

The Impact of Gender in the Prevalence, Severity and Comorbidities of Anxiety Disorders. Case of Children from Selected Schools in Dagoretti Sub-County, Nairobi County, Kenya.

Josephine W. Muchiri, Ph.D. Candidate in Clinical Psychology; Michael Bowen, Ph.D; & Naomi James, Ph.D., Daystar University.

Abstract

This correlational survey research investigated the impact of gender on the prevalence, severity and comorbidities of anxiety disorders. The Screen for Child Anxiety Related Emotional Disorders (SCARED)-Child version questionnaire collected data on prevalence and severity of anxiety disorders while the Strengths and Difficulties Questionnaire (S&DQ) collected data on some of the comorbid conditions. Participants were 163 class 4 and class 8 students ($n_{\text{females}} = 94$, $n_{\text{males}} = 69$), attending two public day primary schools, Kabiria and Kawangware primary schools in Dagoretti Sub-County, Nairobi County, Kenya. Data was analyzed quantitatively using the Statistical Package for Social Sciences (version 20) utilizing descriptive statistics, Pearson Chi-Square tests and the analysis of variance (ANOVA). Overall, descriptive statistics showed that females had higher prevalence rates for the ADs (85.1%) compared to males (71%) and the ANOVA revealed statistically significant gender differences in severity of the ADs ($p = 0.004$). The Chi-Square test of independence showed there was no significant association between gender and homotypic comorbidities $\chi^2(1, N = 163) = 1.68, p = 0.194$, where the average number of AD subtypes among females was 3.25 and 3.17 for the males. In the heterotypic comorbidities, more females than males had comorbid emotional problems (Females = 13.6%; Males = 4%) and more males than females had peer, hyperactivity and conduct problems (Males: peer= 48.0%, hyperactivity = 20.0%, conduct= 32.0%; Females: peer= 39.3%, hyperactivity = 18.2%, conduct= 15.2%). The findings thus revealed underlying gender specific factors that have a bearing on the prevalence, severity and comorbidity patterns of anxiety disorders.

Key words: Gender differences, Anxiety disorders, Children, Adolescents, Comorbidities.

Introduction and Background

The seven major classifications of anxiety disorders (ADs) as per the current Diagnostic statistical manual (DSM-5, 2013) are separation anxiety disorder, selective mutism, social anxiety disorder, specific phobias, panic disorder, agoraphobia, and generalized anxiety disorder. ADs share features of excessive fear, anxiety and related behavioral disturbances and they are highly comorbid showing both homotypic and heterotypic comorbidities. In homotypic comorbidity, two or more sub-types of ADs co-occur, while in heterotypic comorbidity, ADs co-occur with other mental disorders (Canals et al., 2019; Mohammadi et al., 2020; Saha et al., 2021).

Gender differences have been reported in the prevalence, severity and comorbid patterns where most population studies suggest that females are approximately 1.5 to 2 times more likely to develop most anxiety disorders than males (Anxiety and Depression Association of America [ADAA], 2021; Rapee, 2018). Gender differences in comorbidities point to females showing internalizing comorbid conditions such as mood disorders and other anxiety disorders whereas males display the externalizing comorbid conditions such as conduct disorders, alcohol, and substance abuse disorders (Christiansen, 2015).

The observable gender differences in anxiety disorders have been attributed to several biological and social factors where among the biological factors, it is opined that hormonal fluctuations during pubertal development as well as thelarche development predispose females to anxiety disorders (Ferri et al., 2014; Hantsoo & Epperson, 2017; Lewis et al., 2018). Furthermore, puberty may be a time of increased psychological and physical changes where some females tend to be more reactive to external stressors, which could lead to development and maintenance of some anxiety disorders (Nillni et al., 2011).

