Journal of Forensic and Legal Medicine 53 (2018) 17–21

Contents lists available at ScienceDirect

Journal of Forensic and Legal Medicine

journal homepage: www.elsevier.com/locate/yjflm

Non suicidal self-injury, emotional eating and insomnia after child sexual abuse: Are those symptoms related to emotion regulation?

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ARTICLE INFO

Keywords:
Child sexual abuse
Non suicidal self-injury
Emotional eating
Insomnia
Emotion regulation

ABSTRACT

Objective: The aim of this article was to assess the effects of child sexual abuse (CSA) on emotion regulation (ER) in adolescents and to evaluate the relationships between non suicidal self-injury (NSSI), emotional eating, insomnia and emotion disregulation (ED).

Method: Fifty two adolescents, aged 10–18 years, without who weren't diagnosed a psychiatric disease before abuse and completed 6-months of follow-up after abuse included the study. Control group consisted of 33 healthy voluntary participants without any known psychiatric disorders. Patients and volunteers who participated in the study were assessed with the Inventory of Statements About Self-injury (ISAS), Dutch Eating Behavior Questionnaire (DEBQ), Pittsburgh Sleep Quality Index (PSQI), Insomnia severity index (ISI), and the Difficulties in Emotion Regulation Scale (DERS).

Results: In our study, PSQI scores, DERS total scores and DEBQ emotional eating subscores were significantly higher in the CSA victims (In orderly; $p = 0{,}034$, $p < 0.001$, $p = 0{,}023$). 55.7% of the CSA victims reported self-injurious behavior, while 15.5% of healthy voluntary participants reporting self-injurious behavior. The CSA victims reporting NSSI had higher DERS scores than CSA victims without NSSI. ($p = 0.024$). The CSA victims with post-traumatic stress disorder (PTSD) and CSA victims without PTSD had a positive correlation between DEBQ emotional eating subscores and DERS total scores (In orderly: $r = 0.762$, $p = 0.031$; $r = 0.872$, $p < 0.001$). There was a positive correlation between the PSQI scores and DERS scores in the CSA victims with PTSD ($r = 0.827$, $p = 0.023$).

Conclusion: Further studies are needed to assess the relationship between self-injury, emotional eating, insomnia and ED, and to determine how sexual abuse effect the ER in a clinical sample of CSA.

1. Introduction

Emotion regulation (ER) is the critical ability to modulate and maintain feelings, behaviors, and physiological responses that constitute an emotion.[1] Dysregulation of emotion refers to maladaptive ways of responding to emotion sincluding non-accepting responses, difficulty controlling behaviors in the face of emotional distress, and deficits in the functional use of emotions as information.[2] Emotion disregulation (ED) is problematic but is certainly not the only cause of identifiable disorders of childhood. There are multiple physiological symptoms and disorders such as eating disorders, sleeping problems, pain, cutting, non-suicidal self injury (NSSI), smoking, and addiction, associated with ED. Negative affect is more important than positive affect when considering psychopathology.[3]

Difficulties in ER are often found in individuals exposed to trauma, particularly childhood abuse.[4] Experiencing sexual abuse has a negative impact on the development of ER.[5] Early abusive experiences promote emotional regulation difficulties, leading individuals to develop maladaptive behaviours such as emotional eating in response to negative emotions and NSSI.[6] It was suggested that both purging behaviours and NSSI serve similar functions in terms of regulating aversive affective experiences. Evidence shows that both NSSI and emotional eating are associated with reductions in negative affect in the hours.[7] Previous research also reported an association between adverse childhood experiences and NSSI behaviour amongst individuals with eating disorders.[6] In addition, Jacobson and Luik[8] has identified 72% of individuals with an eating disorder also engage in NSSI and 54% of individuals who engage in NSSI report ED symptomatology.

Recent studies have revealed some of the neural basis of emotional regulation by sleep. Continuous and accumulating sleep debt experienced in daily living can induce an overreaction of the amygdala to negative emotional stimuli.[9] It was known that clinical levels of sleep problems were found higher in abused children than the non abused children.[10] Sleep disturbances following trauma exposure may

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http://dx.doi.org/10.1016/j.jflm.2017.10.012
Received 27 March 2017; Received in revised form 26 September 2017; Accepted 30 October 2017

contribute to emotion regulation difficulties and exacerbate negative consequences.[11] Also, it was reported that sleep-related problems are associated with both emotional functioning and eating behavior.[12,13] In addition, multiple sleep variables including short sleep duration, insomnia symptoms, poor sleep quality, sleep insufficiency, unrefreshed sleep, sleep dissatisfaction, daytime sleepiness, fatigue, snoring, and nightmares were associated with increased risk of NSSI.[14]

Because of the relationships between NSSI, eating disorders symptoms, sleeping quality and ER, in this study, we aimed to investigate effects of CSA on ER and try to find the answers of that question: could NSSI, emotional eating and insomnia be related with ED, independent from the psychiatric disorders? Relationships CSA, self-injury, emotional eating, insomnia and ER were evaluated in a sample of sexual abuse victims.

