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A novel tool showing that perceptions of adverse social relationships in childhood were linked with mental health problems and suicidal experiences: Validation of the English version of the History of Social Punishment (HoSP) scale

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Highlights

- A novel scale measuring histories of social punishment (HoSP) in childhood was assessed
- The scale showed very good to excellent construct, convergent, and divergent validity
- Social punishment was strongly linked with depression, OCDs, and suicidal acts
- Suicide prevention priorities should target such adverse social relationships

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A novel tool showing that perceptions of adverse social relationships in childhood were linked with mental health problems and suicidal experiences: Validation of the English version of the History of Social Punishment (HoSP) scale

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RUNNING HEAD: ADVERSE SOCIAL RELATIONSHIPS, DEPRESSION, OCDs, AND SUICIDAL ACTS

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Abstract

There is robust evidence for relationships between adverse events experienced in childhood and mental health problems experienced as an adult. However, the measurement of perceptions of different types of adverse relationships in childhood, especially those that are in social contexts, is lacking. Given the absence of an appropriate tool to measure perceptions of adverse social relationships in childhood within English-speaking populations, we endeavored to examine the construct validity of the English version of the History of Social Punishment (HoSP) scale. In total, 557 adults from the extant community participated by completing self-report scales that measured perceptions of adverse childhood relationships, symptoms of depression, obsessive-compulsive disorder (OCD), hoarding disorder (HD), body dysmorphic disorder (BDD), and suicidal experiences. Results demonstrated that the HoSP is a sound psychometric tool to evaluate perceptions of adverse social relationships within English-speaking populations. A strong association between perceptions of adverse social relationships in childhood, common mental health problems, and suicidal behaviors was established. These results provide robust evidence for the importance of screening for experiences of social adversities and for developing clinical interventions that directly target these experiences.

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Keywords: *adverse social relationships; mental health conditions; suicidal thoughts and behaviors; self-report scale*

1. Introduction

Adverse childhood experiences (ACEs) involve traumatic events which occur up until the age of 18. These events include experiences of sexual, physical, and emotional abuse; physical and emotional neglect; domestic violence and/or crimes; and parental deaths and/or separation (Anda et al., 2006; Fortson, Klevens, Merrick, Gilbert, & Alexander, 2016). A growing body of research has linked these adverse childhood experiences with physical and mental health problems, which include heart problems, strokes, or cancer (Hughes et al., 2017); mood, anxiety, and obsessive-compulsive and related mental health problems (Afifi, Enns, Cox, Asmundson, Stein, & Sareen, 2008; Carr, Martins, Stingel, Lemgruber, Juruena, 2013; Merrick, Ports, Ford, Afifi, Gershoff, & Grogan-Kaylor, 2017; Khalifeh, Oram, Trevillion, Johnson, & Howard, 2015). Furthermore, traumatic childhood events have been associated with suicidal thoughts and behaviors (Brezo, Paris, Vitaro, Hébert, Tremblay, & Turecki, 2008; Daray et al., 2016; Sunami, Hammersley, & Keefe, 2017).

Adverse childhood events may also be experienced frequently in a less severe form characterized by unpleasant social relationships with multiple significant others, namely, peers, guardians and teachers (e.g., Modecki, Minchin, Harbaugh, Guerra, & Runions, 2014). These types of unpleasant interactions can involve receiving unbalanced criticism (Cuellar, Johnson, & Ruggero, 2009; Swenson et al., 2016); being excluded or ignored (Read, Harper, Tucker, & Kennedy, 2018); being seen as in some way different from the 'norm' because of factors such as disability, ethnicity, or gender identity (Nakkeeran, & Nakkeeran, 2018); being physically and emotionally bullied (Arseneault, Bowes, & Shakkor, 2010; Werth, Nickerson, Aloe, & Swearer, 2015); being frequently belittled especially in front of others (Ilic, et al., 2013); dealing with pejorative or disparaging comments (Hoth et al., 2015); and being unfairly treated such as being wrongly blamed and/or punished (Phelan et al., 2013). To date there is sparse evidence examining

the impact of such negative social relationships on psychological well-being and mental health problems including suicidal thoughts and behaviors experienced in adulthood.

