

Epidemiological Patterns of Anxiety Disorders in Kenya

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1. Introduction

The global burden of mental health problems including anxiety is enormous, neglected and under resourced, particularly in the developing nations [1-3]. People with untreated anxiety disorders are at dire risk of descending into other mental disorders since the anxiety symptoms interfere with social and occupational functioning and therefore lowers their self-esteem. While studies on the effects of untreated mental illness on national economic development have not been conducted in developing countries, research in developed countries provides an important framework and data for understanding these costs in developing countries [4]. Overall, lack of treatment for mental disorders results in much infallible expenses, as a result of the higher indirect costs associated with greater morbidity to untreated disorders [5]. Most of these costs are quantifiable and occur outside the health sector; loss of employment and income generation, increased absenteeism from work or school, poor performance within the workplace or school work and premature retirement [5]. People with mental disorders have higher unemployment rates, less access to treatment and face more discrimination [6-8].

Anxiety is, "one of the main motivating factors in most of human behaviour" and is a normal reaction to threatening or unthreatening situations in the environment. It produces a wide range of both physiological and psychological reactions that are often of sudden onset as the body prepares for 'fight or flight' response. These symptoms occur as a result of increased amount of adrenaline that is produced by the autonomic nervous system in response to a perceived threat from the environment. The increased level of adrenaline causes an increase in the heart respiration rate, elevation of the blood pressure and the contraction of blood vessels and intestines as blood is diverted to the heart, lungs and muscles. Although these reactions are appropriate when faced with incidents of threat or danger, the state of anxiety usually continue after the threat has been removed, or when there is no real threat existing. These physical and psychological symptoms occurring without a real stimulus in the person's environment can lead to the development of the different types of anxiety disorders. Anxiety disorders are therefore combinations of various physical and mental manifestations which are not attributable to real danger, but keep re-occurring in attacks or as a persisting hyper aroused state. Anxiety disorders include general anxiety (GAD), panic disorders, phobias, fears which keep repeating itself as acute, chronic or abnormal response states that become disabling on the individual's life.

2. Classification of anxiety disorders

A comprehensive review of available data worldwide has shown that 8-12% of children, youth and adults suffer from anxiety symptoms that are severe enough to interfere with daily life and functioning.¹ According to Diagnostic Statistical Manual for mental disorders fourth edition², anxiety disorders may be classified as follows:

1. separation anxiety disorder
2. Generalised Anxiety Disorder (GAD)
3. Panic Disorder
4. Phobic disorders – Agoraphobia, specific phobias and social phobia
5. Obsessive Compulsive disorder (OCD)
6. Post traumatic Stress Disorder (PTSD)
7. Secondary to General Medical Condition / substances

3. Anxiety disorders in childhood and adolescents

Recognizing anxiety symptoms in children is important because in most cases of anxiety disorders in youth and adults, the onset is usually during childhood [9]. In a school survey in Kenya among adolescent students utilizing different anxiety measuring instruments, several different types' of clinically significant anxiety syndromes were documented [10-12]. Multidimensional Anxiety Scale for Children (MASC) instrument revealed that definitive anxiety states was 12.9% where most of the students (>75%) had harm avoidance and social phobia[10,13]. Social anxiety for clinical pathology in this population of high students in a similar setting of 80% prevalence is not surprising since there are high levels of bullying in the same schools [12]. Utilising a questionnaire for screening a broad range of DSM-IV defined anxiety disorder symptoms in children and adolescents in the same setting, almost all students had separation anxiety, school phobia and obsessive or compulsive symptoms [12, 14-15]. The lowest anxiety symptoms (54.7%) were in specific phobia for animals [12]. However, some of these symptoms reported by the high school students can be reported as perfectly normal symptoms like; 'when frightened my heart beats fast'. Anxiety Disorders among children identified in Kenya include:

4. Panic disorder

- These are recurrent spontaneous episodes of panic associated with physiological and psychological symptoms. The physiological symptoms can be seen as emanating from circulatory, respiratory, gastro-intestinal, and urinary systems. Symptoms from respiratory system include: chest pains, shortness of breath, choking, dizziness/giddiness, fear of dying or going crazy and lapse into unconsciousness. The respiratory symptoms are related physiologically to changes in blood gaseous imbalance with a result of low levels of carbon dioxide. Symptoms from circulatory system include: palpitation, sweating, trembling, elevated blood pressure and muscle tension. Gastro-intestinal symptoms include nausea, butterfly feeling at the epigastria area and sometime diarrhoea and vomiting. While in the urinary system there is increased frequency of micturation, all these are in preparation for either fight or flight
- However, most instruments for measuring Anxiety Disorders in children do not screen for Panic Disorder

- In Kenyan setting, adolescents who have spontaneous panic attacks report greater severity of attacks, more depression and greater lifestyle changes as a result of the attacks

5. Selective mutism

- Lack of use of speech is specific to certain situations e.g. public places, with strangers or in presence of elements associated with traumatic event in the affected child (abuser)
- Common and usually characteristic with girls unlike boys
- Diagnosis most of the time missed out and child treated for a seizure disorder. In adolescent it is miss diagnosed as a conversion disorder
- Often children are shy, negative, controlling or oppositional. Been seen more common in family settings where mothers are overprotective; child develops fear of the environment and therefore cannot manipulate it.

