

Childhood Maltreatment, Adolescent Psychological Difficulties and Borderline Personality Features: A Person-Centered Approach

BÉGIN, Michaël¹, ENSINK, Karin¹, CHABOT, Sarah¹, NORMANDIN, Lina¹,
& FONAGY, Peter²

¹Université Laval

École de psychologie

2325 rue des Bibliothèques

Québec (QC), Canada G1V 0A6

²University College London

Psychoanalysis Unit

Research Department of Clinical, Educational and Health Psychology

Gower Street

London, UK WC1E 6BT

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Corresponding author:

Michaël Bégin

Pavillon Félix-Antoine-Savard, FAS-1236

Université Laval

École de psychologie

2325 rue des Bibliothèques

Québec (QC), Canada G1V 0A6

1 (418) 656-2131 #4583

michael.begin.2@ulaval.ca

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Childhood maltreatment is a well-known risk factor for poor psychological outcomes across the lifecycle, including internalizing and externalizing difficulties, personality pathology and non-suicidal self-injury (NSSI). Much less is known regarding the associations between specific types and combinations of maltreatment and these difficulties during adolescence. Given the limitations of variable-centered approaches that focus on correlations and associations, the present study used a person-centered approach (Latent Class Analysis) to examine whether groups of adolescents who experience specific types and combinations of maltreatment reported more internalizing and externalizing difficulties, borderline personality features, or NSSI. Participants were 327 adolescents and young adults aged 12 to 21 from the community, with 32% reporting some experiences of maltreatment. The findings indicate that for adolescents and young adults in the community, sexual abuse, as well as neglect and antipathy in combination with other forms of maltreatment were associated with significantly higher self-reported distress and dysfunction. Sexual abuse was linked to more internalizing difficulties, borderline personality features and NSSI, whereas both neglect and antipathy were associated with more internalizing and externalizing difficulties. Furthermore, neglect was associated with significantly more episodes of NSSI and antipathy with more self-reported borderline personality features.

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Childhood maltreatment has consistently been linked to poor psychological outcomes during childhood, adolescence and young adulthood (Cicchetti & Valentino, 2006) and is now recognized to be the most important preventable cause of psychopathology accounting for about 45% of the population ascribe risk for childhood onset psychiatric disorders (Teicher & Sampson, 2016). It has been shown to be associated with altered trajectories of brain development in both resilient and susceptible individuals (Teicher & Sampson, 2016) and problems with concentration, anger, panic, depression, food intake, drugs, and sleep, as well as decreased heart rate variability, higher levels of stress hormones, and reduced or impaired immune response (Van der Kolk, 2016). However, as van der Kolk (2016) points out, the role of trauma within the caregiving system remains under recognized in our diagnostic systems and in our dominant treatment paradigms. There is evidence linking childhood maltreatment and adult personality disorders, but less is known regarding these associations in adolescents and young adults (Johnson et al., 2001). Considering that personality develops from an early age (*e. g.* Caspi & Roberts, 2001), it is crucial to understand the relationship between maltreatment experiences and the development of personality pathology during adolescence and young adulthood. Few studies have examined the relationships between maltreatment and features of personality disorders such as interpersonal difficulties, identity problems, as well as non-suicidal self-injuries (NSSI) in adolescents and young adults, but there is evidence suggesting that sexual abuse is a specific risk factor for borderline personality disorder (Waxman, Fenton, Skodol, Grant, & Hasin 2013). NSSI amongst adolescents is a challenging phenomenon for clinicians and the prevalence rates ranging from 21% to 46% in community samples of adolescents indicate

that this problem touches a sizable group of adolescents (Lloyd-Richardson, Perrine, Dierker, & Kelley, 2007; Ross & Heath, 2002). NSSI has been linked to various forms of maltreatment such as sexual, physical, and psychological abuse and neglect (see Lang & Sharma-Patel, 2011 for a review). However, these studies have several limitations related to the way multiple maltreatment experiences are examined. Studies have reported a high rate of co-occurrence of different maltreatment forms, showing that 13% to 43.3% of the individuals of community samples reported multiple maltreatment experiences (Edwards, Holden, Felitti, & Anda, 2003; Higgins & McCabe, 2000). These rates reach 33% to 95% in clinical samples (Herrenkohl & Herrenkohl, 1981; Ney, Fung, & Wickett, 1994). However, studying the impact of multiple maltreatment forms still represents a conceptual and methodological challenge given the complexity of how maltreatment experiences might interact with each other.

