

Prevalence and Social Demographic Factors Associated with Secondary Traumatic Stress, Burnout and Compassion Satisfaction among Nurses at Selected Teaching Hospitals in Lusaka, Zambia

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Abstract

Introduction: Nurses' constant exposure to severe human suffering within constrained health care environments places them at risk for developing Secondary Traumatic Stress and Burnout. The current study therefore sought to establish the prevalence and social demographic factors associated with Secondary Traumatic Stress, Burnout and Compassion Satisfaction among Nurses working at selected Teaching Hospitals in Lusaka, Zambia. **Methods:** A correlational design employing a self-administered questionnaire adapted from version five of the Professional Quality of Life scale was used to collect data from 250 nurses drawn using proportional stratified sampling method. The resulting data were analyzed using version 23 of the Statistical Package for Social Sciences (SPSS). Hierarchical multiple linear regression analysis was used to identify predictors of Secondary Traumatic Stress and Burnout. **Findings:** Whilst the majority of respondents reported average levels of Secondary Traumatic Stress and Burnout, about a quarter reported high Secondary Traumatic Stress and Burnout scores at 23% and 26% respectively. Only 81 (32.4%) scored high on Compassion Satisfaction. Social demographic factors including; working in the main Intensive Care Unit, and being married accounted for the greatest variance in Secondary Traumatic Stress ($R^2 = 0.237$, $p < 0.001$), and Burnout ($R^2 = 0.256$, $p < 0.001$) scores. Compassion satisfaction was negatively correlated with both Secondary Traumatic Stress and Burnout. **Conclusion:** Findings of the current study signify a need to institute measures to help nurses cope with the deleterious psychological effects of constant engagement with those in distress and to foster Compassion Satisfaction.

Keywords

Secondary Traumatic Stress, Burnout, Compassion Satisfaction, Compassion Fatigue, Nurse

1. Introduction

Nurses often witness marked human suffering as they provide care to patients facing illnesses and events that are sudden, disfiguring, and life threatening [1]. Beyond merely witnessing the physical anguish suffered by their patients, nurses may also share in their patients' emotional distress through the exercise of empathy. Researchers [1] argue that as nurses attempt to place themselves in their patients' shoes, a sudden transfer of emotional distress from the patient may occur culminating into experiences of personal distress within the nurse. This constant involvement with patients facing intense suffering within constrained health care environments can present a risk for Secondary Traumatic Stress and Burnout among nurses [2] [3]. The combined presence of Secondary Traumatic Stress and Burnout known as Compassion Fatigue [4], can have negative effects on the delivery of patient care and these effects are aggravated by the severity of the traumatic material to which the caregiver is exposed [5]. A construct that is converse to Compassion Fatigue was described [4] as Compassion Satisfaction which includes positive feelings derived from helping others through traumatic situations.

Studies conducted in various parts of the globe [3] [6] [7] [8] have revealed average to high levels of Secondary Traumatic Stress and Burnout among nurses while others [1] [9] [10] have reported low levels of both Secondary Traumatic Stress and Burnout. Some of the factors that have been found to predict higher levels of Secondary Traumatic Stress and Burnout among nurses in settings other than those on the African continent have included: Younger age 20 - 29 years, being female, working in an Intensive Care Unit (ICU) and less work experience [1] [3] [6] [11].

On the African continent, most research investigating Secondary Traumatic Stress and Burnout has been conducted in South Africa [6] [12] [13] [14] [15] while studies examining Burnout independent of Secondary Traumatic Stress have been predominant in sub-Saharan Africa [16] [17] [18] [19] [20]. In a systematic review of literature on Burnout among healthcare providers in sub-Saharan Africa, Dubale *et al.* [21] found that Burnout was common among physicians, nurses, and other healthcare providers in sub-Saharan Africa with prevalence estimates ranging from 40% to 80% and that of all the health care professionals, nurses reported the highest levels of Burnout. Although these studies reverberate the magnitude of Burnout among nurses in sub-Saharan Africa, they have not explored the influences of nurses' constant exposure to severe patient suffering which may be in the form of Secondary Traumatic Stress. It is however not sur-

prising that a high prevalence of Burnout has been reported in Sub-Saharan Africa as most countries in this region fall within the low to middle income brackets [22] and their health care systems are fraught with challenges of inadequate staffing, difficult working conditions, poor salaries, low motivation, and high burden of diseases [23] [24].

