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ASSOCIATIONS BETWEEN BORDERLINE PERSONALITY DISORDER SYMPTOMS AND ONLINE SELF-DISCLOSURE IN CLINICALLY REFERRED YOUTH

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Communicating online via social media has proven to facilitate disclosure of intimate topics and can therefore be helpful in the development of intimate relationships. However, for youth with borderline personality disorder (BPD) symptoms, it may be more difficult to know when, what, and to whom to disclose (i.e., effective disclosure) in online contacts. The authors examine associations between BPD symptoms, online self-disclosure, and ineffective online self-disclosure (e.g., regretting sharing something online). The sample consisted of 235 clinically referred youth (66.4% female), aged 12–25 years (M = 17.82, SD = 2.96). Structural equation modeling revealed that BPD symptoms were related to higher levels of same- and cross-sex online self-disclosure as well as to more ineffective online self-disclosure. There was no moderation by sex or age. This study suggests that youth with BPD symptoms are at risk for oversharing personal information, which could affect forming and maintaining intimate relationships and increases online risks.

Keywords: online self-disclosure, social media, borderline personality disorder, sex, youth

In recent years social-based technologies, such as social media, are increasingly used for establishing and maintaining intimate relationships (Gomez-Baya et al., 2019). The characteristics of social media have proven to stimulate online disclosure about intimate topics, which in turn can enhance the development of relationships and psychosocial development (Desjarlais & Joseph, 2017; Valkenburg & Peter, 2011). However, these potential beneficial effects of social media may not apply to all youth. Particularly for adolescents and

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young adults with borderline personality disorder (BPD) symptoms, characterized by difficulties in interpersonal relationships and impulsivity (American Psychiatric Association, 2013) and a pronounced need for social connection (Ooi et al., 2020), the affordances of social media may pose a risk rather than an opportunity. For these youth, it may be more difficult to know when to disclose, what to disclose, and to whom to disclose in online communication. This could increase the likelihood of adverse outcomes such as cyberbullying victimization (Aizenkot, 2020), suicidal ideation (Nesi et al., 2021), and poor sleep hygiene (Dhir et al., 2021). The current study aims to examine the relationship between BPD symptoms and (difficulties in) self-disclosure in online communication in adolescents and young adults (herein referred to as "youth"). In addition, sex differences are investigated.

ONLINE SELF-DISCLOSURE

In adolescence and young adulthood, intimacy development is an important developmental task (Arnett, 2000; Montgomery, 2005). Youth need to learn how to initiate and maintain relationships such as friendships and romantic relationships. It is known that healthy peer socialization can potentially protect youth from maladaptive development (Brechwald & Prinstein, 2011). Self-disclosure (i.e., the sharing of personal thoughts, feelings, and experiences) plays a vital part in forming these relationships (Berndt, 2016; Finkenauer et al., 2018; Willems et al., 2020). Developmentally, youth start to disclose more to peers and less to their parents across adolescence, which is considered normative (Keijsers et al., 2009), in line with adolescents' growing need for autonomy. Peers, and later also romantic partners, increasingly become the targets of disclosure (Vijayakumar & Pfeifer, 2020). When communication partners share personal information, this stimulates feelings of trust (Jourard, 1971b) and induces liking (Collins & Miller, 1994). However, youth have to become proficient in sharing intimate and personal information.

Self-disclosure can be more or less effective in terms of contributing to the development of intimate relationships (Berndt, 2016). Effective self-disclosure means knowing what to disclose, when it is appropriate and acceptable to disclose, and to whom to disclose (Knapp & Vangelisti, 2000). Effective self-disclosure is associated with relationship skills like emotional closeness (Camarena et al., 1990; Rose, 2002), emotional support (Simpkins et al., 2016), and friendship quality (Rose, 2002) and is therefore seen as important for the development of intimate relationships. On the other hand, difficulties with self-disclosure such as disclosing too little, too much, too soon, or to the wrong people may be negatively related to the formation and maintenance of intimate relationships. This may ultimately lead to lower social acceptance and increased peer rejection (Vijayakumar & Pfeifer, 2020; Willems et al., 2020). In order to effectively self-disclose, youth need to practice with peers. Feedback from peers especially provides information about what is appropriate to tell in which context and in which groups.

In recent years, youth have increasingly used online communication to establish and maintain intimate relationships (Anderson & Jiang, 2018). The transformation framework describes how features such as anonymity and accessibility differ in online communication, and therefore social media can be seen as a distinct interpersonal context (Nesi et al., 2018a, 2018b). The affordances of online communication (e.g., anonymity, asynchronicity, and accessibility) mean a change in the way people disclose about themselves (Schouten et al., 2007; Willems et al., 2020). The hyperpersonal communication theory developed by Walther (1996) states that online communication enhances self-disclosure. The higher level of anonymity (Kiesler et al., 1984) and asynchronicity within online communication provides a higher sense of controllability of self-presentation. This controllability of self-presentation and self-disclosure may, in turn, give youth more confidence to share information (Tidwell & Walther, 2002; Walther & Parks, 2002). Research shows that self-disclosure can indeed be enhanced in online communication (Best et al., 2014; Desjarlais & Joseph, 2017; Nguyen et al., 2012). The enhanced self-disclosure in online communication can therefore be positively related to the quality of youth's friendships and ultimately positively affect well-being (Valkenburg & Peter, 2009). At the same time, features that distinguish online communication from face-to-face communication can also increase the risk of disclosing ineffectively. For example, the online disinhibition effect describes how people might self-disclose more frequently or intensely online than in face-to-face communication because they feel less restraint to share more intimate information (Suler, 2004). Furthermore, physical cues are often absent, which might increase ineffective self-disclosure. Because content shared via social media is permanently accessible, often publicly by large audiences, online communication is a unique context for studying interpersonal risks (Nesi et al., 2018a).

