Review
***Social functioning in individuals affected by childhood maltreatment:
establishing a research agenda to inform interventions***

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Number of Tables: 0. Number of Figures: 1. Word count: 5910

Keywords: Child Abuse; Social Relationships; Social Behavior; Social Support; Interpersonal Interactions; Assessment

Abstract

In individuals with a history of child maltreatment (CM), impairments in many domains of social functioning are well-documented but poorly understood. We summarize evidence for the detrimental effects of CM on social functioning and present key research recommendations focused on: 1. Identifying alterations in specific inter- and intra- personal processes (e.g., regulation of closeness and distance) that underlie problems in broader domains of social functioning (e.g., lack of perceived social support) in individuals who have experienced CM; 2. Examining whether alterations in specific processes and their link to broader social problems are modulated by internal and external situational factors; 3. Assessing social processes through laboratory studies and in vivo interactive approaches; 4. Adopting an interdisciplinary, lifespan perspective to assess bio-behavioral and environmental effects of CM within and across generations, using multi-method assessments; 5. Establishing global research collaborations to account for cultural and ethnic influences on social processes. Understanding the mechanisms that underlie problems in social functioning, as well as cultural and ethnic influences, might inform the implementation of effective prevention programs. Moreover, the proposed research is critical to develop interventions that help affected individuals build stable and nurturing relationships. Such relationships can – likely through buffering the effects of chronic stress and corresponding allostatic load – foster resilience and improve mental and physical well-being, thereby reducing not only personal suffering but also the societal and economic costs of CM and its consequences.

Introduction

According to the World Health Organization (1), childhood maltreatment (CM) includes all types of physical and/or emotional ill-treatment, sexual abuse, neglect, and exploitation, that result in actual or potential harm to the child's health, survival, development or dignity in the context of a relationship of responsibility, trust or power. CM affects large proportions of the population across the globe (2). Prevalence rates of sexual abuse are 20% in North American and 29% in Australian girls, with generally lower rates in boys. With rates of 29% vs. 14% (North America) and 13% vs. 6% (Europe), the prevalence of emotional abuse is twice as high in girls than in boys. Rates of physical abuse are generally more similar across genders but there is a wide range even within the same continent (e.g., 43% - 85% for boys in Africa). Rates of neglect are highest in South America (girls: 55%, boys: 57%) (2).

There is a well-documented link between CM and poorer mental and physical health (e.g., (3)). Moreover, there is a large body of research evidence related to neurobiological changes, including genetic factors and epigenetic processes (4–7), and intergenerational continuity of CM (8,9). Here, however, we argue that in addition to understanding, preventing, and treating mental and physical consequences of CM, it is equally critical to understand and strengthen affected individuals' social functioning (i.e., their ability to interact with others and to fulfill social roles during daily work and leisure related activities with family members, colleagues, friends, and partners; (10)). An overview on mental and physical health consequences of CM will be followed by an outline of the protective role of social relationships and why it is important, both from an individual and from a societal and economic point of view, to understand short and long term effects of CM on social functioning. After summarizing evidence for the detrimental effects of CM on a broad range of domains of social functioning, it will be argued that, to advance the field and develop effective interventions, we urgently need to identify specific inter- and intra- personal processes that underlie impaired social functioning and their persistence into adulthood (e.g., (11)). In the main body of the manuscript, we outline specific research targets, challenges and propositions for future research in this area (see Fig. 1).

Effects of child maltreatment on mental and physical health

CM is associated with significantly increased risk of mental disorders during childhood, including posttraumatic stress disorder (PTSD), psychotic disorders, attention-

deficit/hyperactivity disorder, anxiety and depressive disorders (12,13). CM is also associated with mental disorders in adolescence (14), and with impaired mental health (15) and dissociative symptoms in severe mental disorders such as schizophrenia, bipolar disorder and personality disorders in adulthood (16). In both low- and high-income countries, women exposed to CM are at increased risk of developing postpartum depression (17,18), which in turn increases the risk of impaired maternal-child attachment (19) and depression in the child (20).

