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Childhood maltreatment and problematic social media use: The role of attachment and depression

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Abstract

Childhood maltreatment is associated with many maladaptive outcomes. This study sought to examine the association between childhood maltreatment and problematic social media use using a cross-sectional sample of young adults aged 17-25 years (n=1029). Specifically, we studied whether the relationship is mediated through (i) attachment anxiety, (ii) attachment avoidance, or (iii) both attachment dimensions operating in series with depressive symptoms. Results revealed that a history of childhood maltreatment was significantly associated with more problematic social media use. Both anxious and avoidant attachment dimensions independently mediated the relationship between childhood maltreatment and problematic use of social media, but in opposing directions. Avoidant attachment was associated with less problematic social media use, whilst anxious attachment was associated with more problematic social media use. Avoidant attachment and depressive symptoms in series accounted for part of the relationship between childhood maltreatment and problematic social media use. Anxious attachment and depressive symptoms in series fully mediated the relationship between childhood maltreatment and problematic social media use. The results suggest that childhood maltreatment may influence social media use directly, but also indirectly. People experiencing depressive symptoms may overuse social media in an attempt to alleviate their distress. However, causality cannot be established with the current design.

Keywords: childhood maltreatment; attachment anxiety; attachment avoidance; depressive symptoms; social media.

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1. Introduction

Childhood maltreatment is associated with many maladaptive outcomes. These include insecure attachment (Baer and Martinez, 2006), mental health difficulties (Cicchetti and Toth, 2005), and problematic internet use (Yates et al., 2012). The main aspects of problematic internet use include cognitive preoccupation with the internet, an inability to control internet use, and continued internet use despite negative consequences (Gámez-Guadix et al., 2012). According to Davis (2001), problematic internet use can be generalised or specific: generalised problematic internet use is conceptualised as general, multidimensional overuse of the internet, whereas specific problematic internet use involves overuse of a specific function of the internet, such as social media. Little is known about the association between childhood maltreatment and specific types of internet activity; however, social media plays a central role in the social lives of young people today (Allen et al., 2014). There is a need for developmentally informed research to understand the basis of problematic social media use and childhood maltreatment is one potential vulnerability factor. It is also critical to delineate the pathway by which childhood maltreatment might affect problematic social media use.

1.1. Childhood maltreatment and problematic internet use

Childhood maltreatment has been associated with a range of mental health concerns (Cicchetti and Toth, 2005). Recently, studies have identified an association between childhood maltreatment and problematic internet use. For instance, Yates et al. (2012) reported that experiences of childhood maltreatment were related to

increased problematic internet use, and that this association was explained, in part, by alexithymia, which is an inability to identify and describe feelings. The authors concluded that childhood maltreatment generates cognitive-affective vulnerabilities which, in turn, leave individuals prone to problematic internet use. Mirroring these findings, Schimmenti et al. (2017) also found that the association between traumatic childhood experiences and problematic internet use was partially mediated by alexithymia in a sample of late adolescents. Further to this, Hsieh et al. (2016) reported an association between multiple forms of childhood maltreatment and problematic internet use and that post-traumatic stress disorder (PTSD) mediated this association. The authors hypothesised that, in attempts to avoid or allay negative affect and PTSD symptoms, maltreated individuals may immerse themselves in the virtual world, such that extensive internet use may represent a coping strategy for individuals exposed to adversities during their childhood. Examining specific types of adversity, Dalbudak et al. (2014) found that the forms of childhood maltreatment associated with an increased risk of problematic internet use were emotional abuse, emotional neglect, and physical neglect, with the most important form of maltreatment being emotional abuse. Moreover, suffering childhood sexual abuse has been associated with a seven-fold increase in risk of problematic internet use in adolescence (Schimmenti et al., 2014).

The few studies to date in this area are consistent in reporting a relationship between childhood maltreatment and problematic internet use. However, there remain gaps in the current state of knowledge. First, the existing body of research focuses on internet use as a monolithic activity; however, different internet activities have different affordances (Bergmark et al., 2011). Thus, the association between childhood maltreatment and specific kinds of internet use, such as social media, has

not received empirical attention. Further to this, no previous research has investigated theoretically derived factors that may explain the association between childhood maltreatment and problematic social media use.

