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Evaluation of the Severity of Vicarious Trauma among Students at the Kenya Medical Training College, Nairobi Campus, Kenya

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Abstract:

Introduction: Vicarious traumatization is the negative transformative cumulative effect on the healthcare provider's inner experiences for being exposed to the trauma material presented in the clinical sessions by the traumatized clients.^{1,2} The healthcare provider's sense of self is disrupted and permanently altered as this transformative effect involves significant changes in one's sense of meaning, connection, identity, and world view, as well as in one's affect tolerance, psychological needs, beliefs about self and others, interpersonal relationships, and sensory memory, including imagery.²

Objective: The objective of the study was to determine the prevalence rate of vicarious traumatization among medical students of the Kenya Medical Training College Nairobi Campus.

Setting: The study was carried out in Kenya Medical Training College Nairobi Campus which is a middle level medical college.

Design: This was a cross sectional descriptive study. The study variables included vicarious trauma as the dependent variable while the independent variables were age, gender, year of study, religion, duration of clinical experience, type of the training and vicarious trauma among others. A structured socio-demographic questionnaire and Trauma Attachment Belief Scale instruments were used to assess for vicarious traumatization.

Study Population and sampling method: Using systematic random sampling a sample population of 250 students was interviewed from among students of nursing, clinical medicine, and physiotherapy. Only the students who had worked in the clinical area were interviewed.

Results: Data was analyzed using SPSS version 20.0 and presented at 95% Confidence Interval. Out of the 250 study participants 51.6% (n=129) were male and 48.4% (n=121) were female. The mean age was 24.41 years with a standard deviation of 5.841. From the study, 2.0% of the participants had mild VT, 30.0% had moderate VT, while 68. % had severe VT. There was a positive correlation between VT and intrusive recollections of the trauma with a p- value of 0.017, and reliving the trauma (flash backs) with a p- value of 0.035.

Conclusion: VT prevalence is much higher and more severe especially among medical students that care for traumatized persons early in their medical carer.

1. Background of the Study

Vicarious traumatization can affect anyone who engages empathically with trauma survivors.² Healthcare workers and their clients are at risk of severe mental health impairment as a result of vicarious traumatization in the course of health service delivery, yet this hazard remains largely ignored within the training of various health professions.^{14,15,16,17,18,19}

1.1. Problem Statement

The data in the Kenya Medical Training College (KMTTC) students' clinic shows that between the year 2010 and 2011 a total of 89 students were treated for psychological disorders such as anxiety, depression and substance use disorders⁶³. The majority of the students were from the department of nursing and clinical medicine. The symptoms experienced by these students are similar to the symptoms of vicarious trauma documented by Pearlman and Saakvitne²⁸. Surprisingly, there is no documented linkage of such kinds

of disorders to vicarious trauma. It is for this reason that the researchers wanted to find out the level of vicarious traumatization among Kenya Medical Training College students in the core professions of Nursing, Clinical Medicine, and Physiotherapy as this group of students is the one directly involved in the care of emergency medical disorders.

1.2. Significance of the Study

The Kenya Medical Training College (KMTC), in its pursuit of quality training of healthcare professionals as enshrined in its motto "A healthy mind in a healthy body", implicitly focuses on the prevention of psychological trauma among medical trainees and staff from vicarious traumatization. Understanding the issues related to the incidence of vicarious trauma among the Medical Trainees, will enable the KMTC management to implement interventional strategies that could curb the menace of vicarious traumatization. The findings derived from the study will also enable other institutions training health workers to develop programs that address vicarious traumatization. Other researchers may also use this study as a baseline for further research.

1.3. Rationale of the Study

Most of the studies carried out worldwide on vicarious traumatization in medical institutions focus on qualified personnel such as psychotherapists, doctors, nurses, and midwives. In Kenya studies on vicarious traumatization have been done among care givers who are not students and other students in institutions of higher learning who are not medical students. No documented study on VT among students in medical institutions was found to have been out in Kenya.

The KMTC started training health workers in 1927 and over the years no study on vicarious traumatization among students has ever been carried out. The students especially those in Nursing, Clinical Medicine, and Physiotherapy provide care to trauma victims who seek treatment in the health institution where these students are placed to provide care. Like any other health profession the students interact with trauma material from survivors, hence their vulnerability to develop vicarious traumatization. This research aims to assess the prevalence rate of vicarious traumatization among these students.

1.4. Hypothesis

1.4.1. Null Hypothesis

There is no statistically significant difference on the prevalence of vicarious traumatization among students of clinical medicine, physiotherapy, and nursing in KMTC-Nairobi and that found among other health workers.

1.4.2. Alternate Hypothesis

There is statistically significant difference of the prevalence of vicarious traumatization among students of clinical medicine, nursing, and physiotherapy in KMTC- Nairobi and that found among other health workers.

1.5. Objectives of the Study

1.5.1. Broad Objective

To determine the prevalence rate of Vicarious Traumatization (VT) among students of clinical medicine, nursing, and physiotherapy at KMTC Nairobi.