As well as mental disorders, children exposed to CM are at risk for impaired cognitive development, asthma, sleep disruptions, somatic complaints such as headache and nausea, and recurrent infectious diseases requiring hospitalization (21). CM is also consistently related to poorer long-term physical health and problematic health behaviors such as diabetes, chronic pain, chronic inflammatory states, obesity, physical inactivity, smoking, increased suicidal behavior, poor sexual health and risky sexual behaviors (3,22–27). Further, there is a well-documented risk for substance abuse and corresponding disorders in both children and adults exposed to CM (28) – conditions which incur significant costs for society (e.g., more than \$193 billion per year in the US; (29)). Finally, consistent with all of these findings, older adults with a history of multiple types of maltreatment have nearly twice the risk of premature mortality compared to those who are unexposed (30).

In line with long-lasting negative mental and physical health consequences of CM, differences between CM and non-CM groups are well-documented in brain structures involved in the regulation of emotion and stress (such as the amygdala, hippocampus, and dorsolateral prefrontal cortex)(6,31). The concept of allostatic load (32,33) is of key relevance in this context. Responding to stress requires activation of multiple neurobiological mediators which, while adaptive, also contribute to allostatic load - physical “wear and tear” that accumulates as a consequence of recurrent or chronic activation of neural and physiological regulatory systems. Increased allostatic load due to chronic stress and associated mental disorders (e.g., PTSD) is held to be a key etiological mechanism in the pathway from CM to disease (34), with longitudinal evidence showing that CM predicts allostatic load in adulthood (35), and emerging evidence that allostatic load mediates the influence of CM on adult depression (36). In line with the many health-related consequences of CM, overall economic consequences of CM are substantial. In the US, the average estimated lifetime cost is \$830,928, while the estimated annual population lifetime burden of CM is \$428 billion (37).

Social relationships as a protective factor

Children of parents with a history of CM are more likely to be exposed to maltreatment (38) – a phenomenon referred to as the intergenerational cycle of maltreatment.

However, rates of intergenerational continuity of maltreatment vary between 7% and 88% (39), meaning that some parents exposed to CM do succeed in breaking the cycle. One factor that seems to have a preventive effect is intact social functioning; positive and supportive relationships between affected parents and other adults (e.g., romantic partners, co-parents) are linked to a lower risk for intergenerational continuity of CM (39,40).

Positive social relationships may also protect affected individuals from mental and physical health related consequences of CM: the more individuals feel positively connected to and supported by others, the lower their risk for mental and cardiovascular disorders, impaired cognitive functioning, dementia, obesity, mortality, alcohol abuse and other risky health behaviors (41–44). In child and adult populations exposed to trauma more broadly, but including CM, perceived social support (i.e., warm and caring relationships with parents and other family members, peers, colleagues, friends, spouses, school personnel or health providers) is one of the most consistently identified resilience factors, protecting against the development of trauma-related (45–47)(Wang et al., 2021) and other mental disorders (48).

Positive effects of relationship and social support on both mental and physical health are likely mediated by their promotion of adaptive behavioral, neurobiological, and endocrine processes, thereby buffering the effects of physiological stress responses and limiting allostatic load (49,50). There is evidence that the relationship between CM and allostatic load (as measured by indices of hypothalamic-pituitary-adrenal axis, neuroendocrine, immune, and sympathetic nervous system activation) is partially mediated by poor social support (51). This suggests that supportive social relationships exert their positive effect on mental and physical well-being at least in part by buffering the effects of chronic stress and corresponding allostatic load. However, evidence in this area is extremely limited and further research is urgently needed to elucidate the biological pathways via which social support may benefit individuals exposed to CM.

In sum, there is evidence that positive social relationships and social support can serve as key protective factors for adverse social, health and mental health outcomes following stress, including CM. Given the major individual, societal, and economic costs of CM, understanding social functioning in the context of CM is relevant not only for an

individual's personal well-being, but also from public health and economic perspectives (e.g., (52)).