1.2. Attachment

According to attachment theory, abusive or neglectful parenting negatively influences people's expectations of future relationships (Bowlby, 1969). Working models of insecure attachment are characterised along two orthogonal dimensions referred to as attachment anxiety and avoidance (Brennan et al., 1998). Anxious attachment is associated with a negative image of the self and these individuals tend to have a hyperactivated attachment system. Hyperactivating strategies include intense efforts to attain closeness and exaggerated reactions to distress (Mikulincer et al., 2003). Avoidant attachment is associated with a negative image of others and a deactivated attachment system. Avoidant individuals tend to elude closeness, be overly self-reliant, and avoid intimate relationships. The body of research suggesting that maltreated children are more likely to exhibit an insecure attachment style is growing rapidly (Baer and Martinez, 2006; Cyr et al., 2010) and indeed, previous research has shown strong links between insecure attachment and psychological distress (Hankin, 2005).

While both insecure attachment styles are associated with psychological distress, recent research suggests that only attachment anxiety is involved in the development of problematic internet use (Jia and Jia, 2016; Şenormancı et al., 2014). More specifically, anxious attachment attitudes related specifically to preoccupation with relationships have consistently been found to be an important risk factor for problematic internet use (Schimmenti and Caretti, 2017; Schimmenti et al., 2014).

As attachment quality is a primary developmental process that can be affected by childhood maltreatment, insecure attachment may be one putative psychological mechanism through which childhood maltreatment is associated with problematic social media use, and may therefore mediate the relationship between childhood maltreatment and problematic use of social media. As attachment anxiety is associated with hyperactivating attachment strategies, these individuals may exhibit higher levels of problematic social media use in an attempt to seek comfort and belongingness online. Conversely, as social media is associated with socially-oriented activities, individuals characterised by attachment avoidance may be less likely to exhibit higher levels of problematic social media use due to their use of deactivating strategies (i.e., avoiding closeness). Thus, the mediation would likely be in opposing directions as anxious and avoidant attachment strategies are guided by opposite relational goals.

1.3. Depression

In accordance with theories of attachment, disturbances in the attachment relationship as a function of childhood maltreatment confer vulnerability to the development of depression (Goodman and Brand, 2009; Hankin, 2005). Specifically, people who have experienced maltreatment during childhood may develop insecure attachment relationships, which, alongside their associated negative self-perceptions and world views, may contribute to depression vulnerability (Goodman and Brand, 2009).

Although depression is characterised by social withdrawal and impoverished social networks, including low levels of social support and friendship quality, individuals experiencing depressive symptoms maintain their need for human contact.

Indeed, Ybarra et al. (2005) found that young people experiencing depression were less likely to have face-to-face interactions; however, they were more likely to communicate with others virtually compared to individuals without depression. Thus, for young people experiencing depression, socialising online may be a preferred substitute to interacting with others face-to-face. As social media represents a means by which to foster interactions without the concomitant anxiety of face-to-face contact, depressive symptoms may form part of the pathway through which childhood maltreatment affects problematic use of social media.

1.4. The present study

The aim of the present study was to develop a lifespan model of problematic social media use from an attachment-based perspective. Specifically, we aimed to identify psychological and clinical mediators through which a distal history of childhood maltreatment may contribute to the development of problematic social media use in young adulthood. In light of existing evidence, we hypothesised that childhood maltreatment, a distal vulnerability factor, would be associated with problematic social media use. Moreover, we also examined whether the relationship between childhood maltreatment and problematic use of social media would be explained by one or more of the following three pathways (i) attachment anxiety, (ii) attachment avoidance, or (iii) both attachment dimensions operating in series with depressive symptoms, whereby higher levels of insecurity in attachment relationships led to higher levels of depression which, in turn, predicted problematic use of social media. Taken together, the proposed model integrates tenets of attachment theory in an attempt to further understand why young people may come to excessively use social media.