Zambia is one of the sub-Saharan countries whose health care workers have not been exempted from attending to an ever more critical and emotionally distressed patient population within constrained health care environments. At the University Teaching Hospitals in Lusaka, Zambia, Dart *et al.* [25] reported that 45% of daily admissions had physiological derangements that would prompt critical care admission or review in the United Kingdom (UK) context. Implicitly, nearly half of patients encountered by nurses at this facility were critically ill. Aside from presenting a high burden of critically ill patients, these health care facilities operate within a health care environment that is rife with challenges of high workloads, inadequacy of equipment and supplies, as well as high disease burden [26]. Researchers [1] [2] [3] have postulated that nurses' exposure to severe patient suffering, coupled with stressful work environments renders them susceptible to Secondary Traumatic Stress and Burnout. Despite the preponderance of possible risk factors for Secondary traumatic Stress and Burnout among nurses at these teaching hospitals, no attempts had been made to investigate levels of the two conditions among nurses at these health facilities. The aim of the current study was thus to determine the Prevalence and Social demographic factors associated with Secondary Traumatic Stress, Burnout and Compassion Satisfaction among Nurses working at selected Teaching Hospitals in Lusaka, Zambia.

2. Methods

2.1. Study Design and Study Setting

This was a correlational study undertaken at selected Teaching Hospitals in Lusaka, Zambia. The Hospitals purposively selected for the study included a Cancer Diseases Hospital (CDH), Children's Hospital and an Adult Hospital. For the Adult Hospital, only the Emergency Department (ED) and Main ICU were included in the study. The high burden of disease with varying degrees of acuity and congested work environment (occupancy rate of 94%) at the facilities [27] [28] made them an ideal setting for the study of Secondary Traumatic Stress and Burnout among their nurses.

2.2. Participants

Two Hundred and Fifty Nurses were drawn using proportional stratified sampling method in June and July of 2019. Each of the 3 hospitals was treated as a mutually exclusive and homogenous stratum allowing for calculation of proportions for each hospital. Therefore, once the sample size was calculated, proportions for each of the 3 hospitals were calculated to ensure that the elements in

each sub group were represented in the same proportion as they were in the study population. After the number of elements to be sampled per stratum was calculated, simple random sampling was applied within each stratum to select participants. Ward/Departmental work schedules were used to draw sampling frames as they specified the Accessible Population. Ultimately, 93 nurses were drawn from the Children's Hospital, 80 from the Adult Hospital and 77 from the CDH.

2.3. Data Collection Tool

A self-administered questionnaire adapted from the PHQ-4 and the Professional Quality of Life (ProQOL) Version 5 was used. The PHQ-4 facilitated exclusion of those with high risk for generalized anxiety and depressive disorders as they could have given extreme results. The ProQOL Version 5 was used to collect data on Secondary Traumatic Stress, Burnout and Compassion Satisfaction. Reported alpha reliability for the Compassion Satisfaction Scale was 0.88 (n = 1130) 0.75 (n = 976) for the Burnout Scale and 0.75 (n = 1135) for the Secondary Traumatic Stress Scale [4].

2.4. Validity and Reliability of the Study

Application of exclusion criteria based on a meticulous review of literature to avoid known confounders enhanced internal and external validity of the design while use of proportional stratified sampling helped to reduce selection bias and to obtain a representative sample which ultimately enhanced generalizability of results to the study population. Construct validity of the PHQ-4 has been established through the good Cronbach's alpha coefficient reported [29] at 0.85 for the total scale. The ProQOL 5 on the other hand has reported psychometric properties of Cronbach's alpha (α) reliability ranging from 0.84 to 0.90 on the three subscales [4].

2.5. Data Processing and Analysis

The key variables (Secondary Traumatic Stress, Burnout and Compassion Satisfaction) were collected and analyzed as continuous variables than later categorized based on the 25th and 75th percentiles set by Stamm [4] into low, average and high. Therefore, raw scores from the three sub scales of the ProQOL 5 were first converted into Z-Scores and then into T-Scores using the syntax window of SPSS. Point-biserial correlations and Spearman rank order correlations were executed to identify variables that had a linear relationship with the dependent variables in preparation for hierarchical multiple linear regression analysis. To ascertain normality of the data, Sharpiro Wilk test was used and histograms were inspected. Statistical significance was set at 0.05.