Some of the social factors forwarded as risk factors for anxiety disorders among females are the gender socialization processes that emphasize adherence to strict gender stereotypic roles and norms (Christiansen, 2015; Ram et al., 2014; Zalta et al., 2012). The societal expectations for girls to adhere to the prescribed gender roles and norms puts undue pressure as children are forced to internalize the voices of the society that expects them to be constantly self-conscious,

hence the higher anxiety diagnoses among females (Khalid, 2018; Ram et al., 2014). Males on their part are taught to confront feared objects, resulting in a greater exposure and extinction of fear responses (Christiansen, 2015; Arcand et al., 2020). Additionally, females tend to have greater predispositions to risk factors such as sexual assault (Kostelny et al., 2013; Nyagwencha et al., 2018) which are precursors to anxiety disorders (APA, 2013; Carcani-Mane, 2020; Dabowska & Dabkowska, 2015; Maniglio, 2012).

The numerous gender differences in the prevalence, severity and comorbidities of anxiety disorders thus warrant further investigations as they may reveal the underlying factors that promote development and maintenance of the ADs among children of different genders. Moreover, elucidating these gender differences is critical towards promoting gender sensitivity in mental health assessments and interventions, which necessitates the current study.

Methodology

This correlational survey research compared prevalence and severity of anxiety disorders between male and female students in class 4 and class 8 aged 8-16 years. The rest of the classes (5, 6, and 7) were not in session due to the Covid -19 pandemic containment measures that had been instituted by the Government. The correlational design was found suitable since findings can be used to determine prevalence and relationships among variables (Curtis et al., 2016). In Kabiria primary, there were a total of 550 students (270 males and 280 females) in both class 4 and class 8 while in Kawangware primary there were 560 students in class 4 and class 8 (270 males and 290 females).

Participants were selected through purposive sampling based on their ages (8-16 year old) and the ability to read or write in English as pointed out by the class teachers. The age group 8-16 years corresponds with pubertal development and hence it was crucial to ensure that all the participants fit this criterion. Moreover, the study questionnaires were in English and thus it was important for participants to be able to read and write in English. It was also critical to enhance ethical guidelines and hence selection into the study was voluntary and only those who indicated willingness to participate in the research process were selected to continue, but they were additionally required to have informed consent from their parents. From all these selection

criteria, 180 students (92 students from Kabiria and 88 from Kawangware) were admitted into the study and they were administered the questionnaires. After sorting out the SCARED questionnaires, there were 17 spoilt questionnaires which had either incomplete information or multiple answers and they were excluded from the final analysis leaving a sample size of 163 comprising, 90 students from Kabiria (47 females, 43 males) and 73 students from Kawangware primary (47 females and 26 males). The females were thus 94 and the males were 69, making a male to female ratio of 1:1.36, which did not pose a problem to internal validity since the statistical software for analysis automatically adjusts for the differences if the unequal sample sizes have equal variance (Glen, 2015).

The two questionnaires were administered on the same day one after the other, with the first one being the Screen for Children Anxiety Related Emotional Disorders (SCARED). It is a 41-item inventory scored on ordinal levels from 0 to 2 and used to measure anxiety levels in children. It has five different scales, four of which correspond to the DSM-5 categorizations of ADs which are separation anxiety (SEP), generalized anxiety (GAD), social anxiety disorder (SAD), panic disorder (PD) and a fifth scale known as significant school avoidance (SSA). Each scale has a specific cut off score, which determines presence of the specific AD in the respondent. The overall cut off score for determining presence of an AD is 25 out of the possible 82 scores. The tool was found suitable for use in the current study since the psychometric properties have been tested cross culturally and both reliability and validity confirmed. For example, in a large community sample of Chinese children, the SCARED was found to possess moderate to high internal consistency ($\alpha = 0.43-0.89$) and test-retest reliability (Su et al., 2008). In a similar vein in a large community study in Saudi Arabia, the five-factor structure model of the SCARED had a good model fit for the population in the study (Arab et al., 2016). The tool has as well been used in some studies in Kenya among children and adolescents such as the Ndetei et al., (2008) study, which proffered the SCARED as a sufficient tool for screening of anxiety disorders among Kenyan youths. Mathenge et al., (2019) also used the tool to investigate the prevalence and correlation of DSM-V anxiety disorders among a sample of students in class 3 to class 7 in a private school in Nairobi Kenya.