2. Method

2.1. Participants

The sample comprised 1029 students attending a single university in North West England (74.8% female, n=770) aged 17-25 years (M= 19.80, SD=1.67). Participants were recruited via a mass email as part of a university-wide student well-being survey. Ethical approval was obtained from the University's ethics committee.

2.2. Measures

2.2.1 Adverse Childhood Experiences Questionnaire (Felitti et al., 1998)

The Adverse Childhood Experiences (ACEs) questionnaire is a widely used ten-item scale assessing adverse childhood experiences. Questions were answered as 'yes' (1) or 'no' (0). Only the first five items of the scale pertaining to different forms of maltreatment (e.g., physical abuse, sexual abuse, emotional abuse, emotional neglect, and physical neglect) were utilised in the analysis, and the total number of 'yes' responses was tallied. Internal consistency in relation to these items was α=0.60.

2.2.2. Relationship Questionnaire (Bartholomew and Horowitz, 1991)

The Relationship Questionnaire (RQ) is a four-item scale that contains statements describing each of the four attachment styles including: secure, preoccupied, dismissing, and fearful. Participants rated how well each description reflected their general relationship style on a seven-point scale (1=not at all like me; 7=very much like me). In line with the developers' recommendations, scores on the four pattern ratings (secure, preoccupied, dismissing, and fearful) were combined to form scores on two underlying attachment dimensions: attachment anxiety and attachment avoidance. The anxiety dimension was obtained by summing the ratings of the two

attachment patterns with negative self models (preoccupied and fearful) and subtracting the ratings of the two patterns with positive self models (secure and dismissing). The avoidance dimension rating was obtained by summing the ratings of the two attachment patterns with negative other models (dismissing and fearful) and subtracting the ratings of the two patterns with positive other models (secure and preoccupied). The RQ has been shown to have an acceptable test–retest reliability (Griffin and Bartholomew, 1994) and good discriminant and face validity (Ravitz et al., 2010).

2.2.3. Bergen Social Media Addiction Scale (Andreassen et al., 2017)

To assess problematic social media use, the Bergen Social Media Addiction Scale (BSMAS) was used. The BSMAS is an adapted version of the previously validated Bergen Facebook Addiction Scale (BFAS; Andreassen et al., 2012). The original scale (BFAS) assessed problematic Facebook use in the past twelve months and has shown good psychometric properties across previous studies. The adapted scale comprised a wording change that replaced 'Facebook' with 'Social Media' in each item, with social media defined in the scale instructions as "Facebook, Twitter, Instagram etc". The BSMAS comprises six items reflecting each of the six addiction components: salience, mood modification, tolerance, withdrawal, conflict, and relapse (Griffiths, 2005). Each question was rated on a five-point Likert scale (1='very rarely' to 5='very often') and the BSMAS score was obtained by summing the responses of all six items. The BSMAS is a psychometrically valid scale (Bányai et al., 2017). Internal consistency for this study was α=0.84.

2.2.4. Patient Health Questionnaire (Kroenke and Spitzer, 2002)

The Patient Health Questionnaire (PHQ-9) is a self-report measure used to screen for depression. It measures the occurrence of depressive symptoms during the previous two weeks. All nine items are scored on a four-point scale (0=no symptoms, 1=symptom occurred on several days, 2=symptom occurred more than half of the days, 3=symptom occurred nearly every day). Internal consistency for this study was $\alpha=0.89$.

2.3. Procedure

Participants completed an online survey comprising the RQ, ACEs questionnaire, PHQ, and the BSMAS amongst other measures of emotional distress and psychological mechanisms. All participants provided informed consent by ticking a checkbox before completing the measures.

2.4. Statistical analyses

Only participants who completed the survey in its entirety (n=1029) were included in the analysis (516 participants from an original 1545 were excluded from the analysis due to either missing data or not satisfying the inclusion criteria in relation to age). Descriptive statistics were computed for all variables. Pearson's correlation coefficients were computed between the main variables of interest. The first mediation analysis investigated whether childhood maltreatment (IV) affects problematic social media use (DV) via its effects on the attachment system (anxious attachment and avoidant attachment). Two serial multiple mediation analyses were also conducted where the independent variable (IV) was childhood maltreatment, the dependent variable (DV) was problematic social media use, and the mediators in the first serial model were anxious attachment (M1) and depressive symptoms (M2). In

the second serial model, avoidant attachment replaced anxious attachment as M1.

