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Parental Mental Health and Their Children's Behavioural Symptoms in People Living in a War Zone, North Eastern Nigeria

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Abstract

People who live in war zones are more likely to develop a wide range of mental disorders. These disorders in children may be caused in part by the negative effects of parental mental illness rather than by direct war trauma exposure alone. As a result, a parent in good mental health can assist a child's adjustment to adversity, whereas a child raised by a parent or parents suffering from mental illness is more likely to develop a variety of emotional and behavioural issues due to disruption in the normal interactive patterns between a parent and a child. This study investigates the relationship between parental mental health and their children's behavioural problems in the aftermath of armed attacks on Dong and Kikan in north-eastern Nigeria. We conducted a cross-sectional descriptive study with 149 eligible primary school pupils from a non-conventional school established by Partners West Africa Nigeria, selected through a consecutive sampling method. Each child's parent or caregiver was also interviewed. The Strength and Difficulties Questionnaire (SDQ) was used to assess children's difficulties, while the Harvard Traumatic Questionnaire (HTQ) and Civilian Symptoms Checklist (SCL) were used to assess Post-traumatic Stress Disorder (PTSD), anxiety, and depression, respectively. Except for the conduct subscale, all behavioural problems were significantly more common in children of parents suffering from PTSD, anxiety, or depression. Parental mental illness was found to be positively related to all domains of children's behavioural problems. These findings suggest that parents and children living in a war zone are at high risk of developing mental disorders, and children of parents with mental illness are more likely to develop behavioural symptoms.

Keywords: Parental mental health; Behavioral symptoms in children; Relationships; North-eastern Nigeria

Introduction

Nigeria has recently experienced unprecedented levels of insecurity with the Boko Haram insurgency, which became notoriously violent in 2009 and has the ultimate goal of establishing an Islamic state in Nigeria, posing the greatest threat to the country [1]. The group has carried out a series of unrelenting armed attacks, including bombings, mass shootings, and executions, resulting in the loss of lives and property as well as the displacement of people from their communities [2]. The North Eastern region, to which Adamawa, Borno and Yobe states belong, has been hit the hardest [2]. Dong and Kikan are two communities in Adamawa state that were attacked violently between December 2017 and January 2018, resulting in a variety of traumatic experiences [3, 4].

Exposure to these traumatic events may result in a wide range of mental disorders. Posttraumatic stress disorder (PTSD), depression, anxiety, and sleep disorders are just a few examples [5]. According to the Center for Disease Control and Prevention (CDC) Atlanta, 30–70% of people who have lived in war zones suffer from anxiety, depression, and PTSD [6]. These high rates have also been reported among individuals in Nigeria who have survived armed conflicts [7-9]. In contrast, an analysis of the global prevalence of common mental disorders among adults in the general population before the COVID-19 pandemic found an estimated lifetime prevalence of 0–12.9% for PTSD, mood disorders, and anxiety disorders [10, 11]. In the past, it was thought that children were excluded from traumatic conditions, as they were unaware of the dangers. On the contrary, today, very young children respond to trauma and resultant suffering [12, 13]. As a result, children raised in war zones are likely to have experienced a variety of traumas, and they are more likely to have behavioral and mental health issues than children raised in peaceful environments [14]. The symptoms of these disorders may worsen with age, with older children experiencing more [15,16]. In a study of Syrian Civil War-affected children, John D. Perkins and colleagues discovered that 60.5% of them met the criteria for at least one psychological disorder [17].

