive partner subscale of the DCI (Bodenmann, 2008) (e.g., "my partner shows empathy and understanding to me") align with our conceptualization of perceived partner responsiveness (i.e. making the other feel understood, validated, and cared for), the DCI was intended for the assessment of dyadic coping in specific stressful situations. As such, we might have captured perceived partner responsiveness and its association with Pphubbing more accurately if we had framed these items within the specific context of Pphubbing. Future research should further disentangle which factors play a role in the relationship between Pphubbing and EPS by using measures that are more specifically tailored to the intimate relationship and the behaviors in question.

Fourth, as the present study employed a convenience sampling approach, we cannot draw conclusions on the relationship between Pphubbing and EPS that would apply for the general population. Also, as women were overrepresented in our sample it was not possible to address and disentangle sex differences beyond correlation analyses and the inclusion of respondents' sex as a covariate in our model. In addition to this, the correlational design of the present study does not allow us to draw causal conclusions. Thus, we encourage researchers to examine the relationship between Pphubbing and EPS behaviors using a representative sampling technique and by employing a longitudinal research design. It is also worth noting that the reported effect sizes (and the confidence intervals around these effect sizes) are rather small, and should be interpreted accordingly. As mentioned, it is likely that (many) other factors play a role in the relationship between Pphubbing and EPS, and we encourage scholars to explore these.

Lastly, the present study examined Pphubbing experiences and consequences from an individual perspective, not accounting for the perceptions and experiences of the other partner. A dyadic approach to the research questions at hand may have shed further light on these phenomena. For instance, while the present study found that the experience of being phubbed may increase anxiety in the *phubbee*, several studies have found that phubbing behaviors may be explained by feelings of anxiety in the *phubber* (e.g., Guazzini et al., 2019). Drawing on these findings, one could argue that the associations in question could create a vicious circle: EPS by the phubbee to deal with their anxiety (due to the experience of being phubbed) might increase anxiety in their partner, thus increasing the likelihood that their partner will use their phone to cope with these feelings. This, in turn, would again increase Pphubbing experiences in the relationship, increasing the likelihood that the phubbee will (again) engage in partner

surveillance (and so on…). Thus, we encourage scholars to further explore the interpersonal dynamics of Pphubbing and EPS experiences by employing a dyadic research design.

4.3 Implications

Despite these limitations, the findings of the present study hold several important implications for research and practice. As we found that the relationship between Pphubbing and EPS could only be explained by the combination of inter- and intrapersonal factors instead of by these factors separately, research related to technoference and relationship quality should be informed by models incorporating person-environment interactions. For practice, this implies that prevention and intervention efforts that aim to educate and support romantic couples in the digital era should likewise consider both intra- and interpersonal as well as contextual factors that play a role in the occurrence of these harmful digital behaviors, and should focus on empowering couples to adequately deal with these factors. Particular effort should be put into emphasizing the transgressive nature of online partner monitoring, as the accessibility and inherent anonymity of cyberspace may facilitate behavior disinhibition and moral disengagement (Lapidot-Lefler & Barak, 2012; Suler, 2004), lowering the threshold to engage in electronic partner surveillance. Notably, the findings of our study indicate that counsellors and educators should particularly emphasize the importance of partner responsiveness in this digital era dominated by technological preoccupation.

References

Ahuja, K. K., & Khurana, D. (2021). Locked-down love: A study of intimate relationships before and after the COVID lockdown. *Family Relations, 70*(5), 1343-1357. https://doi.org/10.1111/fare.12582

Berger, C. R., & Calabrese, R. J. (1974). Some explorations in initial interaction and beyond: Toward a developmental theory of interpersonal communication. *Human Communication Research, 1*(2), 99-112. https://doi.org/10.1111/j.1468-2958.1975.tb00258.x

Beukeboom, C. J., & Pollmann, M. (2021). Partner phubbing: why using your phone during interactions with your partner can be detrimental for your relationship. *Computers in Human Behavior, 124*, 106932. https://doi.org/10.1016/j.chb.2021.106932

Bodenmann, G. (2008). *Dyadisches Coping Inventar: Testmanual* [Dyadic Coping Inventory: Test manual]. Bern, Switzerland: Huber

