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TRAUMATIC EVENTS IN CHILDHOOD AND THEIR ASSOCIATION WITH PSYCHIATRIC ILLNESS IN THE ADULT

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SUMMARY

Introduction: *Child maltreatment is a well-known condition that is currently considered to be associated with the development of severe psychiatric conditions. Consequently, the authors decided to review the current literature in order to give a complete scenario of the situation in the world and to give recommendations about prevention and treatment as well as research goals.*

Methods: *An electronic search was conducted through the means of MEDLINE database in order to find the most up to date peer-reviewed papers, including only those papers published in 2015.*

Results: *15 papers were included and analyzed the current situation in different countries: US (n.3), Australia (n.2), Ireland (n.2), Israel (n.2), China (n.2), Indonesia (n.1), Pakistan (n.1) and Norway (n.1).*

Discussion: *Even though sexual abuse has been studied extensively, both physical and emotional abuse and neglect appear to be more represented within the population of patients that had suffered from abuse. Psychiatric disorders (mainly personality disorders, depression and anxiety), interpersonal, social and legal outcomes are important consequences of child maltreatment.*

Conclusions: *Interventions and strategies are needed at different levels, from prevention to treatment and further research is important in order to better understand the phenomenon.*

Key words: *childhood maltreatment - psychiatric disorders in the adult - sexual abuse - physical abuse - emotional abuse - neglect*

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BACKGROUND

Child maltreatment is a phenomenon that nowadays is spread worldwide. Due to the severity of this condition, it is important to understand what its impact is on mental health of the adult, mainly in consideration of the fact that it is considered to be an important risk factor for the development of mental disorders.

The current definition of child maltreatment embraces all forms of physical and/or emotional ill-treatment, sexual abuse, neglect or negligent treatment, or commercial or other exploitation of children that could result in actual or potential harm to a child's health, survival, development, or dignity in the context of a relationship of responsibility, trust, or power (Krug 2002).

According to the WHO Consultation on Child Abuse Prevention (WHO 1999), it is possible to identify four types of child maltreatment, that are sexual abuse-CSA (the involvement of a child in sexual activity that he or she does not understand, is unable to give consent to, or is not developmentally prepared for), physical abuse-CPA (the use of physical force that harms the child's health, survival, development, or dignity), emotional and psychological abuse-CEA (the failure to provide a supportive environment by, for example, verbally threatening the child) and neglect (the failure to provide for all aspects of the child's well-being).

The consequences of child maltreatment in the adult can vary widely: disorders in the perception of one's body, difficulty in establishing trust, intimacy and self-confidence, as well as the development of a negative experience of one's "self" can be related to traumatic experiences in childhood (Muller 2000) as well as a broad range of symptomatology such as depression, anxiety, low self-esteem, guilt, fear, sexual difficulties, suicidality and self-harm behaviour (Mandelli 2015).

Moreover a history of child sexual abuse increases significantly the risk of chronic depression in adults (Wiersma 2009), is highly prevalent in patients with BD, and has been associated with an earlier onset of the disorder and worse clinical course (Daruy-Filho 2011; Brietzke 2012).

Furthermore, the exposure to sexual abuse doubles the odds of developing anxiety, and substance use disorders and quadruple the odds of developing post-traumatic stress disorder (Teicher 2013). Between a third and a half of adults with psychosis have been found to have experienced physical or sexual abuse (Matheson 2013) as well as high rates of CM have been found in studies of personality disorders (Battle 2004).

Particular attention should be given to suicidality; in fact, the risk of repeated suicide attempts is eight times higher in those with childhood sexual abuse (Kaplan 1999) and the reason could be that these patients, when facing stress, sometimes develop self-defeating strategies (Gladstone 2004) and consequently auto-destructive behaviours (Peleikis 2004).

The association between child maltreatment and psychiatric disorders not only affects the current life of the individual but also includes his/her past, namely his/her family of origin and his/her future, with the development of difficult relationships.

Gilbert and colleagues (Gilbert 2009) reported a shocking result: 80% of child maltreatment is perpetrated by parents or parental guardians.

The theoreticians of family therapy suggest that an early trauma experienced in the context of the family could both influence the development of the child's personality as well as predispose towards the development of mental disorders in adulthood (Lecic-Tosevski 2014), within a complex interaction between constitutional factors and dysfunctional family environment (Linehan 1993).

According to this, a recent review about the long-term consequences of abuse considered poverty, mental health problems, and alcohol and drug misuse as potential risk factors for parents that abuse their children (Norman 2002).

In addition, the adults with a history of child abuse sometimes experience difficulty in establishing relations with others in adult age, especially in the sphere of partner relationships because of the avoidance or ambivalence towards emotional bonding (Muller 2000).