The Strengths and Difficulties Questionnaire (S & DQ) is a brief self-report questionnaire comprising of 25 items and has five equal subscales namely; conduct problems, hyperactivity, emotional symptoms, peer relationships and prosocial behavior. There is also an additional ‘impact supplement’, which assesses the informant’s perception of the child’s difficulties. Each item is given an ordinal score ranging from 0 to 2, resulting in scores ranging from 0 to 10 for each subscale, and a total difficulties score ranging from 0 to 40, obtained as the sum of the first four subscales (Goodman, 2001). Depending on the total marks for each subscale, labels are assigned which are; “Normal”, “Borderline” or “Abnormal” representing severity of the particular subscale for the respondent.

The S & DQ exists in both parent and teacher versions, for children aged 4–10, while for the 11 to 17-year old, only a self-report version is available. The teacher version was used in the current study for the 8-10 year old while the 11-16 year old were administered the self-report version. The reliability and validity of the S & DQ teacher version is deemed acceptable, with a high internal consistency with Cronbach’s alpha coefficients ranging from .70 (Peer Problems) to .88 (Hyperactivity/ Inattention) (Goodman, 2001). Hall et al., (2019) study also ascertained that the SDQ is a valid outcome measure for use in randomized control trials and clinical settings.

All data were analyzed using the Statistical Package for Social Sciences program (SPSS version 20). Descriptive statistics, Pearson-Chi-Square tests and Analysis of variance (ANOVA) were used to compare the prevalence rates, severity and the comorbid conditions of the ADs among the male and female children. Ethical clearance was procured from the Ethics Committee of Daystar University, the National Commission on Science Technology and Innovation, the Ministry of Education, the Sub-County director of education and the school head teachers.

Results

Gender Differences in the Prevalence and Severity of Anxiety Disorders

Male and female prevalence rates for the different ADs and the severity as depicted by the means are presented in table 1 below.

Table 1: Prevalence and Severity of Anxiety Disorders per Gender.

		Frequency	Prevalence (%)	Severity (Mean)	Standard deviation	F	Sig.
Total	Girls	80	85.1	36.13	12.46	8.440	.004*
ADs	Boys	49	71.0	30.33	12.74		
SAD	Girls	37	53.6	7.76	3.28	1.958	0.164*
	Boys	31	44.9	7.04	3.11		
PD	Girls	72	76.6	10.93	4.98	7.202	.008*
	Boys	46	66.7	8.87	4.62		
GAD	Girls	36	38.3	7.45	3.43	4.293	.040*
	Boys	22	31.9	6.30	3.55		
SEP	Girls	77	81.9	8.05	3.55	9.391	.003*
	Boys	51	73.9	6.41	3.16		
SSA	Girls	31	33.0	1.95	1.95	.678	.411*
	Boys	17	24.6	1.71	1.61		

Table 1 presents the descriptive statistics and analysis of variance results for gender differences in the prevalence and severity of the ADs. Overall, prevalence rates were higher among females (85.1%) compared to the males (71%) and there were statistically significant ($p=0.004$) gender differences in the severity of the total AD scores where females had higher severity than males did (girls: $M= 36.13$; boys: $M = 30.33$). In all the disorders, girls had higher prevalence rates than the boys as shown in the percentages for girls (53.6%, 76.6%, 38.3%, 81.9%, 33.0%) and boys (44.9%, 66.7%, 31.9%, 73.9%, 24.6%), respectively, for SAD, PD, GAD, SEP and SSA. The gender differences in severity were not statistically significant in social anxiety (SAD; $p = 0.164$) and in significant school avoidance (SSA; $p= 0.411$). The gender differences were

however statistically significant in panic disorder (PD; $p= 0.008$), separation anxiety (SEP; $p= 0.003$) and generalized anxiety disorder (GAD; $p=0.040$). Results therefore, suggested that gender had an impact in the prevalence and severity of anxiety disorders where being female was a risk factor for both prevalence and severity in all the anxiety disorder sub-types. However, the gender differences in SAD and SSA were not statistically significant indicating that boys and girls experienced these disorders at similar intensities. Both homotypic and heterotypic comorbidities were also investigated as shown in table 2a and 2b below.