Maltreatment and Adolescent Psychological Difficulties

Sexual and physical abuse have been extensively studied as risk factors for various short – and long-term outcomes. Childhood sexual abuse has been identified as a risk factor for a range of psychological problems including internalizing and externalizing difficulties, suicidal thoughts and behaviors, self-harm, alcohol abuse and PTSD (Cutajar et al., 2010; Fergusson, Horwood, & Lynskey, 1996; Gilbert et al., 2009; Hébert, Parent, Daignault, & Tourigny, 2006; Tebbutt, Swanston, Oates, & O’Toole, 1997). There is also evidence indicative of a causal relationship between non-sexual child maltreatment and a range of mental disorders, drug use, suicide attempts, sexually transmitted infections, and risky sexual behavior (Norman et al., 2012). Childhood physical abuse has been linked to poor psychosocial outcomes during adolescence and early adulthood including anxiety, depression, suicidality delinquent and aggressive behavior, alcohol abuse and PTSD (Fergusson & Lynskey, 1997; Grogan-Kaylor,

Ruffolo, Ortega, & Clarke, 2008; Lansford et al., 2002; Manly, Kim, Rogosch, & Cicchetti, 2001; Springer, Sheridan, Kuo, & Carnes, 2007). Less is known regarding the impact of childhood neglect and psychological or emotional abuse. Neglect is defined as a failure to provide children with necessities and protect them (Polonko, 2006) and there is evidence linking neglect with difficulties in cognitive development and academic functioning, as well as internalizing and externalizing difficulties (Connell-Carrick & Scannapieco, 2006; Manly et al., 2001; Mills et al., 2011; Mills et al., 2013). Little is also known regarding the relationship between neglect and emotional abuse and personality disorders, despite the fact that associations have been found with other mental health outcomes (Gilbert et al., 2009). In addition, few studies have focused on psychological outcomes associated with antipathy such as cold critical parenting, reprimand and rejection, describing the child as a burden, and emotional abuse which includes behaviors towards the child such as isolation, terrorization, corruption, verbal assaults, and over pressuring behavior (Bifulco, Brown, & Harris, 1994; Hamarman & Bernet, 2000). However, there is evidence that emotional abuse is associated with internalizing and externalizing difficulties in adolescents and young adults (O' Dougherty Wright, Crawford & Del Castillo, 2009; Mills et al., 2013; Shaffer, Yates, & Egeland, 2009). In addition, parental antipathy has been linked to adolescent anxiety disorders (Schimmenti & Bifulco, 2013) and the closely related construct of parental alienation has also been shown to be linked with NSSI in adolescents and young adults through its negative impact on emotion regulation (Yurkowski et al., 2015). Furthermore, psychological abuse has been identified as a specific vulnerability factor for suicidal tendencies in adolescents (Christoffersen & DePanfilis, 2009).

Variable-centered vs. Person-centered Approaches

Given the complexity of adequately considering multiple maltreatment forms, a few alternate methodologies have been used over time with several weaknesses and flaws (see Berzenski & Yates, 2011 for a summary). In brief, some researchers have focused on participants with only one specific type of maltreatment, while others control statistically for the co-occurrence of multiple maltreatment experiences. An alternative approach is to conceptualize maltreatment as a meta construct and then compare maltreated individuals to controls. These methods have been criticized for many reasons, including that it does not reflect the reality of high rates of co-occurrence of maltreatment forms, it does not consider interaction between multiple maltreatment experiences and does not distinguish between different types of maltreatment (Berzenski & Yates, 2011). As a result, an alternative approach to considering multiple maltreatment forms using cumulative risk model has been proposed where the number of maltreatment experiences is more relevant than the specific types reported by any individual (*e. g.* Edwards et al., 2003). However, these models assume that any combination of maltreatment's forms would have different sequelae than any isolated experience without any consideration of the specific types of maltreatment, giving an equal 'weight' to all different types. In sum, all the above-mentioned approaches are considered variable-centered approaches and assume that variables work the same way for all individuals without any regards to the level of homogeneity of the sample (Laursen & Hoff, 2006).

