

Research Article

Knowledge on Trauma, Adverse Childhood Experiences, and Parental Bonding in a Sample of Italian Teachers

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Abstract

Adverse Childhood Experiences encompass traumatic events in childhood, such as abuse and neglect. Early identification of trauma is vital for children's well-being and long-term mental health, highlighting the importance of school and family interventions. This research examines teachers' knowledge of physical and behavioural signs of childhood trauma in preschool and school-age children. It assesses their ability to identify trauma indicators, explores their perceptions of knowledge and training needs, and investigates the prevalence of Adverse Childhood Experiences and the influence of perceived parental styles on trauma experiences. Participants were 84 female teachers working in kindergartens and primary schools. Results show that the knowledge possessed by teachers may be insufficient for the identification of signs and symptoms of trauma. In fact, they are the first to perceive their knowledge as relatively inadequate and to show the need for further specialist training. The importance of continuous professional development for teachers is emphasized, as it can enhance their ability to recognize trauma-related signs and implement appropriate support strategies. In the present study, teachers' personal experiences with adverse events do not influence their knowledge of trauma. However, maternal care was negatively correlated with the likelihood of experiencing adverse or traumatic events. This finding aligns with existing literature on the protective role of caregiving, emphasizing the need for early interventions targeting parents from childhood.

Keywords

Trauma, Teachers, Adverse Childhood Experiences, Parental Bonding

1. Introduction

Adverse Childhood Experiences (ACEs) are a widely studied phenomenon referring to potentially traumatic events that occur during childhood, such as abuse, neglect, or household dysfunction [1, 2]. Studies ACEs have gained significant attention due to their profound impact on individuals' health and well-being across the lifespan. These studies aim to identify the prevalence of ACEs in populations, understand their long-term effects on physical and mental health, and develop interventions to prevent or mitigate their

negative consequences.

The ACEs study [3], investigated various types of adverse experiences that individuals may have encountered during their childhood. These experiences are categorized into three main types of abuse (emotional abuse, physical abuse, sexual abuse) and four types of household dysfunction (Emotional Neglect, Physical Neglect, Household Substance Abuse, Household Mental Illness, Household Incarceration). The ACEs questionnaire is a tool used to assess individuals' ex-

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posure to various forms of childhood adversity. The original ACEs study surveyed over 17,000 adults in the United States and identified high prevalence rates of ACEs, with approximately two-thirds of participants reporting at least one ACE, and more than one in five reporting three or more ACEs. In the original ACE study of adults, 64% of adults reported at least one ACE. More than one in five reported three or more ACEs and 12.4% reported four or more ACEs. Results of a collaborative study [4] confirmed high prevalence rates of ACEs, with more than half of participants reporting at least one ACE, and over one-fifth reporting three or more ACEs.

In a recent review [5], 144 725 (57%) of 252467 participants across all studies reported at least one ACE and 31 795 (13%) of 244979 reported at least four. Prevalence of zero ACEs ranged from 12% to 67% and prevalence of at least four ACEs ranged from 1% to 38%. Results indicated variability in ACEs prevalence across different countries, but overall, high prevalence rates were observed globally.

Research indicates a clear association between the quality of parental bonding and the frequency of adverse childhood experiences [6].

Children who experience secure attachment relationships with their caregivers are less likely to encounter ACEs. Secure attachment, characterized by trust, emotional availability, and responsiveness from parents, provides a protective buffer against various forms of abuse, neglect, and household dysfunction [7]. A nurturing and supportive parent-child relationship is associated with a lower frequency of ACEs. Positive parental care, characterized by warmth, emotional support, and consistent involvement, creates a protective environment that reduces the likelihood of exposure to various forms of abuse, neglect, and household dysfunction [3]. Positive parental bonding is inversely correlated with the occurrence of neglect, a common ACE. Children who receive adequate care and attention from their parents are less likely to experience neglect-related ACEs [8]. Active parental involvement in a child's life, including supervision, monitoring, and engagement in their activities, reduces the likelihood of exposure to abusive situations. Positive parental bonding fosters an environment where children feel supported and protected, lowering the risk of physical, emotional, or sexual abuse [9]. Children who receive emotional support and validation from their parents are better equipped to cope with stress and adversity, lowering the frequency of ACEs. Parental care that fosters emotional resilience helps children develop effective coping strategies and buffers against the negative effects of traumatic experiences [10].

