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Do Single Experiences of Childhood Abuse Increase Psychopathology Symptoms in Adulthood?

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Abstract

Experiencing emotional, physical, and/or sexual abuse in childhood increases the risk (compared with baseline) of developing psychopathological symptoms in adulthood. In the present study, we explored the effects of experiencing only a single abusive event on adulthood psychopathology, and compared this with the risk in individuals with no abusive experiences and with the risk in individuals with several abusive experiences. We used a Finnish population-based sample of 10,980 adult participants (3,766 male and 7,214 female twins and their siblings). The participants reported abuse experiences using the Childhood Trauma Questionnaire (CTQ) and current psychopathology symptoms using the depression and anxiety scales of the Brief Symptom Inventory–18 (BSI-18). We found that in both men and women even single experiences of emotional and sexual abuse were associated with increased psychopathology symptoms compared with no abuse experiences. Single experiences of physical abuse did not, however, increase the risk in either women or men. As expected, experiences of repeated abuse (of all abuse types) increased the risk of psychopathology symptoms compared with

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experiences of single abuse. When we isolated individuals who only had a single experience of any type of abuse (i.e., emotional, physical, or sexual) to control for possible co-morbidity, no increased risk was found. This study shows that individuals who report experiencing single events of abuse of a specific abuse type have an increased risk of displaying psychopathology symptoms in adulthood. This increase is, however, mainly due to co-morbidity of abuse types.

Keywords
child abuse, mental health and violence, depression, anxiety,physical abuse, sexual abuse, psychopathology

According to the National Child Abuse and Neglect Data System (NCANDS; 2009), approximately 3,300,000 verified cases of child abuse are reported annually in the United States alone. More than 1,600 children died in the United States of maltreatment in 2009. Approximately, 75% of the cases involved neglect, 15% of the cases involved physical abuse, and 10% involved sexual abuse (e.g., Heim & Binder, 2012). The prevalence of childhood maltreatment in Europe is approximately 29% for experiences of emotional abuse, 22% for experiences of physical abuse, and 6% for sexual abuse in boys and 13% for sexual abuse in girls (e.g., Sethi et al., 2013).

Experiencing childhood maltreatment puts individuals at increased risk of suffering psychiatric disorders in adulthood. These disorders include symptoms of anxiety and depression, and various other forms of psychological and physical disorders (e.g., Briere, 1992; Drapeau & Perry, 2004; Jumper, 1995; Neumann, Houskamp, Pollock, & Briere, 1996; Putnam, 1990; Reviere & Bakeman, 2001; Rosen & Martin, 1998; Schetky, 1990; Zelikovsky & Lynn, 1994). Psychopathology symptoms, such as anxiety and/or depression, are more common in survivors of child maltreatment, including emotional abuse (e.g., Fries, Witches, Pfister, & Loeb, 2002; Gibb, Chelminski, & Zimmerman, 2007; Huh, Kim, Yu, & Chae, 2014; Liu, Jager-Hyman, Wagner, Alloy, & Gibb, 2012), physical abuse (e.g., Malinosky-Rummell & Hansen, 1993; Norman et al., 2012), and sexual abuse (e.g., Amado, Arce, & Herraiz, 2015; Gamble et al., 2006). Women who have experienced sexual or physical abuse in childhood exhibit as much as 4 times more symptoms of psychopathology, such as anxiety and/or depression, in adulthood compared with women who have not experienced abuse (e.g., Heim et al., 2000; Iffland, Sansen, Catani, & Neuner, 2014; McCauley et al., 1997; Mullen, Martin, Anderson, Romans, & Herbison, 1996). Similar effects have been found also when both men and

women have been included (e.g., Wan Kim et al., 2013). Meta-analyses also suggest a robust relationship between child maltreatment and a range of mental disorders, including anxiety and depression (e.g., Amado et al., 2015; Norman et al., 2012).