The effects of child maltreatment are clear not only from a behavioural and clinical point of view; nowadays, MRI and genetic research can explain the consequences of abuse on the brain.

In a recent study adolescents exposed to childhood maltreatment revealed abnormal values at MRI, mainly regarding those areas involved in emotional and cognitive processing, associated with emerging depression during follow-up (Huang 2012).

Furthermore, the association between childhood adversity with particular genetic dispositions (i.e. the short allele of the serotonin transporter gene, genes involved in the regulation of the hypothalamic–pituitary axis) could lead to stress disregulation, related to anxiety and depression (Norman 2012). Of course, epigenetic changes can explain transgenerational resilience and vulnerability (Meaney 2010).

Regarding epidemiology, it should be underlined that, even though child maltreatment remains largely hidden and unreported because of fear and stigma and societal acceptance (Pinheiro 2006), the figures of this phenomenon are quite impressive.

Neglect is considered to be the most frequent form (78.5% of children exposed), followed by 17.6% of children exposed to physical abuse (Goldman 2003, Dubowitz 2004).

The global prevalence of reported child sexual abuse varies from 2% to 62% (the variation is explained by methodological factors) (Andrews 2004).

In particular, it has been estimated that 7.9% of males and 19.7% of females universally faced sexual abuse, the highest prevalence rate was seen in Africa (34.4%) while Europe, America, and Asia had prevalence rate of 9.2%, 10.1%, and 23.9%, respectively (Wihbey 2011).

The wordwide scenario is reported thus: 8.8% children were abused sexually in the US (Miller 2007); in Brazil the prevalence of child sexual abuse-CSA was 5.6% among girls and 1.6% among boys (Bassani 2009); in Ethiopia among boys studying in high schools, the lifetime burden of sexual abuse was 68.2% and that of rape was 4.3%. (Haile 2013); in China, 26.6% of children under 18 years of age have suffered physical abuse, 19.6% emotional abuse, 8.7% sexual abuse and 26.0% neglect (Fang 2015); reported prevalence of CSA in Mexico was 18.7% (58% in girls and 42% in boys) and physical abuse was involved in 75% of the cases (Pineda-Lucatero 2009); in Croatia, 10.8% of the children reported as having faced some form of CSA during childhood (Ajdukovic 2014). Finally, India has the world's largest number of CSA cases: it has been estimated that every 155th minute a child, less than 16 years is raped, for every 13th hour child under 10, and one in every 10 children are sexually abused at any point of time (Behere 2014).

In consideration of the perturbing data about child maltreatment and the increasing interest about this topic, we decided to review the latest literature, looking for new findings about the association between child abuse and the development of psychiatric disorders. Furthermore, we focused on those interventions that are more effective in prevent child maltreatment and in the treatment and care of those adults abused in the past.

METHODS

An electronic search was conducted through the means of the MEDLINE database in order to find the most up to date peer-reviewed papers about child sexual, physical, emotional abuse and neglect.

We decided to include only those papers published in 2015 and we focused on papers from different parts of the world in order to obtain a clear and complete snap-shot of the current situation of the phenomenon worldwide.

We used two groups of key words linked with the word AND: 1. child abuse, child sexual abuse, child physical abuse, child emotional abuse, neglect, child maltreatment; 2. psychiatric disorders. We excluded studies published in other languages than English, "grey literature" and letters to the editor.

RESULTS

In our review we included 15 papers according to our inclusion and exclusion criteria. Of these papers 15 papers, 14 analyzed the current situation in different countries: US (n.3), Australia (n.2), Ireland (n.2), Israel (n.2), China (n.2), Indonesia (n.1), Pakistan (n.1) and Norway (n.1) (Table 1 and 2).