2.6. Ethical Clearance

Ethical approval was obtained from the University of Zambia, Biomedical Re-

search Ethics Committee (UNZABREC) and permission to conduct the study was further sought from the National Health Research Authority, and from the 3 hospitals included in the study. Participants were availed with an information sheet that outlined the nature and purpose of the study, as well as their rights. Services of a psychotherapist were made available for any participant who would have indicated a need for psychological attention after participating in the study. However, none of the participants in the study requested this service. Permission to use the Patient Health Questionnaire and the ProQOL 5 has been given by the authors on the respective tools.

2.7. Study Limitations

The three hospitals included in the study were selected purposively based on a review of literature. This might limit the generalizability of findings to other settings owing to the lack of randomization at this stage. However, the researcher employed probability sampling methods during the selection of participants from the three study settings and this facilitated selection of a representative sample. Findings from the sample were therefore representative of the target population. Additionally, reliability of the findings was enhanced by the rigorous nature of the ProQOL V Scale which has good to excellent Alpha scores and over 200 publications utilizing it [4]. This made the study replicable in similar settings.

3. Results

3.1. Social Demographic Characteristics of Respondents

The study sample comprised 250 nurses working in three University Teaching Hospitals. The mean age for the sample was 29 years, $SD = 5.4$. Majority respondents 218 (87.2%) were female and over half the study sample 139 (55.6%) comprised respondents who were single. A minority 6 (2.4%) were divorced and the remaining 105 (42%) were married. The mean number of years of nursing experience for the sample was 4.3 years, $SD = 4.4$. Of the 250 respondents, majority 185 (74%) had a Registered Nursing qualification, 18 (7.2%) had an Enrolled Nursing qualification and 13 (5.2%) had a Paediatric Nursing qualification. The remaining 13.6% comprised those with other qualifications.

3.2. Prevalence of Secondary Traumatic Stress, Burnout and Compassion Satisfaction

Of the 250 respondents recruited in the study, majority 142 (57%) had average levels of Secondary Traumatic Stress while 58 (23%) had high levels. Only 50 (20%) had low Secondary Traumatic Stress levels. Levels of Burnout were average among majority 122 (49%) respondents while slightly over a quarter (26%) recorded high scores. Only 81 (32.4%) had high levels of Compassion Satisfaction while less than half (47.2%) had average levels of Compassion Satisfaction.

There were no significant differences in mean Secondary Traumatic Stress and Burnout scores for variables gender, age and work experience (**Table 1**). However,

Table 1. Associations between secondary traumatic stress, burnout, compassion satisfaction and social demographic characteristics of nurses.

