RESEARCH ARTICLE

CO-MORBIDITY OF ANXIETY, ALCOHOL AND DRUG ABUSE AMONG STUDENTS AT THE KENYA MEDICAL TRAINING COLLEGES IN KENYA

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ABSTRACT

Objectives: to determine the co-morbidity between anxiety and risk of alcohol and drug abuse among students at the Kenya Medical Training College
Methodology: A Social Demographic, BAI and the WHO ASSIST questionnaires were administered to 3107 consenting KMTC students, of whom 1181 (group A) were in Nairobi campus and the remaining1926 (group B) were in peripheral campuses across the country.
Results: Prevalence of anxiety in groups A and B were 24.4% and 23.6% for moderate anxiety and 32.1% and 31.5% for severe anxiety. The risk of abuse of all the substances had similar levels except in alcohol which had a significant difference between the 2 groups (p=0.016). There was significant association between co morbidity of anxiety and risk of abuse of; alcohol (p=0.040, P=0.036 in group A and B respectively) and tobacco and cannabis (p=0.022 and p=0.024 in group B respectively).
Conclusion: Anxiety and risk of alcohol and drug abuse was prevalent and significantly co-existed among the KMTC students. These findings were similar to those from other regions of the world among college students. This calls for appropriate interventions to promote prevention, control and clinical practices.

INTRODUCTION

Anxiety disorder either alone or co morbid with substance abuse or other psychiatric disorders are found among the general population (Barlow *et al.*, 1996; Ndetei, *et al.*, 2008; Dewa, *et al.*, 2007). They contribute significantly to the aggregate point prevalence of about 10% of neuropsychiatric disorders among adults (Dewa *et al.*, 2007). Co-occurrence of substance abuse and anxiety is common with a relationship which is complex and bidirectional (Hugh and Kathleen, 2003; Beck, 1963). Anxiety and substance abuse disorders whether alone or co-morbid are debilitating, affecting one's general functioning if left unmanaged making it hard for the affected to do everyday tasks completely, competently and efficiently (Beck, 1963). Consequently, this affects their general well-being and that of others (Beck *et al.*, 1963, 1987). The average age of onset for many mental health conditions is the typical college age of 18-24 years. This is believed to be generally due to the many first encounters in life style, friendships, roommates, new cultures and alternative ways of thinking (Mitchell *et al.*, 1983; Bazmi, 2007).

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Existence of anxiety among students undertaking health professions not only affects the individual's life negatively but may also have repercussions for patient care in the long run (Tijia *et al.*, 2005; Bazmi, 2007). Brady (2001) states that the relationship between anxiety disorder and substance abuse are complex and vary between individuals where among some, the substance abuse may develop as an attempt to self-medicate for anxiety symptoms while others may develop anxiety due to withdrawal from substance abuse. In a study to determine co-morbidity of affective disorders, anxiety and substance abuse, 45% of the respondents with alcohol use disorder and 72% with drug use disorder had at least one co-occurring psychiatric disorder (Hugh and Kathleen, 2003). In the same study, 78% of the males and 86% of females with alcohol dependence disorder met lifetime criteria for another psychiatric disorder including drug dependence. In a cross sectional study to assess prevalence of depression and anxiety among 1st, 2nd and 3rd year students of medicine in a Saudi Arabian University, 66.6% of the females and 44.4% of the males were found to have depression and anxiety (p=0.01) while other similar studies found existence of depression and anxiety among college students but with no statistically significant differences between males and females (Inam *et al.*, 1988; Givens and Tjia, 2002). Givens *et al.* (2002) found that the students had

poor coping strategies in the face of high stress levels inherent in a student's life due to inadequate sleep hours reduced social life, fatigue and academic challenges involved. As these students encounter serious illness and deaths within their practical learning sessions, their emotional balance may be put to task and unmask their vulnerability to either anxiety or depression. In a study to determine the association and implications of anxiety and depression in university medical and paramedical students in Kenya, Ndetei *et al*. (1987) found that 43% of the student nurses felt they needed to seek help for their symptoms while 14.3% had sought for help. Additionally, there was a statistically significant correlation between individual symptoms of anxiety and depression in over 50% of all the pairs of individual symptoms (p=0.005). Out of 364 respondents, 48.9% required medical attention for their depression and anxiety symptoms. This was the only study found on prevalence of depression and anxiety among college students implying a dearth of literature on other categories of students in Kenya. The current study aims to fill this gap by determining the prevalence of depression and anxiety among 1st and 2nd year basic diploma students at the Kenya Medical Training Colleges.