Table 2a: Homotypic Comorbidities

		Homotypic Comorbidity				
		Count	Mean number of ADs	Pearson Chi-Square Value	df	Asymp. Sig. (2-sided)
Gender	Girls	78(59.5%)	3.25	1.68	1	.194*
	Boys	53(40.5%)	3.17			
Total		131(80.4%)	3.22			

Table 2a presents the mean number of comorbidities, the frequencies and percentages of respondents who had comorbid ADs and the Pearson chi square test of difference in comorbidities per gender. The table shows that overall, comorbidity with other ADs was high at 80.4% ($n=131$) and among those with comorbidities, 59.5% ($n=78$) were girls while 40.5% ($n=53$) were boys. The gender differences in comorbidities were however, not statistically significant $X^2(1, N = 163) = 1.68, p = 0.194$) and the mean number of comorbidities for the entire sample were 3.22, while mean number of ADs for girls was 3.25 and 3.17 for boys. The results thus indicated that homotypic comorbidity was high where the respondents had more than 3 ADs but gender had no association with homotypic comorbidity.

From the 129 questionnaires of those who had ADs, 66 S&DQ questionnaires were analyzed and the rest of the S& DQ questionnaires had incomplete information or double entries, and hence,

were discarded. Heterotypic comorbidities comprising emotional problems, conduct problems, hyperactivity problems and peer problems were assessed as shown in table 2b below.

Table 2b: Heterotypic Comorbidities

Heterotypic Comorbidity							
Scale	Status	Girls		Boys		Total	
		N	%	N	%	N	%
Emotional	Normal	57	86.4	48	96.0		
	Borderline & Abnormal	9	13.6	2	4.0	11	9.4
Conduct	Normal	56	84.8	34	68.0		
	Borderline & Abnormal	10	15.2	16	32.0	26	22.2
Hyperactivity	Normal	54	81.8	40	80.0		
	Borderline & Abnormal	12	18.2	10	20.0	22	18.8
Peer	Normal	40	60.6	26	52.0		
	Borderline & Abnormal	26	39.3	24	48.0	50	42.7

Table 2b presents the frequencies and percentages per gender of those who were in the ‘Normal’ and ‘Borderline & Abnormal’ categories as per the S&DQ questionnaire. Results indicate that more boys than girls endorsed having peer, hyperactivity and conduct problems (Peer: Girls, 39.3%; Boys, 48.0%; Conduct: Girls, 15.2%; Boys, 32.0%; Hyperactivity: Girls, 18.2%; Boys, 20.0%). More girls than boys on the other hand endorsed problems in the emotional scale (Girls, 13.6%; Boys, 4.0%). These results suggest that more boys than girls had comorbidities with peer conduct and hyperactivity problems while girls had more emotional comorbid conditions, and this concurs with extant research.

Discussion

Gender differences were noted in the means and prevalence rates for ADs (Girls: 85.1%, M= 36.13; Boys: 71.0%, M=30.33) and they were statistically significant ($p=0.004$). In all the disorders, girls had higher prevalence rates than the boys as shown in the percentages for girls and boys, respectively, SEP (81.9%, 73.9%), PD (76.6%, 66.7%), GAD (38.3%, 31.9%), SAD

(53.6%, 44.9%) and SSA (33.0%, 24.6%). The findings for higher prevalence rates among females are consistent with many global studies that consistently point to the female gender as a risk factor for ADs (Abbo et al., 2012; Al-Yateem et al., 2020; Guo et al., 2016; Jons-Parentati et al., 2021; Merikangas et al., 2010; Ndeti et al., 2011).

Severity was also higher among the females in all the anxiety sub types and the gender differences in severity aside from the SAD and SSA scale were statistically significant. Similarly, Christiansen (2015) and Mc Lean et al., (2011) forwarded that gender differences are less pronounced for social anxiety disorder (SAD). Hashempour et al., (2017) study also found that there were no significant differences between male and females aged 9-12 years in social anxiety among Iranian immigrants' children in Kuala Lumpur, Malaysia. APA (2013) additionally forwards that gender rates in SAD are equivalent or slightly higher for males in clinical samples.