One key reason for this paucity relates to the lack of appropriate measurement tools which capture perceptions of adverse social experiences in childhood. Angelakis, Austin, Slater, & Roderique-Davies (2018) recognizing this important gap endeavored to develop and validate a self-report instrument to assess *perceptions of an individual's history of social punishment* (HoSP). Social punishment was defined as adverse common interactions with significant others, including negative relationships with peers, guardians and teachers. In accord with published guidelines (e.g., Boateng, Neilands, Frongillo, Melgar-Quiñonez, Young, & Boateng, 2018), a scrupulous six-stage process was followed in the development of the scale comprising: (i) the definition of the main construct, (ii) the formulation of the initial items, (iii) the involvement of clinical psychologists reviewing the initial pool of items, (iv) the inclusion of three distinct social groups (i.e., peers, guardians, teachers), (v) the modification and final selection of the items to be included in the final scale, and (vi) the involvement of a second review panel of mental health professionals to comment on the final item selection. The authors focused mainly on exploring the relationship between negative social experiences and symptoms that characterize depression and obsessive-compulsive disorder (OCD) due to the high prevalence of these mental health problems within the Greek population (Angelakis, Austin, & Panagioti, 2016; Economou, Angelopoulos, Peppou, Souliotis, & Stefanis, 2016). It was demonstrated that the HoSP scale was a sound psychometric tool for assessing adverse social relationships, and that HoSP scores correlated significantly with self-reported symptoms of depression and OCD in a Greek sample.

In the absence of a similar scale in English, the current work mainly focused on validating the HoSP scale within an English-speaking population. There were two core objectives. Initially, an effort was made to explore the strength of a potential link between perceptions of adverse social relationships, mental health problems, particularly depression and obsessive-compulsive disorders which included OCD, hoarding disorder (HD), and body dysmorphic disorder (BDD) to corroborate

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the results of the initial study development of the HoSP scale (Angelakis et al., 2018). However, this work was extended to include suicidal thoughts and behaviors for two key reasons. First, if associations between perceptions of social punishment experienced in childhood and suicidal thoughts and acts were to be found, then this feeds into clinical practice and the development of targeted interventions. Second, understanding such relationships also has important implications for raising public and scientific awareness of the negative impact of adverse social relationships on mental health problems, including suicidal experiences, which have the potential to feed into policy provision and suicide prevention policy decisions.

In particular, the aims of the study were to:

i) explore the construct, convergent, and discriminant validity of the English version of HoSP scale;

ii) examine the strength of the association between the perceived history of adverse social experiences and symptoms that characterized depression, obsessive-compulsive and related mental health problems, and suicidal thoughts and behaviors.

2. Method

2.1 Study population and procedure

The study sample included 557 adults from the community (M_{age}=33.17, *SD*=10.67, range: 18-68; 47.94% males). Participants were recruited through social media, including Facebook, and Twitter. There were two criteria for partaking in this study, namely, i) to be older than 18, and ii) to be fluent in English. Upon communicating an interest in participating, an email was sent which included a link with the study measures and questions regarding sociodemographic information. The latter asked about age, gender, household income, education level, and occupation. Participants had first to read the Participation Information Sheet, and then consent to participation by ticking the appropriate boxes stating that they i) had carefully read the provided information sheet, ii) were aware of the voluntary and anonymized nature of the survey, and iii) had the right to withdraw from the study without penalty. The debriefing page appeared immediately

after the last question on the survey to inform participants about the full purposes of the study and provided information about mental health charities (e.g., Samaritans). All participants were encouraged to contact these charities or their medical doctors if they felt that their participation had negatively affected their mood or mental health. This study was approved by the ethics committee of the MASKED university (Ref number: 1905172.1).

2.2 Measures

History of Social Punishment (HoSP; Angelakis et al., 2018). The HoSP comprises 16 self-report items that measure perceptions of a history of social punishment with significant others, including those from peers ("*I have been subject to mockery by others*"), guardians, ("*My parents used to punish me often as a child*") and teachers ("*My teachers often used to scold me*"). In this study, the translated items of original study development were utilized[1]. The scale has a 5-point scale ranging between 0 = *never* to 4 = *very much*. The Greek version of the HoSP scale has very good to excellent psychometric properties, with the Cronbach's alpha found to be 0.87 for the overall scale within a community sample (Angelakis et al., 2018). In the current study, the alpha coefficient for the overall scale was 0.88.