MATERIALS AND METHODS

Study Design

The study was a cross-sectional descriptive study.

Study Sites

Kenya Medical Training College (KMTC) currently the only one of its kind in Kenya, is a middle level medical college which offers paramedical courses whose graduates constitute 90% of health work force in the country. KMTC has a total of 29 satellite colleges distributed all over Kenya and the Nairobi campus, located at the capital city of Kenya, is the oldest, largest and also the administrative headquarters for all the other campuses. The other satellite campuses which are smaller in capacity though gradually expanding are located within the peripheral towns within the country. The Nairobi campus offers 14 different basic diploma courses which take 3 years to complete as well as several one year higher diploma courses in respect to the basic diploma courses. Among the other 28 satellite campuses, 25 of them offer a total of 5 alternative three year basic diploma courses similar to those offered at the Nairobi campus, a two or two and half year certificate course after which the certificate holders can join any of the KMTC campuses to upgrade into a basic diploma after working for at least 3 years. The remaining three KMTCs offer one year certificate courses. The staff and students at KMTC Nairobi campus are served by a student/staff clinic located within the college which is manned by two clinical officers, one counselor and one general practitioner as well as 4 nurses. This means that specialized diagnosis and management of students with mental disorders within the clinic was not optimal. Nairobi campus staff and student clinic had no recorded data on students who had specifically been treated or referred to relevant clinics with mental disorders. The existence of these conditions could only be inferred through the reported cases of suicide and crimes committed by students in an intoxicated state from the security office,

students who had sought counseling from the dean's office and those who presented with psychosomatic symptoms and unspecified diagnosis in the student/staff clinic as indicated in the Ministry of Health card within the clinic. All the other satellite KMTCs had no staff/student clinic but sought treatment from the neighboring hospitals next to the specific campus. The KMTCs which were involved in the current study were the campuses where Nairobi campus constituted group A and the other 6 next largest KMTCs constituted group B. These were; Nakuru, Port Reitz, Mombasa, Kisumu, Muranga and Meru.

Study Population

KMTC has a total population of approximately 10,000 students distributed in the existing 29 satellite campuses country wide. According to a Policy within the college, students enrolled in all the campuses are selected from a pool of applicants for the various professional training Programs according to their preference and qualifications. They are drawn from all the parts of the country as well as the African region south of Sahara. They must have completed their national form 4 i.e. final high school examination or its equivalent and acquired qualifications according to the specified subject clusters of the various professional training Programs offered or must have completed the certificate course and worked for at least 3 years before they apply for an upgrading basic diploma course. This is done in a quota representation (from every province or district), which is in line with the Kenya government policy for public and autonomous institutions. Students who are selected have basic entry points for university education but due to the high cost of university education and limited capacity of the local universities in terms of numbers they can absorb or programmes they offer, they opt to join KMTC which is more affordable and offers some programmes that are not available in the local Universities. These students are either partly government sponsored or self-sponsored.

They reside in the College hostels or elsewhere as they study depending on availability of the hostels and their ability to pay. The respondents involved in the study were basic diploma students from the selected KMTCs who met the inclusion criteria. The KMTC Nairobi campus which constituted group (A) targeted all the 1300 1st and 2nd year basic students who were enrolled in the 14 academic departments. Respondents from the other 6 largest satellite campuses who were 1950 1st and 2nd year basic diploma students constituted Group (B) and were included in the study. The 1st and 2nd year students in all the selected KMTCs generally remain within their respective Campuses as they cover their theory units or/and attending practical attachments in the hospitals/clinics near their campuses. The involvement of 1st and 2nd year basic students in the study therefore allowed the researcher to be in contact with them for the 6 months of data collection and intervention period respectively. The specific population studied is not only representative of KMTCs but to some extent colleges of higher learning in Kenya as students had representation from all parts of the country because of the selection criteria through quota system and the intake age bracket for the majority being 17 to 24 years.