According to Hantsoo and Epperson (2017), the higher prevalence and severity of anxiety disorders observed among females were due to the hormonal fluctuation, during puberty, and premenstruum. During puberty, females experience significant brain remodeling, where the menstrual cycle begins, leading to the hormonal fluctuations. A study by Ferri et al., (2014) forwarded that puberty is characterized by shifts in social and emotional behavior, and increased vulnerability to anxiety disorders such as social anxiety disorder in females aged 8-15 years. Additionally, Ram et al., (2014) demonstrated additional factors that could influence gender differences in mental health, which were adherence to gender stereotypic roles, family violence and restrictions.

Overall, homotypic comorbidity was quite high at 80.4% (n=131) where girls had high comorbidity rates at 83.9 % (n=79) compared to the boys' comorbidity rates of 75.7 % (n= 52). The finding is consistent with studies attributing higher homotypic comorbidity to females compared to males (Christiansen, 2015; Vesga-Lopez et al., 2008; as cited in Altemus et al., 2014).

Heterotypic comorbidity was also present at varying prevalence rates comprising comorbidities with emotional, conduct, hyperactivity and peer problems. More girls than boys had emotional

problems but more boys had the peer, conduct and hyperactivity problems. Similarly, a plethora of studies reviewed in Ortuño-Sierra (2016) indicate that majority of the studies using the S & DQ internationally find that females earn higher mean scores than males in the emotional scale whereas males tend to earn higher mean scores than females in conduct, hyperactivity and peer problems. Maurice-Stam et al., (2018) study conducted among 2-18 year old selected from a large panel of a Dutch research agency similarly found that boys scored higher in the hyperactivity scale. There are also some exceptions such as the Boe et al (2016) study using a sample of 16-18 year old, which found that boys scored higher on the emotional and conduct problems. In addition, De Vries et al., (2018) found that cross-country differences exist in the prevalence of the comorbidities where for example, one study showed that South African adolescent boys and girls had the highest mean scores on emotional symptoms and conduct problems as compared to UK, Australian and Chinese children. In contrast, South African boys and girls had the lowest mean scores for hyperactivity/inattention and the UK boys and girls had the highest mean scores for hyperactivity/inattention, while the Chinese boys had the highest peer problem mean scores.

Studies reviewed suggest that gender does not have a clear-cut relationship with heterotypic comorbidity, although more studies suggest that females have preponderance to emotional problems whereas males lean towards the conduct, hyperactivity and peer problems. Overall, these gender differences point to some underlying gender specific factors and other individual and societal factors that heavily influence the development, severity and comorbidity patterns of anxiety disorders.

Conclusion

In respect of the findings of this study, the impact of gender in the prevalence, severity and comorbidity patterns of the anxiety disorders was noted where females faced greater risk in terms of prevalence and severity of anxiety disorders, and this concurs with many other global studies. However, in social anxiety disorder and significant school avoidance, the gender differences in severity were not statistically significant, which was also consistent with other studies suggesting that gender differences in social anxiety disorders and significant school avoidance are minimal.

The association between gender and homotypic comorbidity was however, not found indicating that presence of an anxiety disorder presented a risk for homotypic comorbidity for both gender.

As for heterotypic comorbidity, boys had preponderance to the peer, conduct and hyperactivity comorbidities while girls leaned towards the emotional comorbidities, which is in line with extant literature. However, using tools that can diagnose specific DSM-5 mental disorders was recommended.

Despite the insightful findings, the study was limited in terms of representation since only those in class 4 and class 8 were available at the time of assessment. Furthermore, the SCARED tool did not assess for all the categorized anxiety disorders in the DSM-5 such as selective mutism, specific phobias and agoraphobia. Perhaps incorporating tools that can assess for these other disorders would shed more light on the prevalence of ADs from a wider perspective. Moreover, the Strengths and Difficulties Questionnaire was limiting in that it does not point out the specific co-occurring mental disorders. Furthermore, the study was on a relatively small sample, which makes it difficult to apply the results on a larger population of children in the general population.

Ethical approval and consent to participate Ethical clearance was specifically approved and granted by Daystar Ethics Review Board and the National Commission for Science, Technology and Innovation.