6. Separation anxiety disorder

- The **essential features** of Separation Anxiety Disorder are excessive worry about separation from attachment figures. It is the commonest disorder in pre-pubertal children.
- Children with Separation Anxiety Disorder show different symptoms to those with other Anxiety Disorders. Fear of getting lost is common in separation Anxiety Disorder and fear of germs, illness and bee stings. Younger children report nightmares about separation.
- There may be a relationship between Separation Anxiety Disorder and later panic disorder or agoraphobia. Separation Anxiety Disorder seems to be a nonspecific precursor to a number of adult conditions including depression and anxiety disorders.

Children with separation anxiety disorder must have symptoms for at least half the time and this may cause interference in function (school work) or social communication. Separation anxiety was associated with symptoms of depression, such as sadness, withdrawal, apathy, or difficulty in concentrating. This explains some of the significant findings on the MASC scales and high score on the CDI in this Kenyan study; such as separation anxiety and depression at the age of 15-16 years for both boys and girls [12]. Though the validity (convergent and divergent) of the MASC in the Kenyan text was not tested against any gold standard that can be acclaimed to be culturally appropriate in Kenya for either anxiety or depression, MASC has been acclaimed to concur with DSM-IV diagnosis of anxiety disorders and also Children Depression Inventory to DSM-IV diagnosis of dysthymia, as reviewed in the introduction [12, 15-16]

7. Generalized anxiety disorder (GAD)

- This was found to be characterized by excessive worry about the future and past events and behaviours, concern about competence and self-consciousness.
- Overanxious children reported more fears about social and performance concerns, being criticized, teased or making mistakes. Their worriers were unrealistic about the future.

- This was found in older age than Separation Anxiety Disorder, although there was equal sex ratio.
- 85% of those with Anxiety Disorders had features of GAD.
- The most common symptoms were:
 - a. Unrealistic worry over future events.
 - b. Preoccupation with appropriateness of individual behaviour in the past.
 - c. Over-concern about competence in a variety of areas.
 - d. Somatic complaints.
 - e. Marked self-consciousness or susceptibility to embarrassment or humiliation.

8. Social phobia

- Persistent fear of social or performance situations when the person is exposed to unfamiliar people or scrutiny
- Social Phobia had all the features of panic disorder and was to be frequently co-morbid with other anxiety disorders

9. Simple phobia and fears [12]

- Simple phobias are specific, isolated, persistent fear of circumscribed stimuli e.g. school
- Associated avoidant behaviour interferes with the normal functioning of the child
- Mild fears are common in children. Girls fear more than boys do
- The commonest fears expressed by Kenyan children in Nairobi (urban setting) are:
 - Being confronted by bad news
 - Not being able to breathe
 - Being mugged
 - Getting burned by fire
 - Falling from a high place
 - Burglar breaking into the house
 - Death
 - Getting poor grades
 - being battered or watching a relative being battered (domestic violence)

10. Post traumatic stress disorder (PTSD)

- Children over the age of 3-4 years did not become amnesic for traumatic events and did not show psychic numbing, nor did they have intrusive flashbacks. However they commonly engaged in posttraumatic play or reenactment behaviour and had nightmares
- They also showed more distortion in their sense of time and a striking foreshortened view of the future.
- Children exposed to a single violent event - proximity to the event correlates directly with the severity of symptoms.
- Those with severe PTSD had more intrusiveness, emotional constriction and avoidance of reminders of the trauma. The difference between severe and mild PTSD has been associated with disturbances in sleep and concentration.

- In children with ongoing trauma (e.g. sexual abuse or domestic violence) there were complications to the diagnosis of PTSD because of complicating factors (poverty, neglect, alcoholism or drug abuse in the parents.) However many develop PTSD symptoms

In the school survey in Kenya, traumatic experience among the students was assessed to determine the levels of post traumatic stress disorder (PTSD [17]). Students indicated that being confronted with bad news was the commonest traumatic event they experienced (66.7%), followed by witnessing a violent crime and domestic violence at 23.2% and 16.5% respectively, where survivors of violence had serious bodily harm and sexual abuse. Accumulatively, PTSD symptoms were very common; avoidance and re-experiencing occurred in 75% of the students and hyper arousal reported in over 50% of the population [17]. The prevalence of PTSD was 50.5% with no gender difference; however students in boarding schools were more affected than day students ($p=0.005$) and there existed a difference in levels of PTSD between the different schools ($p<0.001$). Therefore school students in Kenya commonly experience traumatic events which are unnoticed and they therefore suffer PTSD and go without treatment [17]. Further, traumatic grief in which one loses a loved one through circumstances that are objectively traumatic and in which the trauma symptoms interfere with the normal grieving process causes the person to develop other mental disorders. In Kenya many human atrocities have occurred that have left many people with traumatic grief which affect both children and adults [18-20]. Results from these studies where a traumatised person also lost a loved one indicate the universality of emotions associated with trauma and grief and confirm an association between PTSD and grief.