Inclusion Criteria: all the 1st and 2nd year basic students in all the academic departments in the selected KMTCs who gave consent.

Exclusion Criteria: any 1st or 2nd year student in all the academic departments who was undertaking a post basic course or any 1st or 2nd year student who had not given consent.

Data Collection Instruments

The research instruments consisted of 3 self-administered questionnaires: (i) A researcher designed Social Demographic Questionnaire (SDQ) which included gender, age, year of study, marital status, their place of residence while they pursued their studies, religion and KMTC Campus, (ii) Beck's Anxiety Inventory (BAI). This is a 21 question instrument designed to measures the severity of anxiety in a general population. It has proved to show high interval consistency and test retest reliability over 1 week (Beck et al., 1988). In the general population, respondents who score more than 36 scores are the only ones considered to have Anxiety. (iii) The WHO alcohol, smoking and substance involvement screening test (ASSIST). The National Institute of Drug Abuse (NIDA) has adopted the WHO ASSIST version 6 used among the general population and has been found to be a valid screening test to investigate the risk of psychoactive substance use/abuse in individuals who use a number of substances and have varying degree of substance use of minimal, mild, moderate or severe (Newcombe *et al.*, 2005). The scores of all the substances which included; alcohol, tobacco, cannabis, cocaine, amphetamines, inhalants, sedatives, hallucinogens, opioids and others are given (Newcombe *et al.*, 2005).

Ethical Consideration and data collection procedure

Research clearance was obtained from Kenyatta National Hospital/University of Nairobi ethical and research committee for approval. Authority from the Director of KMTC to carry out research in the selected KMTC campuses was officially communicated to the principals of all the 7 selected campuses and schedules on dates and time for data collection was agreed upon with the respective heads of departments. The research assistants who were lecturers with a medical background and had an experience in research or were trained counselors were selected and trained on the use of research tools, how to handle any possible questions from the respondents and make any clarifications, how to handle the questionnaires to ensure confidentiality and how to deal with any necessary self-referrals or any anticipated eventualities after the data collection exercise. The respondents were informed of the nature of the study and the ethical considerations involved in that there would be no invasive procedures to be carried out on them. They were notified that some information that was sought in the questionnaire could be confidential and emotionally involving to them; that involvement was purely voluntary and there were no penalties for not willing to be involved. All the respondents were requested to read the information about the study in the consent form given and feel free to ask any questions. They were assured of confidentiality in that all the questionnaires had been given anonymous numbers and were for research purpose only.

All the respondents in the 2 study groups were informed that the results of the study would be disseminated to the Kenya Medical Training College management to provide baseline data for policy making aimed to promote knowledge, prevent and manage depression and anxiety within the colleges and by extension other places/regions. This would help to put in place strategies aimed to promote depression and anxiety awareness among students and revamp mechanisms to deal with those affected early enough through professional interventions. Those willing to participate were requested to sign the subject statement form attached to the questionnaires. Those who were not willing to participate in the study were requested to sit in with the others though not completing the questionnaires to further ensure anonymity. The respondents were asked to fold the questionnaires whether filled or not, staple and put it in ballot box placed on a table in front of the room. The box (s) were sealed and marked with a code number that was only known to the PI. All the respondents in the 2 study groups were advised that in case they related with the symptoms/ conditions that were being investigated, they were free to self-referral to the KMTC student clinic if there was one, adolescent Clinic at KNH for Nairobi campus respondents or to hospitals next to their campus for the respondents from the satellite campuses. They were all informed that they were also free to self-refer to any other place of their choice.