1.5.2. Specific Objectives

1. Determine the levels of VT among students of clinical medicine, nursing and physiotherapy in KMTC Nairobi.
2. Determine the association between VT and socio-demographic factors of students at KMTC Nairobi.
3. Compare the incidence of VT among students of clinical medicine, nursing, and physiotherapy in KMTC Nairobi.

2. Literature Review

2.1. Introduction

In this section the researcher has reviewed the literature on the Epidemiology of vicarious traumatization, Concept of vicarious trauma, Effects of vicarious on cognition, Psychological effects of vicarious trauma, Effects of vicarious trauma on esteem, safety, trust and intimacy, Effects of vicarious trauma on spirituality, Effects vicarious trauma in relation to previous trauma history and age, Effects of Vicarious trauma in relation to workload, education, and experience, Effects of vicarious trauma on academic performance, Effects of vicarious trauma in relation to previous trauma history and age, and finally Special clinical issues arising as a result of vicarious trauma.

2.2. Epidemiology of Vicarious Trauma

Cunningham,²⁹ denotes that little effort has been dedicated to clinicians who might be at risk of exhibiting symptoms of VT similar to those of clients they have treated. Figley³⁰ reported that few studies have been done on compassion fatigue among caregivers that provide mental health services to survivors of traumatic events.

Bride³¹ in his study on Prevalence of Secondary Traumatic Stress among Social Workers found high risk of vicarious traumatization among social workers involved in management of traumatized patients. In a survey by Follette,³² among 558 mental health and law enforcement officers, they found that 29.8% of therapists and 19.6% of officers with history of child abuse reported significantly higher levels of symptoms. Other scholars, have found that individuals exposed to trauma have psychological problems which persist over time^{34,35}. Blanchard,³⁶ in their study of VT among college students following September 11 attacks found a VT prevalence of 9.9% for females and 4.8% for males. In a research dissertation by Kokonya,³⁷ on compassion fatigue and burnout syndrome among the medical workers at KNH, the prevalence rate of compassion fatigue among nurses was found to be 32.9% while among doctors it was 29.9%. In a study on prevalence of vicarious traumatization among caretakers in Kakuma refugees' camp, in Kenya, by Mbatha,³⁸ the prevalence rate of Vicarious Traumatization was found to be 37% (low to moderate levels of VT) and 63% (extremely high levels of VT).

2.3. Concept of Vicarious Trauma

Many authors have described the adverse impact on caregivers that work with clients who have a history of trauma be it sexual and physical abuse, military combat, and community disaster under a variety of terms: vicarious traumatization, compassion fatigue, and secondary traumatic stress.²³ Healthcare providers who intervene in severe crises or bear witness to human tragedy can be emotionally impacted by the trauma material and hence be predisposed to Vicarious Traumatization.

2.4. Effects of Vicarious Trauma on Cognition

For traumatization to occur, often direct exposure to a traumatic event is required but research has shown that traumatic events need not be necessarily experienced.^{39,40} Vicarious traumatization has lasting negative transformation of cognitions.¹ Verbal exposure to traumatic materials tentatively causes changes in intellectual capacities as well as memory systems.⁴¹ These changes which present as flashbacks of the event, nightmares and disturbed judgments in turn impede the individuals functioning in their psychosocial environment.^{1,41}

Silver,⁴² worked with the victims of the September 11th terrorists attack on the US World Trade Centre and asserted that, persons with mental and physical health problems are particularly at risk of trauma when they watch traumatic events on the media.

Cunningham,⁴³ reported more cognition disruptions among health professionals that cared for the sexually abused than in those that cared for the clients suffering from cancer. Sinclair and Hamill⁴⁴ proposed that hearing patients talk about their traumatic experiences such as cancer illnesses predisposes an individual to vicarious traumatization. Kinyanjui⁴⁵ found that 85% of university students reported that there were things they distaste to see or hear while 48% reported that watching or reading about violence distracts their concentration in class.

2.5. Psychological Effects of Vicarious Trauma

Sabo⁴⁶ indicated that negative emotions, stress, and burnout have been observed among healthcare professionals providing terminal care with the associated adverse effects of caring work.

2.6. Effects of Vicarious Trauma on Esteem, Safety, Trust and Intimacy

Iliffe⁴⁷ while exploring the impact of vicarious trauma on counselors working with domestic violence clients revealed that the counselors with high case loads of domestic violence reported typical symptoms of vicarious trauma in cognitive schema, safety, world view, together with matters of gender power. In a study by Mbatha,³⁸ on Vicarious Traumatization among caretakers; results indicated that 63% had extremely high VT levels while 37% had low to moderate levels of VT. Age variable was found to be of statistical significance with severity of VT where caretakers above the age of 28 years had elevated TABS score. Within the VT subscales substantial disruption was found in safety subscale -both self -subscale (mean = 67) and other subscales, self- esteem subscale (mean = 68) and self-control subscale (mean = 70).

In an article by Clark and Gioro,⁴⁸ on impact of indirect trauma on nurses, they observed that nurses who were informed about vicarious trauma were in a better position to vigorously shield their clients from negative effects of trauma and maintain a stable personal and professional life.

