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THE PREVALENCE OF POST-TRAUMATIC STRESS DISORDER AMONG SEXUALLY ABUSED CHILDREN AT KENYATTA NATIONAL HOSPITAL IN NAIROBI, KENYA
C. A. Ombok, BSc, Msc. Clinical Psychology, A. Obondo, B.A, MSW, DIP, PSW, PhD, Senior Lecturer, R. Kangethe, MBChB, MMed, Lecturer, Department of Psychiatry, College of Health Sciences, University of Nairobi, P. O. Box 19676-00202, Nairobi and L. Atwoli, MBChB, MMed (Psych), Senior Lecturer, Department of Mental Health, Moi University School of Medicine, P. O. Box 4606, Eldoret, Kenya.

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C. A. OMBOK, A. OBONDO, R. KANGETHE and L. ATWOLI

ABSTRACT

***Background*: Post-Traumatic Stress Disorder (PTSD) develops following some stressful events. There has been increasing recognition that children who have been exposed to traumatic events like child sexual abuse can develop post-traumatic stress disorder just like adults.**
***Objective*: To determine prevalence of PTSD in sexually abused children seen at the Gender Based Violence Recovery Centre at Kenyatta National Hospital.**
***Design*: A cross sectional descriptive study.**
***Setting*: Gender Based Violence Recovery Centre – Kenyatta National Hospital.**
***Subjects* One hundred and forty-nine (n = 149) sexually abused children were recruited in the study.**
***Results*: The mean age 14.8% boys and 85.2% girls was 13.2 years (SD 4.2) the age at which sexual abuse most frequently (55%) occurred between 15-17 years. Sixty three percent of children reported that the perpetrator was known to them, and 76.5% of perpetrators used verbal or physical force during sexual assault. The prevalence of PTSD among the sexually abused children was 49%. PTSD was significantly associated with shorter duration of sexual abuse i.e. daily which is 67% as compared to months which is 4.7% (p = 0.005), Greater severity of injuries sustained during assault (p = 0.023), parent's marital status those whose parents were married or cohabiting 40% were affected as compared to 52% whose parents were separated or divorced (p = 0.003) and the family's way of sorting out their disagreements was also significantly associated with PTSD. Parents who sorted their disagreement by talking was at 31% while those who sorted their disagreement by fighting was at 67% (p < 0.001).**
***Conclusions*: This study highlights the high prevalence of PTSD among sexually abused children presenting at Kenyatta National Hospital Nairobi-Kenya. PTSD is associated with the degree of physical or verbal abuse during sexual abuse, injuries during assault, and parent-child relationships. These findings are important in formulation of appropriate prevention and care interventions to be implemented by families and other stakeholders.**

INTRODUCTION

Prevalence of child sexual abuse has been reported by several studies. A survey of nearly 1000 students in Victoria population Health Survey (1) reported that 27.6% of girls and 9% of boys had been sexually abused before the age of 16. In a study carried out in India (2) "Study of Child Abuse " sampled 12447 and looked at different forms of child abuse. The main findings showed that 53.22% of children had been sexually abused, that is, 52.94% boys and 47.06 % girls (3). Fergusson D.M. *et al* reported the highest percentage of sexual abuse among boys and girls as well as the highest incidences of sexual assaults. In this study, 21.90% of the respondents faced severe forms of sexual abuse, 5.69% had been sexually assaulted and 50.76% reported other forms of sexual abuse (4).

Many PTSD studies suggest that PTSD is one of the psychological consequences of child sexual abuse. It is estimated that approximately one third of child sexual abuse victims experience PTSD as adult (5). Among women whose abuse involved penetration, there is an increased risk in the development of PTSD, resulting in about two thirds of this population developing PTSD at some point during their lifetime (6). Two recent review articles suggested that over 50% of sexually abused children meet at least partial criteria of PTSD and suggested that a third of all sexually abused children develop full diagnostic criteria of PTSD (7,8).

The problem and extent of underreporting, or non-disclosure, is a primary obstacle in determining frequency of child sexual abuse and its relationship with PTSD (9). The issue of whether prevalence of PTSD is an increasing consequence of child sexual abuse globally is difficult to determine in the absence of current depth of information.

