

The Relationship between Anxiety Levels and Academic Achievement among Students in Selected Secondary Schools in Lang'ata District, Kenya

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Abstract

The study investigated the relationship between anxiety levels and academic achievement among students in selected secondary schools in Lang'ata district, Kenya. The study adopted an ex-post facto design and the sample size comprised 180 secondary school students (90 boys and 90 girls). A personality anxiety self-examination quiz and an anxiety test examination were administered to participants. Data was analyzed by using both descriptive and inferential statistics. The results showed a presence of high personality anxiety levels at 79%, while the test anxiety indicated a relatively low-normal anxiety level of 27%. The study found out that, there was a correlation between anxiety levels and academic achievement, and that high anxiety levels had a negative impact on the quality of academic results recorded by students. The study also established that students' encountered some high anxiety causing challenges which affect their ability to perform effectively, and girls were found to be more prone to high anxiety levels as compared to boys. The study recommended that, students should take responsibility to seek for anxiety management help from teacher counselors, other teachers.

Keywords: *relationship, anxiety level, academic achievement, secondary school, students.*

1. Introduction

The challenge of dealing with anxiety is not unique to adolescents only, but is one among a variety of common unpleasant emotional experiences that every human being encounters in different magnitudes at one time or another in life. According to Costello, (1976), anxiety usually occurs when an anticipated event is expected to make demands for which a person is unprepared and therefore lacks the necessary coping skills. Anxiety in this case plays the role of giving a powerful signal to the individual that she/he is unprepared for the impending event. However, the effects of anxiety on an individual may vary depending on its interaction with the task performance process. Low to moderate anxiety is often deemed beneficial as it enables the body to discharge energy equivalent to the task at hand. High anxiety on the other hand, may be devastating because it excites the body system above normal functioning capacity, and impacts negatively on task performance. Coon, & Mitterer, (2008), while quoting a report by the National Institute of Mental Health (NIMH), (2006), have stated that in any given year, roughly 18% of the adult population suffers from anxiety disorder complications; an indication that they had problems with maintaining their anxiety within manageable levels. According to the U.S. Department of Health and Human Services (1999), young people who experience excessive fear, worry and uneasiness may have been suffering an anxiety disorder. A study of 9 - 17year olds done by the department showed that as many as 13 of every 100 young people had an anxiety disorder.

The reality painted above has been the driving force behind the different people's efforts to devise methods of dealing with the challenges posed by anxiety related problems in different generations. In the African traditional society for instance, growth and developmental challenges which were viewed as a source of anxiety were well addressed through continuous process of guidance and counseling (G/C) services offered by indigenous counsellors. Among the

Kikuyu community of Kenya for example, a strong network of counselling that involved parents, grandparents, aunts, uncles and other elders existed. Their major responsibility was to educate the growing youths on what to expect in relation to their developmental process. The communication of this information was complimented with instructions on when and how to respond appropriately to each new growth challenge that one was expected to encounter. This arrangement ensured that no one felt lost and that no one went through developmental or challenging emotional problems alone (Kenyatta, 1938). Therefore, in the African societal concept anxiety was controlled to manageable levels and very often, the expected anxiety related problems had their effects diluted by way of providing the much needed relevant information long before the problems occurred.

However, following the emergence and influence of the modern lifestyle, and formal schooling, the traditional society has lost its monopoly. Children are separated from their parents and other relatives from a very early age when they are sent to daycare/schools from where they graduate to begin preschool and continue with the education process. Some for example spend more than eight hours in regular schools quite early in life, while others attend boarding schools from the time they are in primary school through to their high school and college education. They therefore no longer get the benefits of the valuable traditional African guidance and counseling services. The school on the other hand which should play this role tends to lay its emphasis on academic pursuit and success. The teachers who spend a lot of time with the youngsters are loaded with full normal teaching workload and hence do not offer adequate time to the G/C service. A guidance vacuum has therefore been created in this area.

One can therefore conclude that the youth actually experience counseling issues that are not adequately addressed. The result is that these youth only have the alternative of using trial and error methods in dealing with their psychological and social concerns that they encounter in their process of development. The final result is that their overall academic performance has suffered a decline, because they are not well adjusted to give it the maximum attention it requires. The secondary school students who are the subjects of this study have not been spared from this predicament either. Just like with other youth, secondary school time comes when they are at their adolescence stage of development. Hoffman, (1994) describes the stage as a '*psychological revolution*', due to the nature of unique developmental changes experienced by the adolescents. The youths face a variety of challenges such as the need to understand and accept themselves, to discover and utilize their talents, and the need to establish their own identity. The adolescents are also faced with the inevitable demand of having to make choices about their future career paths. They have to come to terms with the fact that a successful future for them demands for good academic results and a holistic positive overall adjustment. This realization could result to some students developing high anxiety levels, as they may persistently worry about the possibility of not succeeding in the KCSE exams, following which they may not be able to become the kind of people they envision themselves to be in future.