Moreover, open and supportive communication between parents and children facilitates early identification and intervention in situations involving ACEs. Children who feel comfortable discussing their concerns with their parents are more likely to receive the necessary support and protection against potential ACEs [11]. Caregivers who are actively involved in their children's lives can identify and address potential risks, thus mitigating the impact of adverse experi-

ences [12].

Previous findings underscored the importance of early intervention and preventive measures to address childhood trauma [13]. By recognizing and mitigating the impact of ACEs, it is possible to improve health outcomes and reduce the societal burden of these experiences [4, 14].

Early identification of trauma in children is critically important for several reasons. It can significantly impact their immediate well-being and long-term mental health. Crucial for the prevention and early identification of trauma signals in children is not only the family but also the school environment. Early identification allows for timely psychological intervention, which can mitigate the acute effects of trauma. Without early support, children may develop more severe psychological issues such as Post-Traumatic Stress Disorder (PTSD), anxiety, or depression [15]. Teachers and school staff who are aware of a child's trauma can better accommodate their needs, offering a supportive and understanding environment. This can reduce the likelihood of misinterpreting trauma-related behaviours as mere disciplinary issues [16].

Teachers play a crucial role in the early identification of trauma signals in students [17]. Their daily interactions with students position them uniquely to observe changes in behaviour, emotions, and academic performance that may indicate trauma. Teachers are often the first to notice when a child's behaviour deviates from the norm. They can identify changes in academic performance, attendance, and interactions with peers and adults. By maintaining a keen awareness of these signs, teachers can detect potential trauma early.

In the present research, the knowledge of physical and behavioural signs and symptoms of childhood trauma by teachers have been investigated, differentiating those found in preschool children from those present in school-age children.

First aim of the study was to assess whether teachers possess the knowledge necessary to identify physical signs and behavioural changes that could be indicative of a traumatic experience or a situation of abuse lived by the child. In this regard, an assessment scale has been constructed containing questions relating to different physical signs and behavioural symptoms that can be observed in children who have experienced trauma. Moreover, the perception of teachers regarding their knowledge about trauma and the need for further specific training, has also been investigated.

Second aim of the study was to investigate the prevalence of ACEs and if the number of traumatic events reported by the sample was a significant predictor of knowledge and perception of knowledge regarding sign of childhood trauma in teachers.

Finally, we investigated parental styles (mother and father parental styles) as perceived by the subjects using the Parental Bonding Instrument. Specifically, we investigated whether maternal and paternal care and overprotection were significant predictors of childhood trauma in our sample.

2. Materials and Methods

2.1. Participants

Ethical approval for the study was obtained by the Ethical Committee of the University of Bologna. An anonymous online survey was conducted using Google Forms and shared across several teachers' social groups to collect the data. Each participant completed the survey after reading the informed consent form and declaring the explicit agreement to participate in the research.

Participants were 84 female teachers working in kindergartens and primary schools. The mean age for the total sample was 39.79 years (age range = 22 to 65 years; $SD=11.86$). Twenty-one subjects held a graduate degree, 39 held a bachelor's degree, and 24 had a secondary education level.

Regarding their fields of study, 22.6% held a degree in education and training sciences, 16.7% in primary education, 8.4% in professional education, and the remaining subjects held degrees in humanities (psychology, pedagogy, literature, etc.). All participants presented a negative history of psychiatric disorders.