Table 1. Review articles

Authors and year	Country	Articles reviewed, n.	Main outcomes
Fang et al. 2015	China	Systematic review of 68 studies	26.6% of children under 18 years of age have suffered physical abuse, 19.6% emotional abuse, 8.7% sexual abuse and 26.0% neglect. Emotional abuse in childhood accounts for 26.3% of the DALYs lost because of mental disorders and 18.0% of those lost because of self-harm. Physical abuse in childhood accounts for 12.2% of DALYs lost because of depression, 17.0% of those lost to anxiety, 20.7% of those lost to problem drinking, 18.8% of those lost to illicit drug use and 18.3% of those lost to self-harm.
Ip et al. 2015	China	Meta-analysis of 22 studies	The authors found a significant positive association between CPA and overall mental health outcomes among all Chinese subjects (pooled effect size: OR=2.16) and among community samples (pooled effect size: OR=2.06). CPA was more strongly associated with Axis II (OR=2.62) than Axis I disorders (OR=1.85).
Moore et al. 2015	Australia	Meta-analysis of 23 studies	An estimated 23.5% of self-harm, 20.9% of anxiety disorders and 15.7% of depressive disorders burden in males; and 33.0% of self-harm, 30.6% of anxiety disorders and 22.8% of depressive disorders burden in females was attributable to child maltreatment. Child maltreatment was estimated to cause 1.4% DALYs in males, and 2.4% of all DALYs in females in Australia in 2010.
Mandelli et al. 2015	Worldwide	Meta-analysis of 26 studies	Emotional abuse showed the strongest association with depression (OR=2.78) followed by neglect (OR=2.75) and sexual abuse (OR=2.42). Significant associations were also found for domestic violence (OR=2.06) and physical abuse (OR=1.98).
Mallett 2015	US	Review	Studies on young offenders incarcerated in the USA have found their incidence of mental disorders to be at least twice and serious trauma histories up to 60 times of those found in the general adolescent population. The percentage of maltreatment and trauma in the USA incarcereted young offenders goes from 34% to 60% that are significantly higher of that in the USA general adolescent population (1%). Experiences of serious trauma not only are harmful to the young people themselves but also lead to offending behaviours.

Table 2. Research articles

Authros and year	Country	Sample, n.	Main outcomes
Fitzhenry et al. 2015	Ireland	199 adults	Cases with comorbid axis I and II disorders reported more child maltreatment than those with axis I disorders only. Rates of emotional abuse and neglect were significantly higher among cases with personality disorders (48.1% and 44.2%), than those without comorbid personality disorders (26.9% and 24.4%)
Rossiter et al. 2015	Ireland	129 adults	Childhood trauma was noted in 77% of individuals; it was associated with increased psychopathology and greater symptom severity, and was particularly prevalent for individuals with personality disorders (antisocial PD 100% in CTQ results; passive aggressive PD 97% in CTQ; paranoid PD 97% in CTQ; and borderline PD 93% in CTQ).
Mansbach-Kleinfeld et al. 2015	Israel	906 adolescents	CSA was reported by 3.3% of adolescents. Victims of CSA were 4.5 times more likely to be depressed. CSA was associated with suicidal attempts (OR 14.8), stomach ache (OR 3.4), dizziness (OR 3.8), sleep problems (OR 4.0), feeling uncomfortable at home (OR 14.2) and bullying behaviours (OR 2.5).

Table 2. Continuos

Authros and year	Country	Sample, n.	Main outcomes
Khawaja et al. 2015	Pakistan	414 adolescents	The authors found 33.7% were physically abused and 57% were verbally abused in the preceding 12 months. 59.2% were involved in physical fight and 47.1% had suffered injury during the preceding year; 41.4% had suffered bullying during the same period. Psychological stress was evaluated in 71.2%. 55.8% reported poor school performance that was significantly associated with verbal abuse, physical fight and bullying. On the contrary, physical abuse, verbal abuse, injury and bullying were significantly associated with psychological stress.
Duhig et al. 2015	Australia	100 (psychotic) patients (age 15-25)	82% reported exposure to any childhood trauma. Emotional, physical and sexual abuse were reported by 54%, 23% and 28% of patients, respectively, while 49% and 42% of patients reported emotional and physical neglect, respectively. Exposure to childhood trauma was correlated with positive psychotic symptoms and higher levels of depressive, anxiety and stress symptoms.
Greger et al. 2015	Norway	335 adolescents	Exposure to maltreatment was reported by 71%. In maltreated adolescents, the authors found significantly more Asperger's syndrome (AS), conduct disorder (CD), major depressive disorder (MDD), dysthymia, general anxiety disorder (GAD), having attempted suicide, and more comorbid disorders. Poly-victimization was associated with significantly increased risk of MDD, GAD, AS, CD, and having attempted suicide.
Cross et al. 2015	US	2887 adults	The authors found that childhood trauma had a direct effect on current problematic alcohol use, as well as on current problematic substance use, but PTSD had a significant indirect effect on both of those relationships. Men were more likely than women to report PTSD comorbid with alcohol and/or substance use problems.
Vaughn et al. 2015	US	19073 adults (age 18-49)	The authors found that DSH was associated with adverse childhood experiences. The prevalence of child abuse and lifetime victimization among persons who deliberately self-harm was substantially greater than that of individuals reporting no history of DSH. 38.55% of those reporting DSH reported having been sexually assaulted, molested, raped, or having experienced unwanted sex before the age of 18. 30.34% persons who deliberately self-harm reported having been physically attacked, beaten, or injured by someone other than their spouse or romantic partner.
Brenner & Ben-Amitay 2015	Israel	60 women	70% reported adult sexual revictimization. Revictimization was related to higher attachment anxiety and to emotional and physical child abuse. Revictimization rates were higher among women who had received negative environmental responses following childhood sexual abuse disclosure.
Lesmana et al. 2015	Indonesia	102 children	The authors successfully treated 102 children with CSA who were victims of sex offenders. The treatment model integrated different approaches into a holistic model of biopsychosocial interventation. Culture implementation was a potential and systematic contributor into holistic and sensitive interventional models for the treatment of mental illness outcomes of childhood and adolescence that were sexually traumatized.