While acknowledging the contribution of the variable-centered studies to the field of maltreatment, a person-centered approach represents an interesting alternative. Using this framework, the focus is on identifying how variables are associated with each other within different groups of individuals. Laursen and Hoff (2006) suggested that individuals rather than

variables are the ultimate predictors of any outcome and that variables only serve to characterize these individuals. Few studies have used a person-centered approach to distinguish subgroups of individuals with similar patterns of maltreatment. Recent findings using Latent Class analyses (LCA) show that a three- or four-class solution seems to be optimal to distinguish young adults with specific patterns of maltreatment (Berzenski & Yates, 2011; Holt et al., 2016). Findings also indicate that subgroups usually include individuals with a predominance of one form of maltreatment, mostly physical and sexual abuse. Similar findings have been reported for adolescents (Charak & Koot, 2015; Nooner et al., 2010; Witt et al., 2016).

Few studies have used a person-centered approach to examine the role of childhood maltreatment experiences as a risk factor for psychological difficulties during adolescence and young adulthood. One study found a combination of emotional and physical abuse to be associated with externalizing problems (Berzenski & Yates, 2011) whereas two studies found a relationship between multiple maltreatment experiences including sexual abuse and internalizing difficulties (Pears, Kim, & Fisher, 2008; Romano, Zoccolillo, & Paquette, 2006). In addition, one study found that a subgroup of individuals with a predominance of sexual abuse and neglect had more psychiatric diagnoses than those with a predominance of sexual abuse or physical abuse only (Witt et al., 2016). Furthermore, Charak and Koot (2015) found that a subgroup of individuals with moderate to severe abuse and physical neglect reported significantly higher scores indicative of personality difficulties (submissiveness, identity problems, low affiliation, self-harm, callousness, and conduct problems) than a subgroup with moderate to severe neglect and a subgroup with minimal abuse experiences. In contrast, Hazen, Connelly, Roesch, Hough, and Landsverk (2009) found no differences between patterns of maltreatment in terms of psychosocial outcomes. However, no studies have examined the relationship between

combinations of maltreatment experiences and borderline personality features specifically during adolescence and young adulthood using a person-centered approach. These findings also indicate that a person-centered approach might represent an interesting alternate approach given that both cumulative maltreatment experiences and the different types of maltreatment seem to be relevant in the understanding of the effect of childhood maltreatment on adolescents' mental health.

This study

In the present study, we aim to address this difficulty using a person-centered approach where distinct patterns of maltreatment experiences are identified and then we examine whether this is related to internalizing and externalizing difficulties, features of borderline personality disorders and NSSI.

The specific objectives of the current study were twofold. The first objective was to identify subgroups of adolescents and young adults with similar patterns of maltreatment using a person-centered analysis involving four different types of maltreatment, namely physical abuse, sexual abuse, parental neglect, and parental antipathy. Based on previous findings it was hypothesized that a four-class solution will be the optimal solution and that the four subgroups will present with a predominance of one type of maltreatment. The second objective was to identify which subgroups will be more at risk for psychopathology. It was hypothesized that all maltreatment groups would have higher levels of internalizing and externalizing difficulties, borderline personality features and more episodes of NSSI compared to adolescents and young adults without histories of maltreatment.

METHOD

Participants

Participants were 327 adolescents and young adults aged 12 to 21 ($M = 16.7$, $SD = 3.3$) of the community. 74.9% were girls ($n = 245$) and 25.1% were boys ($n = 82$). 92.3% were Caucasian, 2.2% were Hispanic, 1.8% were Asian, 1.2% were African American, and the remaining 3% indicated other ethnicities. This reflects the low ethnic diversity of the region where the study was conducted. Of the 105 participants (32%) reported at least one type of maltreatment at a significant level on the questionnaire; 45 (13.8%) reported physical abuse, 18 (5.5%) participants had a history of sexual abuse, 52 (15.9%) were neglected and 31 (9.5%) had experienced parental antipathy. Furthermore, 75 out of the 105 (71.4%) participants reported a single type of maltreatment, 17 (16.2%) had experienced two types and 13 (12.4%) reported 3 types.