Bröning, S., & Wartberg, L. (2022). Attached to your smartphone? A dyadic perspective on perceived partner phubbing and attachment in long-term couple relationships. *Computers in Human Behavior*, *126*. https://doi.org/10.1016/j.chb.2021.106996

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. https://doi.org/10.1016/j.chb.2016.05.018

DataReportal. (2021), *Digital 2021 global digital overview*, retrieved from https://datareportal.com/reports/digital-2021-global-digital-overview

Darvell, M. J., Walsh, S. P., & White, K. M. (2011). Facebook tells me so: Applying the theory of planned behavior to understand partner-monitoring behavior on Facebook. *Cyberpsychology, Behavior, and Social Networking, 14*(12), 717-722. https://doi.org/10.1089/cyber.2011.0035

David, M. E., & Roberts, J. A. (2021). Investigating the impact of partner phubbing on romantic jealousy and relationship satisfaction: The moderating role of attachment anxiety. *Journal of Social and Personal Relationships*. https://doi.org/10.1177/0265407521996454

Dziak, J. J., Dierker, L. C., & Abar, B. (2020). The interpretation of statistical power after the data have been gathered. *Current Psychology, 39*(3), 870-877. https://doi.org/10.1007/s12144-018-0018-1

Elphinston, R. A., & Noller, P. (2011). Time to face it! Facebook intrusion and the implications for romantic jealousy and relationship satisfaction. *Cyberpsychology, Behavior, and Social Networking*, *14*(11), 631-635. https://doi.org/10.1089/cyber.2010.0318

Fox, J., & Tokunaga, R. S. (2015). Romantic partner monitoring after breakups: Attachment, dependence, distress, and post-dissolution online surveillance via social networking sites. *Cyberpsychology, Behavior, and Social Networking, 18*(9), 491-498. https://doi.org/10.1089/cyber.2015.0123

Fox, J., & Warber, K. M. (2014). Social networking sites in romantic relationships: Attachment, uncertainty, and partner surveillance on Facebook. *Cyberpsychology, Behavior, and Social Networking*, *17*(1), 3-7. https://doi.org/10.1089/cyber.2012.0667

Guazzini, A., Duradoni, M., Capelli, A., & Meringolo, P. (2019). An explorative model to assess individuals' phubbing risk. Future Internet, 11(1), 21. https://doi.org/10.3390/fi11010021

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach.* Guilford Press.

Hertlein, K. M., & van Dyck, L. E. (2020). Predicting engagement in electronic surveillance in romantic relationships. *Cyberpsychology, Behavior, and Social Networking*, *23*(9), 604-610. https://doi.org/10.1089/cyber.2019.0424

Krasnova, H., Abramova, O., Notter, I., & Baumann, A. (2016). Why phubbing is toxic for your relationship: Understanding the role of smartphone jealousy among "generation y" users. *Research Papers*, 109. http://aisel.aisnet.org/ecis2016_rp/109

Langlais, M. R., Seidman, G., & Bruxvoort, K. M. (2020). Adolescent romantic relationship–oriented Facebook behaviors: Implications for self-esteem. *Youth & Society*, *52*(4), 661-683. https://doi.org/10.1177/0044118X18760647

Lapidot-Lefler, N., & Barak, A. (2012). Effects of anonymity, invisibility, and lack of eye-contact on toxic online disinhibition. *Computers in Human Behavior*, *28*(2), 434-443. https://doi.org/10.1016/j.chb.2011.10.014

Lenth, R. V. (2007). *Post hoc power: Tables and commentary*. University of Iowa.

Levine, M., & Ensom, M. H. (2001). Post hoc power analysis: an idea whose time has passed?. *Pharmacotherapy: The Journal of Human Pharmacology and Drug Therapy*, *21*(4), 405-409. https://doi.org/10.1592/phco.21.5.405.34503

Marshall, T. C., Bejanyan, K., Di Castro, G., & Lee, R. A. (2013). Attachment styles as predictors of Facebook-related jealousy and surveillance in romantic relationships. *Personal Relationships*, *20*(1), 1-22. https://doi.org/10.1111/j.1475-6811.2011.01393.x

McDaniel, B. T., & Coyne, S. M. (2016). "Technoference": The interference of technology in couple relationships and implications for women's personal and relational well-being. *Psychology of Popular Media Culture*, *5*(1), 85. https://doi.org/10.1037/ppm0000065

Ponnet, K. (2012). *The Dutch version of Bodenmann's dyadic coping inventory*. Antwerp: University of Antwerp.