DISCUSSION

The worldwide situation of child maltreatment

Regarding the situation in China, two recent publications, one systematic review (Fang 2015) and a meta-analysis (Ip 2015), provided a clear picture.

Fang and colleagues (Fang 2015) reviewed 68 studies and estimated that 26.6% of children under 18 years of age have suffered physical abuse, 19.6% emotional abuse, 8.7% sexual abuse and 26.0% neglect. They evaluated the so-called disability-adjusted life-years (DALYs) lost, assuming that one DALY in China was equal to the per-capita gross domestic product, and

associated the different types of maltreatment with the possible resulting mental disabilities. According to this, emotional abuse accounted for 26.3% of DALYs lost because of mental disorders and 18.0% because of self-harm. Physical abuse was related with 12.2% of DALYs lost because of depression, 17.0% of those lost to anxiety, 20.7% of those lost to problem drinking, 18.8% of those lost to illicit drug use and 18.3% of those lost to self-harm. In terms of losses, in 2010 the possible consequences deriving from physical abuse of children cost China an estimated 0.84% of its gross domestic product (something like 50 billion United States dollars). As for emotional and sexual abuse in childhood were 0.47% and 0.39% of the gross domestic product, respectively.

Ip and colleagues (Ip 2015) conducted a meta-analysis of 22 research articles focusing on the association between childhood physical abuse-CPA and mental health outcomes in Chinese population. They obtained that there was a significant association between CPA and Axis I disorders such as PTSD (OR=2.36, 95% CI (2.05, 2.70)), anxiety (OR=1.97, 95% CI (1.16, 3.32)), and depression (OR=1.68, 95% CI (1.36, 2.08)). As for Axis II, the authors found a large effect size of 3.12 (2.24-4.36) that was bigger than the one from the US population, 2.42 (1.97-2.98). The authors referred these results to cultural explanations. In fact they underlined that Chinese culture gives strong emphasis on the use of physical discipline to teach children to be obedient and respect authority. Furthermore, the cultural conservative attitudes can heighten the abused victims' sense of social stigma and contribute to the development of significant lifelong mental health outcomes such as personality disorders.

Two papers (Fitzhenry 2015, Rossiter 2015) analyzed the consequences of maltreatment in Irish patients attending mental health services and obtained quite similar results.

Fitzhenry and colleagues interviewed 199 adult mental health service users with questionnaires (the Childhood Trauma Questionnaire, the Structured Clinical Interviews for Axis I and II DSM-IV disorders, the Global Assessment of Functioning scale, the SCORE family assessment measure, the Camberwell Assessment of Need Short Appraisal Schedule, and the Readiness for Psychotherapy Index) between July 2011 and June 2014 in the public mental health service in the south east of Ireland. 52.8% of the sample was composed by male; 47.2% were female, and the mean age was 40.2 years (SD=14.0, Range = 18–75 years). 196 patients (98.4%) met the diagnostic criteria for a current or lifetime DSM-IV axis I disorder, and 77 (38.7%) of these met the criteria for a comorbid DSM-IV axis II personality disorder. The axis I disorders more represented were anxiety disorders (64.8%), depressive disorders (55.8%) and alcohol and substance use disorders (46.2%) while in Axis II, avoidant (13.6%), obsessive compulsive and borderline (9.5% for both) personality disorders were the more frequent personality disorders. The authors compared both patients with controls, derived from a US previous study (Scher 2001) and patients with or without comorbidity with Axis II disorders in order to determine clinical differences. Irish clinical cases had higher levels of child maltreatment-CM compared to the U.S. sample; furthermore, cases with comorbid axis I and II disorders reported more CM than those with axis I disorders only. The authors did not find association between types of CM and types of psychopathology in adulthood but it was seen that rates of emotional abuse and neglect were significantly higher among cases with personality disorders (48.1% and 44.2%), than those without comorbid personality disorders (26.9% and 24.4%). Finally, CM was associated with current family adjustment and service needs, but not global functioning and motivation for psychotherapy.