2. Theoretical Framework and Literature Review

2.1 Theoretical framework

The study was informed by the Inverted -U-Principle theory, which is derived from Yerkes-Dodson's Law of Drive Theory (Yerkes & Dodson, 1908). The theory links arousal to performance, and it is also referred to as the theory of 'Arousal and Performance'. According to McCandless (1967), 'arousal' is the level of excitement or activation generated in the central nervous system to trigger production of the energy required to perform a desired task. The level of arousal of energy experienced by the individual determines the effectiveness of that individual's performance of the task at hand. The U-principle theory's argument is that if arousal increases, performance would increase as well, but if arousal became too great and continuously, then performance would deteriorate (Galvin, 1994). This means that during onset of the arousal state, the individual would still feel confident in his/her ability to control the arousal pressure, and performance would continue to improve. However, once the arousal becomes too great, the individual would start to doubt his/her ability to cope, and her/his performance would automatically begin to drop. There is therefore a progressive relationship between a person's level of arousal and the ability to function effectively. However, when the person is too anxious, the anxiety may interfere with performance because his/her concentration tends to focus too much on his/her anxiety build-up process to the extent that he/she loses focus of the task at hand. The shift of attention gives a leeway to continue rising levels of anxiety, leading to the person's inability to maintain the balance that would enable them perform effectively. The arousal - performance process progresses gradually, beginning from a lower level, to optimum (top of the U) and to high levels. At each level the individual's functioning capacity is altered to conform to the arousal-performance interaction. As arousal increases, so too does the quality of performance which gradually improves until it reaches the optimum point –

(top of the inverted 'U'). If the arousal is increased beyond this point, then performance begins to decline, and when the arousal is too high that the individual is "psyched up", performance almost diminishes (Rathus & Nevid, 1995). Following the theory therefore, one can logically observe that an easy or simple task such as adding simple math numbers does not require focusing on several factors simultaneously, and is usually facilitated by high levels of arousal. On the other hand a complex task such as solving a math problem with many steps requires attending to many factors at once. For this reason, complex tasks are usually carried out better at lower levels of arousal. Both over-arousal and under-arousal can have negative effects on performance. The optima levels vary between people doing the same task and one person doing different tasks. A basic assumption of the hypothesis is that arousal is un-dimensional and that there is consequently a very close correlation between indicators of arousal. In an attempt to explain the existence of individual differences in individual ability to cope with varied anxiety levels, Hanin, (1994) came up with the concept of individualized zones of optimal functioning (IZOFs). He stated that each individual had an optimal level of pre-performance anxiety which resulted in peak performances. If the pre-performance anxiety lies outside the area of IZOF, whether too high, or too low, then performance will deteriorate.

In relation to the Inverted -U principle therefore, this study assumed that in a normal situation a student would need some level of anxiety to positively energize him/her to attend to academic pursuits. At mild and moderate anxiety levels, their performance ability is likely to bring forth desirable grades. But once the anxiety escalates and remains beyond optimum level, the possibility is that the student's academic achievement would drop. This study attempted to establish whether this assumption holds true for respondents of the study area of this research. The inverted U-principle also states that individuals who are exposed to the same anxiety energy are likely to react differently because their IZOF levels are different, a fact which accounts for their differences in their academic performance outcome. The study attempted to establish whether this was the case by statistically analyzing the participants' anxiety results and relating them to their academic results.

2.2 Literature review

According to Basavanna, (2000), anxiety is a highly unpleasant affective state similar to intense fear which can include feelings of threat, vague objectless fear, a state of uneasiness and tension, and a generalized feeling of apprehension. Borrowing from Freud, Basavanna identifies three types of anxiety; Reality anxiety (an emotional reaction to perception of danger in the external world); Neurotic anxiety (an affective reaction to threat from the internal world; and Moral anxiety (an emotional reaction to perception of danger from the superego. Anxiety thus occurs to the body system after one has experienced a threatening situation. An automatic physiological response is triggered to prepare to protect him/her self, or escape from the source of threat. If the activity is carried out, then the changes are reversed, however, if no activity is done, the body continues to remain in the "charged state" for longer than normal, and the resulting changes become a disturbing source of anxiety. This leads to further activation of the flight or fight response and the whole cycle is continued, (Galvin, 1994). Muola, Kithuka, Ndirangu and Nassiuma (2009) carried out a study on the relationship between test anxiety and academic performance in secondary schools in Nyeri district, Kenya. They used a correlation study design and selected their research participants from among form 4 students and their teachers. 83,000 students and 600 teachers formed the target population. The results showed that there was no significant relationship between test anxiety and academic performance. Their results indicated that there was a statistically significant difference ($P < 0.01$) between the levels of anxiety aroused by different subjects. They further found out that both boys and girls are equally affected by test anxiety.