PROCESS (Hayes, 2012) was used to compare the magnitude of the direct effect (IV-DV; controlling for the mediators) to the total effect of the IV on the DV including the indirect pathway via the mediators. Specifically, the current analysis employed PROCESS models 4 (parallel mediation) and 6 (serial mediation). Mediation was assessed via bootstrapping with 10,000 resamples and 95% bias-corrected confidence intervals for indirect effects. A significant indirect effect is inferred by upper and lower confidence intervals that do not include zero. Age and gender were controlled for in each mediation model.

3. Results

Descriptive characteristics of the final included sample (n=1029) and the inter-correlations between the key variables are shown in Table 1.

Table 1. Descriptive statistics and Pearson's correlations between childhood maltreatment, attachment anxiety, attachment avoidance, depression, and problematic social media use

	Mean (SD)	2	3	4	5
1. Childhood maltreatment	0.54 (0.94)	0.20**	0.15**	0.31**	0.13**
2. Attachment anxiety	0.43 (4.37)		0.07*	0.39**	0.15**
3. Attachment avoidance	0.25 (4.23)		-	0.14**	-0.11**
4. Depression	10.07 (6.67)			-	0.27**
5. Problematic social media use	14.28 (5.20)				

**p<.01, *p<.05

In total, 327 participants (31.8%) reported experiencing maltreatment during childhood. Among the different types of childhood maltreatment reported, emotional abuse was the most prevalent (21.3%, n=219), followed by emotional neglect (16.7%, n=172), physical abuse (11.7%, n=120), sexual abuse (2.9%, n=30), and physical neglect (1.7%, n=17). Three quarters of the sample (75.2%, n=774) reported an insecure attachment style. Of those who reported experiencing at least one form of childhood maltreatment (n=327), the percentage of participants displaying an insecure attachment style was 84.4% (n=276/327).
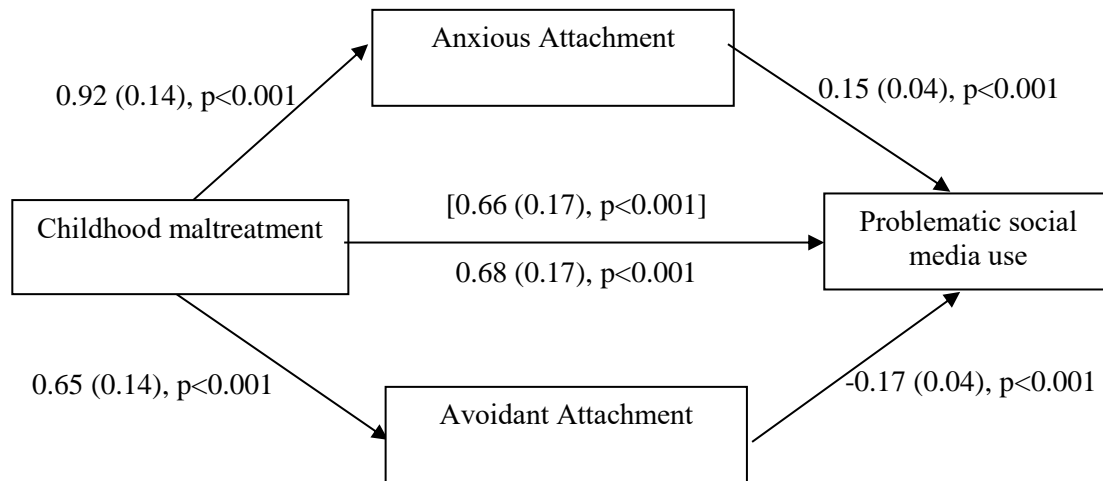
3.1 Effect of childhood maltreatment on problematic social media use via insecure attachment dimensions