Rossiter and colleagues ascertained the prevalence of childhood trauma using both the Childhood Trauma Questionnaire (CTQ) and a lifetime retrospective clinical note review in 129 individuals attending a general adult mental health service with the hypothesis that the rates of disclosure ascertained using a structured questionnaire (CTQ) would be significantly higher than those reported by individuals attending their treating mental health team because patients that have been maltreated in their childhood would under-report this to the team. The mean age of participants was 44 (SD = 15) years, with ages ranging from 18 to 84 years of age; 67 participants (52%) were male and 62 participants (48%) were female. Using the CTQ, childhood trauma was noted in 77% of individuals and recorded in 38% of individual's clinical notes ($p < 0.001$). Using the CTQ, 99 participants (76.7%) reported some form of childhood trauma, with emotional neglect most frequently reported (62%), followed by physical neglect (48.1%), emotional abuse (40.3%), physical abuse (27.9%), and childhood sexual abuse. On lifetime clinical note review, 49 participants (38%) reported some form of childhood trauma to healthcare staff, with emotional abuse most frequently reported (24.8%), followed by physical abuse (19.4%), emotional neglect (13.2%), child sexual abuse (8.5%), and physical neglect (5.4%). All individuals who reported CSA reported suffering at least one other type of childhood trauma. Individuals who reported childhood trauma were younger on average (40 years (SD=13) versus 47 years (SD=15), $p=0.003$) based on the clinical notes; however this was not evident (45 years (SD=14) versus 41 years (SD=17)) with the CTQ, indicating that older individuals were less likely to report childhood trauma. All forms of childhood trauma except for physical abuse were reported at significantly higher rates ($p \leq 0.001$) with the CTQ, with the greatest disparity between the CTQ and clinical note findings noted for emotional neglect, physical neglect and CSA. Childhood trauma was associated with increased psychopathology and greater symptom severity (higher scores of somati-

sation, obsessive compulsion, interpersonal sensitivity, paranoid ideation, psychoticism), and was particularly prevalent for individuals with personality disorders. In relation to DSM-IV Axis I mental health disorders, individuals with a diagnosis of alcohol or substance abuse or dependence reported the highest rates of childhood trauma (92% in the CTQ and 69% in the clinical notes). In relation to DSM-IV Axis II mental health disorders, the highest rates of childhood trauma were reported in individuals with antisocial PD (100% in CTQ results and 69% in clinical notes) followed by passive aggressive PD (97% in CTQ and 40% in clinical notes), paranoid PD (97% in CTQ and 45% in clinical notes) and borderline PD (93% in CTQ, 60% in clinical notes). The highest rate of child sexual abuse reported, in both CTQ and clinical notes, was ascertained in individuals with antisocial PD. On the basis of their results, authors suggested that, given the disparity between reporting of childhood trauma in clinical notes and findings with the CTQ, the use of a standardised questionnaire for the assessment of childhood trauma should be considered when performing a comprehensive mental health history.

Moore and colleagues (Moore 2015) evaluated the burder attributable to child maltreatment in Australia and estimated that 23.5% of self-harm, 20.9% of anxiety disorders and 15.7% of depressive disorders burden in males and 33.0% of self-harm, 30.6% of anxiety disorders and 22.8% of depressive disorders burden in females was attributable to child maltreatment that was considered to cause 1.4% (95% uncertainty interval 0.4–2.3%) of all disability-adjusted life years-DALYs in males and 2.4% of all DALYs (0.7–4.1%) in females in Australia in 2010.

The prevalence of child sexual abuse was higher in females with no gender differences for the other types of child maltreatment. On the contrary, emotional, physical abuse and neglect seemed to co-occurre (26%-28%). Anyway, the highest prevalence across all ages was for single exposure to sexual abuse (2.6% for males and 7.8% for females) followed by the physical and the emotional abuse combination (1.8% for males and 2.5% for females), single exposure to physical abuse (1.9% for males and 2.3% for females) and the physical, emotional abuse and neglect combination (1.4% for males and 2.0% for females). Combining all the forms child maltreatment combined, the authors obtained that the highest Population Attributable Fractions was for intentional self-harm in females (33.0%), followed by anxiety disorders in females (30.6%), intentional self-harm in males (23.5%), depressive disorders in females (22.8%), anxiety disorders in males (20.9%) and depressive disorders in males (15.7%).

In Israel, Mansbach-Kleinfeld and colleagues (Mansbach-Kleinfeld et al. 2015) assessed the prevalence of CSA in a nation-wide representative sample of 14-17 year old Israeli adolescents (n = 906; boys 50.3%, girls 49.7%), and examined the associations between CSA, socio-demographic correlates and various measures of physical and mental health.