A research on anxiety and school performance was carried out by the Department of Pediatrics of Catania University – Italy in 2004, as cited by Mazzone, Ducci, Scoto, Passaniti, D'Arrigo, & Vitiello, (2007). The department did a study on Anxiety Test Performance on 478 children and adolescents (age 8 -16 years) who were from predominantly middle-class urban backgrounds. They studied the prevalence and relationship between anxiety and school performance. The children were grouped into three: elementary (ages 8-10yrs) - N=131, middle (ages 11-13yrs) - N= 267, and high school (ages 14-16 yrs) - N= 80 for the purpose of the study. The children completed the Multidimensional Anxiety Scale for Children (MASC). T- Scores were computed for the frequencies returned. An analysis of the results demonstrated an average of 65% or above presence of anxiety. This score was above normal anxiety symptoms were relatively common among children and adolescents and could interfere with normal functioning. They further showed that the prevalence of abnormally high self-reported levels of anxiety increased in frequency with age and was negatively associated with school performance.

Hembree, (1988) carried out a meta-analysis of 562 studies in which the relationship between test anxiety and

student performance were addressed. This study found a significant relationship between anxiety levels and academic achievement at 0.01 was found, that is, test anxiety was a key factor in undermining student performance. In addition, Students with high levels of test anxiety score significantly lower on standardized tests (in math & reading), compared with students with lower levels of anxiety, High levels of test anxiety among high school students were manifested by reduced levels of academic performance and that it was not academic performance that affected test anxiety – but the reverse: test anxiety affected academic performance. Merell (2008) studied the relationship between anxiety and task performance. The study reported that as anxiety regarding performance of school tasks becomes more severe, students' ability to adequately perform these tasks gradually declines, and even plummets as the anxiety becomes extreme. Students in such a predicament may feel so overwhelmed by the tasks facing them, and fears regarding their ability to perform those tasks, that they simply cannot complete the tasks effectively. The observations made by the studies above imply a relationship between anxiety levels and performance in varying degrees. This research attempted to find out whether the same relationships existed in Lang'ata where defining factors may perhaps have been different from those associated with the cases cited.

Kyozaire, (1974), carried out a research on anxiety levels among the Kampala and Ankole secondary school students in Uganda. The researcher administered Cartel's IPAT Anxiety Scale and The Progressive Matrices Scale to the 14 -20 yr old students. The study found out that low socio-economic factors contributed to students experiencing relatively high anxiety levels, which led to their recording relatively lower school academic results in comparison to those students from higher socio-economic backgrounds. Moreover, prolonged exposure to anxiety causing factors such as poverty and economic hardships seemed to have been tolerated by the subjects in her study. The study further found that there was a tendency for all girls' schools respondents to show higher anxiety levels than those from all boys' schools. Huberty (2009) study reported that characteristics of anxiety can affect students behaviorally, cognitively, and physiologically, for example, high stakes testing can be very difficult for students with anxiety. Students with anxiety are likely to also suffer from depression, and he recommended that teachers and parents can work together to help students learn to cope with anxiety. Grills-Taquechel, Fletcher, Vaughn, & Stuebing (2012) conducted a quantitative, non-experimental study to determine the relationship between reading difficulties and anxiety in students. The researchers analyzed the anxiety levels and achievement test scores of 153 average or at-risk general education first grade students. Students completed the *Multidimensional Anxiety Scale for Children*. Students who had lower reading scores at the beginning of the study tended to decrease their harm avoidance tendencies at the end. A decrease in harm avoidance tendencies means the students were not as concerned with reading correctly. Those same students tended to increase their separation anxiety tendencies at the end of the study. The students did not necessarily worry about their reading skills, but they were more likely to avoid going to school. When using anxiety at the beginning of the study as a predictor of fluency at the end of the study, researchers found that students with higher levels of harm avoidance at the beginning of the study showed increases in reading skills at the end of the study. This trend was more evident in girls than boys. Anxiety turned out to be a motivating influence for some students.