[Concealed for review purposes]

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40*(3), 879-891. https://doi.org/10.3758/BRM.40.3.879

Reed, L. A., Tolman, R. M., Ward, L. M., & Safyer, P. (2016). Keeping tabs: Attachment anxiety and electronic intrusion in high school dating relationships. *Computers in Human Behavior, 58*, 259-268. https://doi.org/10.1016/j.chb.2015.12.019

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. https://doi.org/10.1016/j.chb.2015.07.058

Rodríguez-Domínguez, C., Carrascal-Caputto, B., & Durán, M. (2021). Anxiety and intimate relationships in times of lockdown due to COVID-19. *Psychological Trauma: Theory, Research, Practice, and Policy*. https://doi.org/10.1037/tra0001094

Schokkenbroek, J. M., Hardyns, W., Anrijs, S., & Ponnet, K. (2021a). Partners in lockdown: Relationship stress in men and women during the COVID-19 pandemic. *Couple and*

Family Psychology: Research and Practice, 10(3), 149. https://doi.org/10.1037/cfp0000172

Schokkenbroek, J. M., Ouytsel, J. V., Hardyns, W., & Ponnet, K. (2021b). Adults' online and offline psychological intimate partner violence experiences. *Journal of interpersonal violence,* 1-16. https://doi.org/10.1177/08862605211015217

Slatcher, R. B., & Selcuk, E. (2017). A social psychological perspective on the links between close relationships and health. *Current Directions in Psychological Science, 26*(1), 16-21. https://doi.org/10.1177/0963721416667444

Smoker, M., & March, E. (2017). Predicting perpetration of intimate partner cyberstalking: Gender and the Dark Tetrad. *Computers in Human Behavior, 72*, 390-396. https://doi.org/10.1016/j.chb.2017.03.012

Spitzer, R. L., Kroenke, K., Williams, J. B., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: the GAD-7. *Archives of Internal Medicine, 166*(10), 1092-1097. https://doi.org/10.1001/archinte.166.10.1092

Stanton, S. C., Selcuk, E., Farrell, A. K., Slatcher, R. B., & Ong, A. D. (2019). Perceived partner responsiveness, daily negative affect reactivity, and all-cause mortality: A 20-year longitudinal study. *Psychosomatic Medicine, 81*(1), 7. https://doi.org/10.1097/PSY.0000000000000618

Stockdale, L. A., Coyne, S. M., & Padilla-Walker, L. M. (2018). Parent and child technoference and socioemotional behavioral outcomes: A nationally representative study of 10-to 20-year-old adolescents. *Computers in Human Behavior, 88,* 219-226. https://doi.org/10.1016/j.chb.2018.06.034

Suler, J. (2004). The online disinhibition effect. *Cyberpsychology & Behavior, 7*(3), 321-326. https://doi.org/10.1089/1094931041291295

Tokunaga, R. S. (2011). Social networking site or social surveillance site? Understanding the use of interpersonal electronic surveillance in romantic relationships. *Computers in Human Behavior, 27*(2), 705-713. https://doi.org/10.1016/j.chb.2010.08.014

Ugur, N. G., & Koc, T. (2015). Time for digital detox: Misuse of mobile technology and phubbing. *Procedia – Social and Behavioral Sciences, 195*, 1022-1031. https://doi.org/10.1016/j.sbspro.2015.06.491

Vanden Abeele, M. M. P. (2020). The social consequences of phubbing: A framework and a research agenda. In R. Ling, G. Goggin, L. Fortunati, S. S. Lim, & Y. Li (Eds.), *Handbook of Mobile Communication, Culture, and Information* (pp. 158-174). Oxford University Press.