To understand the links between childhood-armed conflict exposure and subsequent mental health risks, we must use a socioecological perspective that takes into account not only the direct consequences of the war for the individual child but also the interaction between the child and the environment [18, 19]. To be more specific, the interaction between the child and his or her parents, in the home environment is critical in children's adjustment to adversity [18,20]. Because they have immature coping mechanisms at various stages of development, children frequently rely on their parents to understand external events [21]. This process is frequently mediated by a dynamic interaction in which the child interprets and comprehends external events by observing the reactions of immediate caregivers [20]. According to

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Garbarino, Dubrow, and Kostelny (1991), the psychological effects of violence on children may be more dependent on the availability of close, reliable attachment figures to provide support during and after difficult events than on the degree of violence witnessed. Thus, in a war situation, a mentally healthy parent can assist a child's adjustment to adversity [21-23]. When a parent's mental health is compromised, however, the normal interactive patterns between a parent and a child may be disrupted, interfering with the normal development of emotional regulation and resulting in an increased variety of problems, including both emotional and behavioral issues [24,25].

The majority of trauma research has focused on the prevalence of mental health problems such as PTSD and depression in both adults and children [7, 8, 26, 27], with far less research on parent-child interaction in post-conflict scenarios. This study examines the relationship between the mental health of parents and their children in two war-torn Nigerian communities: Dong and Kikan in northeastern Nigeria. We specifically looked into whether the child's behavioral symptoms correlated with the parents' anxiety, depression, and PTSD. This data could be used to better target mental health interventions for children and adults in conflict zones.

Materials and method

We conducted a school-based cross-sectional study to examine the relationship between parents' mental health and behavioral problems in their children living in a war zone in North-Eastern Nigeria. The study was carried out at two non-conventional primary schools in Adamawa state, namely Dong and Kikan in Demsa and Numan Local Government Areas (LGAs). These locations were chosen on purpose as part of the ongoing Partners West Africa Nigeria (PWAN) project, in which non-governmental organizations (NGOs) established non-traditional schools to bring children from affected communities up to speed with learning and education, fun and play, arts and crafts, and community integration. The study was conducted in one week (from January 6 to January 12, 2020), two years after severe armed attacks on these two contiguous communities. The school had approximately 120 students at the time of the study. These children are mostly Christians of the Bachama ethnic group who understand and speak Hausa language [28, 29]. The most common occupations in these communities are farming (including fishing) and trading, with a few civil servants among them. Our target population included all students enrolled in the school.

Ethical approval was obtained from the Adamawa State Ministry of Education through PWAN. Permission was also granted by the village heads of the communities. Pupils aged 5 to 12 years old, as well as their parents or caregivers, who were present at school at the time of the study, were eligible to participate. We excluded subjects who declined consent or had any conditions that impaired their ability to participate in the study.

Available records from the school management showed a total of 120 pupils (60 in each community), and all the pupils were targeted for inclusion in the study. Accordingly, eligible participants were selected using a consecutive sampling technique.

Procedure

Following approval of the ethical clearance and permission granted by the State Ministry of Education, the village heads, and the head teachers, the researchers, who were fluent in both English and Hausa languages and familiar with the use of the survey instruments, approached the participants in their respective schools. After explaining the purpose of the study to the parents of the children studied, informed consent was obtained and their confidentiality was assured. It was also clear that the interviews were entirely voluntary, with the option to opt out at any time without any penalties. The pupils were divided into three groups: class I (grades 1 and 2), class II (grades 3 and 4), and class III (grades 5 and 6) respectively. To ensure privacy, the interview was conducted in each class as each child arrived accompanied by a parent or caregiver. The survey instruments were used to collect data from eligible respondents. Parents who were literate enough filled out the questionnaires in front of the researchers, while Hausa-translated versions of the survey instruments were used to collect data from participants who could not speak English. This process was repeated daily for seven days, and we recruited a total of 117 children from the PWAN project in total. Furthermore, 32 additional schoolchildren who were not registered with the project but were willing to participate in the study were recruited, with their parents' or caregivers' consent. Each child's parent or caregiver was also interviewed. A total of 298 participants, including 149 children and 149 parents, took part in the study.

Materials

Socio-demographic questionnaire

This is a semi-structured questionnaire developed by the researchers to collect socio-demographic information from the parents and children studied, such as age, gender, ethnicity, and so on.

