Effectiveness of Lazarus' Multimodal Therapy in Treatment of Burnout Symptoms, Compassion Fatigue and Compassion Satisfaction: A Study on Critical Care Nurses at Kenyatta National Hospital

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Abstract

Critical care nurses globally face significant psychological distress due to prolonged trauma exposure, excessive workloads, and limited mental health support. These challenges reduce their ability to sustain Compassion Satisfaction (CS) and manage Burnout Symptoms (BOS) and Compassion Fatigue (CF), contributing to high staff turnover and compromised patient care. This study assessed the effectiveness of Lazarus' Multimodal Therapy (MMT) in addressing BOS, CF, and CS among nurses at the Critical Care Unit (CCU) of Kenyatta National Hospital (KNH). A randomized controlled trial was conducted with 78 nurses divided into treatment and control groups. A social demographic questionnaire and the Professional Quality of Life Scale (Pro-QOL v5) were used to assess BOS, CF, and CS at baseline, midline, and end line. Only the treatment group received MMT. Analysis using ANOVA at a 95% confidence interval via SPSS 29.0 revealed significant improvements in CS at baseline ($p = .003$), midline ($p = .032$), and end line ($p = .021$); BOS at midline ($p = .022$) and end line ($p = .018$); and CF at baseline ($p = .012$), midline ($p = .007$), and end line ($p = .007$). MMT effectively reduced BOS and CF while increasing CS. Participants in the treatment group experienced reduced emotional exhaustion and depersonalization, along with enhanced professional fulfillment. The study concluded that MMT is a highly effective intervention for improving the psychological well-being of critical care nurses. It recommends that healthcare administrators incorporate MMT into wellness programs and training, allocate resources for regular psychological assessments, and that nursing curricula include MMT to foster resilience. Government health agencies should also develop supportive mental health policies to enhance nurses' well-being and improve healthcare delivery.

Keywords: *burnout syndrome, compassion fatigue, compassion satisfaction, multimodal therapy, Critical Care Nursing*

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1.0 Introduction

Healthcare professionals, particularly critical care nurses, are frequently exposed to high levels of occupational stress, emotional exhaustion, and psychological strain due to the nature of their work. These stressors can lead to burnout (BOS), compassion fatigue (CF), and diminished compassion satisfaction (CS), which affect both professional performance and personal well-being (Alharbi et al., 2020; Vahedian-Azimi et al., 2019).

Burnout is a psychological condition resulting from chronic workplace stress that has not been successfully managed. It is characterized by emotional exhaustion, depersonalization, and a reduced sense of personal accomplishment (Orrù et al., 2021). Compassion fatigue, on the other hand, refers to the profound emotional and physical erosion that takes place when caregivers are unable to refuel and regenerate, often leading to reduced empathy and professional withdrawal (Bissett, 2021). Conversely, compassion satisfaction refers to the fulfillment that caregivers experience from their work, which can counteract the negative effects of BOS and CF (Twum, 2021).

The prevalence of BOS and CF among healthcare workers is a global concern. Studies indicate that the prevalence of severe BOS ranges from 20% to 40% in countries such as Australia, New Zealand, India, Germany, Sweden, and Norway; and from 50% to 70% in Eastern Europe, including Russia and Poland; North America, particularly in the United States and Canada; Asia, including China and Japan; South America, particularly Brazil and Argentina; the United Kingdom; Southern Europe, including Spain and Italy; and the Middle East, particularly Saudi Arabia and the United Arab Emirates (Azoulay et al., 2020). The increasing demands placed on critical care nurses due to high patient loads, complex medical cases, and prolonged working hours contribute to these high burnout levels (Orrù et al., 2021). In the United States, for example, nearly 63% of nurses in intensive care units report experiencing severe burnout, which affects their mental health and patient care quality (Beck, 2020). Similarly, in China, research has shown that over 58% of critical care nurses experience CF due to frequent exposure to trauma and loss (Qin et al., 2023).

Regionally, sub-Saharan Africa has reported increasing cases of BOS and CF among healthcare professionals, particularly in countries experiencing healthcare worker shortages, heavy workloads, and limited mental health interventions (Kibuthu, 2020). In South Africa, studies have shown that nearly 70% of critical care nurses report symptoms of BOS due to long working hours and the emotional toll of dealing with critically ill patients (Farzin et al., 2024). In Nigeria, research has found that CF affects nearly 60% of nurses working in emergency and intensive care units, leading to decreased work performance and increased absenteeism (Lee et al., 2022). Additionally, in Uganda and Tanzania, the high patient-to-nurse ratios,

coupled with limited mental health support, have exacerbated BOS and CF among healthcare workers (Chinaboo, 2022). These findings highlight the urgent need for effective interventions to mitigate the psychological burden on nurses in the African region.