2.2. Measures

The survey consisted of five sections. The first section was related to socio-demographic data and contained questions relating to age, gender, educational qualifications, profession and field of performance, and seniority.

In the second section, participants completed the Adverse Childhood Experience Questionnaire (ACE-Q) [3] to quantify their degree of exposure to adverse childhood experiences. It consists of 10 questions with dichotomous yes or no answers and checks for the subject's recall of pre-age 19 exposure to psychological, physical, and sexual abuse as well as household dysfunction including domestic violence, substance use, incarceration and parental mental illness.

In the third section, participants completed the Parental Bonding Instrument (PBI) [18, 19] for the assessment of attachment relationships. Two scales termed 'care' and 'overprotection' or 'control', measure fundamental parental styles as perceived by the child. The measure is 'retrospective', meaning that adults (over 16 years) complete the measure for how they remember their parents during their first 16 years. The measure is to be completed for both mothers and fathers separately. There are 25 item questions, including 12 'care' items and 13 'overprotection' items.

The fourth and fifth sections of the questionnaire were specifically designed for this research to investigate general knowledge about childhood trauma, as well as more specific knowledge about the physical and behavioural signs and symptoms of trauma in preschool and school-aged children.

The scale relating to the perception of general knowledge possessed is composed of 9 items that investigate the subject's

perception of familiarity with certain statements concerning childhood trauma, measured on a 5-point likert scale (1= not at all agree; 5= totally agree). Example of items are: "I am aware that the symptoms of trauma or abuse may be similar or identical to the symptoms of other diagnoses, such as emotional disorders, attention deficit disorder and hyperactivity (ADHD)." "I am aware of the next steps to be taken if I suspect that a pupil is or has experienced/experienced trauma or abuse". In addition, there is a tenth question about whether or not the subject feels that he or she needs further training on this topic: "I think I need/would like to receive more training on the subject of trauma and abuse in childhood". If yes, participants were asked to indicate which trauma-related aspects required more training: physical signs, behavioural signs, procedures and assessment tools, procedures to be followed for reporting suspicious cases.

On the other hand, the scale concerning the physical and behavioural signs and symptoms of trauma in preschool and school children that investigates the knowledge of teachers on this topic is made up of 20 items with a true or false dichotomous response (T; F). (Examples: "Bruises that occur in children between 12 and 24 months in a T-shape on the forehead, nose, upper lip and chin may be signs of abuse." "Children of preschool age (12 months - 5 years) who have experienced a traumatic event or an abusive situation may be aggressive and irritable to peers." "An increase in the level of activity (hyperactivity) and increased psychomotor agitation, in children of school age may be indicators of trauma or an abusive situation."). Each correct answer was given a score of 1, with a score range from 0 to 20.

2.3. Statistical Analysis

A multivariate regression analysis has been conducted to examine whether the number of traumatic events experienced could influence the knowledge and perceived knowledge regarding signs of childhood trauma. Moreover, a regression analysis was conducted to determine whether the length of time in the current role was predictive of knowledge or perceived knowledge regarding the identification of signs of trauma in children.

For descriptive purposes, an analysis was conducted to identify the areas of knowledge that participants perceived as lacking. Additionally, the frequency of childhood trauma reported by the sample was compared to existing data in the literature.

Finally, the scales of 'care' and 'overprotection' or 'control' were examined with respect to parental styles (mother and father parental styles) as perceived by the subjects. Specifically, a correlation analysis was conducted between care and overprotection, and a regression analysis was performed to determine whether paternal and maternal care and overprotection are significant predictors of childhood trauma.

3. Results

Descriptive analysis showed that total scores of knowledge about signs and symptoms of trauma range from a minimum of 9 to a maximum of 18 with a mean score of 14,76 (SD = 2,02).

The questions to which participants gave the most incorrect answers were as follows:

Question 7: "Children of preschool age (12 months to 5 years) who have experienced a traumatic event or an abusive situation may be aggressive and irritable toward peers," which only 2.4% of participants answered correctly.