Strengths and Difficulties Questionnaire (SDQ) [30]

It is a brief and concise screening instrument for behavioral problems in children and adolescents. The SDQ consists of 25-item questions, 14 of which describe perceived difficulties, ten of which describe perceived strengths, and one of which is neutral. Perceived difficulties are scored 0-2, and perceived strengths are scored in the reverse. The SDQ is divided into five clinical sub-scales based on the calculated score for each scale (range 0-10): Emotional Symptoms, Conduct Problems, Hyperactivity, Peer Problems, and Pro-social Behavior. The sum of all scale scores, with the exception of pro-social behavior, usually accounts for the Total Difficulties score, which can range from 0 to 40. We excluded pro-social behavior evaluation because this study is concerned with perceived difficulties. The SDQ is available in several versions, including parent and teacher-rated versions, self-rated versions, and others. The parent-rated version was used in this study. SDQ has also been used in a variety of settings, including Nigeria, and has been shown to have good psychometric properties [26, 27].

The Harvard Trauma Questionnaire [31]

In this study, we used the Harvard Trauma Questionnaire (HTQ) part 4 to assess for symptoms of PTSD. Mollica and colleagues (1992) developed the HTQ to aid in the diagnosis of symptomatic PTSD. There are several versions of the HTQ, but the majority of them have four parts. Part 1 assesses various traumatic events; Part 2 describes the respondent's most traumatic event; Part 3 evaluates the circumstances surrounding a possible head injury, and Part 4 is a list of trauma symptoms. The first 16 items in part 4 are derived from the DSM-III-R/IV (American Psychiatric Association, 1987, 1994). PTSD criteria are the same in all versions of the HTQ. Responses to questions are scored 1–5 based on the severity of the symptoms. To calculate the score for each individual, the scores for each respondent were added together and divided by the number of items (16). Individuals with a total score of more than 2.5 were considered PTSD symptomatic. Several cross-

cultural studies, including one in Nigeria, have validated the HTQ [8].

Depression and Anxiety Symptoms

The Hopkins Symptoms Checklist (HSCL) [32] is a well-known and widely used screening instrument developed at Johns Hopkins University by Parloff, Kelman, and Frank. This instrument comes in several versions, but we used the 25-item version to assess anxiety and depression symptoms. As the name suggests, it consists of 25 items divided into two parts: Part I contains ten items for anxiety symptoms and Part II contains fifteen items for depression symptoms. Each question has four response categories on the scale ("Not at all," "A little," "Quite a bit," and "Extremely," rated 1 to 4, respectively). Two scores are calculated: the total score is the average of all 25 items, while the depression score is the average of the 15 depression items. Based on the calculated average score, the HSCL-25 recommends that a score of 1.75 indicates clinically significant anxiety or depression. The HSCL-25 has been widely used in many countries, including Nigeria [33].

Data analysis

The Statistical Package for Social Sciences version 25 (SPSS-25) software package was used to analyze the data. The data was presented in frequency tables, mean and standard deviation using descriptive analysis. The chi-square test was used to investigate the difference between categorical variables and their associations. P values of <0.05 were considered statistically significant. The direction and strength of the relationship between two numerical variables were determined using correlation analysis.

Results

All questionnaires were correctly completed.

Using frequency tables, a descriptive analysis was used to present the sociodemographic characteristics, parental morbidities, and children's difficulties (Tables 1 and 2). Accordingly, Table 1 shows that the mean age of the pupils was 9.42±2.46 years, with 90 (60.4%) males and 59 (39.6%) females. In classes I, II, and III, there were 50, 48, and 51 pupils, respectively. While 71(47.7%) of the 149 pupils lived with both parents, 24(16.1%) and 54(36.2%) lived with single parents or relatives. Based on different SDQ difficulty cut-off scores, 53(35.6%), 15(10.1%), 25(16.8%), and 68(45.7%) children had at least borderline clinical scales of emotional, conduct, hyperactivity, and peer relationship problems. Similarly, 29 (19.5%) of the children had at least borderline difficulties based on total SDQ cut-off scores. See the Table for details .