Although there is a well-known relationship between experiencing abusive events in childhood and adulthood psychopathology, the exact nature of this relationship is still unclear. A few models have been developed to explain the link between adverse childhood events and the heightened risk of psychopathology in adults. For example, neurological theories explain the association by proposing that experiences of abuse may cause alterations in hippocampal volume that, in turn, may mediate the relationship between abuse and later psychological problems (e.g., Chaney et al., 2014; Frodl, Reinhold, Koutsouleris, Reiser, & Meisenzahl, 2010; Frodl et al., 2014; Rao et al., 2010). Other theories suggest that experiencing abuse may alter schemas or thought patterns and that the increased risk of psychopathology in adulthood can be understood as maintaining representations of previous negative experiences in relationships, or that childhood experiences of abuse may predispose individuals to negative belief systems, such as negative thoughts of oneself, the world, and the future, which may cause, for example, depression (e.g., Freud, 1955; Huh et al., 2014; Kuyken & Brewin, 1999).

One way to increase the understanding of the link between child abuse and later psychopathology is to examine the effects of abusive experiences in more detail. Several studies have thus explored how the characteristics of the abusive event moderate the risk for psychopathology in adulthood. These studies suggest that one important factor is the number of abusive events that an individual has experienced. The number of abusive events is positively related to the risk of psychiatric problems, such that the higher the number of experienced events is, the higher is also the risk of developing psychiatric problems in adulthood. For example, the quantity of sexual abuse is positively associated with psychopathology symptoms in adulthood (e.g., Maniglio, 2010; Paolucci, Genuis, & Violato, 2001; Putnam, 2003) and research has shown similar patterns for emotional abuse (e.g., Huh et al., 2014; Liu, Alloy, Abramson, Iacoviello, & Whitehouse, 2009; Teicher, Samson, Polaris, & McGreenery, 2006) and physical abuse (e.g., Davis, Petretic-Jackson, & Ting, 2001; Kolko, 1992). Research has also focused on the effects of experiencing single versus multiple types of maltreatment. For example, Arata, Langhinrichsen-Rohling, Bowers, and O'Farrill-Swails (2005) found that experiencing multiple types of abuse (emotional, physical, and sexual) was associated with greater symptoms of psychopathology, such as depression, than experiencing only a single type of abuse. Similar results have also been found by Fox and Gilbert (1994), as well as Romans, Martin, Anderson,

Romans, and Herbison (1996), who found that experiencing two or more types of abuse regardless of the type of abuse was associated with greater symptoms of psychopathology than experiencing only one type of abuse. In sum, the number of experiences of abuse and the number of abuse types experienced is associated with the risk of later signs of psychopathology.

As of 2014, 41 countries have adopted zero tolerance in terms of using physical discipline in child upbringing. Sweden and Finland (in 1979 and 1983, respectively) were the first countries in the world to prohibit all corporal punishment of children (e.g., Global Progress, 2012, 2014). These policies are, in addition to children's rights considerations, at least partly based on the assumption that even single instances of abuse cause harm. There is, however, a lack of research on how single experiences of other types of abuse affect adult outcomes. Also, no studies conducted so far have controlled for co-morbidity of different types of abuse experiences while looking at the effect of single experiences.

Current Study

The primary goal of the present study was to look closely at the risk of psychopathology symptoms in individuals who have only a single experience of a specific type of abuse (emotional, physical, or sexual abuse). We compared symptoms of psychopathology in these groups with groups reporting no experiences of abuse and groups reporting repeated abuse. To do this, we used a validated measure of abusive experiences to create a category of individuals experiencing only very low levels or single experiences of abusive events. In the current study, we also controlled for co-morbidity across abuse types.

In the present study, we aimed to investigate the following research questions:

Research Question 1: Are experiences of repeated abuse (vs. no experiences of abuse) associated with more symptoms of psychopathology in adulthood (to replicate the robust effects found in previous studies)?
Research Question 2: Are experiences of repeated abuse (vs. single experiences of abuse) associated with more symptoms of psychopathology in adulthood?
Research Question 3: Are single experiences of abuse (vs. no experiences of abuse) associated with more symptoms of psychopathology in adulthood.