The diagnosis of PTSD depended upon the child or adolescent first experiencing a traumatic event either by themselves or being witness to a traumatic event against another and there after exhibiting an intense fear, hopelessness or horror reaction in children, disorganized or agitated behaviour as specified in the Diagnostic and Statistical Manual of Mental Disorders [15]. PTSD among children is unique from the adult disorder in that children tend to re-experience the event through play or drawing and exhibit nightmares involving monsters rather than the traumatic event. Adolescent reactions include intense emotional distress and physiological reactions; more similar to adult reactions such as re-experiencing the event through intrusive thoughts, memories and flashbacks. The other symptoms of PTSD in children and youth included feeling disconnected from others or loss of interest in activities, and hyper-arousal (e.g. sleep disturbances and easy to startle) [20]. Assessment in children is particularly challenging because those less than 11 years old may not be able to conceptualize or verbalize their symptoms. Primary caregivers and teachers are often used as informants for the assessment of their child's feeling of hopelessness and loss of interest in previously enjoyed activities. Criteria for diagnosing PTSD among youth in Kenya included the presence of at least one symptom related to re-experiencing, three or more emotional numbing / avoidance symptoms, and two symptoms of hyper-arousal [20]. These symptoms must be present for more than 1 month and cause clinically significant distress or impairment in functioning. The symptoms of PTSD usually arise within three months from the experience of the traumatic event, yet clinical diagnosis of PTSD is made usually only if symptoms persist for six months after the event.

Posttraumatic stress and grief were examined in middle school children 8 to 14 months after experiencing loss in the Embassy bombing, adding to the growing body of literature that documents posttraumatic stress and grief in children who experience traumatic loss within

and outside the immediate family [18-19]. With the exception of pre-bomb loss, the hypothesized predictors (physical exposure, acute response, type of bomb-related loss, post-bomb loss, and PTSS-Other) were significantly associated with bomb-related posttraumatic stress. The positive association of bomb-related PTSS with physical exposure and with acute response supports the stressor criterion of the diagnosis of PTSD. The finding that posttraumatic stress related to other negative life events was associated with higher bomb-related posttraumatic stress. Posttraumatic stress associated with prior negative experiences may increase the vulnerability of children exposed to later traumatic events. The results suggested that having additional negative life events and losses subsequent to the bombing may also have increased the children's vulnerability to posttraumatic stress [18-19]. Neither the time elapsed between the bombings nor subsequent loss, or the child relationship to the deceased in losses unrelated to the bombing, were assessed and should be addressed in further research. Thus, both posttraumatic stress and grief should be examined in children following mass casualty terrorist events. Consistent with a view of traumatic grief as a convergence of conditions rather than a distinct entity, posttraumatic stress and grief should be measured instead of unique reactions associated with a specific construct of traumatic grief [18-20].

A high level of PTSD was expected among children and youth at risk in the Kibera slum in Nairobi following disputed presidential election results of 2007 [20]. It was well known that this slum was acutely affected by violence during the month following the broadcast of the 2007 Kenya Presidential election results. The violence experienced in Nairobi following the 2007 elections was unique in that it involved clashes between neighbours of differing tribal heritage, excessive violence against girls/women, forced circumcisions on boys/men, and the concentration of violent activities (including murder) in certain urban slums. In addition to personal physical violence, many safe havens such as churches and schools and common areas such as kiosks and stores were burned or destroyed. The impact of the violence in the affected areas will be long lasting. It is important to note that if the above symptoms are present within two days after the event and less than a month is over, they are referred to as Acute Stress Disorder (ASD) and not PTSD, especially if within this period; those affected also have feelings of detachment of being alienated from themselves or the environment. If symptoms of PTSD occur for the first time six months after the traumatic event, then it is referred to as late onset PTSD. Although the variety of events capable of producing PTSD varies somewhat between children and adults, characteristics of the stresses remain primarily determinants of psychological reactions within and across a variety of settings. For example:

- a. Exposure is directly related to the risk for PTSD symptoms
- b. PTSD can result from direct, witnessed or verbal exposure to trauma
- c. Aspects of the symptom picture may vary with stress-specific factors e.g. chronic physical and sexual abuse in childhood often results in severe psychopathology that bears little resemblance to the classical PTSD picture
- d. There are two clinically useful distinctions in types of trauma which represent different literatures and sometimes approaches:
 - i. Type I trauma – sudden, unexpected, unpredictable, single-incident stressor that may be multiply repeated
 - ii. Type II trauma – chronic, expected, repeated stressor, usually childhood physical or sexual abuse.