According to Table 2, the parents' mean age was 34.32±12.28 years old, with 58 (38.9%) men and 91 (61.1%) women. Up to 71(47.7%) of them were married; the remaining 78(53%) had never been married, divorced, separated, or widowed. A total of 131(87.8%) had at least, a primary level of education, with tertiary education held by 14.8%. In terms of occupation, only 20(13.4%) were professionals, 121(81.2%) were non-professionals, and 8(5.4%) were unemployed. While 57% had an individual income below N20, 000.00, 16.8% had an income of at least N50, 000. Furthermore, 93 (62.4%) parents, were heads of households, 82% reported feeling unsafe living in the environment. With respect to mental illness, 38.3%, 43.6%, and 47% of the 149 parents had symptoms of PTSD, anxiety, and depression respectively. See the Table for details.

Table 1: Distribution of children based on sociodemographic characteristics and difficulties based on parents' SDQ rating.

	Variable name	Response	Frequency	Percentage
Sociodemographic	**Age Group (years)**	<6	6	4
		10-Jun	76	51
		≥11	67	45
	Mean age ± SD	9.42±2.46		
	Gender	Male	90	60.4
		Female	59	39.6
	Class	Primary I	50	33.6
		Primary II	48	32.2
		Primary III	51	34.2
	Living status	Single parent	24	16.1
		Both parents	71	49.7
		Other relatives	54	34.2
Difficulty Rating	**Emotional**	Normal	96	64.4
		Borderline	25	16.8
		Abnormal	28	18.8
	Conduct	Normal	134	89.9
		Borderline	8	5.4
		Abnormal	7	4.7
	Hyperactivity	Normal	124	83.2
		Borderline	18	12.1
		Abnormal	7	4.7
	Peer Relationship	Normal	81	54.4
		Borderline	25	16.8
		Abnormal	43	28.9
	Total difficulties	Normal	120	80.5
		Borderline	18	12.1
		Abnormal	11	7.4

Table 2: Distribution of parents based on Sociodemographic characteristics and morbidities.

	Variable name	Response	Frequency	Percentage
Sociodemographic	**Age group**	<35	44	29.5
		35-59	90	60.4
		≥60	15	10.1
	Mean age ± SD	34.32±12.28		
	Sex	Male	58	38.9
		Female	91	61.1
	Level of education	No formal education	18	12.1
		Primary	49	32.9
		Secondary	60	40.3
		Tertiary	22	14.8
	Occupational group	Professionals	20	13.4
		non professionals	121	81.2
		Unemployed	8	5.4
	monthly income	< N 20,000.00	85	57
		N 20,000.00-50,000.00	39	26.2
		> N 50,000.00	25	16.8
	Marital status	never married	13	8.7
		Married	71	47.7
		previously married	53	35.6
		Widowed	12	8.1
	Household head	No	56	37.6
		Yes	93	62.4
	Sense of safety	Yes	26	17.4
		No	123	82.6
Morbidities	**PTSD**	Yes	92	61.7
		No	57	38.3
	Depression	Yes	84	56.4
		No	65	43.6
	Anxiety	Yes	79	53
		No	70	47

SD: Standard Deviation

Table 3: Association between Parents' morbidities and Children's difficulties (dichotomized).

Variable		Difficulties			Statistics		
Parents' Morbidities	**Responses**	**Abnormal**	**Normal**	**Total**	**X^2**	**df**	**P**
PTSD symptoms	Yes	47(82.5)	10(17.5)	57(100)	9.845	1	0.002
	No	53(57.6)	39(42.4)	92(100)			
Anxiety symptoms	Yes	51(78.5)	14(21.5)	65(100)	6.727	1	0.009
	No	49(58.3)	35(41.7)	84(100)			
Depression symptoms	Yes	54(71.1)	16(22.9)	70(100)	6.016	1	0.014
	No	46(58.2)	33(41.8)	79(100)			

A chi-square test was used to investigate the association between parental morbidities (PTSD, anxiety, and depression symptoms) and the various categories of children's difficulties (dichotomized Normal and abnormal), and the results show that children whose parents had symptoms of PTSD, anxiety, and depression were more likely to experience difficulties than those whose parents did not. The differences were all statistically significant (PTSD symptoms, P = 0.002; anxiety symptoms, P = 0.009 and depression symptoms, P = 0.014). See Table 3 for details.