In Kenya, studies have shown that nurses are three times more likely to experience BOS and CF compared to other medical practitioners due to prolonged exposure to emotionally distressing patient care situations (Elias et al., 2020; Chinaboo, 2022). Research conducted in major referral hospitals such as Kenyatta National Hospital and Moi Teaching and Referral Hospital indicates that over 65% of critical care nurses exhibit symptoms of BOS, with many experiencing emotional exhaustion and depersonalization (Kibuthu, 2020). The high workload, inadequate staffing, and lack of structured psychological support systems further exacerbate the problem (Twum, 2021). Despite the severity of these conditions, limited empirical research has explored evidence-based interventions targeting BOS and CF among critical care nurses in Kenya.

Cognitive-Behavioral Therapy and Multimodal Therapy as Interventions

Cognitive-behavioral therapy (CBT) has been widely recognized as an effective psychological intervention for various mental health challenges; such as, anxiety, depression, post-traumatic stress disorder, and work-related stress (Hudays et al., 2022). Short-term CBT training has been shown to improve work performance and psychological resilience across different professions (Charatcharungkiat et al., 2024). In the nursing field, CBT interventions have demonstrated positive outcomes for mental health nurses working within psychosis populations and palliative care nurses dealing with emotionally intensive patient interactions (Twum, 2021).

Lazarus' MMT framework assumes that individuals respond more effectively to interventions when multiple modalities are engaged, rather than a singular focus on either cognitive or behavioral strategies alone

Lazarus' Multimodal Therapy (MMT) extends traditional CBT by incorporating an integrative approach that considers multiple dimensions of an individual's psychological functioning. MMT is a structured, broad-based, and empirically driven intervention that focuses on seven modalities of human functioning, collectively referred to as BASIC I.D.: Behavior, Affect, Sensation, Imagery, Cognition, Interpersonal Factors, and Drug/Biology (Kibuthu, 2020; Lee et al., 2022). This approach allows for personalized therapeutic interventions that address various dimensions of stress responses in healthcare workers (Collard, 2021). MMT is technically eclectic, meaning that it draws upon a range of psychological theories and therapeutic

strategies, while maintaining a structured and evidence-based application (Frank, 2020).

This study focused on a holistic assessment of the MMT modality skills beginning, with assessment-based client's life history inventory and structural profile, which discovers the behaviour, affect, sensation, imagery, cognition, interpersonal relationship, drug and biology. Lazarus' knowledge of MMT encompasses assessing symptoms on each measurement of personality so as to discover the appropriate blend of therapeutic techniques to sort them all. This directs the client in determining which behaviours to modify, and which ones to keep, after the interaction amongst the elements (Kibuthu, 2020; Masters & Burish, 2007).

Lazarus reserved the basic premises of CBT, which is a combination of behaviour therapy and cognitive therapy. Behaviour therapy; nonetheless, further holds that the individual's precise needs and personality proportions must be considered (Milkman& Wanberg (2007). Multimodal therapy begun with CBT which is a combination of cognitive therapy and behaviour therapy. Behaviour therapy paid attention to the external behaviours, while cognitive therapy focused on mental aspects and internal processes; putting the two together enabled it to apply both internal and external aspects of treatment concurrently. (Kibuthu, 2020; Masters & Burish, 2007). The findings of this study revealed that MMT was an effective intervention in treatment of BOS, CF and CS.

The Gap in Literature and Justification for the Study

MMT has been successfully applied in different countries, such as India and the United States, where it has been used to address anxiety, depression, and other psychological disorders that contribute to BOS and CF (Beck, 2020; Farzin et al., 2024). The therapy's effectiveness is attributed to its ability to integrate biological, cognitive, and social dimensions of psychological distress, making it a comprehensive intervention for stress-related conditions in high-stakes professional environments (Qin et al., 2023). Despite its success globally, there still remains a gap in literature on the application of MMT in Kenya's healthcare system, particularly in addressing BOS, CF, and CS among critical care nurses.

Due to the high prevalence of BOS and CF among critical care nurses in Kenya, and the absence of targeted interventions, this study aims to evaluate the effectiveness of Lazarus' MMT in alleviating BOS and CF, while enhancing CS among nurses at Kenyatta National Hospital. By providing empirical evidence on the applicability of MMT in the Kenyan healthcare setting, this research will contribute to the growing body of knowledge in clinical psychology and inform the development of structured mental health interventions for healthcare professionals in resource-limited settings.

Problem Statement

In a good healthcare environment, critical care nurses should receive adequate psychological support to sustain compassion satisfaction (CS) and manage burnout (BOS) and compassion fatigue (CF). This would ultimately lead to high-quality patient care. However, the high prevalence of BOS and CF among critical care nurses is a growing concern that negatively impacts both healthcare professionals and patient outcomes. Studies have demonstrated that critical care nurses in various regions, such as North America (Beck, 2020), Asia (Qin et al., 2023), and sub-Saharan Africa (Kibuthu, 2020), experience significant psychological distress due to prolonged exposure to trauma, excessive workloads, and limited mental health support. In Kenya, critical care nurses are disproportionately affected by BOS and CF, with research indicating that they are three times more likely to experience these conditions compared to other healthcare professionals (Elias et al., 2020). The consequences of untreated BOS and CF include increased absenteeism, reduced quality of patient care, and the healthcare system becomes less efficient. (Chinaboo, 2022).