Procedure

Participants were recruited at high schools of the area of Quebec City, Canada where the study took place or through an email list available at Laval University. All high schools of the city were solicited at first, but only those from which the direction approval was received were used for the recruitment. Participants aged 14 to 21 were then directly invited to complete questionnaires online whereas participants aged 12 to 13 were asked to provide a parental consent prior to their participation. Once consent was received, a link was forwarded by email so they could complete the online questionnaires. They completed the questionnaires at home or during their free time at school. All participants were eligible to win one of 20 gift cards of \$50 in a shopping mall of their choice. This study was approved by the Ethics Committee of Laval University.

Instruments

Childhood Experience of Care and Abuse-Questionnaire (CECA-Q). The French

translation of the CECA-Q (Smith, Lam, Bifulco, & Checkley, 2002) is a questionnaire developed to parallel the Childhood Experience of Care and Abuse Interview (CECA; Bifulco, Brown, & Harris, 1994). This questionnaire assesses mainly four types of maltreatment, namely physical (*e. g.* “When you were a child or teenager were you ever hit repeatedly with an implement (such as a belt or stick) or punched, kicked or burnt by someone in the household?”) and sexual abuse (*e. g.* “When you were a child or teenager did you have any unwanted sexual experiences?” or “Did anyone force you or persuade you to have sexual intercourse against your wishes before age 18?”) as well as parental neglect (*e. g.* “He/she was concerned about my worries”, “He/she cared for me when I was ill” or “He/she was interested in how I did at school”) and antipathy (*e. g.* “He/she was very critical of me”, “He/she made me feel unwanted”, or “At times he/she made me feel I was a nuisance”). For each type of maltreatment, participants are asked to rate a list of items referring to their experiences prior to age 18 on a four-point Likert scale (*Never, Once, Sometimes, and Often*). From these scores, a total score is calculated for each of the scale. The authors also suggested a cutoff score made to maximize the association with the interview form where the clinicians must decide whether the maltreatment was severe enough to consider it as a trauma. This questionnaire has been validated in both clinical (Smith et al., 2002) and community samples (Bifulco, Bernazzani, Moran, & Jacobs, 2005).

Child Behavior Checklist-Youth Self-Report (CBCL-YSR). The CBCL-YSR consists of 118 Likert-like items rated on a 0–2 scale (0 = *not true*, 1 = *somewhat or sometimes true*, and 2 = *very true or often true*) (Achenbach & Rescorla, 2001). For the current study, the French version of the questionnaire was used and presented good psychometric properties. Furthermore, the five following scales regrouped into Internalizing (Int) and Externalizing (Ext) difficulties have been included in this study: Anxious/depressed (Int), Withdrawn/depressed (Int), Somatic

complaints (Int), Rule-breaking behavior (Ext), and Aggressive behavior (Ext) scales. Raw scores were calculated for internalizing and externalizing difficulties and were then transformed into T scores. A T score over 69 is indicative of difficulties at a clinically significant level. For the present study, the French version of the CBCL-YSR has been used. The French version has been validated (see Achenbach & Rescorla, 2001) and shows adequate psychometric properties in this specific sample with an internal consistency (Cronbach's alphas) of .89 for internalized behavior and .84 for externalized behavior.

Borderline Personality Feature Scale for Children (BPFS-C). The BPFS-C (Crick, Murray-Close, & Woods, 2005) is a 24-item questionnaire rated on a five-point Likert scale (*Never true* to *Always true*) assessing four main features of borderline personality in a dimensional way, namely Affective instability, Identity problems, Negative relationships and Self-Harm. A total score of borderline features ranging from 24 to 120 is calculated from the 24 items. A higher score is indicative of more borderline features. The BPFS-C presents with an adequate internal consistency with Cronbach's alphas ranging from .76 to .89 across scales in a community sample (Sharp, Mosko, Chang, & Ha, 2011). Chang, Sharp and Ha (2011) have also examined the criterion validity of the BPFS-C and suggested a cutoff score of 66 for the presence of borderline personality disorder. Furthermore, the French version of the BPFS-C has also been shown to have good internal consistency with a Cronbach alpha of .91 for the total score (Bégin, Leclerc, Thériault-Sereno, Ensink, & Normandin, submitted). Only the total score was used in the current study.