Child maltreatment affects broad domains of social functioning

While positive social relationships may bring key benefits to individuals exposed to maltreatment (and to their subsequent generations), there is evidence that they may be less well-equipped than others to access such support. Individuals with a history of CM show well-documented impairments in many domains of social functioning. In children assessed across a range of developmental stages, CM has been linked to increased social isolation and withdrawal (e.g., (53–55)), perceived impairments in social competence and emotional intelligence (53,56–59), and increased risk of both bullying and victimization (60,61)(Wang et al., 2016). Furthermore, there is some evidence that maltreated children may be less well-liked and more likely to experience rejection by their peers than their non-maltreated counterparts (e.g., (62–64)). Although physical and sexual forms of CM have most often been the focus of research in this area, there is also evidence that emotional maltreatment and neglect, may be similarly detrimental to child social functioning (65).

The social difficulties presented above seem to persist into adulthood. For example, adults with a documented history of CM have been found to show less positive perceptions of their romantic relationships, more indicators of relationship difficulties (e.g., higher rates of separation and divorce, problematic parenting behaviors), and a greater likelihood of involvement in intimate partner aggression and violence than matched controls (e.g., (11,66–69)). Although there has been a research focus on studying the consequences of CM for intimate partner relationships, particularly amongst women exposed to severe forms of CM such as child sexual abuse, prostitution, rape and early marriage (70,71), social difficulties are likely to extend well beyond this specific context. For example, CM has been associated with increased family conflict (e.g., (72,73), less adaptive social relationships (74), reduced perceptions of social support from family and friends (75,76), and increased perceptions of loneliness and social isolation (77,78). Negative evaluations (as evidenced by low levels of perceived trustworthiness and likeability by unknown others) also seem to persist into adulthood (79).

Next to producing personal suffering in many social domains, CM makes it also more likely that individuals develop beliefs and behaviors with a negative impact on others. In

interaction with genetic factors (80), CM and in particular physical abuse and neglect, increase the risk of developing antisocial personality traits and behaviors (81) such as lying and manipulating others, delinquency, and aggressive behaviors.

Understanding the processes that underlie impaired social functioning: The challenges we face

Despite extensive evidence demonstrating significant social dysfunctioning in children and adults exposed to CM, there is limited knowledge on the more specific processes and mechanisms that underlie the identified broader social problems. This, in turn, limits the capacity to develop effective preventative and therapeutic interventions. Improving the capacity to identify potential intervention targets both on an individual (including psychotherapeutic) and societal (public health) level, could significantly benefit health and wellbeing of those affected, and help to limit revictimization and intergenerational continuity of CM (38,39). We therefore outline a number of propositions for future research to advance the field.

1. Identification of key interpersonal and intrapersonal socially relevant processes affected by CM. One key process that is already well-known to be affected by CM is a child's ability to build secure and enduring relationships with their caregivers (82,83). As proposed by attachment theory, a person's early interactions and relationships with their primary caregivers shapes their development of internal working models that comprise a child's expectations of availability and responsiveness of close others, and affecting later attachment behavior (84–87). There is evidence that a person's attachment style (i.e., behavioral tendencies and preferences that are affected by internal working models and that define the degree to which someone avoids or seeks attachment experiences; (88)) is relatively stable from infancy through adolescence to adulthood (86,89–91). Furthermore, attachment styles affect the perceived quality of relationships with peers, romantic partners and even children (92).

Given their adverse early experiences with caregivers, it seems likely that individuals exposed to CM will develop insecure attachment styles and negative inner working models which may, in turn, contribute to the above reported impairments in broad domains of social functioning in children and adults with a history of CM. For example, it is assumed that insecure attachment patterns lead to a lack of a secure base, from which

affected individuals can explore their environment and learn to mentalize (i.e., to make sense of others and their own actions, based on mental states such as needs, beliefs, and feelings) and regulate their own emotions (93). Also, those with negative internal working models (“others do not like me”, “I am not a good person”, “others will treat me in a bad way”) will possibly show greater tolerance towards being disliked and not well-treated by others. In fact, there is meta-analytic evidence for a strong relationship between CM and insecure attachment (94). Moreover, individuals with a history of CM have an increased risk of re-victimization, e.g., future sexual abuse in abused individuals (70,95) for a meta-analysis). In attempting to identify the specific processes that underlie the above-described broad problems in social functioning, it is thus promising to assess processes that are likely be influenced by internal working models.