Centre for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977). The CES-D contains 20 self-report items (e.g., "*I felt depressed*", "*I felt sad*") that measure the severity of depressive symptoms during the past week. The scale utilizes a 4-point scale ranging between 1 and 4, with four indicating extreme severity. Overall, the scale has very good psychometric properties, with the Cronbach's alpha index found to be 0.95 (Fountoukakis et al., 2001). In the current study, the alpha coefficient was 0.94.

Obsessive-Compulsive Inventory Revised (OCI-R; Foa et al., 2002). The OCI-R consists of 15 self-report questions (e.g., "*I check things more often than necessary*", "*I feel compelled to count while I am doing things*") that measure obsessing, washing, checking, ordering, and neutralizing, which are considered OCD symptoms. There are also three additional items, which

[1] The translation of two of the items were improved by following a rigorous procedure where two independent bilingual raters translated the items from Greek to English. Then, two additional bilingual raters were used to back translate these items in Greek. The scale is included in the Appendix.

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measure hoarding symptoms. Based on the most current version of the Diagnostic and Statistical Manual of Mental Health Disorders (DSM-5), hoarding behaviors form an independent obsessive-compulsive mental health problem (American Psychiatric Association, 2013). These items (e.g., "*I have saved up so many things that they get in the way*") were used to measure hoarding. The overall scale uses a 5-point scale, which range between 0 and 4, with four denoting extreme severity. The OCI-R is a reliable tool for assessing the severity of the obsessive-compulsive symptoms. In a recent re-validation study, the Cronbach's alpha index was found 0.89 (MASKED). In the current study, the alpha coefficient was 0.90 for the overall scale, and 0.70 for the sub-scale measuring hoarding behaviors.

Body Image Disturbance Questionnaire (BIDQ; Cash, Phillips, Santos, & Hrabosky, 2004). The BIDQ contains 7 self-report items (e.g., "*Are you concerned about the appearance of some part(s) of your body, which you consider especially unattractive?*") that measure the concerns, preoccupation, distress, and interreference with social and professional life that an individual may experience due to their perceptions of their body or face. The scale has a 5-point scale with 5 denoting extreme severity and interference with everyday functioning. The psychometric properties of this scale have been reported to be very good, with a Cronbach's alpha index of 0.89. In the current study, the alpha coefficient was 0.92.

Suicidal Behaviors Questionnaire Revised (SBQ-R; Osman, Bagge, Gutierrez, Konick, Kopper, Barrios, 2001). SBQ-R comprises 4 self-report questions (e.g., "*Have you ever thought about or attempted to kill yourself ?*"). The first question measures levels of lifetime suicidal experiences, the second assesses the frequency of suicidal ideation in the past year, the third evaluates the intention that the person will take their own lives, and the forth examines the probability that the person will die by suicide in the future. The Cronbach's alpha indices have been reported as between 0.76 and 0.88 in non-clinical and clinical samples respectively (Osman et al., 2001). In the current study, the alpha coefficient was 0.87.

2.3 Data analyses strategy

Statistical analyses were conducted using Stata 15®. All the variables were tested for univariate and multivariate normality by using the *mvtest* normality command, which demonstrated that all variables were positively skewed. To examine the proposed three-factor solution for the HoSP scale, a confirmatory factor analysis was employed (CFA) based on the Satorra-Bentler scaled x^2 test statistic (Satorra-Bentler, 1994) because it is rigorous when normality is not assured. Specifically, the root mean square error of approximation (RMSEA), the Tucker-Lewis index (TLI), the comparative fit index (CFI) and the standardized root mean square residual (SRMR) were used. RMSEA and SRMR values ≤ 0.08 indicate acceptable fit, and values ≤ 0.06 a good fit. TLI and CFI values ≥ 0.90 indicate acceptable fit, and values ≥ 0.95 indicate a good fit (Kline, 2011). Furthermore, it was explored i) the convergent validity by calculating Average Variance Extracted (AVE) scores, ii) the discriminant validity by computing square roots of AVE, and iii) the internal consistency for the sub-factors of the HoSP by calculating Composite Reliability (CR) scores. To examine the relationship between the overall HoSP, the sub-scales of the HoSP, and the symptoms of mental health problems, Spearman correlation coefficients were used.