A parallel mediation analysis (Figure 1) assessed the effect of childhood maltreatment on problematic social media use via both anxious and avoidant attachment dimensions. There was a significant total effect[1] of childhood maltreatment on problematic social media use, b(SE)=0.68 (0.17), p<0.001 and a significant indirect effect of childhood maltreatment on problematic social media use via both anxious attachment, b(SE)=0.13 (0.04), 95% CI=0.07 to 0.22 and avoidant attachment, b(SE)= -0.11 (0.04), 95% CI= -0.20 to -0.05. It should be noted that the direction of the effects were different for the two attachment styles, with anxious attachment positively associated and avoidant attachment negatively associated with problematic social media use. Effect size indices indicated that 20% of the total effect of childhood maltreatment on problematic social media use was mediated through anxious attachment and 16% of the total effect of childhood maltreatment on

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[1] Because the pathways are operating in opposite directions the change in the total effect when looking at the direct effect is not meaningful.

problematic social media use was mediated through avoidant attachment. Thus, both

anxious attachment and avoidant attachment partially mediated the relationship

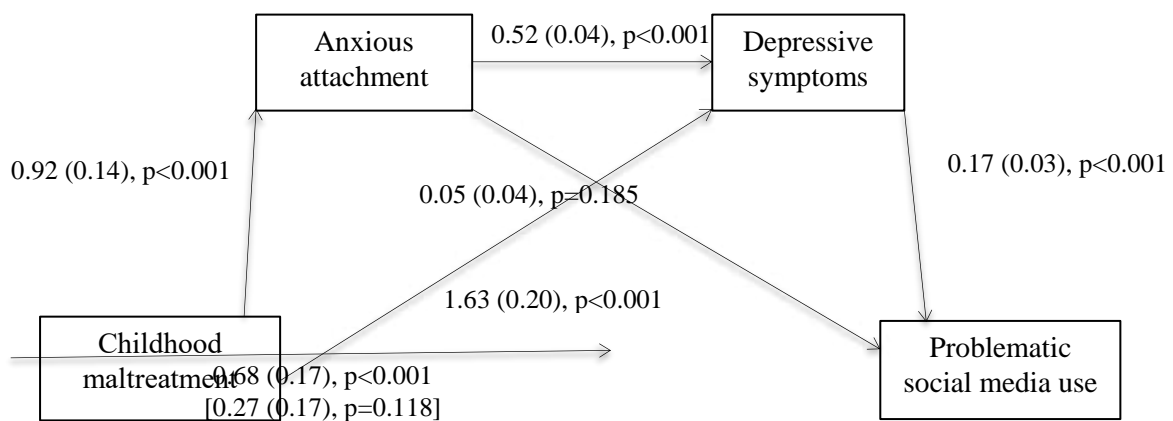between childhood maltreatment and problematic social media use.

Figure 1. Parallel mediation analysis with childhood maltreatment as the independent

variable (IV), problematic social media use as the dependent variable (DV), and

anxious attachment and avoidant attachment as the mediators. Values are

unstandardized regression coefficients (SEs in parentheses) and associated p values.

3.2 Effect of childhood maltreatment on problematic social media use via anxious

attachment and depressive symptoms in series

The serial multiple mediation model (Figure 2) indicated a significant total

effect of childhood maltreatment on problematic social media use, b(SE)=0.68 (0.17),

p<0.001. With regard to the indirect pathways, there was a significant indirect effect

of childhood maltreatment on problematic social media use via depressive symptoms;

b(SE)=0.28 (0.06), 95% CI=0.18 to 0.40 and there was also a significant indirect

effect of childhood maltreatment on problematic social media use via anxious

attachment and depressive symptoms; b(SE)=0.08 (0.02), 95% CI=0.05 to 0.13. There

were no other significant indirect effects (via anxious attachment; b(SE)=0.05 (0.04),