| Demographic Category | STS t-score | | | BO t-score | | | CS t-score | | |
|--|---|-------|-----|--------------------------------|-------|----------------------------------|--------------------------------|-------|-----|
| | Mean | SD | N | Mean | SD | N | Mean | SD | N |
| Gender | | | | | | | | | |
| Female | 50.26 | 9.95 | 218 | 50.57 | 10.13 | 218 | 51.30 | 8.51 | 218 |
| Male | 52.06 | 8.01 | 32 | 50.13 | 7.76 | 32 | 46.04 | 11.07 | 32 |
| | $(r_{pb} = 0.062, p = 0.328)$ | | | $(r_{pb} = -0.015, p = 0.812)$ | | | $(r_{pb} = -0.195, p = 0.002)$ | | |
| Age | | | | | | | | | |
| 25 years & below | 50.38 | 10.13 | 81 | 51.77 | 10.79 | 81 | 49.68 | 8.69 | 81 |
| 26 to 35 years | 51.09 | 9.76 | 136 | 50.35 | 9.62 | 136 | 50.17 | 9.26 | 136 |
| 36 years & above | 48.24 | 8.42 | 33 | 9.85 | 7.94 | 33 | 50.71 | 8.96 | 33 |
| | $F(2, 247) = 1.15, p = 0.31$ | | | $F(2, 247) = 1.65, p = 0.19$ | | | $F(2, 247) = 0.69, p = 0.50$ | | |
| Work Experience | | | | | | | | | |
| Less than 1 year | 49.66 | 10.19 | 37 | 47.57 | 7.60 | 37 | 49.35 | 8.17 | 37 |
| 1 to 4 years | 50.68 | 9.52 | 128 | 51.54 | 11.12 | 128 | 50.61 | 8.81 | 128 |
| 5 to 10 years | 50.82 | 10.38 | 59 | 50.37 | 8.39 | 59 | 51.73 | 9.73 | 59 |
| >10 years | 49.97 | 8.96 | 26 | 50.01 | 8.51 | 26 | 50.04 | 9.77 | 26 |
| | $F(3, 246) = 0.15, p = 0.93$ | | | $F(3, 246) = 1.61, p = 0.19$ | | | $F(3, 246) = 0.58, p = 0.63$ | | |
| Marital Status | | | | | | | | | |
| Married | 52.71 | 10.07 | 105 | 50.58 | 10.08 | 105 | 49.51 | 9.76 | 105 |
| Single | 50.00 | 9.09 | 139 | 50.98 | 9.47 | 139 | 51.41 | 8.41 | 139 |
| Divorced | 45.97 | 11.48 | 6 | 38.81 | 8.55 | 6 | 52.23 | 8.75 | 6 |
| | $F(2, 247) = 5.195, p = 0.006$ | | | $F(2, 247) = 4.516, p = 0.01$ | | | $F(2, 247) = 1.43, p = 0.24$ | | |
| Respondent's Ward/Unit | | | | | | | | | |
| Adult Emergency Medical Unit | 61.1 | 4.69 | 3 | 55.9 | 1.13 | 3 | 47.6 | 5.35 | 3 |
| Main ICU (Adult Hospital) | 57.5 | 1.48 | 29 | 56.3 | 1.51 | 29 | 48.6 | 8.96 | 29 |
| Paediatric Emergency Room (AO1) (Children's Hospital) | 48.4 | 9.32 | 12 | 57.9 | 6.40 | 12 | 55.8 | 3.46 | 12 |
| Paediatric Ward (CDH) | 45.68 | 6.36 | 11 | 55.1 | 1.04 | 11 | 58.2 | 3.81 | 11 |
| Chemotherapy Suit (CDH) | 49.4 | 7.56 | 12 | 56.92 | 8.53 | 12 | 54.2 | 4.07 | 12 |
| | $V = 0.087, F(4, 494) = 5.642, p < 0.001$ | | | | | $(\chi^2(50) = 92.20, p < 0.01)$ | | | |

r_{pb} = Point Biserial Correlation; V = MANOVA; F = MANOVA; χ^2 = Pearson's Chi-square test.

Point Biserial Correlation revealed that Males had significantly lower Compassion Satisfaction scores (46.04, $SD = 11.07$) than females (51.30, $SD = 8.51$) ($r_{pb} = -0.195, p = 0.002$). Significant differences in Secondary Traumatic Stress and Burnout scores were also found among respondents with different marital status on Multivariate Analysis of Variance (MANOVA) ($p < 0.001$).

Using Pillai's trace, there was a significant effect of marital status on Second-

ary Traumatic Stress and Burnout, $V = 0.087$, $F(4, 494) = 5.642$, $p < 0.001$. Using Hochberg's post Hoc test, statistically significant differences in Secondary Traumatic Stress scores were found between the married and the single ($p = 0.009$). Further, statistically significant differences in Burnout scores were found between the married and the divorced ($p = 0.01$) and between the single and the divorced ($p = 0.009$). Respondents who were not in a marital union at the time of the study (Single or Divorced) had significantly lower Secondary Traumatic Stress mean scores than the married (Married: 52.27, $SD = 10.07$; Single: 50, $SD = 9.09$; Divorced: 45.97, $SD = 11.48$). Similarly, the divorced had lower mean Burnout scores (38.81, $SD = 8.55$) than the married (50.58, $SD = 10.08$).

Secondary Traumatic Stress scores above the 75th percentile were reported by those working in the Adult Emergency Medical Unit of the Adult Hospital (61.1, $SD = 4.69$) and the Main ICU of the Adult Hospital (57.5, $SD = 1.48$) (Table 2). Respondents working from the Adult Emergency Medical Unit—Adult Hospital, Main ICU—Adult Hospital, Paediatric Emergency Room—Children's Hospital and the Chemotherapy Suit—CDH had mean Burnout scores at or above the 75th percentile. Those working from the Paediatric Ward (CDH) had the highest Compassion Satisfaction mean scores (58.2, $SD = 3.81$). When Secondary Traumatic Stress, Burnout and Compassion Satisfaction were categorized into low average and high, Chi-square tests revealed significant association between participant's ward/unit and the level of Secondary Traumatic Stress and Burnout ($\chi^2(50) = 82.21$, $p = 0.003$) and ($\chi^2(50) = 92.20$, $p < 0.01$) respectively.