Despite the well-documented prevalence of BOS and CF, there is still a notable gap in the literature regarding evidence-based interventions specifically designed to address these psychological challenges among nurses in Kenya. While MMT has been successfully implemented in countries such as India and the United States to reduce anxiety, depression, and work-related stress (Farzin et al., 2024), its effectiveness in treating BOS and CF among Kenyan critical care nurses remains unexplored. The lack of locally contextualized psychological interventions further necessitates the need for more investigation into the applicability of MMT within Kenya's healthcare system. This study sought to evaluate the effectiveness of Lazarus' MMT in treating BOS, CF, and CS among critical care nurses at Kenyatta National Hospital, with a view to inform the development of targeted mental health interventions that enhance the well-being and professional resilience of critical care nurses in Kenya.

2.0 Materials and Methods

The following methodology was applied in implementing this study.

Study Design and Setting

This study employed a randomized controlled trial (RCT) design to assess the effectiveness of Lazarus' multimodal therapy (MMT) in reducing burnout syndrome (BOS) and compassion fatigue (CF), as well as enhancing compassion satisfaction (CS) among nurses (Yang et al., 2020). The study was conducted at the Critical Care Unit (CCU) of Kenyatta National Hospital (KNH), Nairobi County, Kenya. KNH, being the largest referral hospital in Kenya, has the highest number of critical care nurses attending to patients with complex and high-acuity conditions, thus making it an appropriate setting for the study.

Study Population and Sample Size Determination

The study targeted all 236 nurses working in the CCU at KNH. Previous studies such as Mohammadi and Akbari (2015) reported that 63.7% of nurses who received MMT showed a reduction in BOS and CF compared to 40.3% who did not. Sample size estimation was carried out using the Quartagno et al. (2020) formula for comparing two proportions in non-inferiority treatment intervention studies. To achieve adequate statistical power while accounting for a 10% attrition rate, a sample size of 78 nurses per group (totaling 156 participants) was determined.

Sampling Technique

A consecutive sampling technique was employed to recruit 156 nurses who met the following criteria: (a) aged between 23 and 58 years, (b) holding a diploma or higher qualification in nursing, and (c) having a minimum of six months' work experience in the CCU.

Study Phases

The study was conducted in two phases:

Phase One: Baseline Assessment

Baseline data on BOS, CF, and CS were collected using the Professional Quality of Life (ProQOL) tool, a validated self-administered questionnaire, comprising a 30-item Likert-scale assessment for CF and a 22-item Likert-scale assessment for BOS, reflecting experiences over the preceding 30 days. The responses were scored on a five-point scale ranging from "Never = 1" to "Very Often = 5" for CF and "Never = 1" to "Daily = 5" for BOS. The ProQOL tool, widely used for assessing occupational stressors among healthcare professionals, also measures secondary traumatic stress (STS), providing a comprehensive evaluation of the dependent variables (Robles-Bray, 2019). Burnout, CF, and CS scores were categorized based on established ProQOL cut-off values:

Table 1

Established ProQOL cut-off values

Scale	Scale Range	Interpretation
Compassion Fatigue	≤ 22	Low
	23 – 41	Average
	≥ 42	High
Burnout	≤ 22	Low
	23 – 41	Average
	≥ 42	High
Compassion Satisfaction	≤ 40	Low satisfaction
	41 – 56	Average satisfaction
	≥ 57	High satisfaction

For this study, BOS and CF were analyzed as continuous variables, with a score of ≥50, indicating a positive diagnosis (Stamm, 2019). CS scores ≥57 indicated high job satisfaction, while scores ≤40 suggested dissatisfaction or work-related challenges.

Phase Two: Randomization and Intervention

Participants were randomly assigned to either the intervention or control group in a 1:1 ratio using block randomization with variable block sizes, to minimize selection bias. The allocation was blinded to participants. The intervention group received MMT therapy sessions every two weeks for six months, facilitated by qualified therapists at the Employee Assistance Offices at KNH. The control group received routine care without MMT. To track progress, BOS, CF, and CS levels were reassessed at mid-line (three months) and end-line (six months) using the ProQOL tool.

Ethical Considerations

The study was approved by the KNH, University of Nairobi Ethics Committee, Daystar University School of Human and Social Sciences, and the National Commission for Science, Technology, and Innovation (NACOSTI). All participants provided written informed consent before enrollment, ensuring adherence to ethical research standards.

Confidentiality.