We investigated all the above research questions with respect to three types of abuse (emotional, physical, and sexual abuse). To further investigate

the effects of single experiences of abuse, we also controlled for co-morbidity between abuse types. We did this by investigating the symptoms of psychopathology (a combined measure of anxiety and depression) in individuals with only a single experience of any type of abuse (e.g., only a single experience of sexual abuse but no other abusive experiences).

Method

Participants

We conducted data analyses on responses from 10,980 individuals (3,766 male and 7,214 female twins and their siblings). The mean age of the men was 29.2 years ($SD = 7.4$ years) and of the women was 28.8 years ($SD = 7.2$ years). The participants were a subset of both the first and the second data collections of the Finnish population-based Genetics of Sex and Aggression (GSA) survey conducted in 2005 and 2006. In the first data collection, Finnish-speaking twin pairs born before the end of 1971 were sampled according to their date of birth forward from 1971 until 2,000 male–male, 2,000 female–female, and 1,000 opposite-sex pairs had been identified (the target sample was 10,000 individuals, representative of the Finnish population in this age range). In the second data collection, all Finnish-speaking twin pairs born between July 22, 1973, and March 1, 1988, were asked to participate. Of these two data collections, the first data collection included responses from 3,604 individuals (response rate = 36%) and the second data collection included responses from 10,524 individuals (response rate = 45%), totaling 14,126 individuals (for further information on the data collection, see Johansson et al., 2013). Data analyses in the present study were thus based on a subset of these participants, because 3,146 participants did not provide responses to one or more of the items used. No weighting procedures were used.

Because the sample largely consisted of twins, we wanted to confirm that their responses were comparable with those of the general population. Thus, we compared responses regarding experiences of childhood maltreatment and sexuality with another Finnish population-based sample of the general population. We found no significant differences (see Albrecht et al., 2014, for details), suggesting that the responses for our sample of twins are generalizable to the population at large.

Measures

The Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1998) was used to assess the degree to which individuals experienced childhood

abuse. In the CTQ, each abuse type (emotional, physical, and sexual) is measured by presenting five statements to the participant. The responses to a list of statements (e.g., "People in my family said hurtful or insulting things to me," for emotional abuse; "I was punished with a belt, a board, a cord, or some other hard object," for physical abuse; and "Someone tried to touch me in a sexual way, or tried to make me touch them," for sexual abuse) measure experiences of different types of abuse. For each of the statements, participants choose the alternative that best fits their own experiences on a five-step Likert-type scale ranging from 0 = *never* to 4 = *very often*. Thus, summing scores across the five statements within a specific abuse type (emotional, physical, or sexual), the individual subscale scores could range from 0 to 16. The mean subscale scale score for emotional abuse was 7.91 (*SD* = 3.68), the mean score for physical abuse was 6.79 (*SD* = 2.84), and the mean score for sexual abuse was 5.56 (*SD* = 2.19).

From the responses of the participants, we created the following categorizations based on the subscale scores:

1. No abusive experiences: This category consisted of participants who did not have any experiences of abuse for a specific abuse type (i.e., participants with a subscale score of 0).
2. Type-specific single abusive experience: This category consisted of participants who had only a single experience (or very infrequent experiences) of the specific abuse type in question. The operational definition for creating this category was that on four of the five items measuring a specific abuse type, the respondent had reported 0 (never) and to only one of the items they had responded with "1." If the participant had reported a value ranging from 2 to 4 on one item or "1" on more than one item measuring a specific abuse type, they were not included in this category. We thus obtained a category for individuals reporting only the lowest possible measurable level of a particular abuse type. In reporting, we use the term *single abusive experience* although we cannot exclude the possibility that for some participants, the measure could also refer to infrequent experiences of abuse.
3. Repeated abusive experiences: This category consisted of all participants who did not belong to either of the two earlier groups.

Because an individual who was categorized as having a single abusive experience of one of the abuse types (e.g., emotional abuse) might also have single or multiple abusive experiences of another category (e.g., sexual abuse), we, in addition to the earlier categories, also created variables based

on the total scale score (i.e., scores summed across all subscales). The categories were the following:

4. No abusive experiences of any type of abuse (i.e., participants with a total score of 0 summed over the three subscales).
5. Type-unspecific single abusive experience when considering all items indicating emotional, physical, and sexual abuse simultaneously. This meant that a participant's total scale score was "1."
6. Type-unspecific repeated abusive experiences when considering all items indicating emotional, physical, and sexual abuse simultaneously. All participants not belonging to categories 4 or 5 were included in this category.