Question 16: "A school-age child (6-10 years old) who has significant difficulty understanding the school curriculum and following the rules may have experienced a trauma or maltreatment situation," with 3.6% correct answers.

Question 4: "Bruises that occur in children between 12 and 24 months in a T-shape on the forehead, nose, upper lip, and chin may be signs of abuse," which had a 50% correct response rate.

Question 3: "Bruises on the arms are more frequently due to mistreatment than to accidental events," with 59.5% correct answers.

Regarding items evaluating participants general knowledge perception about childhood trauma, results showed a mean score of 20, 14 (minimum score 8 and maximum score 30).

Total scores of right answers relating to general knowledge about childhood trauma have been correlated with scores of knowledge perception and results showed a significant positive correlation ($r = .29$, $p < .01$). Participants seems to be aware about their knowledge on trauma signs in children.

To the question about the need for further training, 83 participants (98,8%) answered positively.

Participants were asked about aspects they consider important for reporting suspected cases, expressing a desire for more information on these aspects which they feel are lacking in their training. Specifically, 27.4% find it important to deepen their knowledge of physical signs, procedures for reporting suspected cases, and assessment tools; 2.4% prioritize understanding Procedures for reporting suspected cases; and 9.5% focus on Procedures and assessment tools. Behavioural symptoms, either alone or in combination with other factors, were mentioned by varying percentages, with the highest being 13.1%.

Knowledge about trauma is significantly correlated with educational qualification; as schooling increases, knowledge about childhood trauma increases (Spearman's $\rho = .22$, $p = .04$). No significant correlations emerge between knowledge and chronological age ($r = .02$, $p = ns$). Perception of knowledge does not appear to be correlated with age ($r = -.16$, $p = ns$), nor educational qualification (Spearman's $\rho = .05$,

$p = ns$).

The number of years in the current role did not significantly predict knowledge or perceived knowledge of the signs of childhood trauma ($F_{(2,81)} = 1.978$, $p = .145$; Partial Eta Squared = .008).

The first regression analysis showed that also the number of traumatic events reported by the sample is not a significant predictor of knowledge and perception of knowledge regarding sign of childhood trauma ($F_{(2,81)} = .338$, $p = .715$; Partial Eta Squared = .047).

The sample examined shows a high percentage of participants with zero ACEs (59.5%), which is within but at the higher end of the range reported in the literature (12% to 67%). The percentage of participants with at least one ACE is 40.5% is lower than the average found in global studies (57%). Additionally, the proportion of participants with at least four ACEs (8.3%) is within the reported range (1% to 38%) but lower than the average (13%). A Pearson correlation analysis was conducted to examine the relationship between paternal and maternal care and overprotection in parental educational styles as reported by the sample. The analysis revealed a significant relationship between care and overprotection in both mothers and fathers. Specifically, maternal care and overprotection were positively correlated with paternal care and overprotection. Maternal care was negatively correlated with paternal overprotection, and paternal care was negatively correlated with maternal overprotection (see Table 1).

Table 1. R Pearson correlation between mother care and overprotection and father care and overprotection.

		Father Care	Overprotection
Mother	Care	,681**	-,317**
	Overprotection	-,420**	,690**

** Correlation is significant at the 0.01 level (2-tailed).

In addition, maternal caregiving was negatively correlated with maternal overprotection ($r = -0.524$, $p < 0.001$), and paternal caregiving was negatively correlated with paternal overprotection ($r = -0.447$, $p < 0.001$).

Furthermore, a regression analysis was conducted to examine how maternal and paternal care and overprotection predict the number of traumas experienced by the subjects (ACEs).

Table 2. Results of Regression analysis: how care and overprotection in mother and father predict the number of trauma experience by the sample.