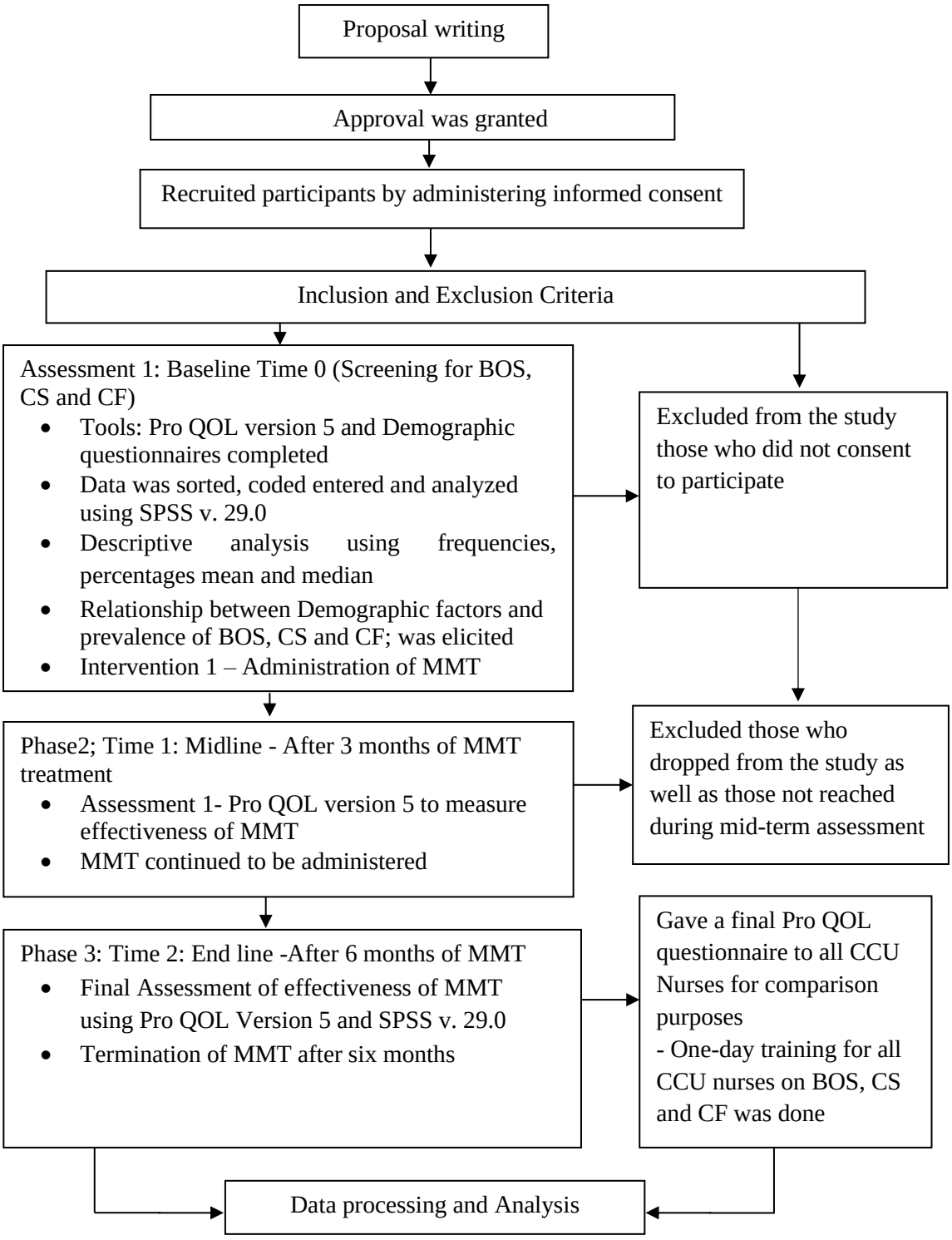
The participants signed the consent after they agreed to participate. Participants were assured that their identities would be kept highly confidential and anonymous to the public, but would be known to the researcher and the research assistants because they were dealing with them directly during treatment. In regard to this, the researcher kept a list of names against the secret identification for treatment and follow up purposes. The list was kept highly confidential in a lockable drawer in Employee Assistance Program office.

Data Management and Statistical Analysis

Data collected were entered, coded, and organized using Microsoft Excel and analyzed using SPSS v29.0. Descriptive statistics such as frequencies, percentages, means (SD) for normally distributed data, and medians (IQR) for skewed data, were computed. Group means were compared using an independent samples t-test, while the effectiveness of MMT was evaluated using an Analysis of Variance (ANOVA) test with post-hoc Least Significant Difference (LSD) multiple comparisons. A p-value of <.05 was considered statistically significant (Lee, 2022). Data were presented using tables and figures for clarity.