3. Results

3.1 Descriptive characteristics of the study sample

The majority of the participants were born (74.15%) and resided (87.25%) within the United Kingdom at the time of their participation in the study. Less than half of the participants (44.88%) reported low or lower middle household incomes, whereas the rest 55.12% reported middle or high incomes. The vast majority of the participants (97.97%) had received college or university education, with only 12.03% having received secondary education. Finally, 70.02% of the sample were employed, whereas 12.21% were unemployed, and 17.77% were college/university students.

3.2 Construct validity of the HoSP scale

The proposed three-factor solution was initially tested by utilizing all 16 items of the HoSP scale, $x^2(87) = 519.76$, $p < 0.001$; CFI = 0.89; TLI = 0.87; RMSEA = 0.08; SRMR = 0.06, which did not adequately fit the data (Table 1). To improve the model fit and based on published

guidelines on SEM analysis (Kline, 2011), two items ("*Peers have turned violent towards me*") and ("*Friends or acquaintances have cut me off*") were deleted from the peer sub-scale, which loaded below 0.65 on the CFA. Item 6 ("*My parents were quite strict with me*") from the adverse experiences from guardians' sub-scale was also deleted due to its resemblance with item 7 ("*My parents could often be quite bossy*"). This choice was made because item 6 was loaded lower than item 7 on the CFA. The 13-item three-factor solution, $x^2(62) = 225.29$, $p < 0.001$; CFI = 0.94; TLI = 0.93; RMSEA = 0.07; SRMR = 0.05, significantly improved the model. Two additional items ("*I have felt rejected by my peers, acquaintances or family*") and ("*Generally, I have experienced bad things from my interactions with others*") were also deleted as they loaded below 0.65 on the CFA. The final 11-item three-factor solution, $x^2(41) = 106.80$, $p < 0.001$; CFI = 0.97; TLI = 0.96; RMSEA = 0.05; SRMR = 0.04, demonstrated a very good model fit.

3.3 Internal consistency, convergent and discriminant validity of the HoSP scale

The internal consistency of the sub-scales of the HoSP was calculated by examining CR indexes, which exceeded the recommended value of 0.6 (Table 2). AVE indexes were used to establish convergent validity, which exceeded the recommended value of 0.5 (Table 2). Square roots for AVE indexes, which examined discriminant validity (values in bold; Table 3), were higher than the intercorrelations among the sub-scales of the HoSP scale. These results demonstrated that the HoSP had excellent convergent and discriminant validity (Kline, 2011).

3.4 The association between total scores of the HoSP, the sub-scales of the HoSP, depression, OCD, BDD, and suicidal thoughts and behavior

There were some intercorrelations among the sub-scales assessing perceptions of adverse social experiences from peers, guardians and teachers (Table 3) but these relationships were only moderate. This finding suggests that although these sub-scales shared some similarities, the sub-scales represented distinct measures of the different types of adverse relationships formed in childhood. Furthermore, there were significant positive correlations between perceptions of overall adverse relationships and symptoms of depression, OCD, HD, BDD, and suicidal thoughts and

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behaviors. These results fully support the prediction that experiencing social adversities in childhood have negative consequences for mental health. Perceptions of adverse experiences from peers correlated moderately to strongly with symptoms of depression, OCD, HD, BDD, and suicidal thoughts and behaviors, whereas adverse experiences from guardians and teachers correlated only moderately with these measures. These findings highlight the detrimental consequences of forming unpleasant social relationships in childhood, especially, with peers, on subsequent mental health.