Yet we must consider that there is considerable variation in this link between online communication and self-disclosure. Not everyone who uses online communication will benefit from it to the same extent or in the same way. We therefore need to identify those individuals who might not benefit from the opportunities of online communication or who are more vulnerable to its risks. Youth with BPD symptoms might especially experience difficulties with effective self-disclosure because of their problems in interpersonal contacts and impulsivity (Chanen & Kaess, 2012). It is therefore important to gain more insight into the relationship between BPD symptoms and online self-disclosure.

BORDERLINE PERSONALITY DISORDER SYMPTOMS AND ONLINE SELF-DISCLOSURE

In both adults and youth, BPD symptoms predict poor social and occupational functioning and quality of life (Thompson et al., 2019; Tomko et al., 2014). Especially in youth, BPD criteria during this developmental period can disrupt the transition to adulthood, derailing the acquisition of essential skills for

both current and future psychosocial functioning (Chanen et al., 2020). In youth, BPD is related to more aggressive responses, more inadequate coping strategies in interpersonal contacts, and more memories of social frustrations (Hessels et al., 2016). Youth with BPD tend to hypermentalize, exerting very complex reasoning about others' mental states that results in misinterpretations (Sharp et al., 2011). These impaired social cognitions in BPD are likely to affect interpersonal communication and may also affect the way in which youth develop self-disclosure. In addition, the developmental task of forming romantic relationships can be at risk. For example, especially among female youth, BPD and dating victimization (e.g., physical violence) were found to be bidirectionally related (Vanwoerden, Leavitt, et al., 2019), suggesting that BPD increases the risk of dating victimization, which might exacerbate BPD symptoms. Because social and interpersonal difficulties are key features in BPD (Chanen & Kaess, 2012), it is important to examine BPD symptoms in relation to different aspects of psychosocial functioning, of which online self-disclosure is an important one. People with interpersonal difficulties are more likely to engage in excessive reassurance seeking in their use of social network sites and are therefore more likely to disclose about personal and intimate topics (Clerkin et al., 2013). This suggests that youth with more BPD symptoms show higher levels of online self-disclosure. Disproportionate disclosure may make individuals more vulnerable to interpersonal rejection and ultimately could negatively affect their self-esteem. The impulsivity, unstable emotions, and problems in mentalizing related to BPD may make it more difficult for youth with BPD symptoms to make adequate decisions about when to disclose what and to whom. This would make them more vulnerable to experiencing difficulties with self-disclosure in online communication and thus also more vulnerable to interpersonal rejection and low social self-esteem.

Only one study has investigated online communication in relation to BPD thus far, in a sample of adults in the general population (Ooi et al., 2020). This study showed that the number of BPD criteria was a predictor of posting more often on social media, as well as deleting or editing posts more often after regretting posting. Interestingly, the number of BPD criteria was also related to the extent to which adults used social media in their social life and the importance and emotional connection they experienced toward social media in their social life (i.e., how important their life on social media was for them).

When investigating the relationship between BPD symptoms and self-disclosure, we need to consider sex differences in online behaviors. Research among populations without mental problems shows that male youth are in general less inclined to disclose about themselves than female youth do (Schouten et al., 2007; Valkenburg & Peter, 2011; Valkenburg et al., 2011) and also that female youth use online communication more for social purposes than male youth do (Kelly et al., 2018; Krasnova et al., 2017). Therefore, female youth are more likely than male youth to engage in self-disclosure in online contacts. This sex effect could also translate to (ineffective) online self-disclosure among youth with BPD symptoms. Perhaps being female and experiencing BPD symptoms causes a double-dose effect, making female youth with BPD symptoms even more prone to show (ineffective) online self-disclosure than

male youth with BPD symptoms. This would imply that online-self disclosure should be especially targeted in treatment of female youth with BPD symptoms.

In addition to sex differences, age also appears to be a factor to take into consideration when examining online self-disclosure. Youth tend to communicate more online than adults, which matches their developmental tasks of relationship and identity development (Steijn, 2014). Little research has directly examined effects of age on online self-disclosure, and available evidence shows conflicting results, resulting in a scientific gap in knowledge on age and online self-disclosure (Paluckaite & Zardeckaite-Matulaitiene, 2019). This is possibly due to different conceptualizations of online self-disclosure as well the conflating fact that older adolescents or young adults often also have more opportunities for unsupervised online communication, for example, because they live on their own. A study that used the same online self-disclosure measure that we used found increasing online self-disclosure across age (Valkenburg et al., 2011). In a study of youth aged 12–17, older youth disclosed more online, but age did not predict regret after posting (Xie & Kang, 2015). Generally, adolescence is a phase in which risk behavior peaks (Duell et al., 2018), and adolescents have been shown to report lower concerns about privacy compared to adults (Steijn & Vedder, 2015). Because impulse control increases across the course of adolescence (Meeus et al., 2021), younger youth especially might be more prone to impulsive online self-disclosure.