The CTQ has demonstrated reliability, including test–retest reliability coefficients ranging from .79 to .86, and across a range of samples, the internal consistency reliability coefficients are .81 for emotional abuse, .70 for physical abuse, and .88 for sexual abuse (e.g., Bernstein & Fink, 1998). The CTQ has high convergent validity with both a clinical-rated interview of childhood abuse and therapists' ratings of abuse (e.g., Bernstein, Ahluvalia, Pogge, & Handelsman, 1997; Bernstein & Fink, 1998). In our sample, the CTQ also showed good internal consistency; Cronbach's alpha was .73 for physical abuse, .82 for emotional abuse, and .89 for sexual abuse.

Adult psychopathology. To measure adult psychopathology, we used the Anxiety and Depression subscales of the Brief Symptom Inventory–18 (BSI-18; Derogatis, 2001). We combined these two subscales into a single measure as there were high positive correlations between anxiety and depression for both men ($r = .707$, $p < .001$) and women ($r = .722$, $p < .001$), suggesting that the two scales tapped into a single underlying dimension. Also, preliminary analyses that were conducted separately with the two scales gave the same pattern of results irrespective of the scale.

We formed a composite variable measuring adult psychopathology, including anxiety (e.g., "Feeling so restless one could not sit still") and depression (e.g., "Feeling hopeless about the future"). There were six items in each subscale. The response options ranged from 0 (*not at all*) to 4 (*very often*), with a higher score indicating more psychological distress. Cronbach's alpha was .89 for this composite psychopathology measure.

Statistical Analyses

Statistical analyses were performed with the Statistical Package for the Social Sciences (Version 21.0; SPSS. Inc, Chicago, Illinois). Pearson correlations

were used to identify the associations between variables. Generalized estimating equations (GEE) were used to determine the differences between men and women and between the abuse groups regarding adult psychopathology. The sample used in the present analyses consisted of twins and siblings. This means that responses from different members of the same family correlated due to shared genetic and environmental factors reducing variance in the measures. To correct for this effect in the data analyses, we used GEE, which take such dependence between data units into account. In our model, family membership was the factor for which the results were corrected.

To take multiple tests into account, the significance threshold of .05 was divided by the number of tests. The effect of abuse experiences on psychopathology was calculated separately for men and women, and for three different abuse types. However, because experiencing one form of abuse is correlated with experiencing other types of abuse, we calculated the effective number of independent tests using the method proposed by Nyholt (2004; http://neurogenetics.qimrberghofer.edu.au/matSpD/), separately for men and women. Given the correlations between the abuse types, the effective number of independent tests was 2.7006 for men and 2.6936 for women, rendering the total number of independent tests to 5.3942. This resulted in a significance threshold of $p = .0093$.

In a preliminary check, we repeated the main analyses (effect of different types of abuse on psychopathology) separately for participants from the two data collections. All the effects that have been reported to be significant below were significant in the two separate samples as well. Therefore, only results for the combined samples are reported.

Results

In a preliminary check, we repeated the main analyses (effect of different types of abuse on psychopathology) separately for participants from the two data collections.

Table 1 shows the prevalence of different levels of victimization separately for the different abuse types and for men and women. A relatively high proportion of both men and women reported having experienced the lowest level possible of a single abusive experience within these abuse types.

Figure 1 shows the results for both men and women regarding the effects of different levels of victimization in childhood on psychopathology symptoms in adulthood. As expected, repeated experiences of abuse lead to higher levels of psychopathology compared with no experiences of abuse (all ps $<$ .001). This was true for all three abuse types. Again in line with our expectations, we found that repeated experiences of abuse also tended to lead to

Table 1. Percentage (%) of Individuals in the Different Abuse Groups Separately for Men and Women.