95% CI= -0.02 to 0.13). Notably, the direct effect of childhood maltreatment on problematic social media use was not statistically significant after controlling for the indirect effects, b(SE)=0.27 (0.17), p=0.118, suggesting that anxious attachment and depressive symptoms fully mediate the effect of childhood maltreatment on problematic social media use.
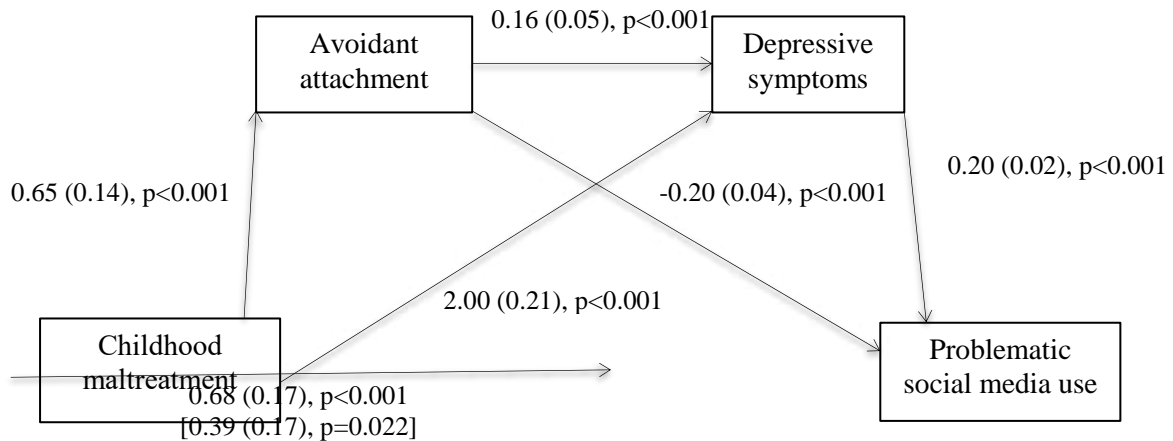

Figure 2. Serial multiple mediation analysis with childhood maltreatment as the independent variable (IV), problematic social media use as the dependent variable (DV), and anxious attachment and depressive symptoms as first and second mediators, respectively. Values are unstandardized regression coefficients (SEs in parentheses) and associated p values. Bracketed association = direct effect (controlling for indirect effects).

3.3 Effect of childhood maltreatment on problematic social media use via avoidant attachment and depressive symptoms in series

The serial multiple mediation model (Figure 3) indicated a significant total effect of childhood maltreatment on problematic social media use, b(SE)=0.68 (0.17), p<0.001. With regard to the indirect pathways, there was a significant indirect effect of childhood maltreatment on problematic social media use via avoidant attachment;

b(SE)= -0.13 (0.04), 95% CI= -0.22 to -0.06, depressive symptoms; b(SE)=0.39

(0.07), 95% CI=0.28 to 0.54, and there was also a significant indirect effect of

childhood maltreatment on problematic social media use via avoidant attachment and

depressive symptoms; b(SE) =0.02 (0.01), 95% CI=0.01 to 0.04. Notably, the direct

effect of childhood maltreatment on problematic social media use remained

statistically significant after controlling for the indirect effects, b(SE)=0.39 (0.17),

p=0.022, suggesting that avoidant attachment and depressive symptoms only partially

mediate the effect of childhood maltreatment on problematic social media use.

Figure 3. Serial multiple mediation analysis with childhood maltreatment as the

independent variable (IV), problematic social media use as the dependent variable

(DV), and avoidant attachment and depressive symptoms as first and second

mediators, respectively. Values are unstandardized regression coefficients (SEs in

parentheses) and associated p values. Bracketed association = direct effect

(controlling for indirect effects).

4. Discussion

The aim of this study was to determine whether childhood maltreatment would

be associated with problematic social media use in a university student sample.

Moreover, we examined whether the relationship between childhood maltreatment and problematic social media use would be explained by anxious attachment, avoidant attachment, or insecurity in attachment relationships operating in series with depressive symptoms. Thus, the secondary aim of the study was to delineate the pathway by which childhood maltreatment may lead to problematic social media use.