There is high prevalence rate of PTSD found among sexually abused children in Kenya, which shows that as many as 100% of children who witness a parental homicide or sexual assault develop PTSD [21]. In this study by Syengo the rates of PTSD were much higher in children and adolescents recruited from at risk groups with the rates varying from 3 to 100%. It further indicated that 90% of sexually abused children, and 77% of children exposed to school shooting develop PTSD [21]. This study indicates that among sexually abused children, the prevalence of psychiatric morbidity measured by the DSM- IV - TR is high 69% [15,21]. The results of this study confirm that sexually abused children develop PTSD therefore putting credence to the fact that there is a relationship between the effects of traumatic events and psychological health. In this study, there were more female respondents than male suggesting that the girl child is more vulnerable to child sexual abuse than boys. This could be postulated to be a masculine / feminine stereotypic view of sexual power relations where the male exercises his dominance through sexual violence and threats on the female. The inferior social status of the female gender could also be a contributing factor that makes them be easily violated. This could also be attributed to some myths in Kenya that believe that having sex with a child or a virgin cures HIV/AIDS. The author postulates that exposure to traumatic events has the same distressing effects to everyone regardless of their age and the development of PTSD will depend on the individuals' personal characteristics among other environmental risk factors. Therefore sexually abused children are at a high risk of developing post traumatic stress disorder with adolescent girls being more at risk than their male counterparts. In this study, even though all the cases were reported in a timely manner and recruited into an intervention plan through the Rescue Centre, lack of support immediately after the incident may have played a major role in contributing to the development of PTSD [21].

11. Obsessive compulsive disorder (OCD)

- Features similar to adult symptoms
- Children had compulsions without associated obsession, this may be due to cognitive immaturity
- There was a strong association with other anxiety disorders, depression, ADHD, Conduct Disorder and substance abuse

In the school survey, obsessive compulsive disorder was also assessed by using the Leyton's symptom check list for OCD in Children and Adolescent, 69.1% of the students had obsessive symptoms while 81.1% had compulsive features, with a total of 40.7% having Obsessive compulsive symptoms [22-23]. This apparently high prevalence of obsessive and compulsive disorders in this age group could be a reflection of the first peak of maximum incidence obsessive and compulsive symptoms at ages 12-14 as reported in western countries which have been shown to be carried on into adulthood and present life OCD [24]. Harm avoidance - perfection (trait of obsessive compulsive) was at 81.5% on the MASC and OCD at 99.3% on the SCARED-R [10-11]. In the case of the SCARED-R some of the symptoms that contributed to high scores on the OCD could be regarded as normal for children who are subjected to a patterned way of doing things in a school environment, more so a boarding school, where obedience to school rules is not only a must but strictly enforced [11].

This trend of high prevalence of obsession-compulsive symptoms and syndromes and OCD was repeated on using a scale only for obsessive compulsive disorder symptoms. There was

a prevalence of 40.7% clinical pathology for obsession disorder and 81.1% for compulsive disorder and 69.1% for both obsessive compulsive disorders. Although some but not all of the symptoms could be explained as already discussed, the presence of obsessive-compulsive symptoms cannot be ignored in African children. This is despite the fact that they are rarely recognized in routine clinical practice. This apparently high prevalence's at this age group could be a reflection of the first peak of maximal incidence of OC symptoms at ages 12-14 reported in the Western settings [24]. This is an important finding especially on obsessive-compulsion symptoms and syndromes in clinical situation since these traits are likely to be carried to adulthood where they present as obsessive compulsive disorder (OCD).

12. Anxiety disorders in adults

In communities, cases of PTSD are common. Following any traumatic event, affected individuals on assessment are found to have hyper-arousal symptoms, had startled responses, lacked sleep; re-experiencing the event beyond 6 months trauma [25]. In December 2007 following post election violence in Kenya, many female rape survivors in Kibera informal settlement were left with shame and guilt, manifestations of anxiety and depressive symptoms. This has been observed by primary health workers at a health centre (Woodley- City Council Clinic) where about 200 female survivors of rape following 2007 post election sought psychological support. Observation by health workers and a study finding at the clinic by Nyaga indicate that although medical treatment was given to the rape survivors, depressive symptoms, PTSD and other anxiety symptoms were not given adequate psychological support [26]. Nyaga showed high prevalence of PTSD among the female rape survivors to be as high as above 80%.