Secondary Traumatic Stress was significantly correlated with Burnout ($r_s = 0.39$, $p < 0.001$) while a significant negative correlation was found between Compassion Satisfaction and Secondary Traumatic Stress ($r_s = -0.31$, $p < 0.001$). Age and nursing work experience were not significantly correlated with Secondary Traumatic Stress, Burnout and Compassion Satisfaction. Additionally, no significant correlation was established between Burnout scores and Compassion satisfaction. Variables that were not significantly correlated with Secondary Traumatic Stress, Burnout or Compassion Satisfaction were omitted from the multiple regression analysis.

3.3. Socio-Demographic Predictors of Secondary Traumatic Stress and Burnout

Separate hierarchical multiple regression analyses predicting Secondary Traumatic Stress and Burnout from social demographic factors were executed (Table 2). The predictor variables (Marital status and participant's ward/unit) were initially nominal. Binary (Dummy) variables were thus developed for each of the nominal variables. The number of dummy variables created was determined by the formula ($k - 1$) where " k " is the number of categories in each nominal variable. The resultant dummy variables were subsequently entered using forced entry into each block of the multiple regression models. For marital status, being "Single" was set as the reference category while the Male admission ward was the reference category for participant's ward/unit. On modeling for Secondary

Table 2. Socio-demographic predictors of secondary traumatic stress and burnout.

| | | Dependent Variable: Secondary Traumatic Stress | | | | | | |
|--------|-----------------------------------|--|---------|----------------|-----------------|----------|------------------|---------------|
| | | Beta | p-value | R ² | ΔR ² | F-change | F-change p-value | Model p-value |
| Step 1 | Participant's ward/unit | | | | | | | |
| | Ref—Male Admission Ward | | 0.001 | 0.196 | 0.196 | 2.184 | 0.001 | 0.001 |
| | Main ICU—Adult Hospital | 8.977 | 0.004 | | | | | |
| | Adult Emergency Medical unit | 12.653 | 0.033 | | | | | |
| Step 2 | Marital Status + ward/unit | | | | | | | |
| | Ref—Single | | 0.003 | 0.237 | 0.144 | 6.008 | 0.003 | <0.001 |
| | Married | 3.707 | 0.003 | | | | | |
| | Divorced | -5.503 | 0.171 | | | | | |
| | | Dependent Variable: Burnout | | | | | | |
| | | Beta | p-value | R ² | ΔR ² | F-change | F-change p-value | Model p-value |
| Step 1 | Participant's ward/unit | | | | | | | |
| | Ref—Male admission ward | | 0.001 | 0.207 | 0.207 | 2.339 | 0.001 | 0.001 |
| | Main ICU—Adult Hospital | 11.968 | <0.001 | | | | | |
| | Paediatric Emergency Room | 13.553 | <0.001 | | | | | |
| | Chemo Suit (CDH) | 12.536 | 0.001 | | | | | |
| | Children's Ward (CDH) | 10.705 | 0.005 | | | | | |
| Step 2 | Marital Status + ward/unit | | | | | | | |
| | Ref—Single | | 0.001 | 0.256 | 0.049 | 7.265 | 0.001 | <0.001 |
| | Married | 1.325 | 0.292 | | | | | |
| | Divorced | -13.924 | 0.001 | | | | | |
| | | Dependent Variable: Compassion Satisfaction | | | | | | |
| | | Beta | p-value | R ² | ΔR ² | F-change | F-change p-value | Model p-value |
| Step 1 | Participant's gender | | | | | | | |
| | Ref—Male | | 0.240 | 0.006 | 0.002 | 1.387 | 0.240 | 0.240 |
| | Female | 0.083 | 0.240 | | | | | |
| Step 2 | Participant's age + gender | 0.159 | 0.021 | 0.031 | 0.023 | 6.409 | 0.012 | 0.021 |

Traumatic Stress, results of Step One indicated that the variance accounted for by the variable “Participant’s Ward/Unit” differed significantly from zero [$F(25, 224) = 2.184, p = 0.001, R^2 = 0.196$]. The dummy variables that contributed significantly to this variance included working in the Main ICU of the Adult Hospital and Working in the Adult Emergency Medical Unit. After adding the variable marital status in Step Two, a statistically significant improvement in the model’s prediction of Secondary Traumatic Stress was seen [$F(2, 222) = 6.008, p = 0.003, R^2 = 0.237; \Delta R^2 = 0.041$]. Taken together, participant’s ward/unit and marital status in Step two significantly predicted Secondary traumatic Stress [F

(27, 222) = 2.558, $p < 0.001$, $R^2 = 0.237$]. This model explained 23.7% of the variance in Secondary Traumatic Stress which according to Cohen [30] is a medium effect.