Figure 1

Data Management Flow Chart

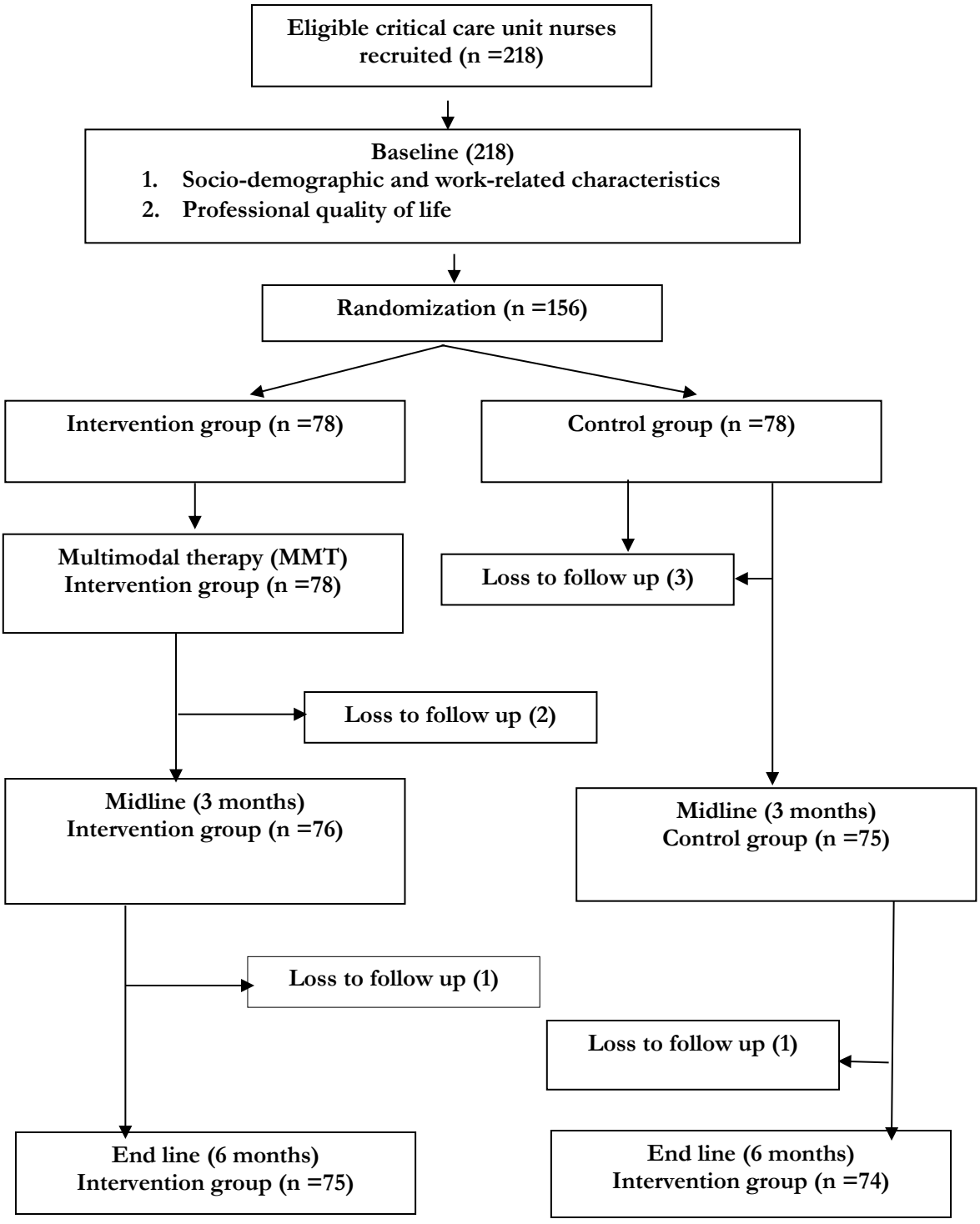


Source: Researcher (2024)

Note. This figure is researcher developed and demonstrates how study data was managed.

Figure 2

Flow Chart Researcher (2024)



Note. This figure represents flow chart of participant participation in the study

3.0 Results and Discussion

Reliability of findings from randomized controlled trial design is majorly dependent on the similarity between elements in the treatment and control arms of a study (Collins et al., 2020). Personal characteristics were compared between the intervention and the control groups using Pearson chi square and Fischer's exact tests. The findings established that there were no significant associations in personal characteristics between intervention and control groups ($p > 0.05$). This statistical equivalence strengthened the validity of the observed outcomes related to burnout (BOS), compassion fatigue (CF), and compassion satisfaction (CS).

Intergroup Comparisons on CS, BOS, and CF

Significant differences in CS, BOS, and CF emerged between the intervention and control groups across the three time points, as indicated in Table 2.