According to human rights group, at least 1000 women across Kenya were raped during chaos that followed the country's December, 2007 elections. The UNHCR reported that the highest incidents of rapes in Kenya were witnessed in 2007 post election violence in most parts of the country [27]. An estimated 1200 victims of sexual assault who included women, men as well as girls and boys were reported [27]. According to the police spokesman 200 rape cases were reported to police but only 15 cases made it to court with only 12 convictions. The number of rape cases reported in Nairobi women's gender recovery centre was 341 which was a quarter of the one thousand women rapes reported in the country [27]. Anxiety disorders seen in general health facilities are more frequently associated with chronic medical conditions [28]. Using the Leeds Scale for the Self-Assessment for Anxiety and Depression (LSAD) in this study, 20 to 30% of patients who had cancer, HIV, diabetes and cardiovascular disease had features of general anxiety disorder. The high levels of anxiety disorders in this population were related to the chronicity of medical conditions. Among adults admitted in psychiatric hospital in Kenya, the leading anxiety disorder was shown to be general anxiety disorder, followed by panic attack with agoraphobia, obsessive compulsive disorder then social phobia [28]. The level of PTSD among motor vehicle accident survivors attending the orthopaedic and trauma clinic at Kenyatta National Hospital has been shown to be 13.3%. This is familiar to the 7%-39% PTSD rate found in the developed world [29]. Ongecha in this study identified some risk factors associated with PTSD such as younger age (20 to 39 years), being female, previously married for women and currently married for men, of post-primary education, being a driver, being involved in first accident, and perceived threat of a life at a time of accident especially the thought of being

maimed [29]. Being previously married (widowed/divorced) is a major life event that can lead to PTSD, predisposing one to develop PTSD with a subsequent trauma. Being a driver seems to predispose one to PTSD since they are mainly in full view and tend to witness the whole or better part of the accident. The result in this study showed that there was more (26.6%) distress from avoidant symptoms compared to the hyper-arousal (15.7%) or re-experiencing (14.7%) symptoms. Thus avoidance symptoms were more prominent in this study group and this subscale may be a better measure for distress in this population [29]. In this study, the co-morbidity rate was found to be 28.6%. PTSD was found to be associated with the following psychiatric disorders; general anxiety disorder (11.4%), major depressive disorder (8.6%), bipolar I disorder - single manic phase (2.9%), bipolar I disorder mixed type (2.9%) and schizophrenia (2.9%). Lifetime substance use was found to be 50.8%, with increased amounts of nicotine and sedatives among respondents. Hence with PTSD prevalence rate of 13.3% and co morbidity rate of 28.6% there is need to institute a multidisciplinary approach in the care of Motor Vehicle Accident survivors from the emergency health facility setting [29].

In a study among inpatients at Mathari psychiatric Hospital¹, 63.9% of patients had experienced a traumatic event with 48% presenting with avoidance symptoms while 33.5% with hyper arousal features [30]. In the same setting 12.2% of the inpatients met the criteria for obsessive compulsive disorder [31]. Among these patients at Mathari Hospital, a wide variety of anxiety disorders were reported. The leading disorder was Generalised anxiety disorder (prevalence of 20.8%); the fourth common disorder after schizophrenia, bipolar mood disorder and alcohol abuse. The other anxiety disorders found in this population included panic attack, panic attack with agoraphobia, obsessive compulsive disorder and social phobia [31]. The prevalence rate of obsessive compulsive symptoms among the patients at the hospital reflects the ages of the respondents at the time of the interview and not the duration of the age at onset [32]. However the age structure of the respondents in the study reflected having anxiety disorders generally among the youth in Kenya, which was apparent that the onset starts early in life. The prevalence rates of obsessive and compulsive symptoms peaked at the 21- to 30-year age band. The finding that more than half (59.5%) of the respondents were single again reflects the youthful study population. In addition, the education levels of the respondents were also a true reflection of the literacy rates amongst the youthful population in Kenya, given that over 87% were literate [32].

One third of the patients recruited in the study at the Hospital experienced traumatic events [30-31]. The most common of these were violent events of different types, directed to the person or to another. Those who had been exposed to traumatic events experienced post-traumatic stress disorder (PTSD) symptoms such as avoidance (48%) and hyper arousal (33.5%). In spite of the above, only 7.4% of the patients scored for DSM-IV diagnoses of PTSD in past admissions, while only 4% reported PTSD at the time of the interview. These findings among African sample support the universality of emotions associated with trauma and grief and confirm an association between posttraumatic stress and grief, even with losses outside the immediate family. Future studies should further explore the construct of traumatic grief, delineate more carefully the two processes of trauma and loss, and examine developmental issues associated with traumatic loss.

Regrettably, various anxiety and obsessive compulsive symptoms in the patients in the study at Mathari Hospital had not been recognized in this psychiatric clinical setting [30-32].

¹ Referral National Psychiatric Hospital in Kenya

This is explained by a clinical preoccupation with the disturbed behaviour that often necessitates admission into the Psychiatric Hospital, and reveals the fact that an investigation into anxiety and OCD would elicit their prevalence. Co-morbidity with schizophrenia, bipolar mood disorders, substance-induced disorders, psychosis, schizoaffective disorders and depression as reported in this study was high [30-31]. This co-morbidity was also found between all the DSM-IV core syndromes, more than half of which were significantly associated with OC symptoms [15].