On modeling for Burnout (**Table 2**), entering of participant's ward/unit in Step One significantly predicted burnout [$F(25, 224) = 2.339$, $p = 0.001$, $R^2 = 0.207$, $\Delta R^2 = 0.207$]. The dummy variables that contributed significantly to the variance accounted for by this model included Working in the Main ICU of the Adult Hospital, the Paediatric Emergency Room of the Children's Hospital, the children's ward in CDH and the Chemotherapy Suit of CDH. Addition of marital status to the model in Step Two significantly improved the prediction [$F(2, 222) = 7.265$, $p = 0.001$, $R^2 = 0.256$, $\Delta R^2 = 0.049$]. The model in Step Two with variables Participant's ward/unit and marital status was the best for predicting Burnout [$F(27, 222) = 2.825$, $p < 0.001$, $R^2 = 0.256$] explaining 25.6% of the variance in Burnout. Using Cohen's f^2 for effect size, this model had an effect size of 0.34 which was very close to 0.35 considered [30] to be a large effect. Among all predictors, participant's ward/unit was the most important variable to predict an increase in Secondary Traumatic Stress and Burnout.

On modeling for Compassion Satisfaction (**Table 2**), entering of participant's gender in Step One did not significantly predicted Compassion Satisfaction [$F(1, 248) = 1.387$, $p = 0.240$, $R^2 = 0.006$, $\Delta R^2 = 0.002$]. However, addition of participant's marital status to the model in Step Two significantly improved the prediction [$F(1, 247) = 6.409$, $p = 0.021$, $R^2 = 0.031$, $\Delta R^2 = 0.023$]. The model in Step Two with variables marital status and age was therefore the best for predicting Compassion Satisfaction explaining 2.1% of the variance in Compassion satisfaction.

4. Discussion

In this sample of nurses, most respondents reported average levels of Secondary Traumatic Stress, Burnout and Compassion Satisfaction. Similarly, average levels of Secondary Traumatic Stress and Burnout have been reported by other researchers [3] [15] [31]. Despite most respondents scoring average on both Secondary Traumatic Stress and Burnout subscales, nearly a quarter scored high on the Secondary Traumatic Stress subscale while slightly over a quarter scored high on the Burnout subscale (**Table 1**). On the Basis of the Professional Quality of Life Model [4], majority of nurses at the study site had a moderate to high risk for Compassion Fatigue.

Although those with high Burnout scores in the current study only represented a quarter of the sample, the finding is an important one as it may have far reaching consequences. Stamm [4] argues that people who score high on Burnout, in any combination with the other subscales, are at risk as individuals and may also place their organizations in high-risk situations because they may feel as though there is "nothing they can do" to make things better and are likely to be disengaged from their patients. Dubale *et al.* [21] also reported a preponderance of

Burnout among nurses in sub-Saharan Africa thus reverberating the magnitude of Burnout among nurses in the region.

Contrary to findings of the current study, Sacco *et al.* [1] in a study conducted among critical care nurses at a large academic medical center in Western New York reported low levels of both Secondary Traumatic Stress and Burnout among majority respondents. The disparity in findings between the current study and Sacco *et al.* [1] could be related to differences in professional qualifications between respondents in the two studies. In Sacco *et al.* [1], majority had bachelor's (BSc) as well as Master of Science (MSc) Degrees whereas most respondents in the current study only had Diploma Registered Nursing qualifications. Researchers [3] [32] [33] have reported low levels of educational preparation as predictors of Compassion Fatigue.

A significant positive correlation was found between Secondary Traumatic Stress and Burnout scores and this could be attributed to the shared variance of 34% ($r = 0.58$; $\text{co-}\sigma = 34\%$; $n = 1187$) between the two scales mainly emanating from the distress that is common to both Secondary Traumatic Stress and Burnout [4]. On the other hand, levels of Secondary Traumatic Stress decreased as levels of Compassion Satisfaction increased (Table 2) Similar findings were reported in other studies [34] [35].