Nadeem, Ali, Maqbool and Zaidi (2012) studied the impact of Anxiety on the Academic Achievement of Students at University level in Bahawalpur, Pakistan. Being a descriptive study, survey method was adopted for data collection to find out the results. For sample size out of 200 students 97 students were selected by stratified sampling. The researcher made three groups of all the students and three groups of male and female students. In this research questionnaire (Otis self-administering test of mental ability) and anxiety measurement scale was selected as an instrument for the purpose of data collection. Data was analyzed by using the formula of regression to see the impact of anxiety on the academic achievements of students and formula of co-relation was applied to see the relationship of anxiety and academic achievements of students in SPSS software. The in depth investigation of the findings obtained through this analyzed data reveals that anxiety had its impact on academic achievement of students. The results show that when anxiety increases, academic achievement decreases both in male and female students.

Fiore, (2012) studied gender differences in test anxiety. The findings indicated that there was no overall significant difference between the genders; however, when a multivariate regression was conducted to account for variability contributed by age and class there was a statistically significant difference. This finding can be perceived as an indication that it is not gender alone that causes significant differences in general test anxiety. Chandler, (2006) studied Gender Difference and Test Anxiety among male and female students in the 4th, 6th, and 10th grades in Southeastern Ohio. A total of 85 students filled out the Revised Children's Manifest Anxiety Scale. The results showed there was a significant difference between the 6th grade males and females during the pretest administration, with the males showing more anxiety. Devine, Fawcett, Szűcs & Dowker, (2012) studied gender differences in mathematics anxiety. Four-hundred and thirty three British secondary school children in school years 7, 8 and 10 completed customised mental mathematics

tests and MA and TA questionnaires. Regression analyses revealed that MA was a significant predictor of performance for girls but not for boys. Girls showed higher levels of MA than boys and high levels of MA were related to poorer levels of mathematics performance.

Although many Kenyan secondary schools have incorporated the G/C into their programs, the high demand and pressure placed on teachers for excellent results leads them to neglect the responsibility to provide the services (Aloka, 2012). Most of the available time is utilized in offering extra tuition and remedial classes. The youth who are on the receiving end are also pressurized to produce excellent academic results. Similarly, the result of these demands on the students leads to accumulation of excessively high anxiety levels thereby leading to low academic productivity. It is also likely that in some instances where teacher counselors are available, the daily school schedule does not provide time for students to attend G/C sessions. Moreover, those who are seen visiting the counselor are sometimes stigmatized as being dysfunctional. This trend deters students from readily seeking for G/C assistance, and to their accumulating unwarranted pressure from problems which they keep to themselves. The obvious result in such a case is a rise of their anxiety levels leading to a drop in their academic achievement. As already stated, this study therefore sought to establish whether there existed significant relationships between the high anxiety levels suffered by students and the academic achievement recorded by those students.

The study was guided by the following research questions:

- *To what extent do students experience both personality and test anxieties?*
- *To what extent is the level of anxiety related to the students' academic achievement?*
- *Is there any significant gender difference in personality and test/exam anxiety test scores?*

3. Research Methodology

3.1 Research design

The study adopted an ex-post facto research design, which investigates relationship among variables when already manifestations have occurred. This co-relational approach looked into the statistical relationship between anxiety levels and academic achievement (Kendra, 2008). According to Basavanna (2000), a correlation mode of research is an appropriate choice in cases where the researcher seeks to establish the degree of relationship between two variables of behaviour in a group. The independent variable was the Anxiety levels of respondents while the dependent one was Academic achievement. The correlation research mode was also favored because it helped the researcher to look into other possible relationship within the study such as gender differences and relationships, as well as the relationship between personality and test anxiety scores.

3.2 Study participants

Equitable sample representation was achieved by involving a population comprising students from both public and public schools. There were 4 public schools – all mixed day schools that had met the criteria required for the research (i.e. having enrolment of students up to F. 3). 3 public schools were purposefully sampled, while 3 private schools were randomly selected for the study. The sample population was the Form 3 class which was found favorable for the research due to the fact that they had been already in the system for two years. They were therefore fairly well adjusted to the secondary school system, and were presumably well directed and with the right academic focus. The choice of the subjects was done by random sampling method. A balance sample of 30 subjects was selected from each school: 15 boys and 15 girls. That is, 90 girls and 90 boys totaling to 180 students.