Some of the more specific socially relevant processes that are affected by CM (and that are likely affected by internal working models) are already well-documented. For instance, CM has been linked to alterations in the perception and interpretation of emotional (96–100) and neutral facial expressions (101–104). Children who have been maltreated tend to perceive neutral expressions as more similar to negative emotional expressions (103). Similarly, adults with (vs. without) histories of CM more frequently interpret neutral expressions as feelings of anger, sadness, fear and contempt (101,102). This suggests that the negativity bias observed in children may persist throughout the life course. There is also some less consistent evidence that children exposed to CM show diminished cognitive understanding of other individuals’ mental states (105–107), with some of these effects persisting into adulthood (108,109). Finally, it has also been reported that sexually abused children, especially those exposed to intrafamilial sexual abuse, have greater difficulties in mentalizing (110).

Future research aiming at identifying processes that are likely affected by early attachment and that might underlie impaired social functioning should be undertaken, such as focusing on problems in the regulation of closeness and distance which might contribute to partnership conflicts and reduced sexual and relationship satisfaction (111–116). It has recently been proposed that based on their learning history, individuals exposed to CM show abnormal neural responses to social signals, such as facial expressions (117) or the perception of touch (118), which might result in discomfort in situations of physical proximity, and a preference for larger interpersonal distances (118–120). Moreover, future studies should try to identify alterations in communicative processes and behaviors that contribute to negative evaluations by others (79). For example, non-verbal signals (e.g., body posture, facial expressions, and

expressions of emotions in the voice) might induce cognitive, affective, and behavioral responses in interaction partners, which affect the quality of interactions and make it difficult to build and maintain social relationships (121).

In addition to identifying intrapersonal processes such as specific dysfunctional schemas related to different types of CM (122), alterations in preferred closeness or distance to other people (118–120) or in emotion regulation and recognition difficulties (100,123), future research should focus on alterations in interpersonal processes as well.

Interpersonal processes such as (culture-dependent) interpersonal emotion regulation, shared social identities, group memberships, and social identity management have received increased attention in basic research in emotion science and social psychology in the past years (124–126) and might be of importance for clinical psychology and the field of traumatic stress, including CM.

2. Examining the relationship between specific social processes and broader social problems.

It is essential to establish the extent to which alterations in specific socially relevant skills and processes in individuals who experienced CM underpin the broader problems in social functioning as summarized above. It seems likely that deficits in socioemotional and sociocognitive skills lead to problems in interpersonal interactions, which may, in turn, be related to a lower perceived quality of relationships. For example, the ability to read others' emotions helps us to infer their current affective state, thoughts, and intentions. Based on this information, people can modulate their own behavior, and – through responsive, trust-building actions – bond with other individuals or groups (127). In non-clinical populations, adequate perception of others' emotions has been linked to relationship satisfaction (128–131). However, this link is complex. Its presence and direction depend on the sex of relationship partners (128) and on the type of emotions (131,132). For example, in conflict situations, men who are better at identifying their partner's positive emotions are more satisfied in their relationship, while women's satisfaction has been linked to a more accurate identification of their partner's negative emotions (130). In turn, if a partner's mental state is relationship-threatening, more accurate perceptions are linked to diminished feelings of closeness (131).

In individuals who have experienced CM, alterations in specific social processes and skills might thus – at least under certain conditions – impair the development and maintenance of satisfying relationships. The few studies that have assessed such

relationships suggest that poor emotion regulation skills (including difficulties with emotional awareness; (123), maladaptive internalized schemas (133) and women's and their partner's accuracy in reading their partner's negative emotions (130) mediate the association between CM and relationship satisfaction. Future research should explore if other social processes known to be affected by CM such as larger preferred interpersonal distances or negative first impressions and social judgments (63,79,118–120) have a negative impact on relationship satisfaction and whether the findings from non-clinical populations apply to individuals affected by CM. In addition, potential compensatory mechanisms should be explored. That is, potentially harmful effects of alterations in specific social processes (e.g., in understanding non-verbal emotional signals), might be compensated by other skills (e.g., by the ability to interpret what another person says explicitly). In this respect, it will be important to use longitudinal study designs to assess how specific skills develop, interact and predict the quality of social relationships over time.