In the same manner, correlation analysis was used to determine the direction and strength of the relationship between parents' morbidities (PTSD, anxiety and depression symptoms) and the various categories of children's difficulties. Accordingly, a moderate, positive significant relationship was found between the children's total difficulties and parental PTSD symptoms (r =.552, p=0.001), anxiety symptoms (r =.546, p=0.001), and depressive symptoms (r =.508, p=0.001). Similarly, a weak but significant positive relationship was found between all parental morbidities and the following behavioral problems: emotional, hyperactivity, and peer relationship. In contrast, a weak negative correlation was found between the children's behavior problems and parental PTSD symptoms (r =.088, p=0.287); anxiety symptoms (r =.131, p=0.111); and depressive symptoms (r =.171, p=0.037). The details are displayed in table 4.

Discussion

Children living in war zones are at a higher risk of developing mental health problems, and the risk is heightened for children whose parents have mental illnesses [14, 17]. This is due, in part to the fact that the stages of a child's development also include periods of rapid but fragile brain development, making them the least resilient and most vulnerable to the effects of poor parental well-being and other adversities [34]. Studies on how parents' mental health affects their

Table 4: Correlation between Parents' Morbidities and children's difficulties.

s	Children's difficulties				
Parents' Morbidities	**Emotional**	**Conduct**	**Hyperactivity**	**Relationship**	**Total**
PTSD	r=.437*	r=-.088	r=.246**	r=.254**	r=.552**
	P< 0.001	P=0.287	**P=0.003**	**P=0.002**	**P=0.001**
	N=149	N=149	N=149	N=149	N=149
Anxiety	r=.376**	r=-.131	r=.249**	r=.342**	r=.5 46**
	P<0.001	P=0.111	**P=0.002**	**P=0.001**	**P=0.001**
	N=149	N=149	N=149	N=149	N=149
Depression	r=.350**	r=-.171*	r=.320**	r=.309**	r=.508**
	<0.001	P=0.037	**P=0.001**	**P=0.001**	**P=0.001**
	N=149	N=149	N=149	N=149	N=149

children in Nigeria's war zones are scarce. This study investigated the link between parental mental health and children's behavioral issues in war-torn communities in Northeastern Nigeria. Our findings support the psychological effects of war trauma, as well as the subsequent link between parental mental health and behavioral problems in children [21-23].

The socio-demographic characteristics of parents and children in our sample are similar to those found in previous Nigerian studies but differ from those found in other studies. For example, whereas Maigari et al. [7] sampled more males than females, this study sampled more females than males. One possible explanation for the disparity is that the subjects were recruited at schools, and because Nigerian women are more involved in their children's school runs than men, the women were more likely to be available for the study.

Parents' and children's mental health

Using HTQ and SCL ratings, we found a prevalence of mental disorders among parents, classified as PTSD, anxiety, and depression of 38.3%, 43.6%, and 47.0%, respectively (see table 2), which was within the 30–70% reported among people who have lived in war zones [6] but significantly higher than the rate reported for the general peaceful population [10–11]. This finding is similar to a previous study conducted by Maigari et al. [7] in Northcentral Nigeri. Thus, our findings, like previous ones, reflect the direct impact of trauma on mental health. Moreover, it has been demonstrated that there is a straight line with an arrow connecting armed conflict exposure to mental health [35]. However, the effect becomes more pronounced as the type and intensity of the trauma, as well as peritraumatic factors such as a lack of social support, low socioeconomic status, and so on, increase [7, 35].