References

- Abbo, C., Kinyanda, E., Kizza, R.B., Levin, J., Ndyabangi, S., & Stein, D.J. (2012). Prevalence, comorbidity and predictors of anxiety disorders in children and adolescents in rural northeastern Uganda. *Journal of Psychiatry and Research, 45*(8).
<http://www.capmh.com/content/7/1/21>
- Altemus, M., Sarvaiya, N., & Epperson, C. N. (2014). Sex disparities in anxiety and depression clinical perspectives. *Frontiers in Neuroendocrinology, 35*(3), 320–330.
<https://doi.org/10.1016/j.yfrne.2014.05.004>
- Al-Yateem, N., Bani Issa, W., Rossiter, R. C., Al-Shujairi, A., Radwan, H., Awad, M., Fakhry, R., & Mahmoud, I. (2020). Anxiety related disorders in adolescents in the United Arab Emirates: A population based cross-sectional study. *BMC Pediatrics, 20*(1), 245.
<https://doi.org/10.1186/s12887-020-02155-0>
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders*, (5th ed.). American Psychiatric Association.
- Anxiety and Depression Association of America [ADAA], (2021). *Women and anxiety*.
<https://adaa.org/find-help-for/women/anxiety>
- Arab, A., Keshky, M. E., & Hadwin, J.A. (2016). Psychometric properties of the Screen for Child Anxiety and Related Emotional Disorders (SCARED) in a non-clinical sample of children and adolescents in Saudi Arabia. *Child Psychiatry and Human Development, 47*, 554-562. <https://doi.org/10.1007/s10578-015-0589-0>
- Arcand, M., Juster, R., Lupien, S.J., & Marin, M. (2020) Gender roles in relation to symptoms of anxiety and depression among students and workers. *Anxiety, Stress & Coping, 33*(6), 661-674. <https://doi.org/10.1080/10615806.2020.1774560>
- Bøe, T., Hysing, M., Skogen, J.C., & Breivik, K. (2016). The Strengths and Difficulties Questionnaire (SDQ): Factor structure and gender equivalence in Norwegian adolescents. *PLoS ONE 11*(5), e0152202. <https://doi.org/10.1371/journal.pone.0152202>
- Canals, J., Voltas, N., Hernández-Martínez, C., Cosi, S., & Arija, V. (2019). Prevalence of DSM-5 anxiety disorders, comorbidity, and persistence of symptoms in Spanish early adolescents. *Eur Child Adolesc Psychiatry, 28*(1),131-143.
<https://doi.org/10.1007/s00787-018-1207-z>.

- Carcani-Mane, V. (2020). *The connection between verbal abuse and anxiety everyone ignores*. Higher Perspective Webside.
<https://www.higherperspectives.com/verbal-anxiety-connection-2635238625.html>
- Christiansen, D. M. (2015). Examining sex and gender differences in anxiety disorders. In F. Durbano (Ed.). *A Fresh Look at Anxiety Disorders*. InTechOpen.
<https://doi.org/10.5772/60662>
- Curtis, E. A., Comiskey, C., & Dempsey, O. (2016). Importance and use of correlational research. *Nurse Researcher*, 23(6), 20–25. <https://doi.org/10.7748/nr.2016.e1382>
- Dabkowska, M., & Dabkowska, A.M. (2015). Risk factors of anxiety disorders in children. In F. Durbano (Ed.). *A Fresh Look at Anxiety Disorders*. IntechOpen.
<http://www.intechopen.com/books/a-fresh-look-at-anxiety-disorders/risk-factors-of-anxiety-disorders-in-children>
- De Vries, P., Davids, E., Mathews, C., & Aarø, L. (2018). Measuring adolescent mental health around the globe: Psychometric properties of the self-report Strengths and Difficulties Questionnaire in South Africa, and comparison with UK, Australian and Chinese data. *Epidemiology and Psychiatric Sciences*, 27(4), 369-380.
<https://doi.org/10.1017/S2045796016001207>
- Ferri, J., Bress, J. N., Eaton, N. R., & Proudfit, G. H. (2014). The impact of puberty and social anxiety on amygdala activation to faces in adolescence. *Developmental Neuroscience*, 36(3-4), 239–249. <https://doi.org/10.1159/000363736>
- Glen, S. (2015, August 18). Unequal sample sizes. *StatisticsHowTo.com*.
<https://www.statisticshowto.com/unequal-sample-sizes/>
- Goodman, R. (2001). Psychometric properties of the Strengths and Difficulties Questionnaire. *Journal of the American Academy of Child and Adolescent Psychiatry* 40, 1337–1345.
- Guo, X., Meng, Z., Huang, G., Fan, J., Zhou, W., Ling, W., Jiang, J., Zhou, W., Long, J., & Su, L. (2016). Meta-analysis of the prevalence of anxiety disorders in mainland China from 2000 to 2015. *Scientific Reports*, 6, 28033. <https://doi.org/10.1038/srep28033>
- Hall, C.L., Guo, B., Valentine, A.Z., Groom, M.J., Daley, D., Sayal, K., et al (2019). The validity of the Strengths and Difficulties Questionnaire (SDQ) for children with ADHD symptoms. *PLoS ONE* 14(6), e0218518. <https://doi.org/10.1371/journal.pone.0218518>