Table 1

Intergroup Comparisons of Compassion Satisfaction, Burnout, Secondary Traumatic Stress Across Different Time Points

Variable	Baseline (Mean ±SD)	Midline (After 3 months), Mean ±SD	End line (After 6 months), Mean ±SD
Compassion satisfaction			
Intervention group	39.3±5.3	42.0±4.2	42.0±4.2
Control group	41.0±4.7	40.5±4.8	40.3±4.9
t-statistic	-2.11	2.168	2.332
P-value	0.036	0.032	0.021
Burnout			
Intervention group	25.3±5.3	21.7±5.2	21.8±5.2
Control group	23.9±4.2	23.6±4.5	23.7±4.5
t-statistic	1.845	-2.322	-2.389
P-value	0.067	0.022	0.018
Secondary trauma			
Intervention group	28.8±6.9	23.3±6.8	23.3±6.8
Control group	26.2±5.9	26.1±5.7	26.1±5.6
t-statistic	2.531	-2.718	-2.716
P-value	0.012	0.007	0.007

Intergroup comparisons indicate that levels of CS among the study participants significantly differ between the groups at the 3 time points: baseline (t = -2.11, p = .003), midline t() = 2.168, p = .032 and end line t() = 2.332, p = .002. At baseline the intervention group has higher BOS with an average of 25.3 SD = 5.3 compared to controls with a mean of 23.9 SD = 4.2. However, the difference is not statistically significant (p = .067). Notably, there are significant differences in burnout level at midline t() = -2.322, p

= .022 and at end line t() = -2.389, *p* = .018.

Notably, the intervention group has a slightly higher BOS score (M = 25.3, SD = 5.3) compared to the control group (M = 23.9, SD = 4.2), though the difference is not statistically significant (p = .067). However, significant differences emerge at midline (t = -2.322, p = .022) and end line (t = -2.389, p = .018), indicating the effectiveness of the Lazarus Multimodal Therapy (MMT) intervention. Similarly, CS levels significantly improve in the intervention group from baseline (M = 39.3, SD = 5.3) to end line (M = 42.0, SD = 4.2) (p = 0.021), while the control group exhibited no substantial change. These findings further enhance the reliability of the study subjects in deducing the efficacy of MMT in treating BOS, CF and CS.

Within-Group Comparisons

Further comparisons were done within the groups, and the information presented in Table 3.

Table 3

Within Group Differences in Compassion Satisfaction, Burnout and Secondary Trauma Between Intervention Group and Control Groups Among Critical Care Nurses

	Comparison between baseline and midline T0 - T1		Comparison between baseline and end line T0- T2		Comparison between midline and end line T1- T2	
	Paired t statistic	P value	Paired t statistic	p value	Paired t statistic	P value
Compassion satisfaction						
Intervention	5.609	<0.001	5.559	<0.001	-1.424	#
Control	1.306	0.196	1.489	0.141	1.538	0.128
Burnout						
Intervention	4.512	<0.001	5.671	<0.001	-3.214	0.159
Control	0.653	0.516	0.465	0.644	-1.209	0.231
Secondary trauma						
Intervention	6.135	<0.001	6.126	<0.001	-0.276	0.784
Control	-0.037	0.971	0.101	0.2	-0.323	0.747

T0 – Time 0 (Baseline); T1 – Time 3 months (Midline); T2 – Time 6 months (End line)

Within-group differences analysis indicates significant difference in CS between baseline and midline line t() = 5.609, $p < .001$ and between baseline and end line t() = 5.559, $p < .001$. Although there are no significant differences in CS between midline and end line time point findings, in the control group, CS varies across the time points.

Findings from BOS scores reveals that there are significant differences in intervention group between baseline and midline t() = 4.512, $p < .001$ as well as difference between baseline and end line t() = 5.559, $p < .001$. However, in the intervention group, there is no significant difference in BOS between midline and end line. In the control group, there are differences in BOS level across all the three time points.

There are significant differences in CF between baseline and midline t() = 6.135, $p < .001$ and between baseline and end line t() = 6.126, $p < .001$. There are no

differences between midline and end line. CF is not statistically significant different across all the three time points. The CF scores also showa significant decline in the intervention group at midline (t = -2.718, p = .007) and end line (t = -2.716, p = .007). These results align with prior studies affirming that structured interventions can mitigate CF and BOS while enhancing CS among healthcare providers (Myers, 2020; Zhao et al., 2021).

Within-group analyses reveals significant improvements in CS between baseline and midline (t = 5.609, p < .001) and between baseline and end line (t = 5.559, p < .001) in the intervention group, whereas the control group does not exhibit significant changes. Similarly, BOS scores significantly declin within the intervention group from baseline to midline (t = 4.512, p < .001) and from baseline to end line (t = 5.559, p < .001), reinforcing the impact of MMT on reducing burnout (Table 3). The CF scores also significantly decrease in the intervention group between baseline and midline (t = 6.135, p < .001) and baseline and end line (t = 6.126, p < .001), suggesting that MMT is effective in alleviating secondary traumatic stress among nurses. These findings are consistent with previous research, which highlights the effectiveness of multimodal interventions in improving psychological well-being in healthcare professionals (Guo et al., 2020; Mottagh et al., 2020).

Paired T-Test Analysis of both Intervention and Controls at Baseline, Midline and End Line

The study also carried out paired t-test of both intervention and controls at baseline, midline and end line. The results are presented in Table 4.