Functional Assessment of Self-Mutilation (FASM). The FASM is a self-report questionnaire assessing 11 common types of NSSI (*e. g.* cut or carved on your skin, hit yourself on purpose, burned your skin, etc.) as well as 22 potential reasons for engaging in these

behaviors (Lloyd-Richardson, Kelley, & Hope, 1997). Participants were asked whether they engaged in the different types of behaviors to harm themselves deliberately over the last 12 months and how many times they did. Then, they were asked to rate why they think they engaged in NSSI on a four-point Likert scale ((*Never, Once, Sometimes, and Often*). The FASM has good internal consistency ($r = .66$), a robust factorial structure (IFI = .91; CFI = .90; RMSEA = .05 and; $\chi^2/df = 1.41$) and has been validated in both community (Lloyd, 1998; Lloyd-Richardson et al. 1997) and clinical samples of adolescents (Guertin, Lloyd-Richardson, Spirito, Donaldson, & Boergers, 2001; Nock & Prinstein, 2004). Only the total number of episodes within the last 12 months was used. For this study, the French version of the FASM has been used. This version has been translated into French and then back translated in English for examination of the equivalence. The validity French version of FASM is currently under scrutiny, but preliminary data supports the validity of the French version (unpublished data).

Statistical analyses

LCA models fit were tested using Mplus 7.12 (Muthén & Muthén, 1998–2012) to identify groups of participants who reported similar patterns in terms of maltreatment. Only the 105 participants of the maltreated sample were entered in the analysis. Models including two to five classes were evaluated. Four fit indices were used for the selection of the best fitting model. The selection was based on the lowest Akaike information criterion (AIC; Akaike, 1974) and Bayesian information criterion (BIC; Schwarz, 1978) which assess model fit with varying degrees of consideration for parsimony, the highest entropy which represents the percentage of participants correctly classified by the model (Ramaswamy, Desarbo, Reibstein, & Robinson, 1993) and the Lo-Mendell-Rubin Adjusted Likelihood Ratio Test (LMRT; Lo, Mendell, & Rubin, 2001) which evaluated whether the model fits the data significantly better than a model

with $k - 1$ classes, that is to say a model with one less class. In addition, Nylund, Asparouhov, and Muthén (2007) have suggested that the BIC is the most reliable measure to assess model fit. Furthermore, the final solution was used to examine the associations between maltreatment patterns and internalized and externalized behaviors, borderline personality features and non-suicidal self-injuries. A MANOVA was performed in IBM SPSS 23 using the final classes and the control group as the independent variable and the four above-mentioned variables as dependent variables. LSD *post hoc* tests were computed afterwards to specify the group differences between our five groups.

RESULTS

LCA-Maltreated Sample

The best fitting model was a four-class solution (see Table 1). While the LMRT suggested that a five-class model might have been better than a four-class model, the AIC and the BIC increased from the four-class model to the five-class one. In addition, the lowest AIC and BIC as well as the highest entropy suggested that the best fitting model was the four-class model. Furthermore, the entropy of 1.00 indicated that 100% of the participants were correctly classified by the solution with four classes. The item response probabilities are reported in Table 2. Each class consisted of 100% of reporting a given maltreatment type and lower probabilities for any other types for the third and the fourth class only. All four classes have been labeled after the dominant type of maltreatment in the class (physical abuse, sexual abuse, neglect and antipathy). The first two groups that were identified included adolescents with histories of either only physical abuse ($n=24$) or only sexual abuse ($n=10$). The last two groups comprise adolescents reporting multiple maltreatment experiences; one with a predominance of

neglect in combination with physical and sexual abuses ($n=40$) and the other one with a predominance of parental antipathy in combination with physical abuse and neglect ($n=31$).