CSA was reported by 3.3% of adolescents (95% CI =2.2-4.9) and higher risk of exposure to CSA was found among girls, among adolescents living in a one-parent household and among adolescents with a chronic disability. After adjustment for gender and chronic disability, victims of CSA were 4.5 times more likely to be depressed. Furthermore, in multivariate models adjusting for gender, learning disabilities and depression, CSA was associated with suicidal attempts (OR 14.8), stomach ache (OR 3.4), dizziness (OR 3.8), sleep problems (OR 4.0), feeling uncomfortable at home (OR 14.2) and bullying behaviors (OR 2.5). Consequently the authors underlined the associations between CSA and different outcomes that can vary depending on the socio-psychological context; thus, it is important to address the complexity of variables associated with CSA.

In Pakistan, Khawaja and colleagues (Khawaja 2015) assessed the proportion of various types of abuses and their association with school performances and psychological stress among adolescents. 414 adolescents were evaluated in the study (223 - 54% boys, 191 - 46% girls mean age 14.36±1.08 years). The authors found that 140 (33.7%) participants were physically abused and 236 (57%) individuals were verbally abused in the preceding 12 months. Furthermore, 245 (59.2%) were involved in physical fight and 195 (47.1%) had suffered injury during the preceding year; 171 (41.4%) subjects had suffered bullying during the same period. Psychological stress was evaluated in 295 (71.2%) partecipants and 231 (55.8%) individuals reported poor school performance that was significantly associated with verbal abuse ($p=0.05$), physical fight ($p=0.05$) and bullying ($p<0.001$). On the contrary, physical abuse ($p=0.05$), verbal abuse ($p=0.003$), injury ($p=0.02$) and bullying ($p<0.001$) were significantly associated with psychological stress. Consequently the authors suggested that there is a strong need for bullying prevention programmes in schools in Pakistan and it is important that this problem is not just acknowledged, but also explored in terms of its magnitude and impact, and prevention programmes should be executed.

Child maltreatment and the risk of development of specific psychiatric disorders

An interesting meta-analysis has been conducted by Mandelli and colleagues (Mandelli 2015) in order to assess the role of specific early trauma in the development of adult depression. The authors found that early adversity overall increase the risk to develop depressive symptoms with ORs ranging from about 2.00 to 3.00. Even though emotional, sexual and physical abuse and domestic violence showed strong association with depressive risk, neglect was found to be the strongest risk factor for developing depression/de-

pressive symptoms, particularly in females. At the opposite, early loss, parental separation/divorce and prolonged hospitalization in childhood did not significantly increase the risk for depression in adulthood. In particular, neglect and parents' separation/divorce had a strong impact on depressive risk, higher than that of sexual/physical abuse. On the contrary, emotional abuse had the highest impact in community samples, though being consistently associated to depressive risk in clinical samples as well. Consequently the authors underlined that, even though sexual and physical abuse have been traditionally considered as major risk factors for depression, neglect and emotional abuse as have a relevant impact in adult depression and may be more specific for this disorder.

Duhig and colleagues (Duhig 2015) recruited 100 psychotic patients (62 men, 38 women, mean age 21.4 yeards SD=2.28, median duration of untreated psychosis of 4 weeks SD=44.4) with early phase of illness from four outpatients Australian clinics. Their hypotheses were about the association between child trauma and increased positive and negative psychotic symptoms and higher levels of anxiety, depression and stress as well as higher levels of substance abuse and poorer levels of social and vocational functioning. The authors confirmed partially their hypotheses because a. more than three-quarters (n. 82) of outpatients reported exposure to any form of abuse or neglest; b. Physical neglect was significantly correlated with both positive and negative psychotic symptoms; c. Exposure to emotional or physical abuse or physical neglect were correlated with increased depression, anxiety and stress symptoms and sexual abuse was correlated with increased symptoms of depression only; but d. no associations was found between exposure to child trauma and level of tobacco, alcohol, cannabis or other illicit drugs.

Child maltreatment in high risk populations

In Norway, Greger and colleagues (Greger 2015) explored the impact of experienced maltreatment on the prevalence and comorbidity of psychiatric disorders in a high-risk population of adolescents in residential care units (n = 335, mean age 16.8 years, girls 58.5%). The data were obtained from the Norwegian research project Mental Health in Adolescent Residents in the Child Welfare System. Exposure to maltreatment was reported by 71%, and in this group, the authors found significantly more Asperger's syndrome (AS) (p=0.041), conduct disorder (CD) (p=0.049), major depressive disorder (MDD) (p=0.001), dysthymia (p=0.030), general anxiety disorder (GAD) (p<0.001), and having attempted suicide (p=0.006) and more comorbid disorders were found in the maltreated group. Furthermore, they found that the same disorders were significantly associated with poly-victimization (p<0.01). In fact, in the sample there was a high prevalence of victims of family violence (39%), victims of community violence (24%), and sexual abuse or rape (27%), and a high degree of poly-victimization, with 35% of the adolescents being exposed to more than one type of maltreatment. Other findings were that more girls reported exposure to maltreatment (64.6%), youths were also significantly older (mean age 17.0) and had experienced significantly more placements out of the family home.