Table 4

Paired T-Test of Both Intervention and Controls at Baseline, Midline and End Line

Compassion satisfaction	Time point	Mean (SD)	Paired Differences Mean difference	95% CI of the Difference Lower	Upper	t	P value
Intervention	T0	39.3(5.2)					
	T1	42(4.2)	-2.711	-4.003	-1.419	-4.179	<0.001
Control	T0	41.1(4.6)					
	T1	40.5(4.8)	0.649	-0.341	1.639	1.306	0.196
Intervention	T0	39.3(5.3)					
	T2	42.0(4.2)	-2.711	-4.003	-1.419	-4.179	<0.001
Control	T0	41.1(4.6)					
	T2	40.3(4.9)	0.76	-0.257	1.777	1.489	0.141
Intervention	T1	42.0(4.2)	#	#	#	#	#
	T2	42.0(4.2)					
Control	T1	40.5(4.8)					
	T2	40.2(5.0)	0.162	-0.048	0.372	1.538	0.128

Insignificant due to perfect comparability; T0 – Compassion satisfaction at time 0; T1 – Compassion satisfaction at time 3 months; T2 – Compassion satisfaction at time 6 months

Paired t-test indicate a statistically significant t = -4.179, p < .001 higher mean in CS at midline, 42 SD = 4.2 compared to baseline average, 39.3 SD = 5.2. There is no statistically significant difference in CS between baseline and midline t = 1.306, p =.196. The findings also show that there is difference in CS between baseline and end line with higher average score in end line 42 SD = 4.2 compared to 39.3 SD = 5.3. However, these findings show that there is no significant difference in CS scores between midline and end line.

Paired T-Test Comparison Between Intervention and Control Groups on Burnout

The study further carried out a Paired T-Test comparison between intervention and control groups on burnout whose results are shown in Table 5.

Table 5

Paired T-Test Comparison Between Intervention and Control Groups on Burnout

Burnout	Time point	Paired Differences				t	P value
		Mean (SD)	Mean differences	95% CI of the Difference			
				Lower	Upper		
Intervention	T0	25.3(5.3)	3.618	2.333	4.903	5.609	<0.001
	T1	21.7(5.2)					
Control	T0	23.9(4.1)	0.27	-0.555	1.096	0.653	0.516
	T1	23.6(4.5)					
Intervention	T0	25.3(5.3)	3.592	2.305	4.879	5.559	<0.001
	T2	21.8(5.2)					
Control	T0	23.9(4.1)	0.213	-0.702	1.128	0.465	0.644
	T2	23.7(4.5)					
Intervention	T1	21.7(5.2)	-0.026	-0.063	0.011	-1.424	0.159
	T2	21.8(5.2)					
Control	T1	23.6(4.5)	-0.203	-0.537	0.132	-1.209	0.231
	T2	23.8(4.4)					

CI – Confidence interval; T0 – Burnout at time 0; T1 – Burnout at time 3 months; T2 – Burnout at time 6 months

The results show that in the intervention group, BOS is statistically significant at baseline 25.3 *SD* = 5.3 compared to midline 21.7 *SD* = 5.2. However, in the control group, there is no significant difference between baseline and midline BOS scores. There is also significant difference between baseline and end line BOS scores with a mean score of 25.3 *SD* = 5.3 at baseline compared to 21.8 *SD* = 5.2 in end line BOS score. The findings also indicate that there are no significant differences in midline and end line for both intervention and control groups.

Paired t-tests further corroborated the positive impact of MMT. In the intervention group, CS scores significantly improved at midline (M =

42.0, SD = 4.2) compared to baseline (M = 39.3, SD = 5.2) (t = -4.179, p < .001) (Table 4). However, no significant difference is noted between midline and end line scores, indicating that the improvements were sustained. BOS scores significantly declines from baseline (M = 25.3, SD = 5.3) to midline (M = 21.7, SD = 5.2) (t = 5.609, p < .001) and from baseline to end line (M = 21.8, SD = 5.2) (t = 5.559, p < .001), whereas the control group does not exhibit significant changes (Table 5).

Paired T-Test Comparison Between Intervention and Control Groups on Secondary

The study finally carried out a Paired T-Test comparison between intervention and control groups on secondary. The findings are shown in Table 6.

Table 6

Paired T-Test Comparison Between Intervention and Control Groups on Secondary Trauma

Secondary trauma	Time point	Mean (SD)	Paired Differences			t	P value
			Mean differences	95% CI of the Difference			
				Lower	Upper		
Intervention	T0	28.8(6.9)	5.487	3.705	7.268	6.135	<0.001
	T1	23.3(6.8)					
Control	T0	26.05(5.8)	-0.027	-1.501	1.447	-0.037	0.971
	T1	26.08(5.7)					
Intervention	T0	28.8(6.9)	5.474	3.694	7.254	6.126	<0.001
	T2	23.3(6.8)					
Control	T0	26.05(5.8)	0.08	-1.495	1.655	0.101	0.92
	T2	26.07(5.6)					
Intervention	T1	23.3(6.8)	-0.013	-0.108	0.082	-0.276	0.784
	T2	23.3(6.8)					
Control	T1	26.08(5.7)	-0.081	-0.581	0.419	-0.323	0.747
	T2	26.07(5.6)					