Group Comparisons

A MANOVA using the class membership and the control group as the independent variable and internalizing and externalizing difficulties, borderline personality and the number of episodes of NSSI over the last 12 months as dependent variables was computed. Because of the small number of participants in some of the groups, homogeneity of the variances and covariances across groups was systematically evaluated with Box' M test and Levene's test. Given that all criteria were respected the MANOVA was considered robust using the criteria suggested by Tabachnick and Fidell (2013). Also, an exploratory multiple regression indicated no problems of multicollinearity between the dependent variables, and there were no multivariate outliers. The results of the MANOVA showed that there was at least one significant difference between groups on a function of the dependent variables (Pillai's trace = .196 ; $F [16, 1288] = 4.142, p < .001$). Furthermore, results for separate ANOVAs indicated that there was at least one significant difference between groups for all four dependent variables. Full results are presented in Table 3.

Regarding internalizing behaviors, LSD *post hoc* tests revealed that the sexual abuse group ($p = .001$), the neglect group ($p = .025$), and the antipathy group ($p = .001$) reported significantly more difficulties than the controls. There was no significant difference between the four maltreatment groups.

In terms of externalizing behaviors, both the neglect ($p = .002$) and the antipathy groups ($p < .001$) had significantly higher levels of difficulty compared to the controls. No differences were found between the maltreatment groups regarding externalizing difficulties.

With regards to personality disorder features, the sexual abuse ($p = .004$) and the antipathy ($p < .001$) groups presented a higher level of borderline personality features than their control counterparts. The sexual abuse group also reported significantly more borderline features than the physical abuse group ($p = .042$).

Next associations between abuse and neglect and NSSI were examined. Both the sexual abuse ($p < .001$) and the neglect groups ($p = .008$) reported significantly more episodes of NSSI than the controls in the 12 months prior to the study. Also, the sexual abuse group presented a significantly higher number of episodes of NSSI than all the other maltreatment groups, namely physical abuse, neglect and antipathy ($p < .001$ for each pair of groups).

DISCUSSION

The first objective of this study was to identify groups of adolescents and young adults with similar patterns of maltreatment experiences and then to examine whether individuals with particular types of maltreatment were more at risk for psychological difficulties (internalizing and externalizing difficulties), borderline personality features, and NSSI. As hypothesized, four maltreatment groups were identified, each with a predominance of one maltreatment type. These findings are in line with that of previous studies that have attempted to identify subgroups that represent the most commonly found types and combinations of maltreatment (Berzenski & Yates, 2011; Charak & Koot, 2015). The first two groups that were identified included adolescents with histories of either physical or sexual abuse only. In addition, two groups with multiple maltreatment experiences were found, one with a predominance of neglect in combination with physical and sexual abuses and the other one with a predominance of parental antipathy in combination with physical abuse and neglect. These groups are similar to those previously identified by Berzenski and Yates (2011) and Witt and colleagues (2016).

With regard to internalizing difficulties, the findings show that the sexual abuse group, as well as the neglect and antipathy groups, reported significantly more internalizing difficulties than the controls. This extends previous findings of Pears and colleagues (2008), as well as Romano and colleagues (2006) that a combination of maltreatment including sexual abuse was associated with internalizing difficulties. In addition to highlighting the risk of internalizing difficulties associated with sexual abuse, the findings draw attention to the association between adolescent internalizing difficulties and early experiences of neglect and antipathy.

With regarding to externalizing behavior difficulties, both the neglect and the antipathy groups manifested significantly more externalizing difficulties. The findings suggest that externalizing difficulties in adolescents and young adults are associated with neglect and antipathy in combination with other types of maltreatment such as physical and sexual abuse. These findings extend that of Berzenski and Yates (2011) who found that a combination of emotional and physical abuse was associated with more substance use amongst young adults. The findings that neglect and antipathy were associated with both internalizing and externalizing difficulties are consistent with a recent finding showing that emotional neglect was associated with psychiatric symptoms in adults (*e. g.* Bifulco et al., 2014; Dias, Sales, Hessen, & Kleber, 2014; Martins, Von Werme Baes, de Carvalho Tofoli, & Juruena, 2014; Pederson & Wilson, 2009; Schimmenti & Bifulco, 2015; Spertus, Yehuda, Wong, Halligan, & Seremetis, 2003). This is in line with conclusions that childhood emotional neglect is a key risk factor for psychopathology (Glaser, 2002; Schimmenti & Caretti, 2010). Furthermore, findings from a recent study suggest that this relationship is mediated by negative affectivity (Schimmenti & Bifulco, 2015).