2.7. Effects of Vicarious Trauma on Spirituality

Spirituality, life's meaning, personal values, and attitudes are greatly affected by VT. Mclean,⁴⁹ in a study of 116 Australian therapists working primarily with traumatized clients, measured vicarious traumatization (VT), burnout and trauma symptomatology like thought intrusion and avoidance of trauma provoking events. A measure of beliefs about the therapeutic process was also constructed and the results concluded that the therapists' spiritual system had been altered due to exposure to VT and burnout.

A study on The Effects of Vicarious Trauma on Female Counselors Working with Sexual Violence Survivors by Schauben and Frazier,⁵⁰ found that counselors with heavier caseloads of sexual abuse survivors experienced an interruption on trust and more symptoms of PTSD and consequently exhibited symptoms of VT. It was also noted that the counselors' trauma symptomatology was not related to their own history of victimization. The study results were consistent with a study done by Brady,¹⁰ which found that the therapists who saw more sexually abused clients had higher levels of VT and consequently altered spiritual beliefs.

2.8. Effects of Vicarious Trauma on Academic Performance

Exposure to violence was found to affect cognitive development among urban, minority children in the United States of America.^{51,52} Children's development in the area of academic, social interactions, self-esteem, cognitive abilities and behaviour was negatively affected by violence. Other effects of violence on students can include challenging behavioral functioning or traumatic stress responses, such as hostility which may impede their academic performance and may predispose them to antisocial behaviour.⁵³ Swenson and Johnson,⁵⁴ in their study on the effects of vicarious exposure to the September 11, terrorist attacks in an academic community, found that distress could interfere with academic performance, personal health, and relationship stability. According to a study by Kinyanjui,⁴⁵ results indicate that violence from the media affected 48% of the students' concentration in class while 90% agreed that watching and reading about violence had an impact on their daily life.

2.9. Effects of Vicarious Trauma in Relation to Workload, Education, and Experience

Studies have shown that the amount of work load, the level of education and the experience one has in dealing with trauma has an effect on the levels of VT reported. A study by Dawnette,⁵⁵ on effects of vicarious trauma on 37 nurses, in South Africa, indicated that age and duration of time in the carer was significantly related to vicarious trauma.

Dominguez-Gomez & Rutledge,⁵⁶ in their study on trauma, results indicated that 54% of the nurses reported having Arousal symptoms while 52% had Avoidance symptoms and 46% had Intrusion symptoms that were consistent with PTSD similar to symptoms of VT.

Maina,⁵⁷ in his study on stress among health workers in Kenyatta National Hospital found that nurses who spent more time with patients had higher levels of VT at 32% while doctors who spent less time with the patients had lower levels of VT at 11.4%. Pearlman and MacIan,⁵⁸ found that therapists who had less experience in the field were more likely to experience psychological problems than those with more experience on the Traumatic Stress Institute Belief Scale.

2.10. Effects of Vicarious Trauma in Relation to Previous Trauma History and Age

In a study on trauma therapists, Pearlman and Mac Ian,⁵⁸ found that those with a history of trauma were predisposed to more negative psychological effects than those without a trauma history. They also found that 60% of therapists, who had a history of trauma, had higher symptoms of VT unlike those without a trauma history. In a study on Predictors of secondary trauma by Ghahramanlou and Brodbeck,⁵⁹ the study indicated that the risk factors to VT were personal trauma history and younger age.

2.11. Special Clinical Issues Arising as a Result of Vicarious Trauma

There are destructive behaviors that arise in an individual as a result of traumatization. Substance use, like the indulgence in alcohol, bhang, khat and other psychoactive drugs; challenging behavior and antisocial activities; suicidal and Para-suicidal attempts and affective disorders are some of the special clinical issues arising from traumatization.

Self-mutilation, self-harm and suicidal ideation aggressiveness and antisocial behaviour arising from the emotional pain are also special clinical issues arising from VT.^{1,8} A sense of worthlessness, feelings of depression, hopelessness and guilt are also attributed to VT. Cognitive disturbances associated with inhibition of thoughts, intrusive thoughts and feelings about the traumatic experiences often result in long term health problems. Psychosomatic symptoms like physical pain, pseudo-neurological symptoms, loss of interest and motivation in previously enjoyed activities may also be experienced by persons with VT.

In addition to the above, addictive behaviors such as gaming and betting; self-medication arise in an attempt to manage pain and the symptoms of VT that the individual is experiencing.^{23,28}

In the Muriungi⁶⁰ study on the effectiveness of psycho-education on common mental disorders in students of KMTC it was found that second year students had higher prevalence of substance use than first years in the baseline assessment.