3. Identifying moderating factors. Various factors (e.g., social context, mental disorders) may affect to what degree social difficulties are present. However, whereas researchers have begun to identify factors that moderate the impact of CM on mental health, equivalent work relating to social outcomes is extremely limited (134). It is therefore crucial to identify factors that determine whether and to what degree specific social processes are adversely affected by CM. Next to being affected by socio-cultural factors, negative interpretations of nonverbal signals (e.g., facial expressions) might occur in some but not in other situations. For example, individuals affected by CM might show such negative interpretations in interpersonal situations which activate negative schemas (122) but not in the real (or imagined) presence of trusted, close others (135). Similarly, preferred interpersonal distances might vary within individuals. That is, a person who has experienced CM may alternate between preferring close proximity and larger distances, depending on their current cognitive, emotional and motivational state and on the person they interact with (119). Understanding such nuances will complement the development of interventions aimed at changing socially-relevant behaviors by identifying situations in which affected individuals feel safe. Individuals affected by CM could, as part of their (culture-sensitive) treatment, be encouraged to seek out such situations in order to positively impact their emotional well-being and behavior in social situations.

4. Identifying social mechanisms through laboratory studies, including interactive study designs. Identifying modifying factors and understanding their impact on socially relevant processes requires more laboratory studies that are conducted under controlled conditions, allowing to vary systematically the factors of interest and to control for the influence of confounding variables. Current research conducted in the laboratory frequently relies on experimental stimuli that differ strongly from social stimuli outside the laboratory (136). For instance, pictures of facial expressions are used to assess emotion recognition (96) and computerized tasks are used to assess preferred interpersonal distance (e.g., (137)). These approaches allow one to standardize characteristics of social stimuli (e.g., the intensity of a facial expression or the exact interpersonal distance), yet they limit conclusions regarding participants' behavior in real-life. While this is a general drawback of standardized experimental stimuli, it seems particularly important that socially relevant processes (e.g., facial emotion recognition) are also examined as they occur naturally. Next to observing relevant phenomena outside the laboratory, this can be achieved by developing and applying more non-standardized or partially-standardized interactive experimental paradigms that allow for the assessment of social processes under real or close to real-life conditions, enhancing the external validity and generalizability of findings. For example, couples or other interaction partners can be brought to the laboratory to discuss a topic (e.g., (138)) while being filmed (e.g., Zimmermann et al., 2015), allowing for high ecological validity and, at the same time, control of the environment and content of the interaction. Also, the use of virtual reality environments might help establish close to real-life settings while at the same time enabling controlled conditions, e.g., when assessing preferred interpersonal distances and how they might be affected by the approaching person's facial expression (139–141).

5. Adopting longitudinal and multi-method assessments in an interdisciplinary context. Safe, stable, and nurturing relationships during adulthood do not only represent an important touch point for intervention by preventing intergenerational continuity of CM (39,40) but such relationships also matter in the context of carry-forward effects (i.e., effects of CM on affected individuals across their life-span) in older adults. Consistent with the allostatic load incurred by chronic stress, CM produces 'biological scars' (142,143) that have bearing on premature aging in later adult years and accelerates biological aging in adults with mood and

anxiety disorders through processes such as epigenetic aging and telomere attrition (144). In turn, healthy aging is associated with increased satisfaction with social ties (145) and more positive and prosocial emotions in social situations (146). Although older adults with interpersonal traumas (e.g., loss and isolation) may have dysfunctional emotional and relational patterns, there is a dearth of evidence on the impact of CM on relational-affective processes and social functioning in this age group. As relationship and affective domains are dynamic over the lifespan, repeated measurements over time are needed to map these domains to mental health trajectories (147) and to understand the biobehavioral and environmental factors at play.