Regarding the children's mental health, our findings using parents' SDQ ratings revealed a prevalence of about nineteen percent based on the total difficulties cut-off score. The results of the various difficulty sub-scales revealed that the conduct problems had the lowest prevalence, while the peer relationship had the highest (see table 3). Accordingly, the 19.5% prevalence of total difficulty that we found is considerably lower than the 42.7% reported by Thabet et al. [36] among Palestinian children who were exposed to shelling (armed attacks) but higher than the 7.6% reported by Kumar and colleagues among children affected by the earthquake in India [37]. The disparity could be attributed to, among other factors, a difference in the temporal relationship between trauma exposure and the time of the study as well as the type and intensity of traumatic events. For example, whereas Thabet et al. [36] carried out their study a month after the armed conflict, we conducted ours two years after. Research has shown that a substantial proportion of individuals with mental health consequences of mass violence recover without treatment in the years that follow, with a steep decline in prevalence rates occurring in the first year [38].

Relationship between the mental health of parents and the children's behavioral problems

According to our findings, more than half of the children we studied were in the care of at least one parent with a mental disorder, and at least one in every two had behavioral problems when compared to children of healthy parents. Accordingly, children of parents with mental disorders are significantly more likely to experience behavioral problems than children of healthy parents (See table 3). The study also found a significant positive correlation between all parental mental disorders and children's behavioral problems, except conduct problems, implying that parental mental disorders influence children's behavioral problems (see table 4). Moreover, previous research has found a strong link between children's behavioral disorders and their parents' stress [39], mental disorders [40], and poor child-parent interactions [41].

Our findings suggest that, in addition to genetic influences and cognitive vulnerabilities caused by direct war trauma exposure, the increased risk of behavioral symptoms may be due in part to the negative effects of parental mental illness [24, 25]. Empirical evidence suggests that the psychological effects of violence on children may depend more on the availability of trustworthy parents/caregivers to provide warmth and emotional support during and after traumatic events than on the level of violence witnessed [19]. Parent-child discussions about the trauma may aid in children's adjustment by allowing them to reevaluate the event and correct misconceptions [42,43]. Aside from the parent-child conversation, the child looks to immediate caregivers for reassurance and a way to interpret the threat [20, 23].

Surprisingly, we found no correlation between parental PTSD and conduct problems, implying that parental PTSD does not predict whether or not a child will exhibit conduct problems. The results also revealed a weak, negative correlation between parental anxiety and depression symptoms and conduct problems, implying that parental anxiety and depression symptoms have no effect on the manifestation of conduct problems in these children (see table 4). Research specifically linking parental mental health to conduct issues in the context of the war in our environment is not available. However, the age of onset of conduct problems could be a plausible explanation for our findings, as the majority of the pupils we sampled were in their early childhood to adolescence. Studies have shown that the onset of conduct problems tends to peak during late childhood and early adolescence, with a higher prevalence observed in late adolescence [44]. We also assumed, as in previous studies [45, 46], that children with severe behavioural issues were not enrolled, dropped out, or expelled from school prior to

the study. As a result, our findings may be the result of an unexplored inverse relationship between conduct problems and school enrolment, which could be a future research topic.

Strengths and limitations

We are not aware of any studies in north-eastern Nigeria that specifically assess the relationship between parental mental health and their children. Our findings could pave the way for future research. Another advantage is that the study was relatively quick and cheap to conduct, with data on all variables collected at a single point in time. Our study, however, had some limitations: The cross-sectional design and one-time measurement of this association make drawing a causal inference between these relationships difficult. A longitudinal study can be used to overcome this limitation. Because our instruments' responses are subjective, they can be manipulated by respondents and interviewers.

Conclusion

Parents and children living in war zones are more likely to develop mental disorders, and parents' mental health correlates positively with children's behavioural problems, according to this study. Understanding the relationship between parental mental health and their children in the context of armed conflict may thus be a critical step toward the prevention of childhood psychopathology.

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Potential Conflicts of Interest

No conflict or competing interests in the publication of this paper.

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