The recognition of this co-morbidity of anxiety and other severe psychiatric disorders is important since it calls for the appropriate management of each of the co-morbid disorders [30-32]. The authors have no explanation for why anxiety and OCD DSM-IV diagnosis are missed out, although it is possible that patients in the Kenyan socio-cultural context may have difficulties in differentiating between symptoms with a locus inside or outside their minds. Further research to clarify this is needed. It should be noted that the interviewers asked questions strictly on the DSM-IV definitions of the symptoms. Of particular significance is the association between Obsessive and Compulsive symptoms and passivity symptoms of schizophrenia. Whereas DSM-IV distinguishes between the clinical symptoms of OCD and passivity symptoms of schizophrenia, in clinical practice, the latter may camouflage the former. The clinical implication is that there is a need to adopt routine clinical tools that systematically enquire for all symptoms, including Obsessive and Compulsive symptoms. Missing them and therefore not treating them affects the overall prognosis of the patient.

13. Conclusion

Addressing anxiety disorders matters whether in hospital or community setting. Because anxiety disorders contribute to severe and significant morbidity, productivity and quality of life. Moreover, anxiety disorders usually co-exist with other chronic mental and physical conditions and may adversely influence the outcomes of these chronic conditions. These findings should stimulate clinical and epidemiological research on anxiety and depression in Africa with a view to improve clinical practice and formulating policy in mental health. Studying psychometric properties of instruments that assess anxiety is urgently required in African settings. Besides there is need for more research in epidemiology on mental health with an aim of developing several policies so that: inputs on mental health for all medical and paramedical personnel is ensured; there is a proactive identification of anxiety disorders in docile population or anxiety disorders co-existing with severe mental and physical disorders is proactively identified; and in place there is appropriate policy framework for promotion, prevention and clinical interventions within the national health strategic plans. In particular a policy in schools which should be in place to identify and provide intervention for children with mental problems. This role can best played by school resident counselors. This is more so since anxiety patterns clearly indicate that these problems exist right at the earlier ages of secondary school entry and by retrospective projection in primary school before joining secondary schools. The high prevalence of anxiety disorders continue and change in pattern across the whole spectrum of secondary school education into adulthood and co-exist with physical and other mental disorders. Of particular interest for a proactive enquiry is depression, alcohol abuse and suicide related symptoms.

In view of the large numbers of population with anxiety disorders, there is need to have in place simple self administrated screening tests to facilitate the identification of persons who need further assessment. This can be an important screening entry point among patients attending general and psychiatric health facilities where there is high prevalence of psychiatric morbidity which largely go undiagnosed and therefore, unmanaged in Kenya. The more specialized medical facilities get in the various general and surgical disciplines, the less recognized mental disorders become. Chronic conditions physical and mental conditions have been shown to have highest co-morbidity with mental disorders, in particular anxiety and depressive disorders. These findings call for continuing education on mental health at all levels of psychiatry, general and surgical facilities, and also for routine screening for mental disorders.

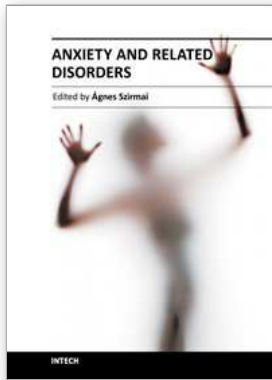
14. Reference

- [1] Murray CJL, Lopez AD (eds). 1996. The global burden of disease: a comprehensive assessment of mortality and disability from diseases, injuries and risk factors in 1990 and projected to 2020. Global Burden of Disease and Injury Series. Cambridge, MA: Harvard School of Public Health on behalf of the World Health Organization and the World Bank.
- [2] Lopez, D. A., Mathers, D. C., Ezzati, M., Jamison, T. D., & Murray, J. L. C. (2006). *Global Burden of Disease and Risk Factors*. New York: Oxford University Press and The World Bank.
- [3] WHO (2004). *Prevention of mental disorders: effective interventions and policy options*. Geneva: WHO.
- [4] Lund, C., Breen, A., Flisher, A. J., Swartz, L., Joska, J., Corrigan, J. et al. (2007). Mental health and poverty: a systematic review of the research in low and middle income countries. *The Journal of Mental Health Policy and Economics*, 10, Supplement 1, S26-S27
- [5] Ndeti DM, Pizzo M, Khasakhala LI, Maru HM, Mutiso VN, Ongecha FA, Omar A, Kokonya DA. Perceived economic and behavioural effects of the mentally ill on their relatives in Kenya: a case study of the Mathari Hospital. Volume 12, Issue 4, *Afr J Psychiatry* 2009;12:293-299
- [6] Ndeti DM, Ongecha FA, Khasakhala L, Mutiso V, Kokonya DA. The Prevalence of Mental Disorders and the Attitude in General Medical Facilities in Kenya - A WHO Monograph; 2006.
- [7] Ssebunnya J, Kigozi F, Lund C, Kizza D, Okello E. Stakeholder perceptions of mental health stigma and poverty in Uganda. *BMC International Health and Human Rights*. 2009;9:5. [PMC free article] [PubMed]
- [8] Adewuya AO, Makanjuola RO. Social distance towards people with mental illness in southwestern Nigeria. *Australian & New Zealand Journal of Psychiatry*. 2008;42(5):389-395. [PubMed]
- [9] Bernstein, G.A., Borchardt, C.M., & Perwien, A.R. (1996). Anxiety disorders in Children and adolescents. A review of the past 10 years. *Journal of the American Academy of Child and Adolescent Psychiatry*, 35, 1110-1119.
- [10] Ndeti DM, Seedat S, Syanda J, Ongecha-Owuor FA, Kokonya DA, Khasakhala LI, Mutiso VN. Psychometric properties of the Multidimensional Anxiety Scale for Children (MASC) amongst Nairobi public secondary school children, Kenya. *Journal of Child & Adolescent Mental Health* 2008, 20 (2) : 101-109