Vanden Abeele, M. M. P., Antheunis, M. L., & Schouten, A. P. (2016). The effect of mobile messaging during a conversation on impression formation and interaction quality. *Computers in Human Behavior, 62*, 562-569. https://doi.org/10.1016/j.chb.2016.04.005

Van Ouytsel, J., Ponnet, K., & Walrave, M. (2018). Cyber dating abuse victimization among secondary school students from a lifestyle-routine activities theory perspective. *Journal of Interpersonal Violence, 33*(17), 2767-2776. https://doi.org/10.1177/0886260516629390

Van Ouytsel, J., Ponnet, K., & Walrave, M. (2020). Cyber dating abuse: Investigating digital monitoring behaviors among adolescents from a social learning perspective. *Journal of Interpersonal Violence, 35*(23-24), 5157-5178. https://doi.org/10.1177/0886260517719538

Wang, X., Zhao, F., & Lei, L. (2021). Partner phubbing and relationship satisfaction: Self-esteem and marital status as moderators. *Current Psychology, 40*(7), 3365-3375. https://doi.org/10.1007/s12144-019-00275-0

Williams, K. D. (2009). Ostracism: A temporal need-threat model. *Advances in Experimental Social Psychology, 41*, 275-314. https://doi.org/10.1016/S0065-2601(08)00406-1

Zumbo, B. D., & Hubley, A. M. (1998). A note on misconceptions concerning prospective and retrospective power. *Journal of the Royal Statistical Society: Series D (The Statistician), 47*(2), 385–388. https://doi.org/10.1111/1467-9884.00139

Tables

Table 1

Prevalence Rates of Partner Phubbing (Pphubbing) and Electronic Partner Surveillance (EPS)

	Total (*n* = 346)	Women (*n* = 262)	Men (*n* = 84)
Pphubbing			
Never	27 (7.8%)	18 (6.9%)	9 (10.7%)
At least once	319 (92.2%)	244 (93.1%)	75 (89.3%)
EPS			
Never	228 (65.9%)	162 (61.8%)	66 (78.6%)
At least once	118 (34.1%)	100 (38.2%)	18 (21.4%)

Table 2

Spearman Rank Correlation Coefficients Between Study Variables

	M	*SD*	1.	2.	3.	4.
1. EPS	1.15	0.31	-			
2. Pphubbing	2.62	0.94	.170**	-		
3. Partner responsiveness	3.87	0.91	.035	-.180**	-	
4. Anxiety	2.29	0.95	.217**	.247**	-.114*	-
5. Age	40.45	15.84	-.180**	-.167**	-.230**	-.398**
6. Sex	N/A	N/A	.148**	.135*	.043	.269**
7. Relationship length	14.53	14.10	-.118*	-.085	-.178**	-.317**

Note. *$p \leq .05$; **$p \leq .001$.

Table 3

Multiple Mediation Model with Partner Phubbing as Predictor, Partner Responsiveness and Anxiety as Mediators, and Electronic Partner Surveillance as Outcome

					Confidence Interval (95%)	
	β	b	SEb	*p*	Lower bound	Upper bound
Total effect						
Pphubbing → EPS	.139	.057	.023	.011	.013	.101
Indirect effects						
Pphubbing → Partner Responsiveness → EPS	-.006	-.003	.006		-.032	.025
Pphubbing → Partner Responsiveness	-.234	-.227	.052	.000	-.329	-.125
Partner Responsiveness → EPS	.027	.011	.024	.637	-.036	.058
Pphubbing → Anxiety → EPS	.016	.007	.005		-.001	.040
Pphubbing → Anxiety	.095	.097	.051	.059	-.004	.197
Anxiety → EPS	.168	.068	.024	.005	.020	.116
Pphubbing → Partner Responsiveness → Anxiety → EPS	.008	.003	.002		.002	.018
Partner Responsiveness → Anxiety	-.213	-.223	.052	.000	-.326	-.121
Direct effect						
Pphubbing → EPS	.121	.050	.023	.031	.005	.095

Note. Sex, age, and relationship length were included as covariates. R^2 total effect model = 4.9%; R^2 full mediated model = 7.0%