2.12. Theoretical Framework

The concept of vicarious traumatization is based in the Constructivist Self Development Theory (CSDT) which says that the traumatic experiences impact a person in the context of his/her developing self. In the face of trauma, each person will adapt and cope given her/his current context and early experiences namely intrapersonal, intra-psychic, familial, and sociocultural. Within these contexts, the theory outlines the impact of trauma on the self.^{1,2}

The CSDT model proposes that through ones' traumatic experiences and how they appraise and consequently adapt to the event, one learns how to cope and adapt. However, in the case where one is accosted by new traumatic events beyond their mental schemas for coping, one is prone to maladaptation, through the use of irrational beliefs, altered unreasonable thinking, which helps to shield the therapist from harm caused by the traumatic material²⁸. CSDT emphasizes adaptation and construction of meaning on the caregivers with respect to self-include: Frame of reference; which entails sense of identity, world view and spirituality that informs the individuals' perception of himself, his world, his relationships and his experiences. Self-capacities: These are strongly shaped by an individual's capacities for inner balance such as how to manage feelings of love and awareness of caring for others. Ego resources: These include individuals' abilities to negotiate interpersonal situations, ability to make good decisions, psychological needs and cognitive schemas. The five major needs that are sensitive to traumatic events are: safety, esteem, trust, control and intimacy.

Any experience is processed and recalled through several modalities e.g. cognitive (narrative), visual, affective (emotional), somatic and sensory, and interpersonal (behavioral). Traumatic memories often involve dissociation or disconnection of different aspects of experiences. The resulting memory is fragmented for example; the narrative may be recalled without the feelings or images (panic, terror, or flashbacks).²⁸

3. Research Design and Methodology

3.1. Study Design

This was a cross sectional descriptive study.

3.2. Study Site

The study was carried out in KMTC Nairobi campus which is situated in Nairobi city, near KNH, off Ngong road; about three kilometers from the city Center. KMTC is a middle level medical college which started training health workers in 1927. Nairobi campus is the oldest among the KMTC Campuses and has the largest medical student population of 3200. The Nairobi campus of KMTC offers basic diploma courses in various disciplines, among them: Environmental health, clinical medicine, nursing, physiotherapy, pharmacy, medical laboratory, medical imaging, occupational therapy, medical engineering, health records and information, orthopaedic technology, dental technology, community oral health, optical technology and neurophysiology.

3.3. Reasons for Choosing the Study Site

KMTC Nairobi borders and shares some facilities with KNH. The students of KMTC Nairobi campus usually get their trauma and emergency, surgical and medical clinical experiences mainly from KNH which is one of the main national referral and teaching hospital in Kenya. KNH also receives patients from other parts of Africa and also provides a medical research environment. Its medical workers are frequently and unexpectedly exposed to high levels of emergency and complicated cases and it handles heavy workloads. The hospital unpredictably and unexpectedly handles huge number of patients due to frequent disasters such as the 1998 US Embassy Bomb blast in Nairobi, and the 2009 Nakumatt supermarket fire in Nairobi. It also handles emergencies like road traffic accidents occurring in and around Nairobi. The researchers presumed that medical students placed in KNH could end up suffering from vicarious trauma as a result of empathetic interaction with survivors of trauma.

3.4. Study Population

The study population of Nairobi campus department of Nursing, clinical medicine, and physiotherapy was 1000.

The sampling frame included the students of Clinical Medicine, Nursing, and Physiotherapy who were enrolled in the basic diploma program and who had been placed in the clinical area. The clinical placement experience was important because those who had not been exposed to the clinical area may not have been exposed to the trauma material from trauma survivors and therefore their trauma scores were likely to be low. The students from the three departments are usually involved in the management of patients who have experienced trauma and are engaged with them for longer periods than others. The participants of the study were those who were having their clinical experience in KNH. They were recruited using the clinical area placement lists provided by the KMTC heads of departments or the class coordinators or the clinical area placement coordinators. The participants who met the inclusion criteria were explained about the research and they were given an opportunity to decide whether they wanted to participate in the study. Those who were willing to participate voluntarily signed a consent form. The social demographic and TABS were self-administered and the researchers adhered to confidentiality by ensuring that they were stored away in safe custody. All ethical considerations were adhered to and informed consent was sought from the study participants.

3.5. Study Variables

the study variables used are; age, gender, year of study, religion, type of course, work load, length of care provision, type of patients, and trauma symptoms as independent variables while vicarious trauma was the dependent variable.

3.6. Ethical Considerations

Approval was sought from the Department of Psychiatry, the KNH/UON Research and Ethics, the Research and Ethics Committee of KMTC. All the respondents were explained the purpose of the research and a written consent obtained from each respondent. The researchers endeavored to ensure that ethics of confidentiality and volunteerism were adhered to in accordance to the KNH& UoN Ethics Committee

4. Results

4.1. Socio- Demographic Characteristics of Participants

Results indicate that both male and female students were fairly represented with 51.6% being males and 48.4% being females. The ratio of male to females was 12: 11. The figure 1 below shows these findings.