- Hantsoo, L., & Epperson, C. N. (2017). Anxiety disorders among women: A female lifespan approach. *Focus, 15*(2), 162–172.
<https://doi.org/10.1176/appi.focus.20160042>
- Hashempour, S., Mansor, M., Juhari, R., Arshat, Z.B., Saidu, M.B. (2017). Gender and age differences in social anxiety among Iranian immigrants children in Kuala Lumpur Malaysia. *International Journal of Humanities and Social Science Invention ISSN (Online): 6*(4), 85-89. 2319 – 7722, ISSN (Print): 2319 – 7714 www.ijhssi.org
- Jörns-Presentati, A., Napp, A-K, Dessauvagie, A.S., Stein, D. J., Jonker, D., Breet, E., et al. (2021). The prevalence of mental health problems in sub-Saharan adolescents: A systematic review. *PLoS ONE 16*(5): e0251689.
<https://doi.org/10.1371/journal.pone.0251689>
- Khalid, H. (2018, October 26). *Conventional gender roles give rise to anxiety, self-doubt (and this is also evident in #MeToo)*. Scroll.in. <https://scroll.in/>
- Kostelny, K., Wessells, M., Chabeda-Barthe, J., & Ondoro, K. (2013). *Learning about children in urban slums: A rapid ethnographic study in two urban slums in Mombasa of community-based child protection mechanisms and their linkage with the Kenyan national child protection system*. Interagency Learning initiative on community-based child protection mechanisms and child protection systems.
- Lewis, G., Ioannidis, K., van Harmelen, A. L., Neufeld, S., Stochl, J., Lewis, G., Jones, P. B., & Goodyer, I. (2018). The association between pubertal status and depressive symptoms and diagnoses in adolescent females: A population-based cohort study. *PloS one, 13*(6), e0198804. <https://doi.org/10.1371/journal.pone.0198804>
- Mathenge, J., Ayuya, C., Ongaro, K., & Khasakhala, L. (2019). Prevalence and correlation of anxiety disorders among primary school children in Nairobi, Kenya. *International Journal of Humanities Social Sciences and Education (IJHSSE), 6*(12), 134-138 ISSN 2349-0373 (Print) & ISSN 2349-0381 (Online)
<http://dx.doi.org/10.20431/2349-0381.0612011> www.arcjournals.org 10.20431/2349-0381.0612011.
- Maniglio, R. (2012). Child sexual abuse in the etiology of anxiety disorders: A systematic review of reviews. *Trauma Violence and Abuse, 14*(2), 96-112.