In this study, we investigate the relationship between online self-disclosure and BPD symptoms in clinically referred youth. We expect that higher levels of BPD symptoms are associated with higher levels of online self-disclosure (Hypothesis 1) and with more ineffective online self-disclosure in online communication (Hypothesis 2). Furthermore, sex differences are examined. Specifically, we test the expectations that the positive association between BPD symptoms and online self-disclosure (Hypothesis 3) and the ineffectiveness of online self-disclosure (Hypothesis 4) are stronger for female youth than for male youth.

METHODS

PARTICIPANTS AND PROCEDURE

This study is part of an ongoing project on psychosocial functioning in relation to BPD symptoms titled "BPD Young" that is conducted in a large mental health care institution with multiple locations in the center of the Netherlands. In this project, youth aged 12 to 25 who are referred (mostly by their family physician) for assessment and treatment of psychological problems, and their parents, are asked to participate in this study after their intake interview. Data collected in this study are part of the diagnostic assessment and routine outcome monitoring, and participants give informed consent for anonymous use of this data for purposes of scientific research. When patients were younger than 16 years old, parental consent was also obtained. For this study, only youth-reported data are used. There were no specific inclusion criteria for participants. The only exclusion criterion was the presence of an acute psychotic episode. This study is approved by the Faculty Ethical Committee of

the Faculty of Social Sciences of Utrecht University (FETC 17-090). Data for this study were collected from January 2018 until April 2020.

Informed consent from patients (and parents of youth younger than 18 years old) was obtained for 240 out of 320 patients (75%). Of these 240 participants, data were missing from two patients, and we excluded three participants: one participant (aged 26) who was accidentally included in the study, one participant with information about sex missing, and one participant who indicated their sex to be "other." Thus, the final study sample was 235 participants. Mean age was 17.82 (*SD* = 2.96, range: 12–25), and 156 participants (66.4%) were female. For 227 (96.6%) participants, Dutch was their native language. Most participants (*n* = 202, 86%) lived with their parents, foster parents, or grandparents. Of the 33 other participants, 10 (4.3%) lived alone, 10 (4.3%) lived with their partner, 9 (3.8%) lived with roommates, 2 participants (0.9%) lived in residential care, and 2 participants (0.9%) had a different living situation (one lived with an aunt, and the other lived with parents and in part-time residential care). The majority of participants were currently pursuing an education (73.6%), with their level of education divided as follows: 51.5% low (prevocational secondary education or secondary vocational education), 24.3% middle (senior general secondary education or higher professional education), and 24.3% high (pre-university education or university).

MEASURES

Borderline Personality Disorder Symptoms. The Borderline Personality Disorder scale of the Structured Clinical Interview for *DSM-IV* Axis I disorders–Patient Questionnaire (SCID-II-PQ; First et al., 1995) was used to assess youth self-reported BPD symptoms. The SCID-II was translated into Dutch by Weertman et al. (1997) and has shown good internal consistency with Dutch youth (van Alebeek et al., 2015). The SCID-II-PQ BPD scale consists of 15 items that together measure the nine BPD criteria as described in the *DSM-IV* (American Psychiatric Association, 2013). One example item is: "Do you often feel empty inside?" Participants were asked whether the items applied completely or largely to them thinking about how they felt and behaved in general during the past years. All questions had "yes" or "no" answers. A sum score of all 15 items was computed to maximize variability (similar to Chanen et al., 2008; Sellbom et al., 2017). In the current sample, internal consistency was $\alpha = .80$.

Online (Ineffective) Self-Disclosure. The amount of intimate information shared online (i.e., online self-disclosure) was measured with an online self-disclosure measure (Schouten et al., 2007) that is based on earlier scales measuring intimate self-disclosure (Jourard, 1971a; Miller et al., 1983). Participants were asked to think of a boy and of a girl with whom they regularly communicated online to avoid participants thinking (only) of a best friend (Schouten et al., 2007). Furthermore, online self-disclosure might vary depending to whom and how youth reported on an interpersonal relationship they want invest in. Asking youth to report on online self-disclosure in general might result in an average that does not reflect actual interactions.

They were then asked to indicate separately for the boy and the girl how much they tell this person about seven topics: "my personal feelings," "the things I am worried about," "my secrets," "being in love," "sex," "moments in my life I am ashamed of," and "moments in my life I feel guilty about." The seven items were answered on a 5-point Likert scale ranging from 1 (*nothing*) to 5 (*everything*), and mean scores were computed. Previous studies using this measure aggregated same-sex and cross-sex online self-disclosure because they were moderately correlated (Schouten et al., 2007; Valkenburg et al., 2011). In the present study, same-sex and cross-sex amount of online self-disclosure also correlated moderately, $r = .47$, $p < .001$. One overall mean score was therefore created representing average same- and cross-sex amount of online self-disclosure ($\alpha = .93$).