In line with our primary hypothesis and previous empirical findings (e.g., Yates et al., 2012), our results showed that a history of childhood maltreatment was associated with problematic social media use. Because people who have been maltreated are more likely to mistrust others and fear abandonment or rejection as a consequence, this may subsequently limit their ability to seek support and form relationships (Bifulco and Thomas, 2012). People who suffer childhood maltreatment may therefore overuse social media in order to cope with this difficult life experience. Indeed, abusive and neglectful home environments may leave young people with limited exposure to positive models and an inability to develop appropriate coping strategies. In line with previous findings (e.g., Hsieh et al., 2016), excessive social media use may thus serve as a coping strategy for young people who suffered maltreatment during their childhood.

Mediation analysis tested the secondary hypotheses in two stages. In the first stage, we found that both anxious attachment and avoidant attachment independently mediated the relationship between childhood maltreatment and problematic social media use, but in opposing directions. Specifically, greater attachment anxiety was associated with problematic social media use, whereas less avoidance in attachment relationships was associated with problematic social media use. Thus, individuals characterised by attachment anxiety may overuse social media in an attempt to seek comfort and belongingness online, and as this attachment style is associated with a

need for social validation, social media provides a conduit for this without the need for potentially fear-inducing face-to-face social interactions. This may in turn increase people's risk of problematic use. Avoidant people are not characterised by such needs, and hence the negative mediation model we observed was consistent with a need for self-reliance among avoidant individuals.

In the second stage, when entering both attachment avoidance and depressive symptoms into a serial model, we found that both attachment avoidance and depressive symptoms in series did, in part, account for the relationship between childhood maltreatment and problematic social media use. Last, when entering both attachment anxiety and depressive symptoms into a serial model, we found that both anxious attachment and depressive symptoms in series did fully account for the relationship between childhood maltreatment and problematic social media use. Young people with underlying depressive symptoms may find it harder to integrate with face-to-face social groups, and as social media represents a means by which to foster interactions without the concomitant anxiety of face-to-face contact, these individuals may be more drawn to social media interactions to develop social networks.

Taken together, the results suggest that childhood maltreatment may lead to problematic social media use directly, but also indirectly through its impact on attachment styles and mental health. Indeed, as abusive and neglectful home environments increase vulnerability to experiencing psychological difficulties through disrupted attachment organisation, young people may be excessively using social media sites in order to avoid or reduce negative emotions or as a means to find alternate social networks that do not involve distressing face-to-face interactions.

In light of these findings, prevention efforts should focus on helping young people to learn adaptive strategies because dealing with emotional difficulties through more positive methods may reduce reliance on social media as a coping strategy. The positive association found between symptoms of depression and problematic social media use also has a number of implications. For instance, it may be beneficial for clinicians to probe for underlying issues and mental health difficulties among individuals experiencing excessive usage as the underlying problems that prompt excessive social media use need to be addressed in order to overcome this behaviour. Last, as social media is a potential avenue to reach young people, public health practitioners should consider disseminating educational messages concerning mental health difficulties via these platforms.

Our findings should be considered in light of several limitations. We deliberately targeted younger participants at risk of problematic social media use and mental health problems; however, participants were all self-selected volunteers and thus may represent a specific subset of the population. The high proportion of female respondents in the sample also suggests our sample may not be representative of the general population. Further, the retrospective reporting of adverse childhood experiences may have resulted in inaccurate maltreatment reporting, and although insecure attachment appears to be one psychological mechanism through which childhood maltreatment leads to problematic social media use, there may also be other unmeasured paths, via different psychological processes such as alexithymia. Last, as our data were cross-sectional, this limits inferences about directionality, particularly with reference to the mediator-dependent variable relationship. Longitudinal and prospective investigations would improve the inference of causality, as it is possible that depressive symptoms are a consequence of excessive social media use.

Given this study's theoretical grounding in an attachment-based perspective, the present findings highlight a possible developmental pathway for young adults experiencing problematic social media use, which appears to emerge from experiences of maltreatment during childhood. The proposed model integrates aspects of attachment theory to understand why young people excessively use social media. The findings suggest that attachment-related adverse childhood experiences may reduce young people's access to effective support. This leaves them alone to deal with distress and, in turn, they may overuse social media in order to cope or as a means to find alternate social networks. The recognition of distinct factors that shape the relationship between childhood adversities and problematic social media use may provide evidence to support the development of future targeted interventions.

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