		B (SE)	t	p	Partial Eta ²
Mother	Care	-.085 (.028)	-3.075	.003	.108
	Overprotection	-.015 (.029)	-.533	.595	.004
Father	Care	-.025 (.025)	-.997	.322	.013
	Overprotection	.004 (.030)	.135	.893	.001

The results showed that maternal care significantly predicts the number of traumas experienced in our sample (see Table 2). Specifically, higher scores on maternal caregiving were associated with lower numbers of traumas experienced.

4. Discussion

In the present study, we sought to evaluate the knowledge of a female sample of teachers working in kindergartens and primary schools on physical and behavioural signs and symptoms of trauma. In general, our findings showed that the sample is aware of their knowledge about trauma. In fact, the data showed a significant positive correlation between real and perceived knowledge. With respect to the scale on the perception of knowledge, which can range from a minimum of 1 to a maximum of 45, participants have an average score of 20.14. The medium knowledge perception score is quite low but in line with the score on the scale evaluating knowledge of signs and symptoms of trauma. Indeed, the range score for the scale is from a minimum of 0 to a maximum of 20, with present participants showing a mean score of 14.76. In general, the participants' knowledge of the signs and symptoms of trauma is quite low and, in particular, there are questions with a very low percentage of correct answers.

The questions that received the fewest correct answers pertained to the relationship between trauma and aggression or irritability in preschool-aged children, as well as the connection between trauma in school-age children, academic performance, and behaviour in school. These findings suggest that teachers experience difficulty in associating behavioural problems, particularly rule-breaking and aggressive behaviours, with traumatic experiences.

Additionally, questions regarding the physical signs of abuse in very young preschool children also had a high number of incorrect responses. This result contrasts with previous studies, which indicated that teachers are more likely to recognize obvious signs of physical maltreatment [20].

However, it is important to note that the signs presented in the questionnaire were not overt indicators of trauma and require more specialized knowledge to be accurately identified.

It is essential to note that identifying child abuse and neglect is a complex matter, as the signs of such abuse can often

overlap with other childhood issues [21].

Consistent with the data related to participants' knowledge and their perception of their own knowledge, all but one of the participants stated that they needed further training from specialists such as psychologists. In particular, participants say they need more training on physical signs, procedures for reporting suspected cases, and assessment tools. Behavioural symptoms, either alone or in combination with other factors, were also mentioned by varying percentages of participants.

In the present study, neither the perceived knowledge nor the overall knowledge score regarding trauma signs and symptoms was associated with chronological age. However, educational qualifications were significantly correlated with participants' knowledge, with a higher number of years of education being linked to greater knowledge. Conversely, educational qualifications did not appear to be related to participants' perception of their own knowledge. Furthermore, length of professional experience was not a predictor of either actual knowledge or perceived knowledge of childhood trauma signs.

The present study shows that the knowledge possessed by teachers may be insufficient for the identification of signs and symptoms of trauma in school and preschool children. In fact, they are the first to perceive their knowledge as relatively inadequate and to show the need for further specialist training. The importance of continuous professional development for teachers is underscored, as it can enhance their ability to recognize trauma-related signs and implement appropriate support strategies. Creating a school environment in which children feel safe and supported is also crucial. This may involve incorporating practices such as emotional regulation within the classroom and promoting peer empathy through targeted activities. Moreover, collaboration between schools and mental health professionals is essential to develop intervention plans and resources for supporting traumatized children.

Regarding the Ace scale, results showed a high percentage of participants with zero ACEs (59.5%), which is within but at the higher end of the range reported in the literature, 12% to 67% [5]. The percentage of participants with at least one ACE is 40.5% is lower than the average found in global studies (57%). Additionally, the proportion of participants with at least four ACEs (8.3%) is within the reported range (1% to 38%) but lower than the average (13%). These findings sug-

gest that our sample may have experienced fewer adverse events overall compared to the global averages, reflecting possible regional, demographic, or cultural differences. In discussing this result, it is important to emphasize that it remains unclear whether ACEs should refer to a list of objectively verifiable events or the subjective experiences of those events. The term itself refers to adverse experiences, which suggests that it is not the event per se but the individual's internal processing of the event that holds significance. However, the items on the original ACEs scale consist of both objective events (e.g., parental incarceration), which are presumably adverse for everyone, and purely subjective experiences (e.g., feeling psychologically neglected) [22].