4. Discussion

The first aim of the current study was to examine the psychometric properties of the English version of the History of Social Punishment (HoSP) scale. The three-factor solution, namely, adverse experiences from peers, guardians and teachers was supported. In particular, the application of confirmatory factor analysis buttressed the conclusion that both the 13- and 11-item HoSP scale provided a good conceptual fit to the data, lending confidence to the construct validity of the HoSP measure. However, the 11-item version was found to be slightly superior to the 13-item scale. The excellent internal consistency of the HoSP scale was verified by the computation of the Cronbach's alpha coefficients and the composite reliability indexes. Finally, calculations of the average variance extracted (AVE) scores and square roots for average variance extracted scores confirmed the convergent and discriminant validity for the HoSP scale (Kline, 2011). These results fully support that the HoSP scale is a needed and novel measure of perceived childhood social adversity and punishments.

The second aim of the study was to assess the strength of the link between a perceived history of social punishment and symptoms that characterize depression, OCD, BDD, HD, and suicidal thoughts and behavior. Results showed that perceptions of overall social adversities in childhood robustly correlated with symptoms of mental health problems, including suicidal thoughts and behaviors, in adulthood. These findings are important in that they build upon a growing literature indicating that childhood maltreatment in the form of abuse and/or neglect lead to mental health problems, such as depression and OCD, suicide, and self-harm behaviors

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(MASKED REF; Merrick et al., 2017; Khalifeh et al., 2015). However, the current study expanded this line of research by investigating the impact of less severe, but more common, adverse experiences with significant others and corroborated that such negative social relationships were linked with depression and OCD (Angelakis et al., 2018). The present study was novel in that it examined the degree to which this link also applied to behaviors that characterize hoarding and body dysmorphic disorders, and suicidal experiences. Overall, these findings are consistent with recent meta-analyses which have shown that any type of childhood maltreatment, especially sexual and physical abuse, is strongly linked with mental health problems, involving mood, anxiety, substance use (Carr et al., 2013; Lindert, von Ehrenstein, Grashow, Gal, Braehler, & Weisskofp 2014), suicidal acts (MASKED REF), and non-suicidal self-harm (Liu, Scopelliti, Pittman, & Zamora, 2018).

These findings further support the extant literature in that suicidal thoughts and behaviors were linked to *direct* experiences with any type of maltreatment, even in cases where such events appeared to be less severe. Indeed, research has failed to provide sufficient evidence of a potential link between *indirect* experiences of such adversities as domestic violence (Afifi, MacMillan, Boyle, Taillieu, Cheung, & Sareen, 2014; Fuller-Thomson, Baird, Dhrodia, & Brennenstuhl, 2016); parental divorce (Afifi, Boman, Fleisher, & Sareen, 2009); parental deaths (Jeon et al., 2014); and suicidal acts. The results of the present study expanded on the existing literature by showing that experiencing direct but less severe forms of maltreatment, including experiencing unsupportive social interactions; being bullied; being belittled; dealing with frequent pejorative and/or criticizing comments from significant others; and being unfairly treated by others, increased the likelihood of engagement in suicidal thoughts and behaviors (Klomek, Sourander, & Gould, 2010; McQuaid, Bombay, McInnis, Matheson, & Anisman, 2015).

4.1 Limitations

There are three limitations which should be discussed. First, this study used a cross-sectional design. Hence, no causality is implied. More specifically, although the results from the

main analyses demonstrated that overall social adversities correlated strongly with mental health problems, the temporal order of these events cannot be determined. Research employing prospective designs is, therefore, needed to confirm and expand these findings. Second, hoarding symptoms were assessed by utilizing three items which were derived by the obsessive-compulsive inventory-revised scale (Foa et al., 2002). Future research needs to confirm these findings by using measures that fully capture the range of thoughts and behaviors experienced by those who hoard (Frost, Hristova, Steketee, & Tolin, 2013). Finally, the HoSP scale remains to be validated within clinical populations and, therefore, its administration to such vulnerable individuals should be carried out with prudence.

4.2 Conclusion

This is the first study to examine the psychometric properties of English-version of the History of Social Punishment scale. The analyses demonstrated that the HoSP measure has very good to excellent construct, convergent and discriminant validity. Strong associations between adverse social relationships in childhood and the self-reported symptoms of depression, OCD, HD, BDD, and suicidal thoughts and behaviors in adulthood were found. These findings have important implications for clinical practice, the development of appropriate interventions, as well as for raising public and scientific awareness regarding the negative outcomes of experiencing negative social relationships with significant others in childhood.