Data management

The collected data was double entered by two separate groups of data entry clerks, cleaned and analyzed using SPSS version 16, utilizing descriptive and inferential statistics. Results were presented in form of tables and narratives.

RESULTS

Demographic Characteristics

Table 3 summarizes the student population in each of the 7 KMTCs involved in the study and the Basic Diploma courses offered in 2008-2009 academic year. For group (A) respondents from Nairobi campus, 1300 students agreed to participate but the questionnaires which were well completed were 1181 while 19 were returned uncompleted giving a response rate of 91%. For group (B) respondents from 6 satellite KMTCs, 1950 students agreed to participate but the questionnaires which were fully completed and valid were 1926 while 24 were returned uncompleted which represented a response rate of 98%. Table 1 summarizes all the six socio-demographic variables in this study and how they compared between the two groups. There were more males (59.3%) than females (40.7%) in group A while there were more females (52.6%) than males (47.4%) in group B. Both groups had majority of the respondents below 25 years (90.3% in group A, 91.6% group B) with more students in group B. In both groups, there were more 1st years (50.6% in A and 63.3% B) than 2nd years with the highest number (n=1219) of 1st years being respondents from group B. Majority (81.1% in A and 82.4% in B) of respondents in both groups resided in the college hostels. There was a similar proportion of respondents who had single marital status (94.5% in A and 94.4% in B); separated, divorced or widowed (0.5% respectively) in both groups.

Table 1. Baseline 1 Social Demographic social demographic background Characteristics of the Study Population

	Group A (n=1181	Group B (n=1926
Gender		
Male	59.3%	47.4%
Female	40.7%	52.6%
	X^2=4.703; df=1; p=.030	
Age groups		
<25years	90.3%	91.6%
>25 years	9.7%	8.4%
	X^2=.657; df=2; p<.0001	
Year of study		
1st year	50.6%	63.3%
2nd year	49.4%	36.7%
	X^2= 87.867; df=1 p<0.0001	
Place of Residence		
Within college hostels	81.1%	82.4%
Outside college hostels	18.9%	17.6%
	X^2=1277.548; df=1; p<0.0001	
Marital Status		
Single	94.5%	94.4%
Married	4.6%	5.2%
Separated, divorced or widowed, Others	0.5%	0.5%
	X^2=5209.375; df=2; p<0.0001	
Religion		
Protestant	65.4%	60.7%
Catholic	27.8%	28.6%
Muslim	2.9%	5.7%
Others	3.8%	5.0%
	X^2=2783.114; df=3;p<0.0001	

Among the respondents who were married, majority (5.2%) were in group B. Although both groups had majority (65.4% in A and 60.7% in B %) of the respondents as Protestants, group B had more Catholics (28.6%) and Muslims (5.7%) than group A.

Correlation with SDQ data

There was generally similar prevalence of the different severity categories (moderate to severe) of all the conditions among the various marital statuses in both groups except in risk of substance abuse where there was a higher risk among the single and married respondents in the 2 groups. Significant associations between marital status and disorders under study were risk of sedatives abuse in group B (p=0.003) in the married status. Muslims had lower prevalence in anxiety compared to other religious affiliations. Catholics had much higher prevalence in risk of alcohol and tobacco abuse compared to Protestants. However, none reached statistically significant levels (p>0.05). There were no statistically significant association between residence and any of the study conditions in both groups.

Co-morbidity of anxiety and risk of alcohol and drug abuse

Table 2 summarizes co-morbidity between anxiety and risk of alcohol and drug abuse among the two study groups across the three assessments. Prevalence of anxiety in groups A and B was 24.4% and 23.6% for moderate anxiety and 32.1% and 31.5% for severe anxiety. The risk of abuse of all the substances had similar levels in both groups (A and B) except for alcohol which had a significant association between the 2 groups (p=0.016). There was a statistically significance difference between anxiety and the year of study in the 2 groups (p<0.0001 each respectively). The male gender had