In the present study, the number of traumatic events reported by the sample is not a significant predictor of knowledge and perception of knowledge regarding sign of childhood trauma. Having experienced traumatic events may make a person more aware of the signs and symptoms of trauma and could increase their attention to these aspects. For example, previous studies have shown that experience with previous cases of children who were exposed to violence and were abused or neglected might help increase teachers' familiarity and knowledge about maltreatment [20, 21]. In the present study, having experienced adverse childhood experiences is not associated with having greater knowledge of trauma, which may be due to the fact that our sample showed low percentages of traumatic events. This finding could also be related to the implementation of avoidance mechanisms.

The findings concerning the relationship between the quality of parental caregiving and the frequency of ACEs reported by participants are consistent with existing literature [3, 8, 10]. Parenting style emerges as a significant predictor of the number of traumas experienced by participants. The results of this study specifically highlight that the quality of maternal sensitivity and caregiving is a significant predictor of the number of traumas both experienced and subjectively recalled by the individuals in our sample. Maternal capacity to provide containment, nurturing, and protection is associated with a lower number of reported and remembered traumas among participants. This result specifically pertains to the maternal bond and is limited to the caregiving capacity within the parental relationship. The literature consistently underscores that the maternal bond is most closely linked to caregiving and emotional containment [23]. Additionally, a more satisfying maternal bond reduces the likelihood of individuals experiencing rejection or traumatic distress in significant relationships [24], thereby decreasing the frequency of ACEs. This finding, consistent with a large body of literature that highlights the protective role of caregiving, underscores the importance of early interventions aimed at parents, beginning in early childhood.

5. Conclusions

In the present study, the knowledge and perceived knowledge

of trauma signs and symptoms were assessed in a sample of teachers. The findings revealed that the participants' knowledge was insufficient, and they expressed a clear need for additional training from qualified professionals, such as psychologists. The results from the Ace scale suggest that our sample may have experienced fewer adverse events overall compared to global averages, reflecting possible regional, demographic, or cultural differences. Our findings further indicate that teachers' personal experiences with adverse events do not affect their knowledge of trauma. However, the dimension of maternal care was found to be negatively correlated with the likelihood of experiencing adverse or traumatic events.

Nevertheless, the present study has several notable limitations. The first limitation pertains to the size and composition of the sample, which was both small and exclusively female. Additionally, only a limited range of socio-demographic variables were considered, with some potentially important factors, such as parental status, being overlooked.

Further research is needed to explore the role of adverse childhood experiences and family dynamics in relation to individual awareness of trauma and the need for specialized training. In particular, further studies on larger samples and also on teachers from higher education institutions are necessary to deepen knowledge on specific aspects of trauma and on the more specific training needs. Additionally, it would be important to develop standardized assessment questionnaires that allow for the rapid evaluation of teachers' knowledge regarding the specific signs and symptoms of trauma across different age groups.

Abbreviations

ACEs	Adverse Childhood Experiences
PTSD	Post-Traumatic Stress Disorder
PBI	Parental Bonding Instrument
ADHD	Attention-Deficit Hyperactivity Disorder

Author Contributions

Paola Surcinelli: Conceptualization, Data curation, Investigation, Methodology, Writing-original draft, Writing-review and editing

Ornella Montebrocchi: Writing-review and editing

Sara Giovagnoli: Data Curation, Formal Analysis, Writing-review and editing

Data Availability Statement

The data is available from the corresponding author upon reasonable request.

Conflicts of Interest

The authors declare no conflicts of interest.

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