	Men			Women		
Factors	None	Max1	More	None	Max1	More
CTQ emotional abuse	32.7	23.3	44.0	26.5	18.5	55.0
CTQ physical abuse	38.6	18.4	43.0	51.5	15.9	32.6
CTQ sexual abuse	89.7	4.9	5.4	85.0	4.5	10.5

Note. CTQ = Childhood Trauma Questionnaire; None = participants who did not have any experiences of abuse; Max1 = a single experience of the abuse type (i.e., a response of 1 on only one of the CTQ items forming the scale); More = more than a single experience of the abuse type (i.e., all other response patterns).

higher levels of psychopathology (all ps < .001) compared with single experiences of abuse–this was true for both men and women regarding physical and emotional abuse. However, for men and women, there was no difference between a single experience of sexual abuse and repeated experiences of sexual abuse.

Finally, addressing our main question, we found that a single experience of abuse lead to higher levels of psychopathology compared with no experiences of abuse for both men and women regarding both emotional and sexual abuse (all ps < .001). However, regarding physical abuse, we found no differences in psychopathology between single experiences and no experiences of abuse in either men (p = .747) or women (p = .212).

Next, we wanted to conduct a more stringent test of the third hypothesis by considering the possible co-morbidity between different types of single abuse experiences with each other. The pattern of co-morbidity between the three types of abuse is presented in Table 2.

The analyses showed that, in men, the percentage for no experience of any kind of abuse was 65.6% (n = 2,293), whereas a single experience of any type of abuse was reported by 34.4% (n = 1,203). In women, the results showed that the percentage for no experience of any kind of abuse was 69.7% (n = 4,782). A single experience of one type of abuse was reported by 30.3% (n = 2,074).

Considering the high level of overlap, we proceeded to analyze whether a single abusive experience (when controlling for co-morbidity) would result in increased levels of psychopathology compared with no abusive experiences. We did this by comparing whether those with no experiences of any