In this case there is no data available at Kenyatta National Hospital Nairobi Kenya on prevalence of PTSD that can help in policy making and implementation. Child sexual abuse is under-researched in Kenya and Tanzania, Studies by UN agencies such as United Nations Children's Fund (10) and the International Labour Organization have focused on the commercial sexual exploitation of children, to the neglect of more pervasive abuse in children's own communities by family, relatives, and neighbours but not on the trauma that comes with the sexual abuse.

The present study therefore aims at the prevalence of PTSD among sexually abused children so as to come up with proper strategies for intervention that can reduce the problem.

MATERIALS AND METHODS

Study site: This study was conducted at Kenyatta National Hospital Patient Support Centre at the Gender Based Violence Recovery Centre. The centre was built and launched in 2008. A total of 6 sexually abused children pass through the centre every day. It covers an area of 45.7 hectares and within the KNH complex are College of Health Sciences (University of Nairobi); the Kenya Medical Training College; Kenya Medical Research Institute and National Laboratory Service (Ministry of Health).

KNH has 50 wards, 22 out-patient clinics, 24 theatres (16 specialised) and Accident & Emergency Department. Out of the total bed capacity of 1800, 209 beds are for the Private Wing.

There is a Doctors Plaza consisting of 60 suites for various consultant specialties. The hospital offers a wide range of diagnostic services such as Laboratories, Radiology/Imaging and Endoscopy among other specialized services. Sometime, the average bed occupancy rate goes to 300%. In addition, at any given day the Hospital hosts in its wards between 2500 and 3000 patients. On average the Hospital caters for over 80,000 in-patients and over 500,000 out-patients annually.

Study Population: The study focused on sexually abused children aged between of 5 to 17 years from the Gender Based Violence Recovery Centre at Kenyatta National Hospital.

Ethical Consideration: Ethical review was conducted by the Kenyatta Teaching and Referral Hospital Ethical Committee and administrative approvals were sought and granted the Chief Executive Officer Kenyatta National Hospital – Nairobi-Kenya and by the head of Gender Based Violence Centre.

Patient whose clinical status after examination was found to need treatment were attended to in liaison to the clinician at the Gender Based Violence Recovery Centre (KNH). The research process begun by obtaining approval from the department of psychiatry, University of Nairobi and application of research permit from KNH research and ethics committee as well as an informed consent form and assent form that were filled by the participant and parents/guardians respectively.

In regards to confidentiality Patients names were not used but instead, they were assigned identification numbers. The researcher was to keep the records in a safe place. Participation was voluntary and if any of them did not want to join the study, there was no victimization in any way. The patients could withdraw from the study at any time without any loss of benefits or any victimisation whatsoever.

Data collection: Children attending GBVRC at KNH were purposively selected for the study. Consent was sought and patients who consented to participate were recruited into the study. Informed signed consent was provided by the parent/caregiver after being given explanation about the study and assured absolute confidentiality.

Data collection Instruments: Each participant filled the Sociodemographic questionnaire in the presence of the researcher. This is a researchers designed questionnaires which helped in obtaining information on age, gender, ethnicity, composition of the home, the child's level of education, parental marital status, parental occupation, family income, psychiatric morbidity and social setting. Sexual Abuse Profile (SAP) is also the researchers designed questionnaire is an instrument that helped in determining the history of sexual abuse i.e. when it started, when it ended and also the relationship between the perpetrator and the child. SAP also helps in establishing indicators like the duration and frequency of the abusive incidents,

extent of injury sustained and the effects of the incident on the child, evidence based Trauma – Informed assessment tools. The ULCA PTSD is Trauma focused mental assessment tool used to measure Trauma related symptomatology (11) reaction Index for DSM-IV (parent/Child and Adolescence version) a PTSD index. The three instruments were used and the status of each child was combined since it was important to get direct reported from parents/caregivers and also observe the child as an important component for evaluation. It was born in mind that parents/caregivers often minimise the child's symptomatology. The researcher recommended the use of multiple instruments and multiple informants to measure PTSD across different functioning area the score was calculated for each child and a diagnosis was made based on the individual score.

Data analysis: Data analysis was conducted using both descriptive and inferential statistics. The descriptive analysis included summarizing sample characteristic by calculation means and standard deviations for continuous variables e.g. age, duration and calculating percentages for various levels of categorical variables. The distribution of subjects in different categories was presented using frequency tables, pie charts and graphs. Next the sexual assault profile for the children in the study including age at which abuse occurred; frequency and duration of abuse and perpetration of abuse were described. The percentage of children with the main study outcome of PTSD was calculated and compared to percentages of categorical demographic variables using the chi square test to identify factors associated with PTSD.