increased risk in group A and B for;- alcohol (p=0.036, p=0.001); tobacco (p<0.0001, p<0.0001); cannabis (p=0.001, p<0.0001); amphetamines (p<0.0001, p<0.0001) and inhalants (p=0.042, p=0.023), while younger age was associated with alcohol in group B (p=0.024) and older group with tobacco in both groups (p=0.002, p=0.007) accordingly. Second year of study was associated with abuse of:- alcohol in group B (p=0.014), tobacco in both groups (p=0.002, p=0.011); Inhalants in group B (p=0.024). In group B, marital status (married) was associated with abuse of sedatives (p=0.003) while being single was associated with abuse of opioids (p=0.004) and hallucinogens (p=0.004). Catholic religion was significantly associated with alcohol abuse in group A (P=0.014). There was significant association between co-morbidity of anxiety and risk of abuse of; alcohol (p=0.040, P=0.036 in group A and B respectively), tobacco and cannabis (p=0.022 and p=0.024 respectively, in group B).

DISCUSSION

Population studies

The high return rate is attributable to the fact that extensive sensitization was conducted before the data collection period to both the respondents and the administrators of the campuses who ensured data collection time was allocated during the normal working hours i.e. between 8am to 5pm. Similar studies carried out in institutions of learning in Kenya found high return rates of up to 100% (Ndetei *et al.*, 2008; 1987) while that from a medical University in Karachi was 90% (Munamad, *et al.*, 2006). The statistically significant differences between the 2 groups (A and B) can be explained. For gender, it was because of high numbers of males in group A compared to group B. This is explained as due to a higher number of possible courses that could be pursued at the Nairobi campus which were preferred by the males compared

Table 2. Baseline 1 Co-morbidity between Anxiety and risk of alcohol and drug abuse among the 2 groups