In the present study, we added four items to measure same-sex and cross-sex ineffective online self-disclosure, presented after the items measuring same-sex and cross-sex online self-disclosure, respectively, thus asking about the same boy or girl they regularly communicated with online. These items were: "How often did you afterwards think that it would have been better to share something after knowing him/her better?", "How often did you afterwards feel that what you shared was actually too intimate to share with him/her?", "How often did you regret sharing something online with a boy/girl?", and "Has what you shared online with a boy/girl ever had a negative effect?" Examples were arguing, breaking off contact, lack of understanding, or other negative effects. Items were answered on a 5-point Likert scale ranging from 1 (*never*) to 5 (*very often*). Same-sex and cross-sex ineffective self-disclosure correlated substantially, $r = .58$, $p < .001$. Therefore, one overall mean score was created representing average same-sex and cross-sex ineffective online self-disclosure ($\alpha = .87$).

Daily Online Contact. One question was used to measure the time that participants spent daily online communicating: "Every day, I spent around this many hours online in contact with others (e.g., through WhatsApp, e-mail, Facebook, Snapchat, Instagram)." Participants could select one of five answers: 1 (0–1 hours), 2 (1–2 hours), 3 (3–4 hours), 4 (5–6 hours), or 5 (more than 6 hours).

STRATEGY OF ANALYSIS

Analyses were conducted using the Statistical Package for Social Science (SPSS) Version 24 (IBM Corp., 2016) and Mplus Version 8.1 (Muthén & Muthén, 2012). Descriptive statistics were calculated using SPSS. Hypotheses 1 and 2 were tested using a path model (full information maximum likelihood and bootstrapping; 5,000 samples) in which BPD symptoms, daily online contact, age, educational level, and sex were the independent variables and online self-disclosure (H1) and ineffective online self-disclosure (H2) were the dependent variables. We used multigroup modeling to examine whether pathways between BPD symptoms and both the amount of online self-disclosure as well as ineffective online self-disclosure were significantly different for male and female youth (H3 and H4). The two main pathways (e.g., from BPD symptoms to the amount of online self-disclosure and to ineffective self-disclosure) were

tested to examine moderation across sex using one-by-one Wald tests. When a direct path differed significantly across groups, this would provide evidence for a moderation effect. Correlations among predictors and outcomes, means, intercepts, variances, and residual variances were free to vary across sex by default. In all models, age, educational level, and time spent daily communicating online were entered as covariates.

To assess the fit of the models, Pearson chi-square (χ^2), the comparative fit index (CFI), the Tucker-Lewis index (TLI), and the root mean square error of approximation (RMSEA) were examined. A nonsignificant chi-square, CFI, and TLI values ≥ .95, and RMSEA ≤ .06 indicated good model fit (Hu & Bentler, 1999; Marsh et al., 2005).

RESULTS

DESCRIPTIVE STATISTICS AND CORRELATIONS

Missing data were overall less than 2%, and Little's MCAR Test indicated that data were missing at random, $\chi^2(6) = 7.39$, $p = .29$. We therefore used full information maximum likelihood (FIML) to utilize the full sample size.

Table 1 presents descriptive statistics of all study variables, results from *t* tests across sex, and correlations among variables. Male and female youth differed significantly on three study variables: Female youth spent more time online, reported higher levels of BPD symptoms, and reported a higher amount of online self-disclosure than male youth.

Concerning correlations, our study showed that BPD symptoms were not related to the amount of online self-disclosure in either sex, but symptoms were positively associated with ineffective online self-disclosure in both sexes. The amount of online self-disclosure and ineffective online self-disclosure were not related in both male and female youth. Regarding correlations of covariates, in male youth only, age was related to less time spent daily online communicating, more BPD symptoms, and more self-disclosure. For female youth, higher education was significantly related to less time spent daily communicating and time spent online with more online self-disclosure, but these correlations did not significantly differ from the nonsignificant correlations for male youth.

REGRESSION ANALYSIS

In the first model, pathways between BPD symptoms and the amount of online self-disclosure and ineffective self-disclosure were estimated to test whether higher levels of BPD symptoms predict higher levels of online self-disclosure (Hypothesis 1) or more ineffective online self-disclosure (Hypothesis 2). Time spent online communicating was included as a covariate to make sure that the amount of online self-disclosure did not just reflect time spent online communicating, but self-disclosure independent of time spent online. Other covariates were age, given the developmental aspect of intimacy development and self-disclosure, and educational level, because it might be associated with knowledge on what to share with whom and when. This model was fully

TABLE 1. Descriptive Statistics and Correlations of Background and Study Variables

	M (*SD*)								
	Males	Females	*t*	1.	2.	3.	4.	5.	6.
1. Age	18.01 (3.23)	17.72 (2.81)	.72	—	.07	**−.31****	**.25***	.03	**.23***
2. Educational Level	1.87 (.86)	1.65 (.81)	1.70	−.10	—	−.04	−.00	−.07	.03
3. Daily Online Contact	2.37 (1.00)	2.94 (1.15)	−3.73***	**.07**	−.23*	—	−.10	.09	.04
4. BPD Symptoms	6.87 (3.40)	9.40 (3.45)	−5.34***	**−.01**	−.19	.12	—	.19	.32**
5. Amount of Online Self-Disclosure	2.23 (.83)	2.63 (.96)	−3.10**	.04	−.03	.25**	.15	—	.12
6. Ineffective Online Self-Disclosure	1.47 (.61)	1.56 (.63)	−1.01	**−.15**	.07	.16	.33***	.08	—