RESULTS

The study recruited a total of 149 children aged five to 17 years 22 boys and 127 girls who had reported to the gender based violence recovery center at Kenyatta National Hospital-Nairobi-Kenya following sexual abuse. The descriptive analysis of the demographic characteristics of the study participants and their socioeconomic status are presented in the following sections.

Table 1
Socio-demographic characteristics

	Number of participants (n)	Percentage (%)
Age of child		
5-9 years	40	26.9
10-14 years	27	18.1
15-17 years	82	55.0
Gender		
Male	22	14.8
Female	127	85.2
Attending school		
Yes	107	74.3
No	37	25.7
Level of education		
Primary	60	50.0
Secondary	55	45.8
College	5	4.2

The mean age of children in the study was 13.2 (SD 4.2) years and the modal age at which sexual abuse occurred was 17 years of age with 28.9% children reporting they were 17 years old. The age distribution of the participants is shown in Table 1. Sexual abuse was most prevalent in children aged between 15 and 17 years who represented 55% of all children visiting the gender recovery center at KNH. This age group was followed by that of children aged five to nine years who accounted (26.9%) out of the 149 children reporting sexual abuse in this study. Children aged between 10-14 years constituted 18.1% of the 149 Children. Those who sustained severe/moderate injuries 38% compared to the ones with no/mild injuries 58%. Perpetrators who were known to the child are 63.8% as compared to the ones unknown to the child at 31.5%. Acquaintances to the child are 34.9% as compared to non-biological caregiver in position of trust at 1.3 %. There was a percentage of 76.5% vaginal and anal penetrations as compared to

exhibitionist which was at 2% in perpetrator's acts. In the use of verbal/physical force. Most perpetrators used no/mild verbal/physical force 60%.as compared to those who used severe/moderate verbal/physical force are at 32 %.

Post-Traumatic Stress Disorder: The prevalence of post traumatic stress disorder among sexually abused children attending the gender recovery center at KNH was 49% with 73 out of the 149 sexually abused children meeting the criteria for PTSD diagnosis

Factors associated with PTSD: The prevalence of PTSD showed statistically significant associations with parents' marital status ($\chi2$= 15.31, p =0.003), duration of sexual abuse ($\chi2$= 20.96, 0.005), whether injury was sustained during abuse ($\chi2$= 10.68, 0.023) and parent-child or family relationships ($\chi2$= 11.95, p < 0.001). See table 2.

Table 2

	PTSD	Chi statistic	P value
Sex	N (%)		
Male	11 (50)	0.011	0.9
Female	62 (49)		
Age categories			
5-9 years	21 (53)	3.23	0.20
10-14 years	9 (33)		
15-17 years	43 (52)		
Parent or guardians marital status			
Married/ Cohabiting	27 (40)	15.31	0.003
Separated/Divorced	16 (52)		
Other	21 (66)		
Child with siblings			
Yes	65 (48)	0.41	0.58
No	8 (57)		
Family disagreement settlement			
By talking	29 (31)	11.95	< 0.001
By fighting	31 (67)		
Don't know	17 (61)		
Perpetrator known to child			
Yes	46 (48)	0.6	0.48
No	26 (55)		
Child sustained injuries during assault			
No injury	10 (31)	10.68	0.023
Mild injuries	28 (51)		
Moderate injuries	31 (61)		
Severe injuries	4 (80)		
Others	0		
Duration of abuse			
Days	48 (52)	20.96	0.005
Weeks	1 (11)		
Months	4 (57)		
Years	11 (85)		

As shown in Table 2 children who sustained injuries during sexual abuse were more likely to develop PTSD compared to those who did not sustain any injuries. The prevalence of PTSD was highest among children with severe injuries with 80% of these children developing PTSD. Children of parents who resorted to fights in order to resolve conflicts were also at higher risk of PTSD (67%) compared to those of parents who resolved conflicts by talking (31%).

The prevalence of PTSD among children of separated, cohabiting parents and parents in other marital status was high at over 50% for each group (Table 2) Only 35% of children of married parents had PTSD. The lowest prevalence of PTSD was seen among children of divorced parents with a prevalence of 25%.

The duration of sexual abuse was also statistically significantly associated with PTSD (Table 2). Eighty five percent of children who reported that they had been sexually abused for years had PTSD compared to lower PTSD prevalence among children abused for days (52%), weeks (11%) or months (57%).