Point biserial correlations in the current study revealed that as group membership changed from being female to being male, Compassion Satisfaction scores decreased (Table 1) thus suggesting lower levels of Compassion Satisfaction among males compared to females. Other researchers [1] [7] [36] have also reported significantly higher levels of Compassion Satisfaction among female compared to male nurses. Mooney *et al.* [37] on the other hand reported higher levels of compassion satisfaction among male intensive care unit and oncology nurses when compared to their female counterparts on the same units. A need therefore remains for further research to establish factors that may account for the higher levels of Compassion Satisfaction among female nurses compared to their male counterparts in the current and other studies.

The finding that female nurses had higher levels of compassion satisfaction seems to support the Nursing and Midwifery Council of Zambia (NMCZ) [38] regulation that demands more females to be recruited into schools of nursing as opposed to males. Because Compassion Satisfaction is concerned with feelings of pleasure that individuals derive from performing their work-related tasks well [4], female nurses may derive greater pleasure from their work, may be less likely to leave the profession, and may also have greater job satisfaction. In the hierarchical linear regression model, age was found to significantly predict compassion satisfaction. Indeed as nurses grow older, they settle in their desired areas of specialization and derive more pleasure from their work as nurses. Other researchers [39] [40] have equally reported an increase in levels of compassion satisfaction as age increases. The findings might therefore signal a need to put in place measures to retain older and more experienced nurses in various units as they are more likely to enjoy their work and less likely to leave the job.

In the current study, Respondent's Ward/unit and Marital status significantly predicted Secondary Traumatic Stress and Burnout. Compared to working in the Male Admission ward which had more stable patients, working in the Main ICU of the Adult Hospital as well as working in the Adult Emergency Medical unit was associated with higher Secondary Traumatic Stress and Burnout scores (**Table 2**). Similarly, working in the Paediatric Emergency Room of the Children's Hospital, the Chemotherapy Suit, and Children's ward of CDH was associated with higher Burnout scores but not Secondary Traumatic Stress. Notably, respondents working in the Main ICU—Adult Hospital had a mean score above the 75th percentile on both the Secondary Traumatic Stress and Burnout scales (**Table 2**). In an earlier study in Greece, Mangoulia *et al.* [41] also reported higher risk for Secondary Traumatic Stress and Burnout among majority of nurses working in the ICU. Similarly, Elkonin and Van der Vyver [12] in South Africa, Dikmen *et al.* [42] in Turkey and Abbaszadeh *et al.* [43] in Iran reported high levels of Secondary Traumatic Stress among nurses working in the ICU.

Findings of the current and other studies therefore underscore the reality of emotional stress and exhaustion that can be associated with nursing the critically ill.

Furthermore, compared to being single, being married was associated with significantly higher Secondary Traumatic Stress and Burnout scores (**Table 2**). Jarrad *et al.* [44] in their Jordanian study also found that married nurses were more prone to Compassion Fatigue than the unmarried. The similarity in findings between the current study and that of Jarred *et al.* [44] could be related in part to similarities in socio-economic influences on marriage between the two study settings. In Jordan, the life demands of married people are significantly higher than those of the unmarried due to a high cost of living relative to personal income [44]. Similarly, Zambia is a Low Middle Income Country LMIC [45] in which 58% of the population lives below the poverty line [46]. The escalating socio-burdens of married life may therefore place extra stress on the nurses thereby increasing their risk for Secondary Traumatic Stress and Burnout. Asiedu *et al.* [19] in a study conducted among nurses from public hospitals in Ghana also found that work-to-family and family-to-work conflict accounted for 20% of the variance in burnout. Ghazanfar *et al.* [47] in their Pakistan study also reported higher levels of Secondary Traumatic Stress and Burnout among married Cardiac Physicians. These studies further support the evidence that marriage may increase the risk for Secondary Traumatic Stress and Burnout among nurses. On the other hand, Hee and Kyung [32] in a review of literature on Compassion Fatigue found that being married was associated with lower levels of Secondary Traumatic Stress and Burnout. There is therefore need for further research to resolve this discrepancy in findings