CI – Confidence interval; T0 – Secondary trauma at time 0; T1 – Secondary trauma at time 3 months; T2 – Secondary trauma at time 6 months

Paired t test shows significant difference in CF between the baseline and midline average scores where CF is higher in baseline 28.8 *SD* = 6.9 compared to 23.3 *SD* = 6.8. There is statistically significant difference between baseline and end line where the findings show that the mean CF score at baseline is higher 28.8 *SD* = 6.9 compared to end line 23.3 *SD* = 6.8. Similarly, CF scores in the intervention group significantly reduce from baseline (M = 28.8, SD = 6.9) to midline (M = 23.3, SD = 6.8) (t = 6.135, p < .001) and from baseline to end line (M = 23.3, SD = 6.8) (t = 6.126, p < .001) (Table 6). These findings align with research indicating that targeted interventions can significantly alleviate BOS and CF among

nurses (Storm & Chen, 2021; Wolotira, 2023).

4.0 Discussion

The study employed intergroup, within-group, and paired t-test analyses to evaluate the efficiency of MMT in addressing BOS, CF, and CS. The results demonstrated a substantial increase in CS, accompanied by a decline in BOS and CF among nurses in the intervention group. The positive impact of MMT is consistent with past research, which supports the effectiveness of structured psychosocial interventions in enhancing resilience among healthcare professionals (Myers, 2020; Zhao et al., 2021).

The observed improvements can be attributed to the comprehensive nature of MMT, which integrates cognitive restructuring, behavioral modifications, and emotional regulation techniques. Lazarus' MMT framework assumes that individuals respond more effectively to interventions when multiple modalities are engaged, rather than a singular focus on either cognitive or behavioral strategies alone (Andrews, 2021). This aligns with findings from studies in emergency department settings, where multimodal interventions led to significant improvements in CS and reductions in BOS and CF (Guo et al., 2020; Polat et al., 2020).

Additionally, existing literature suggests that CF is strongly linked to empathy-driven secondary traumatic stress. A study in Kerman found that empathy accounted for 77% of CF among nurses, underscoring the need for targeted interventions that address pathogenic empathy-based guilt (Mottagh et al., 2020). Furthermore, research in Pennsylvania suggests that critical care nurses should actively participate in self-care strategies and peer support programs to mitigate BOS and CF (Storm & Chen, 2021). Similarly, Okoli et al. (2020) recommended exploring workplace violence and sleep quality as potential factors influencing CS and BOS among healthcare professionals.

From an organizational perspective, fostering a supportive work environment is critical in enhancing CS and reducing BOS. A study in Jordan emphasized the role of nurse educators and healthcare administrators in implementing coping interventions to promote job satisfaction (Subih et al., 2023). Moreover, a study on trauma-informed leadership in nursing suggested that hospital administrators should adopt strategies that prioritize more on resilience-building and psychological well-being (Wolotira, 2023). Chu (2021) further recommended continuous monitoring of nurse–job fit to ensure sustained well-being and job satisfaction.

The findings of this study contribute to the growing body of evidence supporting MMT as a viable intervention for addressing BOS, CF, and CS in nursing professionals. Future research should explore the long-term effects of MMT beyond the six-month intervention period and examine additional factors such as workload distribution and institutional support mechanisms. Further interventions such as progressive muscle

relaxation exercises (Semerci et al., 2021) may further enhance professional quality of life among nurses.

5.0 Conclusion

The findings of this study provide compelling evidence that Lazarus' Multimodal Therapy (MMT) is an effective and efficient intervention for addressing burnout syndrome (BOS), compassion fatigue (CF), and compassion satisfaction (CS) among nurses. The statistically significant improvements in ProQOL scores among the intervention group, underscore the efficiency of MMT in enhancing nurses' well-being. The consistent reduction in burnout and secondary traumatic stress, coupled with increased compassion satisfaction over the six-month intervention period, aligns with prior research which is critical in affirming the role of multimodal interventions in mental health and occupational well-being. Due to the increasing prevalence of burnout in healthcare, institutional policies should incorporate evidence-based interventions, such as MMT, to promote resilience and job satisfaction among nurses.

6.0 Recommendations

Healthcare administrators and policymakers, particularly in KNH, should integrate Lazarus' Multimodal Therapy (MMT) into standard nurse training and wellness programs to mitigate burnout and promote compassion satisfaction. Secondly, Kenyatta National Hospital management should allocate resources for regular MMT sessions, so as to make them accessible to all nursing staff. Nurse supervisors should also implement routine psychological well-being assessments and provide targeted support for those at risk of burnout. The study further recommends that the medical training institutions to incorporate MMT principles into nursing curricula to equip future professionals with resilience strategies. Additionally, government health agencies should establish policies that mandate mental health support programs for healthcare workers, ensuring sustainable improvements in workplace well-being. Lastly, future studies should explore the long-term sustainability of these effects and the potential for broader application across different healthcare settings.

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