Note. Correlations for male youth are presented above the diagonal, for female youth below the diagonal. Bold statistics differ significantly across sex as calculated using the Fisher *r* to *z* transformation. *$p < .05$. **$p < .01$. ***$p < .001$.

saturated ($df = 0$). Results of Model 1 are presented in Table 2 and show that more time spent online communicating predicted a higher amount of online self-disclosure but not ineffective self-disclosure. BPD symptoms predicted a higher amount of both online self-disclosure and ineffective online self-disclosure. The percentages of explained variance were 10.6% ($p = .01$) for the amount of online self-disclosure and 13.3% ($p < .001$) for ineffective online self-disclosure. Hypotheses 1 and 2 were thus confirmed.

To test Hypothesis 3, that pathways between BPD symptoms and the amount of online self-disclosure and ineffective online self-disclosure would be stronger for female youth, multigroup modeling was used, with sex as the grouping variable. Age, educational level, and time spent online were again included as covariates. First, an unconstrained model was estimated in which all pathways, correlations, means, intercepts, variances, and residual variances were allowed to differ between male and female youth. This model was fully saturated ($df = 0$). Wald tests were used to compare the two pathways of interest across sex. The pathway from BPD symptoms to the amount of online self-disclosure did not differ across sex (Wald test = .13, $p = .72$), and neither did the pathway from BPD symptoms to ineffective self-disclosure (Wald test = .20, $p = .66$). Hypotheses 3 and 4 were therefore rejected: There was no evidence for moderation across sex. We therefore estimated a constrained model where all regression paths were equal across sex (results presented in Table 3). This model showed excellent fit, $\chi^2(8) = 7.95$, $p = .44$, CFI = 1.00, TLI = 1.00, RMSEA = .00. Results and conclusions were similar compared to Model 1. Explained variance percentages were 6.0% ($p = .09$) for the amount of online self-disclosure for males and 7.0% ($p = .06$) for females, and 12.9% ($p = .01$) for ineffective self-disclosure for males and 13.2% ($p < .001$) for females.

DISCUSSION

The aim of this study was to examine whether BPD symptoms were related to online self-disclosure and ineffective online self-disclosure, and whether these relationships were moderated by sex. Interpersonal difficulties and impulsivity are key in BPD (American Psychiatric Association, 2013), and therefore these youth might be more at a disadvantage regarding online communication. Because (online) self-disclosure is essential in forming of friendships and romantic relationships (Willems et al., 2020) and intimacy development is a key developmental task for youth (Arnett, 2000), it is important to examine (ineffective) online self-disclosure in clinically referred youth at risk for BPD.

Our first hypothesis, that BPD symptoms would be related to more online self-disclosure, was confirmed. Thus, youth with more BPD symptoms disclosed more personal information about themselves online. This finding is in line with previous findings of a positive association between BPD and posting on social media in adults (Ooi et al., 2020), and it extends these findings to online self-disclosure of clinically referred youth. While self-disclosure is generally found to be important in forming and maintaining relationships

TABLE 2. Regression Coefficients (*SE*s; Standardized) of Covariates and BPD Symptoms Predicting Amount of Online Self-Disclosure and Ineffective Self-Disclosure (Model 1)

	Amount of online self-disclosure			Ineffective online self-disclosure		
Structural path (predictor)	Estimate	*SE*	*p*	Estimate	*SE*	*p*
Age	.05	.06	.44	−.02	.07	.79
Educational Level	−.00	.07	.98	.11	.08	.16
Daily Online Contact	**.21**	.07	.00	.12	.06	.05
Sex	.10	.06	.11	−.07	.06	.30
BPD Symptoms	**.16**	.06	.01	**.35**	.06	.00

Note. Bold estimates are significant at $p < .05$.

(Willems et al., 2020), this finding suggests that youth with BPD symptoms are more at risk of oversharing personal information.

Our second hypothesis was that BPD symptoms would be positively related to problems with online self-disclosure, that is, ineffective online self-disclosure. Our results are in line with this expectation and show that BPD symptoms and ineffectiveness of online self-disclosure are indeed positively related, meaning that higher levels of BPD symptoms are associated with more often regretting the sharing of too much intimate information or sharing too soon. The present study thus showed that youth with BPD symptoms are more at risk for ineffective self-disclosure. Because this is one of the first studies on this topic, we can only speculate about potential mechanisms in this link. The higher level of regret after online self-disclosure might be driven by impulsive online sharing, by impaired social decision making, or because sharing elicits feelings of rejection (e.g., when not receiving the extent of likes one expected), or by other features that might be relevant to BPD such as identity disturbance (Ooi et al., 2020).