Consequently, more attention must be paid to high risk population such as adolescents in residential care units.

Cross and colleagues (Cross 2015) studied a predominantly low-income, African-American adult sample (n=2887 adult individuals) recruited from a public hospital (mean age=39.55, SD=13.41). Measures of childhood trauma, PTSD symptoms, problematic alcohol use, and problematic substance use were administered to 803 men and 2084 women. The authors found that childhood trauma had a direct effect on current problematic alcohol use, as well as on current problematic substance use, but PTSD had a significant indirect effect on both of those relationships.

Results showed that although men and women reported similar overall PTSD symptom frequency, men were more likely than women to report PTSD comorbid with alcohol and/or substance use problems. In addition, PTSD partially mediated the relationship between childhood trauma and problematic alcohol use and between childhood trauma and problematic substance use. The indirect effects of PTSD on the relationship between childhood trauma and problematic alcohol use and between childhood trauma and problematic substance use were significant for men and women, but the effects were significantly greater in men. Consequently, the study demonstrated the important interplay of gender, childhood trauma, PTSD, and alcohol and substance use.

Mallett in 2015 (Mallett 2015) published a review about the important problem of serious legal consequences of childhood trauma in adolescents. He reported that in the USA, upwards of 70,000 adolescents are still confined each day in juvenile facilities, with an additional 10,000 in adult jails and prisons (National Juvenile Justice and Delinquency Prevention Coalition 2013). Having said that, mental health problems, trauma histories and educational deficits lead to perplexing and difficult rehabilitative problems (Mallett 2009, Yun 2011). Since the 1990s, reviews of young offenders incarcerated in the USA have found their incidence of mental disorders to be at least twice and serious trauma histories up to 60 times of those found in the general adolescent population (Teplin 2006; Chassin 2008). In fact, the percentage of maltreatment and trauma in the USA incarcereted young offenders goes from 34% to 60% that are significantly higher of that in the USA general adolescent population (1%). One important consequence is that experiences of serious trauma, including maltreatment, not only are harmful to the

young people themselves but also pose risks to society more generally because they lead to offending behaviours (Turner 2006; Leiter, 2007). Thus, the author stated that an important recommendation in order to decrease incarceration rates is to identify the adolescents' trauma and mental health problems as well as gender-specific interventions are needed in consideration of the fact that significantly more incarcerated girls have been victims of maltreatment (especially sexual abuse) compared with incarcerated boys (Zahn 2008).

Self-harm association with childhood maltreatment and the risk of revictimization

Using the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC), Vaughn and colleagues (Vaughn 2015) examined the linkages between not only deliberate self-harm (DSH) and mental health and substance abuse comorbidity, but also childhood abuse, lifetime victimization, and a variety of violent behaviours. The NESARC was a nationally representative sample of non-institutionalized U.S. residents aged 18 years and older but the study restricted analyses to individuals between the ages of 18 and 49 (n=19073). The authors found that DSH was associated with adverse childhood experiences. The prevalence of child abuse and lifetime victimization among persons who deliberately self-harm was substantially greater than those of individuals reporting no history of DSH. In contrast to the relatively low rates of child sexual abuse among those with no history of DSH (7.76%), nearly two in five (38.55%) of those reporting DSH reported having been sexually assaulted, molested, raped, or having experienced unwanted sex before the age of 18. Similar disparities can be observed in terms of violent victimization in which, compared to relatively low levels of victimization among non-self-injurers (8.43%), nearly one in three (30.34%) persons who deliberately self-harm reported having been physically attacked, beaten, or injured by someone other than their spouse or romantic partner. Those reporting DSH were significantly more likely to have experienced all forms of child maltreatment examined, including CSA (AOR=3.88, 95% CI=3.39–4.46), CPA (AOR=2.74, 95% CI=2.37–3.16), child neglect (AOR=2.42, 95% CI=2.00–2.94), and exposure to serious conflict in the home (AOR=1.75, 95% CI=1.54–1.98). Similarly, with respect to lifetime victimization, they were significantly more likely to have experienced intimate partner violence (AOR=1.94, 95% CI=1.71–2.19), violent victimization (AOR=2.54, 95% CI=2.15–2.18), and to ever have been stalked (AOR=1.48, 95% CI=1.29–1.70).