		Group A				Group B		
	Risk of Abuse Alcohol	**Low**	**Moderate**	**High**		**Low**	**Moderate**	**High**
Anxiety	Minimal	21.1	0.1	0.2	Minimal	23.1	0.3	0
	Mild	220	0.1	0	Mild	20.6	0.8	0.1
	Moderate	23.9	0.5	0	Moderate	22.9	0.6	0.1
	Severe	31.8	0.3	0	Severe	30.9	.5	0.1
	N	**1137**	**29**	**15**	**N**	**1808**	**79**	**39**
		$X^2 = 13.180$ df=6 p= 0.040				$X^2 = 6.839$ df=6 p= 0.036		
	Tobacco	**Low**	**Moderate**	**High**		**Low**	**Moderate**	**High**
Anxiety	Minimal	19.9	1.5	0	Minimal	22.6	0.9	0
	Mild	20.8	1.3	0	Mild	20.5	10	0
	Moderate	22.2	2.2	0	Moderate	21.6	20	0
	Severe	29.7	2.4	0	Severe	29.8	1.6	0.1
	N	**1074**	**107**	**0**	**N**	**1777**	**134**	**15**
		$X^2 = 1.861$ df=3 p= 0.602				$X^2 = 14.729$ df=6 p= 0.022		
	Cannabis	**Low**	**Moderate**	**High**		**Low**	**Moderate**	**High**
Anxiety	Minimal	210	4	0	Minimal	23.2	0.3	0
	Mild	21.8	0.4	0	Mild	210	0.5	100
	Moderate	23.9	0.5	0	Moderate	22.8	0.8	0
	Severe	31.5	0.5	0	Severe	31.3	0.3	0
	N	**1134**	**47**	**0**	**N**	**1838**	**84**	**2**
		$X^2 = 0.346$ df=3 p= 0.851				$X^2 = 9.483$ df=3 p= 0.024		
	Cocaine	**Low**	**Moderate**	**High**		**Low**	**Moderate**	**High**
Anxiety	Minimal	21.3	0.1	0	Minimal	23.4	0.1	0
	Mild	220	0.1	0	Mild	21.3	0.1	0
	Moderate	24.2	0.2	0	Moderate	23.1	0.3	0.1
	Severe	31.8	0.3	0	Severe	31.5	0.1	0
	N	**1149**	**13**	**0**	**N**	**1868**	**50**	**8**
		$X^2 = 0.668$ df=3 p= 0.881				$X^2 = 11.218$ df=6 p =0.082		
	Amphetamine	**Low**	**Moderate**	**High**		**Low**	**Moderate**	**High**
Anxiety	Minimal	20.4	10	0	Minimal	230	0.5	0
	Mild	21.6	0.5	0	Mild	21.1	0.3	0
	Moderate	23.7	.7	0	Moderate	22.7	0.8	0
	Severe	30.9	1.2	0	Severe	30.6	0.9	0
	N	**1123**	**58**	**0**	**N**	**1839**	**87**	**0**
		$X^2 = 1.997$ df=3 p= 0.573				$X^2 = 3.849$ df=3 p= 0.278		
	Risk of Abuse Inhalants	Group A				Group B		
		Low	**Moderate**	**High**		**Low**	**Moderate**	**High**
Anxiety	Minimal	21.3	0.1	0	Minimal	23.4	0.1	0
	Mild	21.8	0.3	0	Mild	21.4	0.1	0
	Moderate	24.3	0.1	0	Moderate	23.4	0.2	0
	Severe	320	.01	0	Severe	31.4	0.1	0
	N	**1170**	**11**	**0**	**N**	**1908**	**18**	**0**
		$X^2 = 2.779$ df=3 p= 0.427				$X^2 = 1.083$ df=3 p= 0.781		
	Sedatives	**Low**	**Moderate**	**High**		**Low**	**Moderate**	**High**
Anxiety	Minimal	210	0.4	0	Minimal	22.9	0.6	0
	Mild	21.6	0.5	0	Mild	210	0.5	0
	Moderate	23.7	0.7	0	Moderate	22.7	0.8	0.1
	Severe	31.8	0.3	0	Severe	30.2	1.3	0
	N	**1124**	**27**	**0**	**N**	**1862**	**59**	**5**
		$X^2 = 3.974$ df=3 p= 0.264				$X^2 = 6.661$ df=6 p= 0.353		
	Opioids	**Low**	**Moderate**	**High**		**Low**	**Moderate**	**High**
Anxiety	Minimal	21.4	0	0	Minimal	21.4	0	0
	Mild	220	0.1	0	Mild	220	0.1	0
	Moderate	24.4	0	0	Moderate	24.4	0	0
	Severe	31.8	0.3	0	Severe	31.8	0.3	0
	N	**1172**	**9**	**0**	**N**	**1172**	**9**	**0**
		$X^2 = 4.163$ df=3 p = 0.244				$X^2 = 4.163$ df=3 p = 0.244		

Table 3. Basic Diploma courses offered in various campuses

S/NO	Campus	Total No. of basic and post Students	No. of 1st and 2nd yr. Basic Dip Students	Basic Diploma courses offered
1.	Nairobi	3267	1500	14 Basic diploma courses offered Nursing, Medical Records and information sciences, Community Oral Health, Laboratory sciences, Public Health Sciences, Medical Imaging sciences, Neurophysiology, Clinical medicine, Dental technology, Occupational Therapy, Optometry, Orthopedic Technology, Physiotherapy, pharmacy and Medical engineering Sciences,
2.	Nakuru	882	351	5 Basic Diploma courses offered are; Nursing, Clinical Medicine, pharmacy, Medical Laboratory sciences and Public Health Sciences
3.	Kisumu	852	313	5 Basic Diploma courses offered are; Nursing, Clinical Medicine, pharmacy, Medical Laboratory sciences and Public Health Sciences
4.	Mombasa	845	303	5 Basic Diploma courses offered are; Nursing, Clinical Medicine, pharmacy, Medical Laboratory sciences and Public Health Sciences
5.	Port Reiz	900	353	4 Basic Diploma courses offered are; Clinical Medicine, pharmacy, Medical Laboratory sciences and Physiotherapy
6.	Muranga	752	283	5 Basic Diploma courses offered are; Nursing, Clinical Medicine, Public Health Sciences, Medical Laboratory sciences and Medical Records and information sciences
7.	Meru	702	283	5 Basic Diploma courses offered are; Nursing, Clinical Medicine, Public Health Sciences, Medical Laboratory sciences and Medical Records and information sciences