In addition to examining potential underlying mechanisms, future research could also look into factors that amplify or dampen the link between BPD and both effective and ineffective online self-disclosure to gain more insight into individual variability in this association. Furthermore, this study asked youth to report on one boy and one girl with whom they regularly communicated online. Although post hoc analyses (see Supplementary Material) showed that results did not differ for same-sex or cross-sex (ineffective) self-disclosure, we could not examine the role of sexual orientation. It would also be interesting to distinguish between online self-disclosure to friends, online self-disclosure to acquaintances, and online self-disclosure to strangers (e.g., in online dating). Ineffective online self-disclosure might be more problematic when it happens in contact with people who are less close and acquainted. Such online contacts could result in youth engaging in dangerous or unhealthy (online) relationships or might make them more vulnerable to risky online behavior such as online sexual solicitation (Dönmez & Soylu, 2019).

Interestingly, although BPD symptoms predicted both the amount of online self-disclosure and ineffective self-disclosure, these concepts were not

TABLE 3. Regression Coefficients (*SE*s; Unstandardized) of Covariates and BPD Symptoms Predicting Amount of Online Self-Disclosure and Ineffective Self-Disclosure in a Constrained Multigroup Model (Model 2)

Structural path and direction	Amount of online self-disclosure			Ineffective online self-disclosure		
	Estimate	*SE*	*p*	Estimate	*SE*	*p*
Age	.01	.02	.56	−.00	.02	.83
Educational Level	−.02	.08	.83	.09	.06	.12
Daily Online Contact	**.16**	.06	.01	.07	.04	.05
BPD Symptoms	**.04**	.02	.02	**.06**	.01	.00

Note. Understandardized rather than standardized estimates are reported for clarity; as with multigroup modeling the estimates differ slightly for male and female youth (as pathways are constrained but, for example, variances are not).

interrelated. The amount of time spent communicating online was related only to the amount of online self-disclosure for female youth. This suggests that it is important to distinguish between how much youth self-disclose online and whether they do this ineffectively. Because BPD symptoms seem to more strongly predict ineffective self-disclosure, it is especially relevant to inquire about feelings of regret after sharing online and to chart potential risks of the youth in terms of online social behavior.

Finally, we hypothesized that the association between BPD symptoms and online self-disclosure and between BPD symptoms and ineffective self-disclosure would be stronger for females compared to males (Hypothesis 3 and Hypothesis 4). These hypotheses were based on findings showing that female youth spend more time on social media, especially in interaction with others (Kelly et al., 2018; Krasnova et al., 2017), and also display higher levels of online self-disclosure (Valkenburg et al., 2011). Our results indeed showed that female youth spent more time communicating online and engaged in more online self-disclosure than male youth, an effect likely driven by higher same-sex online self-disclosure of female youth. Parental socialization might play a role in this, because female youth might be more encouraged by their parents to self-disclose in relationships, which might extend into peer relationships (Rose & Rudolph, 2006). One might expect that if female youth spent more time online and disclose more, they would also report more ineffective self-disclosure; however, this was not the case. When female youth spend more time online and disclose more, they also have more opportunities to practice effective self-disclosure, which perhaps balances out any sex differences in ineffective online self-disclosure.

The findings of the current study did not show any moderating effects of sex in the relationships between BPD and online (ineffective) self-disclosure. Post hoc analyses (see Supplementary Material) showed that this held for both same-sex and cross-sex (ineffective) online self-disclosure. Ooi et al. (2020) also reported no sex differences in adults in the association between BPD symptoms and experiencing regret after posting. It therefore appears to be that sex only affects the amount of online self-disclosure but that male and female

youth with BPD symptoms are equally at risk for ineffective self-disclosure. This is interesting in the light of findings showing that the presentation of BPD shows some gender differences, with male adolescents more likely to report impulsivity and female adolescents more likely to report instability in relationships (Vanwoerden, Garey, et al., 2019), findings also reported in adult samples (Hoertel et al., 2014). Our results, however, do not support the idea of a double-dose effect, as female youth were not found to be more vulnerable for ineffective self-disclosure. In addition, post hoc analyses showed that sex and age did not predict (ineffective) online self-disclosure nor did age affect associations between BPD symptoms and (ineffective) online self-disclosure (this held for male as well as female youth).

Ineffective self-disclosure may pose a risk for initiating and maintaining intimate relationships in youth with BPD, who are already vulnerable in this area. In addition, self-disclosure on social media might negatively impact the well-being of youth with BPD symptoms, for example, by contributing to deliberate self-harm (Biernesser et al., 2020) or psychological distress resulting from sexting (Brinkley et al., 2017). As youth increasingly communicate online, online self-disclosure forms a central aspect in the development of social and life skills, identity formation, and general psychosocial development. Youth with BPD symptoms might be more at risk for the adverse effects of online communication in interpersonal relationships. Therefore, it is important to pay attention to online social interactions in treatment. Clinicians should inform themselves of normative online behavior and keep up with the different social media platforms that emerge each year, because each platform presents its own risks and opportunities (Vannucci & Ohannessian, 2019; Vannucci et al., 2019). Interestingly, Pagnotta et al. (2018) found that adolescents' perception of their therapists' social media competency predicts therapeutic alliance, which seemed driven by the extent to which therapists display awareness and respect regarding adolescents' social media use. These authors, however, understate the diagnostic assessment of social media use (e.g., in a social media questionnaire, such as in our study) to inform and guide further treatment and to suggest which areas of social media use might be particularly problematic. Furthermore, the need to equip youth who are at risk for interpersonal problems with knowledge and skills to deal with online self-disclosure in different contexts, in order to minimize their online risks related to rejection, sexting, and shaming, might exceed the possibilities of general (school-wide) prevention programs where risks of online self-disclosure are discussed. Youth with BPD symptoms might benefit when therapeutic treatment, often focused on their relationship skills, includes their online behaviors as well. Future research could examine therapeutic strategies or programs to equip at-risk youth with skills for effective online self-disclosure.