Another paper by Brenner and Ben-Amitay (Brenner 2015) suggested the close link between prior CSA and the risk of sexual revictimization, considered as the repeated sexual assaults on a victim by different perpetrators on at least two different occasions. On the basis of the attachment theory by Bowlby, Gold and colleagues (Gold 1999) suggested that an insecure anxious-ambivalent attachment style could play a role in the path of revictimization because of the tendency of people with this attachment style to seek more partners to feel cared and valued, with an augmented risk of encountering sexually aggressive men. On the basis of this statement, the authors hypothesized that high anxious attachment scores and a nonsupportive environmental reaction to CSA disclosure would be related to increased rates of revictimization. For this reason, they recruited 60 Israel women, exposed to CSA before 18 years, with an average age of 36.2±11.5 years and assessed them by the means of the Experiences in Close Relationship Scale-ECR, the Modified version of the Finkelhor Sexual Victimization Survey, the Childhood Trauma Questionnaire-CTQ and the Sexual Expiriences Survey-SES. They obtained that 70% of the sample experienced adult sexual revictimization. Furthermore, women exposed to revictimization scored significantly higher on the ECR anxious subscale than women who were not (p=0.046) as well as on the CTQ emotional subscale (p=0.01). In addition, the authors found out a significantly difference in the percentages of revictimization between those women who reported negative reactions to their CSA disclosure compared to women who had not disclosed CSA or received a positive environmental response (p=0.01).

Tratment programs and outcomes

Lesmana and colleagues (Lesmana 2015) reported about the treatment of mental illness among sexually abused children and adolescents in Bali, Indonesia. The authors successfully treated 102 children with CSA who were victims of 38 sex offenders. The mean age of the children was 12.17 years (SD=3.35 years), and 52 were male (51%). The treatment model integrated different approaches into a holistic model of biopsychosocial interventation. Consequently, the authors stated that culture implementation was a potential and systematic contributor into holistic and sensitive interventional models for the treatment of mental illness outcomes of childhood and adolescence that were sexually traumatized.

CONCLUSIONS AND RECOMMENDATIONS

The data synthesized in this review are quite shocking. Of course, it is possible to state that child maltreatment is a major public health problem.

Indeed, the papers considered in this review reported not only about CSA, that has been extensively studied; not surprisingly, emotional abuse and neglect seem to

be very frequent and related to worse outcomes in terms of psychiatric impairment (Fang 2015, Fitzhenry 2015). Consequently, better understanding of these forms of maltreatment is required (Lecic-Tosevski 2015).

Furthermore, individuals considered in the papers included in this review sometimes reported more than one form of abuse (Greger 2015, Khawaja 2015) hence children identified as exposed to one form of child maltreatment should also be screened for other types (Moore 2015).

The results of the psychiatric consequences of child maltreatment lead us to consider that better identification of those at risk should be encouraged and the development of effective interventions to protect children from violence should be implemented (Norman 2015).

The strategies should be developed at different levels.

As for prevention, education on healthy parenthood as well as early detection and treatment of children and adolescents who had traumatic experiences is required.

At a diagnostic level, a history of child maltreatment should routinely be determined when assessing adult mental health service users, especially those with personality disorders (Fitzhenry 2015), particularly using specific tools because patients sometimes underreport child maltreatment because of the shame and the stigma associated with this condition (Rossiter 2015).

Regarding therapies, even though there is still a need for further research regarding treatment options, several evidence-based trauma treatment methods have been used with benefits for the patients such as Trauma Focused Cognitive Behavioral Therapy (TF-CBT), Dialectical Behavior Therapy (DBT) and Eye Movement Desensitization and Reprocessing (EMDR) (Greger 2015). Furthermore, supportive interpersonal relationships have been shown to protect adolescents from the effects of exposure to various type of maltreatment thus school counselling programmes or provision of additional extra-curricular activities are needed (Khawaja 2015).

Once the abuse has happened, therapeutic interventions focused on the disclosure phase, such as psychoeducational, parental counselling and group therapy, are needed in order to overcome the stigma associated to this condition because they can serve as resilience factors against revictimization (Brenner 2015).

In establishing these interventions and in further reseach, it is important to conduct culture-specific examination in order to address the potential influences of cultural beliefs and factors on abused victims' outcomes (Ip 2015).

Finally, in consideration of the severe psychiatric outcomes (Mandelli 2015), of the important social (Brenner 2015) and legal (Mallett 2015) consequences of trauma it is necessary to establish effective preventive and therapeutic programs in order to overcome this huge problem.

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