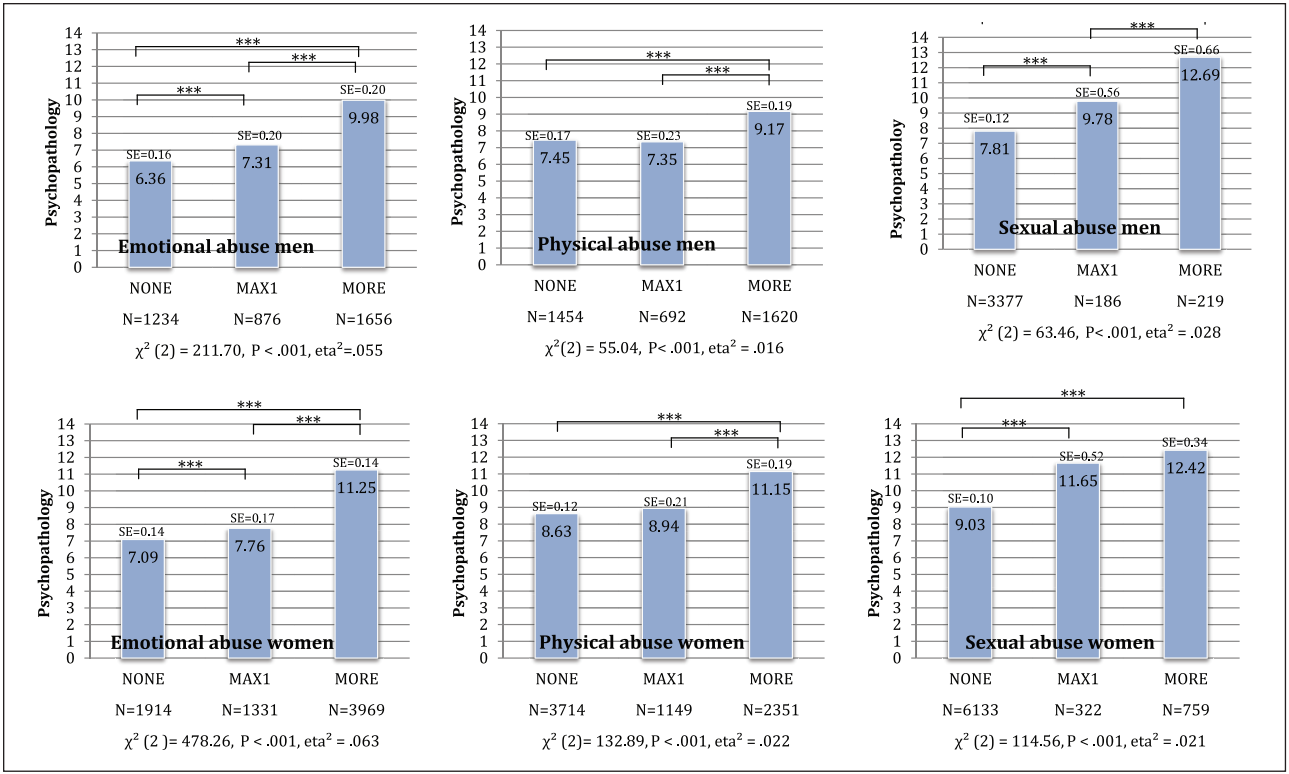

Figure 1. The effects of different levels of victimization in childhood on psychopathology symptoms in adulthood for men and women.

Table 2. Overlap (% of Participants) in Rates of Emotional, Physical, and Sexual Abuse in Men and Women.

	CTQ Emotional Abuse		CTQ Sexual Abuse	
	Max1	More	Max1	More
Men				
CTQ physical abuse Max1	30.2	36.1	5.4	4.0
CTQ sexual abuse Max1	19.9	62.5		
Women				
CTQ physical abuse Max1	25.6	50.5	4.6	9.3
CTQ sexual abuse Max1	17.7	68.1		

Note. CTQ = Childhood Trauma Questionnaire; Max1 = a single experience of the abuse type (i.e., a response of 1 on only one of the CTQ items forming the scale). More = more than a single experience of the abuse type (other response patterns).

kind of abuse were different from those with no more than a single experience of abuse of any type (see Figure 2).

In men, there was a statistically significant difference in psychopathology symptoms between the group reporting no abusive experiences of any type of abuse and the group reporting a single abusive experience of any type of abuse ($p < .001$). The same was true for women: Women with no abusive experiences and a single abusive experience ($p < .001$) of any type were statistically significantly different regarding psychopathology symptoms. Surprisingly, those with no abuse experiences scored higher compared with those with no more than a single abuse experience of any type.

Discussion

The aim of the present study was to investigate whether single experiences of childhood abuse are associated with increased psychopathology in adulthood. In a population-based sample of 10,980 participants, we measured abuse using the CTQ and symptoms of psychopathology (a combined measure of depression and anxiety) using the BSI-18.

Regarding repeated versus no experiences of abuse, and repeated versus single experiences of abuse, the findings corroborate the well-documented finding that repeated experiences of all types of abuse lead to higher levels of psychopathology for both men and women. There is considerable evidence that in men and women, repeated experiences of physical and/or abuse are harmful. These results are in accordance with the outcomes of published

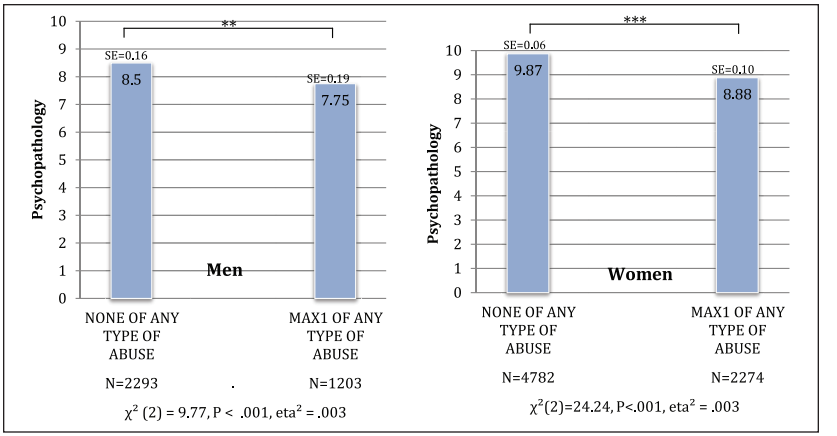

Figure 2. The different effect between a single experience of any type of abuse and one experience of any type of abuse for men and women.