While this study focused on ineffective self-disclosure as a potential risky online behavior, social media can also present positive opportunities for youth, including youth with BPD symptoms. For example, while discussing self-harming behaviors online can lead to increased suicidal ideation severity (Nesi et al., 2021), social media platforms can also be perceived as supportive, where youth can share advice on stopping self-harm behavior and encourage each other (Dyson et al., 2016).

This study is, to our knowledge, the first to examine the relationship between BPD symptoms and online self-disclosure in adolescence and young adulthood, a critical phase in the development of social and relational functioning and identity formation. This study is based on a clinical sample in youth mental health care, which allows findings to be generalized to youth who are at high risk for BPD. However, there are also several limitations that need to be considered when interpreting the results. First, the data in this study were obtained from a single informant: the youth themselves; youth with BPD symptoms, because of problems with mentalizing, may not be the most reliable source of information on the effects of their own behavior (Baer et al., 2012), especially younger subjects (Klonsky & Oltmanns, 2002).

Second, the average level of ineffectiveness of self-disclosure was relatively low and lower than was expected based on clinical experience. Because our measure for ineffective self-disclosure was created for this study, we cannot draw comparisons with research from general populations. However, it could be that youth with BPD symptoms have more difficulties assessing the risks of online self-disclosure (e.g., Crawford et al., 2004), potentially leading to ineffective online self-disclosure or oversharing, resulting in regret or conflict. Furthermore, it is unknown whether BPD symptoms are related to more online self-disclosure to strangers. Future research could distinguish between friends, acquaintances, and strangers to get a broader view of online self-disclosure. Other methods, such as experience sampling, tracking of social media data, or experimental designs (e.g., with confederates) (for examples of such designs, see Haimson & Veinot, 2020; Pouwels et al., 2021), could be used to investigate the relationship between BPD symptoms and online self-disclosure in a more reliable and accurate way. In this way, a more refined insight can be gained into the online self-disclosure of youth with BPD symptoms. Finally, this study used a cross-sectional assessment. Future research could employ a longitudinal design to examine potential long-term consequences of (ineffective) online self-disclosure for the interpersonal functioning of youth, both in terms of the development of BPD symptoms and for youth well-being (e.g., feelings of rejection, self-esteem).

CONCLUSION

This study showed that BPD symptoms are associated with (ineffective) online self-disclosure in clinically referred youth (aged 12–25 years). These results suggest that youth with BPD symptoms are at risk for oversharing personal information, which could affect forming and maintaining intimate relationships and increase online risks. These relationships were not affected by sex or age. Online communication through social media is increasingly used for developing and maintaining intimate relationships, and social media can have beneficial effects for psychosocial development. For youth with BPD symptoms, however, the affordances of social media may pose a risk rather than an opportunity.

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SUPPLEMENTARY MATERIAL

Post-hoc Analyses

Two post-hoc analyses were conducted to test the robustness of our findings. First, we examined associations between BPD symptoms and cross-sex and same-sex (ineffective) self-disclosure separately for Model 1 (see Table S1). Results indicated that results were nearly identical. Daily online contact predicted both same-sex and cross-sex higher amount of online self-disclosure, but not ineffective self-disclosure. BPD symptoms positively predicted both same-sex and cross-sex amount of online self-disclosure as well as ineffective online self-disclosure, with (near-)exact estimates. The only difference between the models is sex predicting same-sex amount of online self-disclosure, showing that female youth reported higher levels of amount of same-sex online self-disclosure than male youth. We also examined same- and cross-sex (ineffective) online self-disclosure within our multigroup analyses (Model 2) to see whether these might differ across sex. We first estimated an unconstrained model. Using Wald tests, no evidence for moderation by sex was found in associations between daily online contact and BPD symptoms with (ineffective) online self-disclosure. We thus estimated a constrained model (see Table S2), which showed excellent fit, $\chi^2(16) = 16.72$, $p = .40$, CFI = 1.00, TLI = .99, RMSEA = .02. There were no changes in patterns of results, with time spent online predicting both same-sex and cross-sex amount of online self-disclosure but not ineffective self-disclosure, and BPD symptoms predicting both same-sex and cross-sex amount of online self-disclosure and self-disclosure. These post-hoc analyses support aggregating same-sex and cross-sex scores for both the amount of online self-disclosure and ineffective self-disclosure.