2. Methods

2.1. Participants

The study included 93 adolescent (65 girls, 28 boys) aged 10–18 years who were assessed in Child and Adolescent Psychiatry Department between 2013 and 2015 because of CSA. Eight children who were abused physically and/or sexually by their parents were excluded. Nine children who had diagnoses of psychiatric disorders before abuse were also excluded. In the cases, data regarding psychological status before abuse was based on information gathered from patient and his/her parents. Also twelve patients with mental retardation were excluded. One children was also excluded because of not completing scales. The children who had diagnoses of psychiatric disorders before abuse or those developed any psychiatric disorders other than acute stress disorder/post-traumatic stress disorder (PTSD) after abuse were excluded in order to assess ER independent from psychiatric disorders. Finally our study included 37 girls and 15 boys (aged 10–18 years) who weren't diagnosed a psychiatric disease before abuse, who weren't diagnosed any psychiatric disease after abuse except acute stress disorder/PTSD and completed 6-months of follow-up after abuse. Control group consisted of 33 healthy voluntary participants without any known psychiatric, neurological and metabolic disorders.

Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime version (K-SADS-PL) was applied to all CSA victims twice after abuse and 6-months of follow-up after abuse and controls for once. Patients after 6-months of follow-up and volunteers who participated in the study were assessed with the Inventory of Statements About Self-injury (ISAS), Dutch Eating Behavior Questionnaire (DEBQ), Pittsburgh Sleep Quality Index (PSQI), Insomnia severity index (ISI), and the Difficulties in Emotion Regulation Scale (DERS).

This study was approved by the Ethics Committee of … … University Medical School (2014/430). The objectives and procedures of the study were explained to the participants and their parents. Written informed consents were obtained from both participants and their parents.

3. Materials

Schedule for Affective Disorders and Schizophrenia for School Age Children-Present and Lifetime Version - K-SADS-PL): This scale was developed by Kaufman et al. (1997) after publication of DSM-IV in 1994. K-SADS-PL allows screening more than 20 different psychiatric disorders.[15]

Inventory of Statements About Self-injury (ISAS): The first section of the ISAS assesses lifetime frequency of 12 NSSI behaviors performed "intentionally (i.e., on purpose) and without suicidal intent." The behaviors assessed are: banging/hitting self, biting, burning, carving, cutting, wound picking, needle-sticking, pinching, hair pulling, rubbing skin against rough surfaces, severe scratching, and swallowing chemicals. Those endorsing one or more NSSI behaviors are instructed to complete the second section of the ISAS. The second section assesses 13 potential functions of NSSI: affect-regulation, anti-dissociation, anti-suicide, autonomy, interpersonal boundaries, interpersonal influence, marking distress, peer-bonding, self-care, self-punishment, revenge, sensation seeking, and toughness. Each function is assessed by three items, rated as "0-not relevant," "1-somewhat relevant," or "2-very relevant" to the individual's "experience of [non-suicidal] self-harm"; thus, scores for each of the 13 ISAS functions can range from 0 to 6.[16]

The Dutch Eating Behaviour Questionnaire (DEBQ): The DEBQ contains 33 items formulated as questions such as `Do you try to eat less at meal times than you would like to eat?' and `Do you have the desire to eat when you are feeling lonely?'. There are three subscales measuring `Restrained Eating' (10 items), `Emotional Eating' (13 items), and `External Eating' (10 items). It has been used in earlier studies of young children.[17] In this study, we used emotional eating item from 11 to 23.

The Pittsburgh Sleep Quality Index: The Pittsburgh Sleep Quality Index (PSQI) is a self-report questionnaire that assesses sleep quality and quantity. The original version was designed to measure sleep reports over a one-month interval. The19-item self-report questionnaire yields 7 component scores: subjective sleep quality, sleep latency, duration, habitual sleep efficiency, sleep disturbances, use of sleeping medication, and daytime dysfunction. There are five additional questions that are completed by a bed partner if there is one. These are not used in the scoring. Possible total scores range from 0 to 21 with higherscores indicating poor sleep quality.[18]

Insomnia severity index (ISI): The ISI is a 7-item self-report scale of frequency and severity of sleep disturbance (Morin, Belleville, Bélanger, & Ivers, 2011). Items are scored on a 0 ('none'or 'not at all') to 4 ('very') scale, indicating how disturbing, difficult, or noticeable sleep problems have been over the previous two week period. Possible total scores range from 0 to 28 with higherscores indicating greater insomnia severity.[19]

Difficulties in Emotion Regulation Scale (DERS): DERS was developed by Gratz and Roemer in 2004, to measure difficulties in emotion regulation.[2] It consists of 36 items that are rated on a 5 point Likert scale and measure difficulties in emotion regulation. Higher scores represent higher difficulties in emotion regulation.

3.1. Statistical analysis

Data were analyzed by using SPSS for IBM version 22.0 and SigmaStat 3.5 statistics software. The variables were expressed as number (n), percentage (%), mean, standard deviation. The Shapiro–Wilk test and Q–Q graphics were used to evaluate whether the data were normally distributed. Chi-square test was used to compare numeric data. Student's *t*-test was used to compare continuous data while Mann Whitney *U* test was used if the variables that were not normally distributed. Bonferroni test was used for multiple comparisons. Correlation analyses between any two numerical variables were performed using Spearman's correlation analysis. Statistical significance was set at $p < 0.05$.

4. Results

The study included 52 victims of CSA (37 girls and 15 boys) aged 10–18 years, and 33 healthy adolescent volunteers (Table 1). 27 of the victims of CSA have been taking medication for PTSD 6-months of follow-up after abuse.

When total DERS, PSQI scores and DEBQ emotional eating subscores were compared between the CSA victims with or without PTSD and control groups, PSQI, DERS total scores and DEBQ emotional eating subscores were significantly higher in the CSA victims than the healthy voluntary participants (Table 2). DERS total scores of CSA victims with PTSD and CSA victims without PTSD higher than the controls (Table 3).