Furthermore, longitudinal assessments of socially relevant processes should include multi-method approaches. To date, there has been a tendency to rely on self-report measures of socially relevant processes, which are prone to memory biases and the effects of social desirability. Incorporation of behavioral or psychophysiological assessments can provide a crucial validation of findings based on self-report (148). Even seemingly simple processes such as the perception of a facial expression comprise various cognitive and emotional processes (e.g., schemas acquired in childhood, which affect attentional and emotional response to and interpretation of the facial expression). These processes mutually impact one another and interplay with neuronal (149), peripheral physiological (150), hormonal (151), cultural (e.g., (152) and genetic factors (153). Which methods and corresponding measurements are used will depend on the degree of resolution that is desired and the specific research question to be addressed. For example, facial electromyography can be helpful when looking at the imitation of facial emotional expressions as part of emotion recognition in the millisecond range (154), whereas self-reported levels of arousal and corresponding indices of sympathetic and parasympathetic nervous system activation over the course of an interpersonal interaction will prove useful when assessing the effects of CM on more slowly unfolding processes of intimate interactions (138).

Methodologically sound research including multi-method measurements thus requires professionals from different disciplines and with specific backgrounds, knowledge and experience, ranging from animal research to developmental psychology and computer science to aid with programming virtual reality environments. Many socially relevant skills and processes are not yet fully understood in normally developing individuals. For example, the role of automatic imitation of facial expressions in facial emotion recognition (155) and the biological (e.g., endocrinological) factors that determine how close we prefer to stand to someone (137,140) still need to be understood in a

comprehensive way. Equally, the concept of allostatic load provides a key biological framework through which links between stress, mental health, and physical health can be understood. Social factors have been implicated as potentially important in mitigating the effects of stress on allostatic load, but understanding of this in the context of CM is limited. It is thus important to seek interdisciplinary collaborations including collaborations with basic science researchers, to first understand socially relevant processes in the general population. This will serve as a basis for research on the effect of CM on these processes and will ensure that research on social processes in CM reflects the state of the art in the field with respect to methodological approaches.

6. Taking cultural factors into account and fostering global

collaborations. Cultural factors and practices can have an important impact on social perception and functioning (156). Decades of research have shown cultural differences in the expression, perception, response to, and appraisal of emotion (e.g., (152,157), including the perception of emotional expressions. Notably, amygdala response to fearful faces may differ, depending on whether individuals are faced with persons of their own or another culture (158). Culture also affects which emotion regulation strategies are deemed beneficial, including in the aftermath of trauma (e.g., (159,160). Additionally, culture influences the effectiveness of close relationships and social support following life stressors (161). These cultural differences have been proposed to have applicability in the area of psychotraumaology (162), and thus, need to be considered when further researching in the area of CM.

Bridging cross-cultural differences in experimental and clinical studies requires to identify and adjust for key cultural constituents (e.g., language, ethnic and racial identity, styles of communication, social connections, notions of mental health and well-being), while also ensuring that assessments maintain their validity across diverse contexts (163). This is particularly crucial when seeking to integrate data from individualistic and collectivistic cultures (164)(Markus & Kitayama, 2010). For example, collectivistic cultural groups (e.g., Asian cultures) engage more strongly in interpersonal emotion regulation strategies than individualistic cultural groups (e.g., North American cultures) (Liddell & Williams, 2019). Increasing cultural sensitivity will enrich our work and provide us with opportunities of mutual learning (Schnyder et al., 2016), which is essential given the field of CM is predominantly based on Western cultural norms values, and belief systems. Thus, the area of CM lags concerningly behind in terms of

considering the associations between CM and interpersonal relationships within a cross-cultural context (e.g., (161,162)).

To broaden our understanding of how cultural factors impact the relationship between CM and socially relevant processes, cross-national research collaborations are needed (165,166). Such collaborations should include researchers from currently underrepresented countries. They will strengthen the reliability and generalizability of findings by attempting to replicate them across laboratories and countries. While capturing cultural and ethnic variables and parsing them out from intra-group effects will be a complex long-term undertaking, establishing sound psychometric assessment tools through standardized procedures for translation and back-translation are important basic steps for cross-cultural collaborations. Collaborative groups should also consider the joint development of new psychometric and experimental assessment tools that are suitable for diverse cultural and ethnic groups. When translating existing and developing new self-report scales, it will be important to consider clinimetric selection criteria, next to applying traditional psychometric criteria (167). While sharing some criteria for the selection of appropriate measures, the latter approach focuses on the clinical utility of self-report measures, while disregarding other (traditional psychometric/psychometric) criteria such as the unidimensionality of to-be-assessed constructs (167).