Second, we examined age as a potential moderator rather than a covariate, given potential developmental differences between younger and older youth in the associations between BPD symptoms and (ineffective) self-disclosure. As age was significantly correlated with time spent online communicating and with BPD symptoms, we centered these variables and included interaction terms with age in Model 1 (see Table S3). Both interactions were not significant. We additionally examined age as a potential moderator in our multigroup analyses (Model 2). Wald tests were conducted on the paths regarding the interaction with age to determine whether moderation might exist for male and female youth separately. The path from the interaction between age and BPD symptoms predicting amount of online self-disclosure showed a significant Wald test (3.91, $p = .048$). However, this path was nonsignificant for both male and female youth. Therefore, Table S4 presents the results from a constrained model, showing that for both male and female youth, age did not significantly interact with time spent online communicating or BPD symptoms in predicting (ineffective) online self-disclosure. This model showed excellent fit, $\chi^2(12) = 13.74$, $p = .318$, CFI = .96, TLI = .92, RMSEA = .04.

TABLE S1. Regression Coefficients (*SE*s; STDYX Standardized) of Covariates and BPD Symptoms Predicting Same-Sex and Cross-Sex Amount of Online Self-Disclosure and Ineffective Self-Disclosure (Model 1)

Structural path (predictor)	**Amount of online self-disclosure**						**Ineffective online self-disclosure**					
	Same-sex			**Cross-sex**			**Same-sex**			**Cross-sex**		
	Estimate	*SE*	*p*	Estimate	*SE*	*p*	Estimate	*SE*	*p*	Estimate	*SE*	*p*
Age	.04	.06	.56	.06	.07	.40	–.12	.07	.08	.08	.07	.25
Educational level	.00	.07	.99	–.01	.07	.93	.13	.08	.11	.07	.08	.40
Daily online contact	**.14**	.07	.05	**.23**	.07	.00	.13	.07	.06	.09	.06	.14
Sex	**.20**	.06	.00	–.03	.07	.71	–.06	.06	.23	–.06	.07	.39
BPD symptoms	**.12**	.06	.04	**.14**	.07	.03	**.32**	.06	.00	**.32**	.06	.00

Note. Bold estimates are significant at $p < .05$.

TABLE S2. Regression Coefficients (*SE*s; Unstandardized) of Covariates and BPD Symptoms Predicting Same-Sex and Cross-Sex Amount of Online Self-Disclosure and Ineffective Self-Disclosure (Model 2)

Structural path (predictor)	**Amount of online self-disclosure**						**Ineffective online self-disclosure**					
	Same-sex			**Cross-sex**			**Same-sex**			**Cross-sex**		
	Estimate	*SE*	*p*	Estimate	*SE*	*p*	Estimate	SE	*p*	Estimate	*SE*	*p*
Age	.01	.02	.83	.02	.03	.48	–.02	.02	.14	.02	.02	.27
Educational level	–.03	.10	.78	–.03	.10	.75	.11	.06	.10	.09	.07	.25
Daily online contact	**.14**	.07	.05	**.21**	.07	.00	.08	.04	.07	.06	.04	.16
BPD symptoms	**.04**	.02	.03	**.04**	.02	.04	**.06**	.01	.00	**.06**	.01	.00

Note. Unstandardized rather than standardized estimates are reported for clarity, as with multigroup modeling the estimates differ slightly for male and female youth (since pathways are constrained but, for example, variances are not). Bold estimates are significant at $p < .05$.

TABLE S3. Regression Coefficients (*SE*s; STDYX Standardized) of Covariates, BPD Symptoms, and Interactions With Age Predicting Amount of Online Self-Disclosure and Ineffective Self-Disclosure (Model 1)

Structural path (predictor)	**Amount of online self-disclosure**			**Ineffective online self-disclosure**		
	Estimate	***SE***	***p***	**Estimate**	***SE***	***p***
Age	.06	.07	.36	–.01	.07	.91
Educational level	–.02	.07	.82	.09	.08	.24
Daily online contact	**.21**	.07	.00	**.13**	.07	.05
Sex	.09	.06	.19	–.09	.07	.16
BPD symptoms	**.15**	.07	.02	**.34**	.06	.00
Age × Daily online contact	.09	.07	.19	.09	.07	.19
Age × BPD symptoms	–.05	.07	.55	–.15	.08	.05

Note. Bold estimates are significant at $p < .05$.

TABLE S4. Regression Coefficients (*SE*s; Unstandardized) of Covariates, BPD Symptoms, and Interactions with Age Predicting Amount of Online Self-Disclosure and Ineffective Self-Disclosure in a Constrained Multigroup Model (Model 2)

Structural path (predictor)	**Amount of online self-disclosure**			**Ineffective online self-disclosure**		
	Estimate	***SE***	***p***	**Estimate**	***SE***	***p***
Age	.02	.02	.44	.00	.02	.98
Educational level	-.04	.09	.68	.08	.06	.17
Daily online contact	**.17**	.06	.01	**.08**	.04	.05
BPD symptoms	**.04**	.02	.02	**.06**	.01	.00
Age × Daily Online Contact	.02	.02	.19	.02	.01	.09
Age × BPD Symptoms	–.01	.01	.41	-.01	.01	.24

Note. Unstandardized rather than standardized estimates are reported for clarity, as with multigroup modeling the estimates differ slightly for male and female youth (since pathways are constrained but, for example, variances are not). Bold estimates are significant at $p < .05$.