3.3 Research instruments

Questionnaires were administered to students. It comprised three parts, that is, Section A: - An Anxiety Personality Self-Evaluation Quiz. Through this test the respondents' personality anxiety levels were determined. Section B: - A test anxiety assessment adopted from Driscoll R (amtaa.org, 2004) was administered to the participants to assess prevalence of test /exam anxiety. Section C: - Comprised of a set of two questions which sought to find out the causes of anxiety and how students dealt with anxiety while in school. Academic Achievement: To get the data on academic achievement, the researcher used existing school records. Performance was measured by use of both percentage marks and grades already awarded for 2 school terms. The performance was assessed four levels as follows: above average

mark = 71 - 100% (i.e. grade B+ to A), average mark = 56 – 65%(i.e. C+ -to B); below average marks = 40-55% (i.e. grade D+ to C), and failure = any mark below 40% (E to D). The mean grade for the respondents was calculated from their recorded marks.

3.4 Data collection procedures

The selection of the school for the pilot study was randomly done from among the four public schools targeted for study, while the other three were purposely enlisted to provide subjects for the actual study. Validity and reliability was tested by carrying out a test re-test after the pilot study results were analyzed. As already indicated, Karen C school was used for pilot study. 10 students (5 boys and 5 girls) who were randomly chosen participated in the exercise. An analysis of their results showed that the instructions were needed a revision. For instance in some cases students underlined two answers for one item, while others skipped some items when they felt unsure of the answer to choose. The instructions were then reviewed for clarity. As a result, the researcher also took more time in the actual data collection to explain to respondents what was expected of them. Data for the main study was collected from the three groups of respondents already identified by use of questionnaire mode.

3.5 Data analysis

The study used descriptive and inferential statistics and statistical analysis. For the descriptive statistical analysis, Pie charts, graphs, percentages and frequency tables were used to represent the data, and to show respondents descriptive variables such as age, sex, anxiety levels, triggers of anxiety, and academic achievement. Relationships between variables were calculated by use of the Pearson Moment Correlations and Pearson Chi-square (at $\alpha = 0.05$). The p -value set for the test of hypothesis using Pearson correlation coefficient and Spearman correlation coefficient was at 99% or 95% level of significance (two –tailed statistical test). The computed P -values that were less than 1% probability level ($P < .01$) or less than 5% probability level ($P < .05$) indicated that the null hypothesis was unlikely to be true. So it was rejected, since there was a correlation between the variables being measured. Outcome scores of tests were cross-tabulated to establish relationships.

4. Findings and Discussion

Relationships between variables were calculated by use of the Pearson Moment Correlations and Pearson Chi-square (at $\alpha = 0.05$).

4.1 Demographic information of participants

The research was carried out in 6 secondary schools out of which 3 were public schools, while the other 3 were private schools. All the schools sampled were mixed day schools. The study sample comprised of $N=180$ students (90 boys and 90 girls) and all of them from the form three (3) classes. An analysis showed that, the respondents ranged between 16-20 years of age. The sampled schools' 6 head teachers and 12 of their teacher counselors were also sampled for the study.

4.2 Findings on extent that students experience personality and test anxieties

Respondents were subjected to a two-part anxiety test, the Personality anxiety test and a Test (exam) anxiety test. The results for each were analyzed separately, after which a cross-tabulation was done to try to find out whether there was a relationship in the occurrences of the two forms of anxieties.

4.2.1 Analysis for Personality anxiety levels

All the 180 respondents took a 25-item Anxiety Personality Self-Evaluation Quiz. The exercise required that they indicate their prevalent anxiety behavior when faced by certain life situations. They did so by choosing the most preferred behaviour from a range of a 5- point scale arranged in ascending order from very low to very high anxiety. The 5 points were – 1. Never/no, 2. Rarely, 3. Sometimes, 4. Frequently, 5. Always yes.

The results were discussed in three categories:

No anxiety to normal anxiety (0 -54%): According to the research findings, zero respondents were found to be in this category. Being in this category would have implied that either one had no anxiety at all or had an anxiety inclination mode did not negatively affect their performance ability.

Susceptible to anxiety (55 – 74%): The results indicated that 59 (32.78%) of respondents were found to have been in this category. The implication is that they were considered to have been experiencing a presence of fairly high anxiety levels and were therefore susceptible to suffering some negative effects of anxiety such as poor examination performance, lack concentration during lessons, and poor attendance to assignments. This group would require seeking for help/counseling on anxiety management and on anxiety prevention skills from teacher counselors and other sources.

Anxieties present (75-90%): The majority of the respondents – 115 (68.89%) of respondents were recorded in this category. The implication for this category was that they were experiencing high anxiety levels, a sign that the students were lacking in anxiety management skills. A further implication is that if the situation were not arrested promptly the students were at a high risk of developing certain anxiety disorders such as the general anxiety disorder (GAD).