- Maurice-Stam, H., Haverman, L., Splinter, A., van Oers, H.A. Schepers, S.A., & Grootenhuis, M.A.(2018). Dutch norms for the Strengths and Difficulties Questionnaire (SDQ) – parent form for children aged 2–18 years. *Health Qual Life Outcomes* 16, 123. <https://doi.org/10.1186/s12955-018-0948-1>
- McLean, C. P., Asnaani, A., Litz, B. T., & Hofmann, S. G. (2011). Gender disparities in anxiety disorders: prevalence, course of illness, comorbidity and burden of illness. *Journal of Psychiatric Research*, 45(8),1027–1035.
- Merikangas, K.R., He, J.P., Burstein, M., Swanson, S.A., Avenevoli, S., Cui, L., Benjet, C., Georgiades, K., & Swendsen, J. (2010). Lifetime prevalence of mental disorders in U.S. adolescents: Results from the National comorbidity survey replication--adolescent supplement (NCS-A). *Journal of American Academy of Child and Adolescent Psychiatry*, 49(10), 980-9. <https://doi.org/10.1016/j.jaac.2010.05.017>. Epub
- Mohammadi, M.R., Pourdehghan, P., Mostafavi, S.A., Hooshyari, Z., Ahmadi, N., Khaleghi, A. (2020). Generalized anxiety disorder: Prevalence, predictors, and comorbidity in children and adolescents. *Journal of Anxiety Disorders*, 73:102234. [1016/j.janxdis.2020.102234](https://doi.org/10.1016/j.janxdis.2020.102234).
- Ndetei, D.M., Khasakhala, L.I., Mwayo, A.W., & Mutiso, V. (2011). Epidemiological patterns of anxiety disorders in Kenya. In Á. Szirmai (Ed.). *Anxiety and Related Disorders*. InTech. <https://doi.org/10.5772/19184>
- Ndetei, D. M., Khasakhala, L., Seedat, S., Syanda, J., Ongecha-Owuor, F., Kokonya, D.A., & Mutiso, V. (2008). Psychometric properties of the Multidimensional Anxiety Scale for Children (MASC) amongst Nairobi public secondary school children, Kenya. *Journal of Child and Adolescent Mental Health*, 20(2), 101-109. <https://doi.org/10.2989/JCAMH.2008.20.2.6.689>
- Nilni, Y. I., Toufexis, D. J., & Rohan, K. J. (2011). Anxiety sensitivity, the menstrual cycle, and panic disorder: a putative neuroendocrine and psychological interaction. *Clinical Psychology Review*, 31(7), 1183–1191. <https://doi.org/10.1016/j.cpr.2011.07.006>
- Nyagwencha, S.K., Munene, A., & James, N. (2019). Predictors of symptoms of PTSD, depression and anxiety disorders among abused and neglected adolescents living in Charitable Children’s Institutions in Nairobi County, Kenya. *African Journal of Clinical Psychology*, 02(02).

- Ortuño-Sierra, J., Fonseca-Pedrero, E., Inchausti, F., & Riba, S.S. (2016). Assessing behavioural and emotional difficulties in the child-adolescent population: the strengths and difficulties questionnaire. *Papeles del Psicólogo*, 37(1), 14-26.
<http://www.papelesdelpsicologo.es>
- Ram, U., Strohschein, L., & Gaur, K. (2014). Gender socialization: disparities between male and female youth in India and associations with mental health. *International Journal of Population Research*, 2014(357145), 1-11.
<https://doi.org/10.1155/2014/357145>.
- Rapee, R. M. (2012). Family factors in the development and management of anxiety disorders. *Clinical Child and Family Psychology Review*, 15(1), 69-80.
<http://doi.org/10.1007/s10567-011-0106-3>
- Saha, S., Lim, C.C.W., Cannon, D.L., Burton, L., Bremner, M., Cosgrove, P., Huo, Y., & McGrath, J.J. (2021). Co-morbidity between mood and anxiety disorders: A systematic review and meta-analysis. *Depression and Anxiety*. 38, 286–306. <https://doi.org/10.1002/da.23113>
- Su, L., Kai, W., Fang, F., Yi, S., & Xueping, G. (2008). Reliability and validity of the Screen for Child Anxiety and Related Emotional disorders (SCARED) in Chinese children. *Journal of Anxiety Disorders*, 22(4), 612-621.
- Zalta, A.K., & Chambless, D.L. (2012). Understanding gender differences in anxiety: The mediating effects of instrumentality and mastery. *Psychology of Women Quarterly*, 36(4), 488-499. <https://doi.org/10.1177/0361684312450004>.