reviews and meta-analyses that have investigated the association between childhood experiences of abuse and psychopathology. These have concluded that childhood experiences of sexual abuse significantly increase the risk of psychopathology symptoms in adulthood (e.g., Hillberg, Hamilton-Giachritsis, & Dixon, 2011; Maniglio, 2009; Saunders, 2003).

Regarding single versus no experiences of abuse, the results indicate that, for men and women, a single experience of emotional and sexual abuse in childhood can be associated with increases in psychopathology symptoms in adulthood. However, a single experience of physical abuse did not seem to affect psychopathology. One possible explanation for why a single experience of physical abuse did not seem to affect psychopathology is that individuals who reported one single experience may refer to different type of instances (e.g., a sibling having hit them and not an adult) and that this different type of physical abuse may have another outcome than other types of abuse.

It is interesting to note that this study showed that a single experience of sexual abuse is associated with psychopathology in men and women in adulthood and that already a single experience had as negative effects as repeated experiences.

It is interesting—and surprising—that, when controlling for co-morbidity, a single experience of abuse is a significant predictor of lower levels of psychopathology in adulthood compared with those who had no experiences of any type of abuse. For both men and women, participants who had not

experienced any abuse of any kind reported more adult psychopathology compared with participants who had experienced no more than one abuse incident of any kind. This result seems paradoxical in light of previous research. However, we hypothesized that a factor contributing to having no experience of abuse of any kind could be the (genetically determined) personality dimensions of introversion and neuroticism, as introversion would make a child less likely to evoke abusive behaviors whereas neuroticism would be reflected in higher psychopathology irrespective of abuse experiences. To address this post hoc explanation, we used available personality measures (measured by the Twelve-Item Personality Inventory [TIPI]; for example, Derogatis, 2001). The difference between the two groups did not remain significant when these two factors (i.e., introversion and neuroticism) were included as covariates supporting our hypothesis. In sum, these results mean that the paradoxical result could be, at least partly, explained by personality differences related to evocative effects.

To conclude, when controlling for co-morbidity, our analyses showed that a single abuse experience was not associated with psychopathology anymore. When the effects of co-morbidity are removed, a single experience in and of itself seems unlikely to have a negative effect on symptoms of psychopathology in adulthood. However, from a clinical standpoint, single experiences of one abuse type are likely to be co-morbid with experiences of other abuse types as a matter of statistical likelihood. This should be taken into account when evaluating the negative effects of also low levels of abuse.

Limitations of the Research

To our knowledge, this is the first study that has looked at the effects of single abuse experiences compared with no abuse experiences, and with repetitive abuse experiences on psychopathology symptoms in adulthood in a relatively large sample. There are, however, some caveats and limitations of the present study worth mentioning. First, memories are usually influenced by later experiences, and because the questionnaire assessed childhood events retrospectively, the obtained information might be incorrect. Second, the participants in the questionnaire may willfully provide incorrect responses or change the facts. Third, it is possible that the outcomes of this study can differ from a study conducted in another population. Fourth, the estimates for the connections between trauma and symptomatology measured with the BSI are probably underestimates due to measurement error and fluctuation in outcomes due to more recent events that may affect mood. It should, however, be mentioned that the test–retest reliability of the BSI-18 measures for depression and anxiety is high when measured over shorter time intervals

(e.g., Andreu et al., 2008). Fifth, although responses to the items on the CTQ were carefully checked and we assume that our categorization was indicative of a single experience, this interpretation is not certain. This means that for some of the participants, a choice of 1 could actually have indicated a more severe experience than a single experience. In any case, the experiences here defined as single experiences represent the least severe type of abuse that can be captured using the CTQ, which has been shown to have excellent psychometric properties.

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