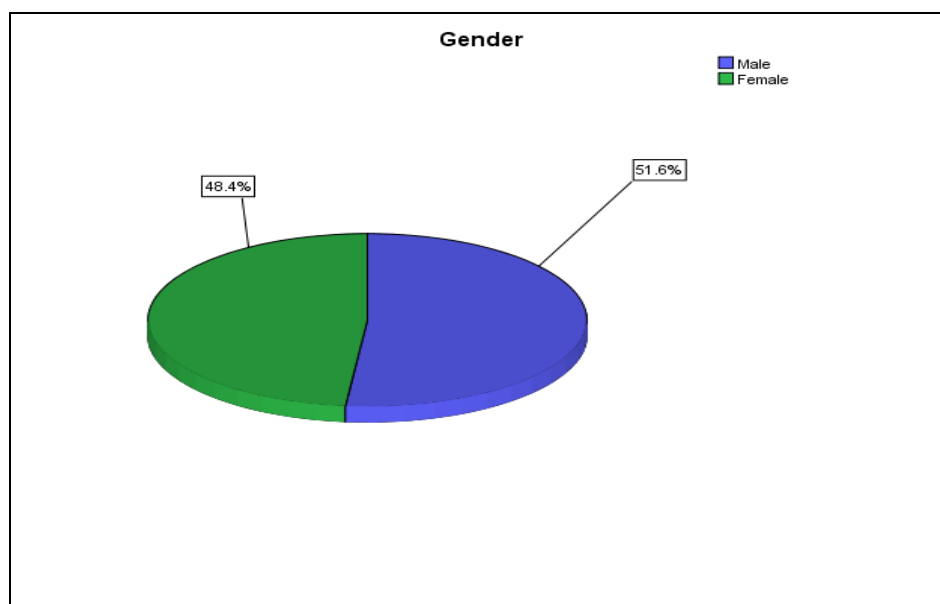


Figure 1: Gender of respondents

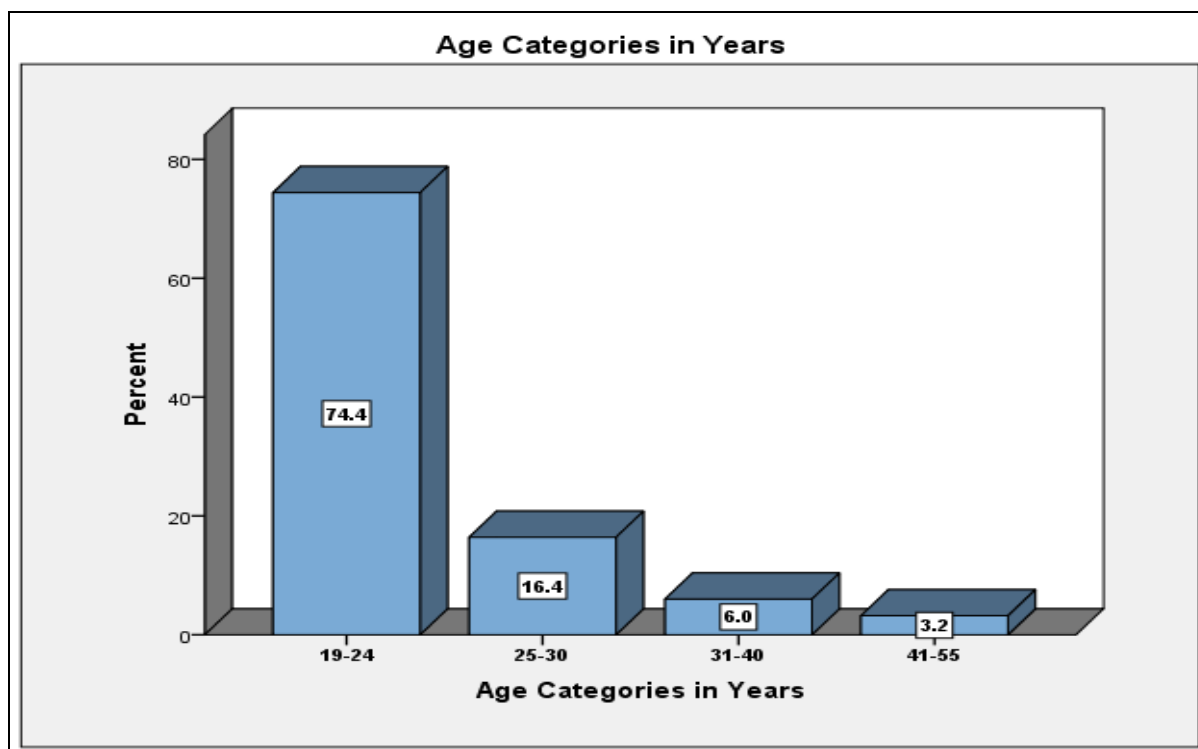


Figure 2: Respondents age categories in years

Majority of respondents 74.4% (n=186) were between the age of 19-24 years and median age was 23.

Religion of respondents	Frequency	Percent
Protestant	162	64.8
Catholic	72	28.8
Muslim	14	5.6
Any other	2	0.8
Total	250	100.0

Table 1: Religion of respondents

The majority (93.4%) of the respondents professed Christian faith while Muslim were 5.6%.

Course being taken	Frequency	Percent
Nursing	109	43.6
Clinical Medicine	69	27.6
Physiotherapy	72	28.8
Total	250	100.0

Table 2: Courses taken by respondents.