In terms of borderline personality features, the sexual abuse group, as well as the antipathy group, reported significantly higher levels than their control counterparts. Furthermore, the sexual abuse group reported significantly more borderline features than the physical abuse group. These findings indicate that sexual abuse, as well as antipathy in combination with physical abuse and neglect, are associated with adolescent personality difficulties. This extends the findings of Waxman et al. (2013) that sexual abuse is a risk factor specifically linked with borderline personality disorder. The findings regarding antipathy are consistent with that of previous studies where a high percentage of patients with BPD reported childhood emotional abuse (Machizawa-Summers, 2007; Ryan, 2005; Zanarini et al., 1997). It also extends the findings of Charak and Koot (2015) that adolescents with severe multiple maltreatment experiences (sexual abuse, physical abuse, emotional abuse and neglect), as well as a group with both severe sexual and physical abuse reported higher levels of personality problems such as submissiveness, identity problems, low affiliation, self-harm, callousness and conduct problems on the Dimensional Assessment of Personality Pathology Short Form for Adolescents.

Next, the relationships between NSSI and maltreatment groups were examined. The findings indicate that sexual abuse, as well as neglect in combination with other types of maltreatment, are important risk factors for NSSI in adolescents in the community. The sexual abuse group reported more episodes of NSSI than all the other maltreatment groups as well as the controls, suggesting that sexual abuse puts adolescents particularly at risk for self-injury. This is consistent with convergent evidence suggesting that sexual abuse is associated with higher rates of NSSI (Aglan, Kerfoot, & Pickles, 2008; Glassman, Weierich, Hooley, Deliberto, & Nock, 2007; Klonsky & Moyer, 2008; Yates, Carlson, & Egeland, 2008). Furthermore, the finding that neglect in combination with other maltreatment was associated with NSSI adds to

growing evidence suggesting that neglect increases the risk of NSSI (Dubo, Zanarini, Lewis, & Williams, 1997; Paivo & McCulloch, 2004). Since no previous studies have examined the relationship between multiple maltreatment experiences and NSSI using a person-centered approach, the present study adds new data regarding the importance of maltreatment for this type of maladaptive behavior found amongst a sizable group of adolescents. Furthermore, when comparing the types of maltreatment associated with NSSI and BPDF there appeared to be two distinct patterns, one where neglect was associated with episodes of NSSI and antipathy was associated to BPDF. This suggests that NSSI and BPDF represent relatively distinct phenomena associated with specific risk factors namely neglect and antipathy (in combination with other forms of abuse) for NSSI and BPDF respectively.

Contrary to expectations, no significant differences were found between the physical abuse group and the control group on any of the dependent variables. This might be due to the low threshold of the measure of maltreatment where different types of physical punishment are considered as abusive. Physical punishment appears to be widespread with for example, 28.4% of the US population reporting at least one childhood episode of being “slapped, kicked or hit” by a caregiver (Hussey, Chang, & Kotch, 2006), and whether or not this can be considered indicative of abuse is a question of definition. However, an isolated episode or less severe physical maltreatment might not represent a risk factor for psychosocial difficulties, particularly of adolescents and young adults of the community unless it is part of a harsher familial environment.

In sum, the findings of the present study add to the evidence indicating that maltreatment experiences represent a risk factor for psychological difficulties, BPDF and NSSI amongst adolescents and young adults and indicate that these associations can be observed in community