Extremely high anxiety (above 90 -125%): A total of 6 respondents (3.33% of respondents) were found to have been in this category. The implication is that they were experiencing extremely high anxiety and were perhaps not functioning properly as students. Consequently, their academic performance may be greatly harbored as a result of the anxiety. They were at a high risk of developing anxiety disorders (GAD) or already had it at the time of taking the tests. The respondents therefore needed urgent specialized anxiety management action plan.

This outcome slightly differs from what Gitome (2003) who cited Wambua (1980) meant when she stated that students are sometimes anxious about academic performance and even though they may not seek guidance and counseling on other issues they would go for the counselors help only for the academics.

The results for the personality anxiety scores were further analyzed to show the three levels of distribution and recorded by scores and their corresponding percentages as follows: (i) susceptibility to anxiety =59 - (32.78%), (ii) anxiety present =115 - (63.89%) and (iii) extremely high anxiety present = 6 - (3.33%). The analysis is shown in fig 1:

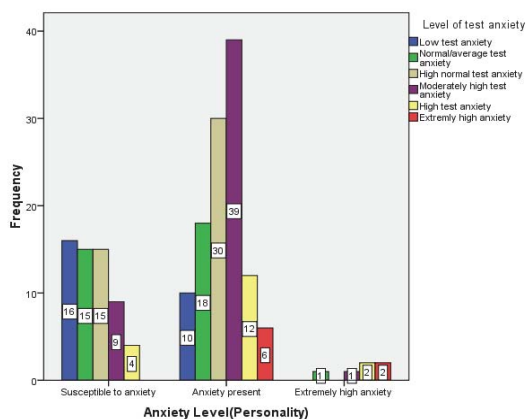


Fig. 1: Distribution of personality anxiety scores

4.2.2 Analysis for Test Anxiety Levels

Each respondent took a 10-item Westgate Test Anxiety exercise which used a 5- point scale to measure the respondents' level of test anxiety. Items were constructed to focus on events before, during or after sitting the exams. The respondents were required to indicate their anxiety inclination by choosing one point for each item. For scoring purposes, the options were arranged in descending order from no. 5 for extremely/always true to no.1 for never/not at all. Thus order was - 5. Extremely always true, 4. Usually true, 3. Sometimes true, 2. Rarely true, 1. Never/Not at all.

The resulting totals for each level recorded in their percentages and graphically as shown in figure 2:

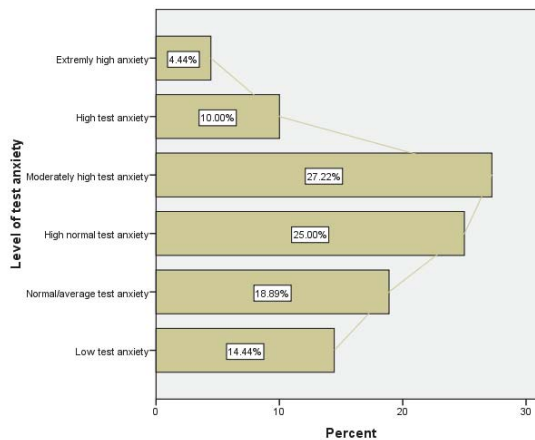


Fig. 2: Distribution of Respondents Test Anxiety scores (in %)

The corresponding figures for the statistical analysis of the test anxiety results were as follows:-

Extremely high test anxiety = 8 High normal test anxiety = 45
 High test anxiety = 19 Normal average test anxiety = 34
 Moderately high test anxiety = 49 Low test anxiety = 26

As observed by Italy's Catania University department of pediatrics (2007), above normal anxiety symptoms are found to be relatively common among both children and adolescents. The results of this study carried out only amongst adolescents confirm this assertion as respondents' scores show a presence of anxiety distributed across the board. The study further analyzed for comparison between personality anxiety and test anxiety. While 63.89% of the respondents had recorded presence of high anxiety, only 41.66% recorded between moderately high and extremely high test anxiety levels. 43.89% respondents were found to be within the range of normal test anxiety level, as represented by scores for normal/average and high normal test anxieties. The low, high to extremely high test anxiety levels are relatively small. A statistical analysis of Mean and Mode showed that the Mean (27.46) was less than the Mode (30.00). There was an existence of multiple modes, (see fig. 2) for details. The results show a test anxiety mean of 27.4 % (or 2.7 according to the Westgate anxiety scale analysis). This score is within the low to normal test anxiety scale and is an implication that the respondents did not experience negative high test anxiety. This explains the reason for their fairly good academic performance which amounted to a Mean of 52% (grade **C**).