Nursing respondents were 43.6% (n=109); Clinical medicine 27.6% (n=69) while Physiotherapy were 28.8% (n=72)

Respondents level of training	Frequency	Percent
Second year	97	38.8
Third year	90	36.0
Fourth year	40	16.0
Upgrading	23	9.2
Total	250	100.0

Table 3: Respondents level of training

The majority of the respondents were senior students of which 38.8% were in 2nd year of training, 36.0% were in 3rd year while 9.2% were upgrading from certificate to basic diploma.

Clinical area where respondents had been placed for experience	Whether placed in the specified clinical area		Total
	Those who had been in the specified area	Those who had not been placed in the specified area	
	Frequency (%)	Frequency (%)	Frequency (%)
Surgical wards	196 (78.4%)	54 (21.6%)	250 (100%)
Medical wards	207 (82.8%)	43 (17.2%)	250 (100%)
Burns ward/unit	56 (22.4%)	192 (77.6%)	250 (100%)
Critical care unit	34 (13.6%)	216 (86.2%)	250 (100%)
Oncology wards	45 (18.0%)	205 (82%)	250 (100%)

Table 3: clinical placement areas

82.2% respondents had undergone experience in the medical wards, 78.4% had undergone surgical ward experience, 39.2% had undergone casualty (Trauma and Emergency) while 82% had gone through oncology wards.

Placement Duration in Weeks	Frequency	(%)
0-4	92	36.8
4-8	42	16.8
9-12	32	12.8
12-16	26	10.4
Above 16	58	23.2
Total	250	100

Table 4: Duration of clinical placement

36.8% had been in the clinical area for a period of 0-4 weeks, 36.8% for 4-8 weeks, 12.8% for 9-12 weeks, 10.4% for 12-16 weeks and 23.2% over 16 weeks. The mean duration of serving in the clinical areas was 2.66 weeks with a median of 2 weeks and standard deviation 1.60 weeks

Patients attend to in a Day	Frequency	Percent (%)
1-4 patients	86	34.4
5-8 patients	63	25.2
9-12 patients	45	18.0
13-16 patients	45	18.0
Above 16 patients	11	4.4
Total	250	100.0

Table 5: Patients attended to by respondent

Majority of respondents (34.4%) attended less than 4 trauma patients in a day.

Vicarious Trauma (TABS)		Frequency	Percent
	Mild(30-44)	5	2.0
	Moderate(45-59)	75	30.0
	Severe(60->70)	170	68.0
	Total	250	100.0

Table 6: VICARIOUS TRAUMA

68% of respondents had severe VT, 30% had moderate and 2% had mild VT

Variable		VT					
		Mild		Moderate		Severe	
		No.	%	No.	%	No.	%
Gender	Male	2	.8	44	17.6	83	33.2
	Female	3	1.2	31	12.4	87	34.8
	Total	5	2.0	75	30.0	170	68.0
Course Being taken	Nursing	2	.8	32	12.8	75	30.0
	Clinical Med	0	.0	25	10.0	44	17.6
	Physiotherapy	3	1.2	18	7.2	51	20.4
	Total	5	2.0	75	30.0	170	68.0
Religion	Protestant	3	1.2	46	18.4	113	45.2
	Catholic	1	0.4	26	10.4	45	18.0
	Muslim	1	0.4	3	1.2	10	4.0
	Any other	0	0.0	0	0.0	2	0.8
	Total	5	2	75	30	170	68
Age Categories in Years	19-24	3	1.2	56	22.4	127	50.8
	25-30	2	.8	10	4.0	29	11.6
	31-40	0	.0	6	2.4	9	3.6
	41-55	0	.0	3	1.2	5	2.0
	Total	5	2.0	75	30.0	170	68.0
Level of training	2 nd year	2	0.8	26	10.4	69	27.6
	3 rd year	2	0.8	30	12.0	58	23.2
	4 th year	1	0.4	10	4.0	29	11.6
	Upgrading	0	.0	9	3.6	14	5.4
	Total	5	2.0	85	30.0	170	68.0
Duration of Clinical Placement in Weeks	0-4	5	2.0	23	9.2	64	25.6
	4-8	0	.0	9	3.6	33	13.2
	9-12	0	.0	11	4.4	21	8.4
	12-16	0	.0	9	3.6	17	6.8
	Above 16	0	.0	23	9.2	35	14.0
	Total	5	2.0	75	30.0	170	68.0
Patients attended in a day	1-4	1	.4	24	9.6	61	24.4
	5-8	2	.8	19	7.6	42	16.8
	9-12	2	.8	13	5.2	30	12.0
	13-16	0	.0	13	5.2	32	12.8
	Any Other	0	.0	6	2.4	5	2.0
	Total	5	2.0	75	30.0	170	68.0

Table 7: Association between Socio –demographic characteristics and VT

Male respondents 0.8% had Mild level of VT, 17.6% had Moderate level of VT while 33.2% had severe level of VT. Female respondents (1.2%) had Mild level of VT, 12.4% had Moderate level of VT while 34.8% had severe level VT

The respondents taking a course in Nursing 2 (0.8%) had Mild VT, 32 (12.8 %) had Moderate while 75 (30.0%) had severe level of VT. In Clinical medicine 25(10.0%) had Moderate VT, 44(17.6%) had severe VT. In Physiotherapy 3(1.2) had Mild VT, 18(7.2%) had Moderate VT while 51(20.4%) had severe VT.