Attention to the cultural milieu requires distinguishing culture from ethnicity (e.g., there may be a diversity of cultures within broader categorisations of ethnicity and there are individual differences in the internalization of cultural beliefs and values, (168)), whilst at the same time not ignoring intra-group differences. Inclusion of these variables in investigations of social processes relevant to CM may help to elucidate the mental health disparities linked to culture and ethnicity (147). Additionally, studies should aim for broader inclusion of data on: (i) ecological factors, (ii) social determinants of CM (e.g., income inequality, social capital, social integration, legacy of colonization), (iii) culture-specific values (e.g., collectivism, emotional self-control, humility, conformity to social norms and relationship norms), and apply statistical techniques (e.g., hierarchical linear modeling and cluster analysis) permitting a more holistic characterization of distinct pathways and moderating effects (169).

Implications and Conclusions

Why are the proposed steps important? First, they might provide the necessary knowledge to globally implement early preventive measures that counteract both the occurrence of CM and the adverse effects of an abusive or neglecting environment. More specifically, increasing our knowledge on the effects of CM on social functioning and understanding cultural and ethnic influences can help to inform communities and raise awareness against CM. Moreover, children exposed to maltreatment might receive culturally sensitive support to develop specific self-regulatory and interpersonal skills and reduce long-term risk for the development of problematic social interactions and impaired social functioning, and consequently poor mental health (170,171). Second, findings of the proposed research will hopefully further the development (and assessment of effectiveness) of targeted interventions which, at later developmental stages and during adulthood, aim to improve social functioning. Third, a large proportion of individuals with different mental disorders report a history of CM (e.g., (172) and would thus likely benefit from interventions targeting transdiagnostic alterations in socially relevant skills and processes. Such interventions might not only prove beneficial for social interactions within the personal environment of affected individuals but also with respect to interactions in the psychotherapeutic context. Given the importance of the quality of the therapeutic relationship for therapy completion and outcome (173), difficulties in social skills such as the patient's ability to take another's perspective, including the psychotherapist's perspective, might need to be addressed to allow for a successful treatment of mental disorders (174). Enhancing social relationships and reducing mental health difficulties can potentially alleviate the allostatic burden of chronic stress, reducing in turn the disease burden of CM. Finally, parents with a history of CM are more likely to become involved in dysfunctional relationships with partners and their children (38). This increases the risk of their children being maltreated, developing attachment disorders, and in turn, engaging in dysfunctional relationships (175–177). We propose that this detrimental impact of CM on the next generation may be directly mediated by altered socio-emotional processing since recognizing and attending to childrens' emotional needs requires basic socio-emotional functions such as emotion recognition and tolerating physical closeness. Developing interventions to improve socially relevant skills might therefore help affected individuals to break this cycle of violence (178) and, despite difficult circumstances, build healthy relationships and a sense of belonging.

Statements

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

Funding Sources

The preparation of this manuscript was supported by a grant from the Swiss National Science Foundation (S-86403-02) to Monique C. Pfaltz. Natalia E. Fares-Otero was supported by Madrid Regional Government (R&D activities in Biomedicine, grant number S2017/BMD-3740 - AGES- CM 2-CM) and Structural Funds of the European Union, and by a scholarship provided by the German Academic Exchange Agency DAAD: Deutscher Akademischer Austauschdienst [91629413].

Author Contributions

All authors contributed to the conception of the work as part of regular discussion within the framework of the Global Collaboration on Traumatic Stress ((51–53), socio-emotional development across cultures subtheme ([Socio-emotional development Global Collaboration \(global-psychotrauma.net\)](https://global-psychotrauma.net)). MP, SH, SS, US, MS and SHN wrote the first draft. All authors contributed substantially to the revision of the first draft and approved the final version.

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Figure Legends

Fig. 1. Key aims and future recommendations to improve understanding of child maltreatment effects on social functioning.

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