to those in the satellite campuses which offered course preferred by females. For age group and marital status, as explained in the methodology, majority of the respondents were in the ages bellow 25 years and were single since they are admitted in college after their form 4 (high school) examinations and the majority of those above 25 years and were married, separated, divorced or widowed were possibly those who were upgrading having undertaken a certificate course and worked for more than 3 years. As for year of study, the KMTC Nairobi campus capacity expansion is minimal compared to the yearly capacity expansion in the satellite campuses. Comparatively, there is yearly capacity expansion in the satellite campuses where there is ample space and are targeted for structural development and consequently capacity enlargement in the existing KMTC policy (KMTC Policy Document, 2006). More than half of the respondents in both groups were Protestants which was the then current national trend of representation of this religion.

Correlation between social demographic data with prevalence of anxiety and risk of alcohol and drug abuse

The high levels of severe anxiety among those above 25 years as compared to those less than 25 years was related to several factors: those above 25 years were in their 2nd year which had greater academic demands and also had financial challenges or social/family related challenges and responsibilities since they were more likely to have started a family, divorced, widowed or separated. Different studies have turned conflicting results with several agreeing with the findings of this study that anxiety increased with age of students (Vaidya *et al*., 2007; Odek-Ogunde *et al*., 1999), while others found anxiety was higher in the younger students (Munamad *et al*., 2006). Therefore generalization cannot apply and every situation would have to be considered in its total and peculiar context. In the case of this study, the higher prevalence of anxiety among the older students in group A (from Nairobi campus) may also be attributed to the challenges of city life, in particular cost of living besides having to take care of their families. In addition, the respondents may have come for

upgrading courses that resulted in being uprooted from their usual jobs and environments to the rigors of academic life. The same contextualized explanation generally can apply to single and married status that had a higher prevalence of anxiety than the other marital status. For instance the single that were in their early adulthood may have been overwhelmed by their age specific developmental challenges while the married may have had challenges of having to balance their married life with academic demands. Similarly, there was higher prevalence of anxiety among group A respondents who resided outside the College hostels compared to those who resided in college hostels.

The potential challenges include: higher financial burden in Nairobi city than outside Nairobi, logistics of transportation between their residences in Nairobi and KMTC in the overcrowded and traffic congestion in Nairobi compared to other KMTCs located in less hectic and expensive towns. However this study did not seek to investigate specific possible psycho stressors which may have precipitated the respondents to develop these conditions. Similarly, residing outside the college and the associated challenges could be the explanation for the high risk of alcohol abuse in group A notwithstanding the fact that they were not under any scrutiny by the administration when away from college. Similar studies on college students found similar results (Mitchell *et al*., 1983). Anxiety was lower among Muslims and Catholics can be speculated on. Catholics have a specific religious way of dealing with their stresses through making open non judgmental confessions to their priests unlike the conservative Protestants, while the Muslims way of association and socialization among themselves is more open and therefore may share their challenges and ease their stress. Similar studies found similar results (Munamad *et al*., 2006; Koening, *et al*., 1998).

Co-morbidity between anxiety and risk of alcohol and drug abuse

The high co morbidity of anxiety and risk of abuse of alcohol and other drugs, are similar to findings in numerous studies

(Vaidya *et al.*, 2007; Odek-Ogunde *et al.*, 1999; Alloy, *et al.*, 1990; Mundia, 2010). All of these other studies have argued that symptoms of anxiety may lead one to take substances of abuse to try and relieve their symptoms or they may take the substances and develop the anxiety. This study adopts the same explanations.

Limitation of the study

A limitation of the study is that it did not investigate whether or not any respondent had suffered anxiety previously. In addition, the study did not attempt to identify definite possible psycho-stressors which may have precipitated anxiety, alcohol and drug abuse.

Declaration of Interest: The authors declare no conflicting interests.

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