Those in 19-24 years; 3(1.2%) had Mild VT, 56(22.4%) had Moderate VT, 127(50.8%) had severe VT. 25-30 years; 2(0.8%) had Mild VT, 10(4.0) had Moderate, 29(11.6%) had severe VT.

On the level of training those in 2nd year; 2(0.8%) had Mild VT, 26(10.4) had Moderate and 69(27.6%) had severe VT. In 3rd year; 2(0.8%) had Mild VT, 30(12.0%) had Moderate and 58(23.2) had severe VT.

On clinical experience the participants who had been to the clinical are for 0-4 weeks 0.4% had Mild VT, 24(9.6%) had Moderate while 64(25.6%) had severe VT.

Those who had 4-8 weeks; 9(3.6%) had Moderate VT, 33(13.2%) had severe VT. Those who had had 9-12 weeks, 11(4.4%) had Moderate VT while 21(8.4%) had severe VT. Those who had 12-16 weeks; 9(3.6%) had Moderate VT and 17(6.8%) had Severe VT. And those had above 16 weeks of experience; 23(9.25%) had Moderate VT while 35(14.0%) had severe VT.

On work load the participants who attended an average of 1-4 patients daily; 1(0.4%) had Mild VT, 24(9.6%) had Moderate VT and 61(24.4%) had severe VT.

Those who attended 5-8 patients 2(0.8%) had Mild VT, 19(7.6%) had Moderate VT while 42(16.8%) had severe VT.

Those who attended 9-12 patients; 2(0.8%) had Mild VT, 13(5.2%) had Moderate VT and 30(12.0%) had Severe VT.

Those who attended 13-16 patients; 13(5.2%) had Moderate VT, while 32(12.8%) had Severe VT.

Those who had attended more than 16 patients; 6(2.4%) had Moderate VT and 5(2.0%) had Severe VT.

		VT						Correlation Statistics
		Mild		Moderate		Severe		
		No.	%	No.	%	No.	%	
Gender	Male	2	.8	44	17.6	83	33.2	x ² =2.294 and the p-value=0.318
	Female	3	1.2	31	12.4	87	34.8	
	Total	5	2.0	75	30.0	170	68.0	
Course Being taken	Nursing	2	.8	32	12.8	75	30.0	x ² =4.870 and the p-value=0.301
	Clinical Medicine	0	.0	25	10.0	44	17.6	
	Physiotherapy	3	1.2	18	7.2	51	20.4	
	Total	5	2.0	75	30.0	170	68.0	
Duration of Clinical Placement in Weeks	0-4	5	2.0	23	9.2	64	25.6	x ² =13.849 and the p-value=0.086
	4-8	0	.0	9	3.6	33	13.2	
	9-12	0	.0	11	4.4	21	8.4	
	12-16	0	.0	9	3.6	17	6.8	
	Above 16	0	.0	23	9.2	35	14.0	
	Total	5	2.0	75	30.0	170	68.0	
Age Categories in Years	19-24	3	1.2	56	22.4	127	50.8	x ² =3.602 and the p-value=0.730
	25-30	2	.8	10	4.0	29	11.6	
	31-40	0	.0	6	2.4	9	3.6	
	41-55	0	.0	3	1.2	5	2.0	
	Total	5	2.0	75	30.0	170	68.0	
Patients attended in a day	1-4	1	.4	24	9.6	61	24.4	x ² = 6.596 and the p-value=0.581
	5-8	2	.8	19	7.6	42	16.8	
	9-12	2	.8	13	5.2	30	12.0	
	13-16	0	.0	13	5.2	32	12.8	
		0	.0	6	2.4	5	2.0	
	Total	5	2.0	75	30.0	170	68.0	

Table 8: Correlation between socio-demographic variables and VT

There was no significance correlation between socio-demographic variables and VT.

Variable	Response	mild		Moderate		severe		Correlation Statistics
		No	%	No	%	No	%	
Intrusive recollections of trauma symptoms experienced by respondents	Yes	0	.0	26	10.4	83	33.2	$\chi^2=8.186$ and the p-value=0.017*
	No	5	2.0	49	19.6	87	34.8	
	Total	5	2.0	75	30.0	170	68.0	
Respondents who experienced Nightmares	Yes	1	.4	8	3.2	34	13.6	$\chi^2= 3.211$ and the p-value=0.201
	No	4	1.6	67	26.8	136	54.4	
	Total	5	2.0	75	30.0	170	68.0	
Reliving the trauma(flash backs)symptoms	Yes	4	1.6	31	12.4	97	38.8	$\chi^2= 6.679$ and the p-value= 0.035*
	No	1	.4	44	17.6	73	29.2	
	Total	5	2.0	75	30.0	170	68.0	

Table 9: Correlation between PTSD symptoms and VT

There was significance level of correlation between the VT and intrusive recollections of the trauma with $\chi^2=8.186$ and the $p=0.017$, and reliving the trauma (flash backs) with $\chi^2=6.679$ and the $p=0.035$. These two variables are the ones demonstrated in the study that they can form a base for screening patients for VT.