- [11] Ndetei DM, Ongecha FA, Khasakhala L, Syanda J, Mutiso V, Othieno CJ, Odhiambo G, Kokonya DA. Bullying in public secondary schools in Nairobi, Kenya. *J Child Adol Mental Health* 2007; 19 (1), 45-55.
- [12] Ndetei DM, Khasakhala L, Nyabola L, Ongecha-Owuor F, Seedat S, Mutiso V, Kokonya D, Odhiambo G. The prevalence of anxiety and depression symptoms and syndromes in Kenyan adolescents. *Journal of Child and Adolescent Mental Health* 2008; 20 (1): 33-51
- [13] The Multidimensional Scale for Children (MASC). Factor structure, reliability, and validity. *Journal of the American Academy of Child and Adolescent Psychiatry*, 36, 554-565.
- [14] Muris, P., Dreessen, L., Bogels, S., Weckx, M., and Van Melick M. (2004). A questionnaire for screening a board range of DSM-IV defined anxiety disorder symptoms in clinically referred children and adolescents. *Journal of Child Psychology and Psychiatry* 45: 4 pp. 813-820.
- [15] American Psychiatric Association (1994), *Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV)*. Washington, DC: American Psychiatric Association. March, J.S., Parker, JDA., Sullivan, K., Stallings, P. & Cornors, CK. (1997).
- [16] Kovacs M, Gatsonis C, Paulauskas S, Richards C (1989), Depressive disorders in childhood: A longitudinal study of comorbidity with and risk for anxiety disorders. *Arch Gen Psychiatry* 46:776-782[Abstract/Free Full Text]
- [17] Ndetei DM, Ongecha FA, Khasakhala L, Mutiso V, Othieno CJ, Syanda J, Odhiambo G, Kokonya DA. Traumatic Experiences of Kenyan Secondary School Students. *J Child Adol Mental Health* 2007; 19 (12): 147-55.
- [18] Ndetei DM, Omar A, Mutiso VN, Ongecha FA, Kokonya DA. Profiles of referrals to a psychiatric service: a descriptive study of survivors of the Nairobi US Embassy terrorist bomb blast. Volume 12, Issue 4, *Afr J Psychiatry* 2009;12:280-283
- [19] Pfefferbaum B, North CS, Doughty DE, Pfefferbaum RL, Dumont CE, Pynoos RS, Gurwitsch OH, Ndetei DM. Trauma, Grief And Depression In Nairobi Children After The 1998 Bombing Of The American Embassy. *Death Studies* 2006, 30: 561-77
- [20] Harder VS., Mutiso V., Khasakhala L., Burker H., Ivanova MY., Ndetei DM. Behavioral and Emotional Problems among Kenyan Youth from an Urban Slum. *Journal of Child Psychology and Psychiatry*
- [21] Syengo-Mutisya CM, Kathuku DM, Ndetei DM. Psychiatric morbidity among sexually abused children and adolescents. *East Africa Medical Journal* 2008, 85 (2): 85-91
- [22] Bamber D., Tamplin A., Park R.J., Kyte Z., and Goodyer, I. M. (2002). Development of a Short Leyton Obsessional Inventory for Children and Adolescents. *Journal of Amrican Child and Adolescent Psychiatry*, 41,10, pp. 1246-1252
- [23] Ongecha FA, Khasakhala LI, Maru H, Mutiso V, Kokonya DA. Obsessive-Compulsive (OC) Symptoms in Kenyan high school students. *African Journal of Psychiatry* 2008, 11: 182-186
- [24] Flament MF, Cohen D (2000), Child and adolescent obsessive-compulsive disorder: a review. In:Obsessive-Compulsive Disorder, Maj M, Sartorius, Okasha A, Zohar J, eds. Chichester, England: Wiley, pp 145-183
- [25] Rasmussen SA, Tsuang MT (1986). Clinical characteristics and family history in DSM-III obsessive-compulsive disorders. *American Journal of psychiatry*, 143:317-322.