samples. More specifically, the findings of the present study point to the importance of considering both the specific types of maltreatment as well as the co-occurrence of multiple maltreatment experiences since both may be important risk factors for different psychological difficulties. The study findings illustrate the value of using a person-centered approach when investigating the association between maltreatment and psychological difficulties. However, the findings of the study need to be interpreted in the light of some limitations. First, the study included only participants of a community sample. In this sample, only a small number of participants reached the clinical threshold for internalizing and externalizing difficulties and for borderline features and all group means were below the clinical threshold for these problems. In other words, difficulties reported by most of the participants may not be apparent in their daily lives and the associated impairment may not be clinically significant. Further studies should thus focus on clinical samples to examine whether the relationships found in the current study can be replicated. Second, some maltreatment groups included only a small number of participants and the mean scores might have been affected by the small group sizes. Future research should include a higher number of participants reporting any maltreatment forms. Third, some maltreatment types, especially sexual abuse, may have been underestimated given the low prevalence rate in this sample. This might be due in part to the community sample, but also to a measurement issue because the questionnaire requires the participants to identify themselves as a victim of sexual abuse. Finally, while self-report measures of maltreatment are now widely considered to provide reliable data, some would argue that retrospective self reports of maltreatment are less reliable than prospective studies where abuse and neglect have been reported and verified.

Conclusion

The findings of this study using a person-centered approach show that adolescents and young adults in this community sample who experienced sexual abuse, parental neglect and antipathy combined with other forms of maltreatment experience significantly more psychological distress and dysfunction in general. With regard to NSSI and borderline personality features, sexual abuse and neglect combined with other forms of maltreatment were associated with more episodes of NSSI, while adolescents who experienced sexual abuse as well as antipathy in combination with other forms of maltreatment endorsed more personality difficulties. What appears of particular interest is that while NSSI and BPD features appear linked to specific risk factors including sexual abuse, internalizing and externalizing are more generally associated with adversity, in other words, mental distress and dysfunction appears linked to 'trauma' in general, rather than specifically only to particular kinds of trauma. In sum, the findings of the study underscore the mental health impact of maltreatment for adolescents and young adults in the community and point to the importance of identifying and protecting children at risk of maltreatment, and providing services tailored to the needs of adolescents who have experienced maltreatment.

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Table 1 : Fit statistics for potential LCA models (N = 105).

Classes	AIC	BIC	LMRT (<i>p</i>)	Entropy
2 classes	513.76	537.65	.0017	.800
3 classes	500.64	536.78	.0093	.919
4 classes	480.94	531.37	< .0001	1.000
5 classes	483.81	546.78	.0280	.983

Note: AIC = Akaike information criterion ; BIC = Bayesian information criterion, and LMRT = Lo-Mendell-Rubin Likelihood Ratio test.

Table 2 : Item response probabilities and probability expected class membership (N = 105).

Class	Physical abuse	Sexual abuse	Neglect	Antipathy
Class 1 (n = 24)	1.00	.00	.00	.00
Class 2 (n = 10)	.00	1.00	.00	.00
Class 3 (n = 40)	.20	.15	1.00	.00
Class 4 (n = 31)	.42	.07	.39	1.00

Note: Class 1 = Physical abuse ; Class 2 = Sexual abuse ; Class 3 = Neglect, and Class 4 = Antipathy.

Table 3 : Descriptive data and ANOVAs for internalizing and externalizing difficulties, borderline personality and NSSI (N = 327).

DV	Groups	Mean	Standard deviation	<i>F</i> (4 <i>df</i>)	Partial eta square
Internalizing	Controls	53.19	0.73	5.72*	.066
	Physical abuse	57.15	2.22		
	Sexual abuse	64.50	3.44		
	Neglect	57.38	1.72		
	Antipathy	59.88	1.95		
Externalizing	Controls	49.31	0.56	6.77*	.078
	Physical abuse	52.43	1.71		
	Sexual abuse	54.60	2.65		
	Neglect	53.79	1.33		
	Antipathy	56.03	1.51		
Borderline personality	Controls	52.30	0.93	5.65*	.066
	Physical abuse	54.83	2.84		
	Sexual abuse	65.50	4.39		
	Neglect	56.96	2.20		

	Antipathy	62.19	2.50		
	Controls	5.73	0.59		
	Physical abuse	7.27	1.80		
NSSI	Sexual abuse	21.35	2.78	9.12*	.102
	Neglect	9.81	1.39		
	Antipathy	7.60	1.58		

Note : Internalizing difficulties assessed with the CBCL-YSR ; Externalizing difficulties assessed with the CBCL-YSR ; Borderline personality assessed with the BPFS-C ; NSSI assessed with the FASM ; * $p < .001$.