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AUTHOR DISCLOSURE

We confirm that the manuscript has been read and approved by all named authors and that there are no other persons who satisfied the criteria for authorship but are not listed. We further confirm that the order of authors listed in the manuscript has been approved by all of us.

We confirm that we have given due consideration to the protection of intellectual property associated with this work and that there are no impediments to publication, including the timing of publication, with respect to intellectual property. In so doing, we confirm that we have followed the regulations of our institutions concerning intellectual property.

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Table 1
Goodness-of-Fit Indicators of HoSP (*N = 557*)

Model	X^{2*} *saturated model*	X^{2*} *baseline model*	RMSEA	CFI	TLI	SRMR
Three-Factor (16-items)	519.76	3815.99	0.08	0.89	0.87	0.06
Three-Factor (13-items)	225.29	2890.85	0.07	0.94	0.93	0.05
Three-Factor (11-items)	106.80	2365.77	0.05	0.97	0.96	0.04

Note. HoSP = History of Social Punishment, *N* = Total number of participants.
*p <0.001.

Table 2
Average Variance Extracted (AVE) and Composite Reliability (CR) indexes of HoSP's sub-scales (N = 557)

	AVE (above 0.5)	**CR** (above 0.6)
Adverse experiences from peers	0.59	0.93
Adverse experiences from guardians	0.64	0.94
Adverse experiences from teachers	0.58	0.91

Note. HoSP = History of Social Punishment, *N* = Total number of participants.

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Table 3
Means, Standard deviations, Square root of AVE indexes and Spearman correlations of the study's variables (N= 557)

	Mean	SD	Range	2	3	4	5	6	7	8	9
1. Overall Adversities	23.36	9.07	11 - 55	0.85	0.79	0.61	0.39	0.35	0.42	0.51	0.47
2. Peers	9.54	4.51	4 - 20	**0.77**	0.45	0.42	0.38	0.32	0.47	0.53	0.45
3. Guardians	8.69	4.38	4 - 20		**0.80**	0.33	0.24	0.22	0.22	0.29	0.28
4. Teachers	5.12	2.60	3 - 15			**0.76**	0.29	0.27	0.23	0.37	0.32
5. OCD severity	34.23	11.60	18 -75				-	0.49	0.42	0.52	0.39
6. Hoarding severity	6.34	2.54	3 -15					-	0.29	0.48	0.32
7. BDD severity	15.68	6.47	7 -35						-	0.53	0.34
8. Depression severity	42.60	13.52	21 - 81							-	0.54
9. Suicidal ideation/behaviors	6.92	3.78	4 -23								-

Note: All correlations were significant at the alpha level of $p < 0.001$; Peers = Perceptions of adverse experiences from peers; Guardians = Perceptions of adverse experiences from guardians; Teachers = Perceptions of adverse experiences from teachers; OCD = Obsessive-Compulsive Disorder; BDD = Body Dysmorphic Disorder; *N* = Total number of participants; The values in bold represent the square root of AVE indexes.

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Appendix

This questionnaire contains 11 items which are encouraged to be answered as honestly as possible. Please read the following items and choose the answers that describe closely your personal experiences that you used to have with your significant others.

0 – ***Totally disagree; 1 – Somewhat agree; 2 – Moderately agree; 3 – Agree; 4 – Totally agree***

1	I have experienced negative comments concerning characteristics of my body or face.	0	1	2	3	4
2	My relations with my teachers were usually bad	0	1	2	3	4
3	My parents could often be quite bossy	0	1	2	3	4
4	I have been bullied by my peers	0	1	2	3	4
5	People have made fun of my behavior in public	0	1	2	3	4
6	My teachers usually underestimated me	0	1	2	3	4
7	My teachers often used to scold me	0	1	2	3	4
8	My parents didn’t forgive my mistakes easily	0	1	2	3	4
9	My parents used to punish me often as a child	0	1	2	3	4
10	My parents used to reprimand me	0	1	2	3	4
11	I have been subject to mockery by others	0	1	2	3	4

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