However, the results of this study are rather unique as the respondents recorded a high personality anxiety score (79%) which did not greatly influence their test anxiety scores negatively, since a mean of a **C** grade indicates that most of them had average results. However, it is the researcher's opinion that the high personality anxiety still did have a bearing on the performance recorded. An academic performance mean of 52% was not really exemplary as it contradicts with the expected good performance that should be attributed to a low-normal test anxiety level of 27% which the students recorded. Perhaps what Kyozaire (1974) said could hold true in this case- that prolonged exposure to anxiety causing factors such as poverty and economic hardship could have been handled through the African communitarian lifestyle whereby persistent difficulties were tolerated to the extent that the respondents were 'no longer anxious' – meaning that they have become complacent and are indifferent to the effects of the problems they suffer.

4.3 Findings on relationship between level of anxiety and students' academic achievement

All respondents end of term total mean scores and mean grades for two terms (3rd term 2009 and 1st term 2010) were listed down as part of the data collected during the data collection process. Finally, a correlation between personality anxiety, test anxiety and academic achievement was done. The Pearson Product Moment Correlation analysis was used to compute the correlation. The results were then analyzed statistically, and presented in Table 1.

Table 1 - Correlations between personality and test anxieties and academics

	Academic achievement	Personality Anxiety	Test anxiety
Academic Pearson Correlation	1	-.063	-.196**
Achievement Sig. (2-tailed)		.399	.008
N	180	180	180

** . Correlation is significant at the 0.01 level (2-tailed).

An analysis of the relationship between personality anxiety and academic achievement was done with the following results: $r = -0.063$, (Table 1), therefore there exists a relationship which is negative. This means that students with high personality anxiety are likely to be low academic achievers. In the same way, an analysis of the relationship between test anxiety and academic achievement was done as follows: $r = -1.20$, therefore there exists a relatively low relationship which is negative and significant. This means that students with high test anxiety are more likely to be low academic achievers and that such a relationship cannot be attributed to chance.

The Pearson Product Moment Correlation analysis was further used to find out the relationship between the three concepts. The results showed a significant positive relationship between anxiety levels and academic achievement scores at 0.01. The results further showed that students who experienced relatively higher anxiety levels (as was the case with the results for girls) performed relatively poorer than those who did not experience high anxiety levels.

The results of this study concurred with those of Muola, Kithuka, Ndirangu and Nassiuma (2009) whose study on the relationship between test anxiety and academic performance in secondary schools showed that there was no significant relationship between test anxiety and academic achievement. Interestingly, their study concentrated on a few subjects and used a researcher developed instrument, while this study used a standardized test and the results from the two turned out to be similar. The findings are similar to those of Huberty (2009) who reported that characteristics of anxiety can affect students behaviorally, cognitively, and physiologically, for example, high stakes testing can be very difficult for students with anxiety. Grills-Taquechel, Fletcher, Vaughn, & Stuebing (2012) study reported that, students who had lower reading scores at the beginning of the study tended to decrease their harm avoidance tendencies at the end of the study. A decrease in harm avoidance tendencies means the students were not as concerned with reading correctly. Those same students tended to increase their separation anxiety tendencies at the end of the study. The students did not necessarily worry about their reading skills, but they were more likely to avoid going to school. Nadeem, Ali, Maqbool and Zaidi (2012) studied the impact of Anxiety on the Academic Achievement of Students at University level in Bahawalpur, Pakistan. The results show that when anxiety increases, academic achievement decreases both in male and female students.

4.4 Findings on gender difference in personality and test anxiety scores

All the 180 respondents (90 girls and 90 boys) filled the personality and test anxiety questionnaires included in the instruments of study. They further had their academic results for two terms recorded. Descriptive statistics are presented in Table 2.

Table 2 - T-Test for both Personality and Test anxiety levels

	Sex	N	Mean	Std. Deviation
Personality Anxiety Score	Girl	90	81.2111	10.90459
	Boy	90	77.5889	9.22490
Test anxiety Score	Girl	90	28.9778	6.75074
	Boy	90	25.9556	6.72562

The information presented in Table 2 indicates that, the girls recorded a higher personality anxiety mean of 81.21 while the boys were slightly lower at 77.58. In the same way, the girls once again recorded a higher test anxiety score 28.97, while the boys recorded a slightly lower one of 25.95.

To find out whether there were statistically significant gender differences in Personality anxiety and Test anxiety scores, an independent samples t-test was used. The findings are presented in Table 3.