5. Discussion

The study was conducted in KMTC Nairobi and the participants were nursing students, clinical medicine students and physiotherapy students. The study involved students who were undertaking their clinical experience in KNH. The participants completed self-administered socio-demographic questionnaire and TABS scale.

The results in this study show a higher rate of VT with males having 51.1 % (n=129) and females 48.4 % (n=121) while Blanchard³⁶ in his study on vicarious traumatization among college students, following September 2011 attacks, showed males as having 4.8% and females 9.9%. From this study among the KMTC medical students it also emerged that the time spent by a care provider with trauma patients determines the severity of VT. In this study the Nursing students who spend more time in the care of patients had a higher prevalence rate of VT; 30% (n=75) severe, 12.8% (n=32) moderate, 0.8% (n=2) mild compared to Physiotherapy who had 20.4% (n=51) severe, 7.7% (n=18) moderate and 1.2% (n=3) mild and Clinical Medicine who had 17.6% (n=44) severe, 10.0% (n=25) moderate. This prevalence is similar to that found by Kokonya³⁷ where the prevalence rate among nurses was 32.9% and also in the study by Maina⁵⁷ on stress among health care workers in KNH where he found the prevalence rate of 32% among nurses.

The prevalence of VT among KMTC students in Nairobi in this study is 68.0 % (n=170) severe, 30.0 % (n=75) moderate and 2.0 % (n=5) mild. The prevalence in the severe level is similar to that found by Mbatha (2004) in her study among caretakers in Kakuma refugee camp which was 63%.

The high prevalence rate of VT found among medical students at the KMTC Nairobi campus in this study may have several explanations considering that Pearlman and Saakvitne² state that occurrence of VT is cumulative from past experience as the care giver is a witness and a participant of the trauma re-enactments within and outside the health facility. In this regard the VT experienced by the medical students at the KMTC Nairobi could have been aggravated by past events like the post-election violence in 2007 in Kenya and they may have witnessed the traumatic events that were associated with it. Also Kenya experienced several bomb blast attacks, inter-tribal attacks to name a few in the recent past and according to Pearlman and Saakvitne, VT is as a result of cumulative negative effect on the carer following exposure to trauma material. The media both national and international has also been writing and airing traumatic events and according to a study by Kinyanjui⁴⁵ on VT among university students found that watching and reading about violence had an impact on the students daily life. Lastly, by the time of data collection, that is in February and early March 2013, Kenya was about to conduct its general election and this could have reawakened the re-enactments of the 2007 post-election violence in the minds of the respondents. It would also have been interesting to see how the results would have been had the first years been involved in the study as they could have acted as a control to explore the significance of the traumatic events in Kenya since the first years have not had any clinical exposure. Ghahramanlou and Brodbeck⁵⁹ in their study found that young age was a risk factor to VT, their results corresponds with the current study where younger respondents 50.8% (n=127) had severe VT. Experience in management of patients is gained from one level of training to the other and in this study 2nd year respondents have the least experience while those students undertaking upgrading training would be the most experienced. Pearlman and Mac Ian⁵⁸ in their study found that therapists with less practice were more likely to experience psychological problems. The findings in the current study indicate that 2nd year who were the lowest level of training had higher level 69(27.6%) of severe VT. These findings also correspond with findings by Pearlman and Saakvitne² indicate that intrusive imagery is experienced early in a carer's life with trauma survivors, the results where the participants are relatively new in the field of caring, have demonstrated significant correlation between the VT and intrusive recollections of the trauma with a $p=0.017$, and reliving the trauma (flash backs) with a $p=0.035$. Jenkins and Baird⁴¹ indicate that verbal exposure to traumatic materials causes change in the intellectual capacities and memory systems of the caregiver which presents as flash backs (reliving the trauma).

6. Conclusion

There is a high prevalence rate of VT among medical students that care for traumatized patients as 68% experienced severe VT, 30% experienced moderate VT while 2% suffered mild VT. There is also a positive correlation of VT and intrusive recollections of the trauma with a $p=0.017$ and relieving the trauma (flash backs) with a $p=0.035$ that can form a baseline for screening medical students for VT especially those who care for the traumatized persons when they are young in the profession of caring as the prevalence was higher among the second year medical students that had just started their clinical rotations.

7. Recommendations

As a result of the findings of high VT levels among medical students at the KMTC, the researchers recommend that there is need to formulate sound policies that could aid in mitigating the untoward effects of VT among medical students especially early in the course of their medical carer. Further research is also recommended especially among first year medical students in order to come up with interventional strategies on VT that could sensitize them on the same and also determine the influence of VT on academic performance.

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