- [26] Nyaga, I [2009]. Prevalence of PTSD, Depression, and other General Anxiety Symptoms among Female Survivors of Rape Following Post Election Violence 2007 Nairobi- Kenya. Thesis in Partial Fulfilment of the Requirement for Award of Master of Clinical Psychology of University of Nairobi
- [27] UNHCR Report 2008. December 2007 Post Election Violence in Kenya
- [28] Ndetei DM, Khasakhala L, Kuria M, Mutiso V, Ongecha FA, Kokonya D, The Prevalence of Mental Disorders in Adults in Different Level General Medical Facilities in Kenya: A Cross-Sectional Study. *Annals of General Psychiatry* 2009, 8:1. Available online at <http://www.annals-general-psychiatry.com/content/8/1/1>
- [29] Ongecha-Owuor FA, Kathuku DM, Othieno CJ, Ndetei DM. Post traumatic stress disorder among motor vehicle accident survivors attending the orthopaedic and trauma clinic at Kenyatta National Hospital, Nairobi. *East Afr Med J* 2004; 81 (7):362-6. PMID: 15490709 [PubMed - indexed for MEDLINE]
- [30] Ndetei DM, Khasakhala LI, Ongecha FA, Mutiso V, Kokonya DA. Outcome of a working diagnosis of "psychosis" in relation to DSM-IV diagnostic criteria in a Kenyan in-patient cohort at Mathari hospital, Nairobi. *African Health Sciences* 2007; 7 (3): 197-201
- [31] Ndetei DM, Khasakhala LI, Maru H, Pizzo M, Mutiso V, Ongecha-Owuor FA, Kokonya DA. Clinical Epidemiology in Patients Admitted at Mathari Psychiatric Hospital, Nairobi, Kenya. *Social Psychiatry & Psychiatric Epidemiology* 2008; 43(9):736-742
- [32] Ndetei DM, Ongecha FA, Khasakhala LI, Maru H, Mutiso V, Kokonya DA. Obsessive-Compulsive (OC) Symptoms in Psychiatric In-patients at Mathari Hospital, Kenya. *African Journal of Psychiatry* 2008, 11: 182-186
- [33] Ndetei DM, Khasakhala L, Nyabola L, Ongecha-Owuor F, Seedat S, Mutiso V, Kokonya D, Odhiambo G. The prevalence of anxiety and depression symptoms and syndromes in Kenyan adolescents. *Journal of Child and Adolescent Mental Health* 2008; 20 (1): 33-51
- [34] Ndetei DM, Ongecha FA, Khasakhala LI, Maru H, Mutiso V, Kokonya DA. Obsessive-Compulsive (OC) Symptoms in Psychiatric In-patients at Mathari Hospital, Kenya. *African Journal of Psychiatry* 2008, 11: 182-186
- [35] Pfefferbaum B, North CS, Doughty DE, Pfefferbaum RL, Dumont CE, Pynoos RS, Gurwitsch OH, Ndetei DM. Trauma, Grief And Depression In Nairobi Children After The 1998 Bombing Of The American Embassy. *Death Studies* 2006, 30: 561-77
- [36] Ndetei DM, Omar A, Gakinya BG, Ongecha FA, Kokonya DA, Mutiso V, Mwangi J. Psychological reactions to and biopsychosocial impacts of a fire disaster: A naturalistic study of the student survivors and the staff at a Kenyan rural school. *Journal of Traumatic Stress*
- [37] Ndetei DM, Khasakhala L, Kuria M, Mutiso V, Ongecha FA, Kokonya D, The Prevalence of Mental Disorders in Adults in Different Level General Medical Facilities in Kenya: A Cross-Sectional Study. *Annals of General Psychiatry* 2009, 8:1. Available online at <http://www.annals-general-psychiatry.com/content/8/1/1>
- [38] Ndetei DM, Seedat S, Syanda J, Ongecha-Owuor FA, Kokonya DA, Khasakhala LI, Mutiso VN. Psychometric properties of the Multidimensional Anxiety Scale for Children (MASC) amongst Nairobi public secondary school children, Kenya. *Journal of Child & Adolescent Mental Health* 2008, 20 (2) : 101-109

- [39] Ndeti DM, Ongecha FA, Khasakhala L, Mutiso V, Othieno CJ, Syanda J, Odhiambo G, Kokonya DA. Traumatic Experiences of Kenyan Secondary School Students. *J Child Adol Mental Health* 2007; 19 (12): 147-55



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Anxiety disorders are one of the most common psychiatric disorders worldwide and many aspects of anxiety can be observed. Anxious patients often consult primary care physicians for their treatment, but in most cases they do not accept the diagnosis of anxiety disorder. Anxiety is a symptom that could be seen in many organic disorders and can accompany almost any psychiatric disorder. Anxiety disorders are frequent and are associated with significant distress and dysfunction. Stigmatization is an important factor in insufficient diagnosis. The problems of anxiety cover all fields of life. This book intends to describe the epidemiological aspects and the main co-morbidities and consecutive diseases of the anxiety disorders.

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