Table 3: Independent Samples Test results

		t-test for Equality of Means		t-test
		t	df.	Sig. (2-tailed)
Anxiety Score (personality)	Equal variances assumed	2.406	178	.017
	Equal variances not assumed	2.406	173.241	.017
Test anxiety Score	Equal variances assumed	3.009	178	.003
	Equal variances not assumed	3.009	177.990	.003

** . Correlation is significant at the 0.01 level (2-tailed).

Regarding the gender difference in personality score, it was reported that, $t = 2.41$, $df = 178$, $p = 0.017$, $p < 0.05$. (Table...). This shows that there is a significant gender difference in the experience of personality anxiety levels. Regarding the gender difference in the test anxiety score, it was reported that, $t = 3.01$, $df = 178$, $p = 0.003$, $p < 0.05$. This implies that there is a significant gender relationship between Test anxiety experience and gender. The results indicated that there was a sex difference in anxiety experience and similarly a significant difference in academic achievement for the sexes with boys performing academically better than the girls.

A further exploratory analysis was performed to find the relationship between personality and test anxiety experience among the respondents. This was done by use of Pearson Chi-Square Tests, and the results presented in Table 4.

Table 4 – Chi-Square Tests results

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	36.790 ^a	10	.000

** . Correlation is significant at the 0.01 level (2-tailed).

The findings indicated that, $X^2 = 36.79$, $df = 10$, $p = 0.00$, $p < 0.05$ (Table 4). Thus, the results revealed that there is a significant relationship (at 0.05) between the two anxiety levels. This conclusion has been drawn from the observation that in both anxieties (personality and test anxieties) girls had a higher anxiety level prevalence score than the boys for both anxiety types. However, in both genders, the prevalence of personality anxiety was higher than that of test anxiety.

These findings are similar to Fiore, (2012) who reported that, there was a statistically significant difference. Chandler, (2006) study showed there was a significant difference between the 6th grade males and females during the pretest administration, with the males showing more anxiety. Devine, Fawcett, Szűcs & Dowker, (2012) study results of Regression analyses revealed that MA was a significant predictor of performance for girls but not for boys. Girls showed higher levels of MA than boys and high levels of MA were related to poorer levels of mathematics performance.

4.5 Concluding remarks

The study investigated the relationship between anxiety levels and academic achievement among students in selected secondary schools in Lang'ata district, Kenya. The findings revealed an evidence of high personality anxiety levels (79%) in respondents. There was also in existence a relatively low negative but significant relationship between test anxiety and academic achievement. Thus students with high test anxiety are likely to be low academic achievers. Such a relationship cannot be attributed to chance. There was also a significant gender differences in experience of personality anxiety levels and girls tended to show more proneness to high anxiety experience than boys did. Because of already highlighted limitations, the study recommends that,

future research could be looked into such as – background and Environmental contribution on anxiety levels.

All normal individual students do experience personality and test anxieties whose level may change from time to time according to prevailing circumstances. Although a certain amount of anxiety is required as an impetus towards positive action, an excess of the same could be detrimental to the students well being and may greatly contribute to low academic results. Therefore, Students should get equipped with knowledge on anxiety and effective anxiety management skills for their own benefit while in school and elsewhere. Students should take responsibility to seek for anxiety management help from teacher counselors, other teachers or from the peer counseling clubs within their schools

in order to ensure that their anxiety levels do not escalate to levels that impact negatively on their academic results. Students should realize that individuals have the capacity to decide on how they process the problems that they encounter, and that problems that are left unprocessed unconsciously become major sources of high anxiety. It is therefore imperative that the students should desist from apportioning blame, and instead proactively seek to find positive solutions to their problems for better adjustment. Students should be encouraged to use all available opportunities to raise issues that cause them anxiety so that enlightening discussions could be organized either amongst themselves or with the teacher counselors to facilitate positive resolutions to the problems raised. Teachers also ought to understand the nature of student's anxiety causing factors so that they are able to address the same as part of anxiety management skill acquisition process. The developmental process and especially during teenage poses many anxiety causing challenges to the students. Teacher counselors should therefore invest a lot of time in imparting knowledge on development so as to help reduce pressure that might arise from the growth process experience. Teacher counselors therefore have should help students to learn to take positive responsibility to seek counseling help when need be. Head teachers play a very vital role in the life of students as they have the monopoly to design school programs. From this study, the personality anxiety level frequencies have shown that students often suffer high anxieties and as a result, their academic results are lacking. Head teachers should therefore make concerted efforts to make institutions as more negative anxiety free as possible.

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