There was no statistically significant difference in PTSD prevalence among boys (50%) and girls (49%), $p = 0.9$, or children in the different age groups, $p = 0.02$. Having siblings ($\chi2=0.41$, $p=0.58$) or knowledge of the perpetrator ($\chi2= 0.6$, $p =0.48$) did not show a significant association with developing PTSD following sexual assaults.

DISCUSSION

This study showed that the prevalence of PTSD was high affecting 49% of sexual abuse cases. This finding is consistent with a previous study on trauma exposure including sexual assault among school age children in Nairobi and Cape Town (12). Seedat and colleagues reported that sexual assault is the trauma type most likely to be associated with PTSD among children attending urban schools in Nairobi. This study confirms the findings of studies conducted elsewhere that report PTSD prevalence ranging from 33% to 50% among sexually abused children.

This study suggests that sexual abuse may be commoner among girls than boys in this age group. This appears to be consistent with both international and local estimates of gender distribution of cases of childhood sexual abuse. The results of a recent meta-analysis reported that Africa had the lowest rate of childhood sexual abuse for boys compared to other regions of the world (13). In Kenya, 99% of sexually abused children (7-17 years) in a psychiatric hospital were female (14).

Most of the children in this study were adolescents aged between 15-17 years. The risk of abuse in this age group in Kenyan children has previously been reported to be lower than that among children 12 to 14 years. It is noteworthy that the mean age at which sexual abuse occurred was 13 years comparing with the age at highest risk of abuse in the CRADLE study. and that even in the (15) CRADLE study children aged 15 to 17 years had the second highest risk of sexual abuse. In both studies the young school going children were also vulnerable to sexual abuse.

Additional findings in the current study indicate that PTSD prevalence was significantly associated with injuries sustained during assault. In addition the prevalence of PTSD increased with increasing severity of injuries providing support for the argument that physical scarring could lead to psychological problems following traumatic experiences in childhood (16). This also consistent with the reported association in the literature between degrees of physical force experienced during sexual abuse and development of behavior problem ranging from separation anxiety to PTSD.

An additional finding related to family pathology and showed that the way families resolved conflicts was associated with PTSD prevalence. Family's way of sorting their disagreements that is by talking and or by fighting showed a statistically significant difference in predicting presence or absence of PTSD in the present study. Children with supportive parents and good caring family relationships are less likely to experience PTSD compared to those from physically abusive families.

This finding was also consistent with the finding that PTSD prevalence was significantly associated with the parental marital status which could serve as a proxy for dysfunctional family relationships. Children in families with functional marital relationships reported lower rates of PTSD symptoms compared to those in dysfunctional families.

There is significant association between PTSD and duration of sexual abuse in this study was surprising since previous studies have not reported significant associations between duration of abuse and PTSD prevalence. However the significance could be explained by the fact that more than half (52%) of the children reported that they had been abused only once/in a day. There were relatively fewer children reporting prolonged abuse over several years making it harder to statistically demonstrate the effect of duration of abuse on PTSD.

STUDY LIMITATIONS

The reported results should be interpreted while considering the possible limitations of this study. Firstly, the cross-sectional study design used might have captured children at different stages of the recovery following sexual abuse introducing possible biases related to duration of present PTSD episode. It is difficult to quantify and address such biases with the cross sectional study design. Examples of such biases include recall bias with recently abused

children being more likely to recall details of sexual abuse and provide more accurate sexual abuse profiles compared to children who were abused earlier on. It is however important to note that this population excludes children below five years of age although this group also bears a significant burden of sexual abuse. In studies that have included children in this age group it has been shown that vulnerability is particularly high between the ages of 3 and 5 years(15).

Secondly, there are few existing studies conducted among Kenyan children documenting the appropriate threshold for determining PTSD criteria. The threshold used for a frequency of PTSD symptoms in this study was "most of the time". This threshold was previously used among Kenyan school children by Terry (16) who considered it to be a relatively high threshold for PTSD criteria. In addition the diagnosis of PTSD was based on reported symptoms only and not the assessment of functional impairment.

In conclusion, this study highlights the high prevalence of PTSD among sexually abused children. PTSD is associated with the degree of physical or verbal abuse during sexual abuse, injuries during assault, and parent-child relationships. These findings are important in formulation of appropriate prevention and care interventions. We therefore recommend that all sexually abused children be screened for PTSD and other psychological Trauma

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