5. Conclusion

Average levels of Secondary Traumatic Stress and Burnout were found among

the majority of nurses working at the University Teaching Hospitals in Lusaka, while a quarter had high levels. With less than a third of nurses in this sample recording high levels of compassion satisfaction, the risk for compassion fatigue on the basis of the Professional Quality of Life Model ranges from average to high among these nurses. Social demographic characteristics including: being married and working in the Main ICU of the Adult Hospital were the strongest predictors of higher levels of Secondary Traumatic Stress and Burnout. These findings spell out a need for greater attention and support to nurses working in the ICU and similar high acuity units such as the Paediatric emergency room. Married nurses who inevitably have to juggle the demands of marital life on the one hand with the stresses of compassionate work on the other may also require special support aimed at stalling Burnout and Secondary Traumatic Stress while enhancing Compassion Satisfaction.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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Appendix: Self-Administered Questionnaire

UNIVERSITY OF ZAMBIA
SCHOOL OF NURSING SCIENCES
DEPARTMENT OF BASIC AND CLINICAL NURSING SCIENCES

SELF ADMINISTERED QUESTIONNAIRE ON SECONDARY
TRAUMATIC STRESS AND BURNOUT AMONG NURSES WORKING AT
THE UNIVERSITY TEACHING HOSPITALS IN LUSAKA

QUESTIONNAIRE NO:

DATE OF INTERVIEW:

PLACE OF INTERVIEW:

NAME OF RESEARCHER:

INSTRUCTIONS TO RESPONDENT

1. Do not write your name on the questionnaire.
2. Answer the questions either by ticking the most appropriate response(s) provided or by writing down the answers in the spaces provided.
3. The information obtained will be treated in strict confidence.

Section A: Patient Health Questionnaire (PHQ) 4

Over the last 2 weeks, how often have you been bothered by the following problems? (Use “✓” to indicate your answer in the box corresponding to your best response. Only tick one of the options on each item)

| SN | Not at all | Several Days | More Than Half the Days | Nearly Every Day |
|--|------------|--------------|-------------------------|------------------|
| 1. Feeling nervous, anxious or on edge | | | | |
| 2. Not being able to stop or control worrying | | | | |
| 3. Little interest or pleasure in doing things | | | | |
| 4. Feeling down, depressed, or hopeless | | | | |

(For official coding: Total Score T____ = ____ + ____ + ____)

Section B: Demographic Data

4. How old were you on your last birthday (In Years)?

5. What is your gender?

- a) Female b) Male

6. What is your Designation?

- a) Registered Nurse b) Registered midwife
c) Registered Nurse midwife d) Registered Critical Care Nurse
e) Registered Operating Theatre Nurse f) Registered Paediatric Nurse
g) Registered Mental Health Nurse h) Certified Midwife
i) Registered Nurse or Midwife with BSc
j) Registered Nurse with BSc Oncology Nursing

k) Registered Nurse or Midwife with MSc Nursing or Midwifery

l) Any other Specify.....

7. What is your marital status?

- a) Married b) Single c) Divorced d) Widowed

8. Do you have any people who depend on you for financial and social support (This includes children, spouse and or other dependents)?

- a) Yes b) No

9. If your answer to 9 above is yes, indicate how many dependents you have

.....

10. Which facility are you currently operating from?

- a) UTH Adult Hospital b) UTH Children's Hospital
c) Cancer Diseases Hospital

11. Specify the ward/unit or area from which you are operating (e.g. Casualty, Main ICU, Neonatal ICU, AOI etc.).....

12. How long have you worked as a nurse? (Please specify in years or months)

.....

Section C: Secondary Traumatic Stress, Burnout and Compassion Satisfaction Based on the Professional Quality of Life Scale (ProQOL 5)

When you nurse people, you have direct contact with their lives. As you may have found, your compassion for those you help can affect you in positive and negative ways. Below are some questions about your experiences, both positive and negative, as a helper/nurse. Consider each of the following questions about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the *last 30 days* and write it in the space provided after each phrase

1 = Never 2 = Rarely 3 = Sometimes 4 = Often 5 = Very Often

13. I am happy _____

14. I am preoccupied with more than one person I nurse/nursed _____

15. I get satisfaction from being able to help people _____

16. I feel connected to others _____

17. I jump or am startled by unexpected sounds _____

18. I feel invigorated/energized after working with those I help/nurse _____

19. I find it difficult to separate my personal life from my life as a nurse _____

20. I am not as productive at work because I am losing sleep over Traumatic experiences of a person I nurse/nursed _____

21. I think that I might have been affected by the traumatic Stress of those I nurse _____

22. I feel trapped by my job as a helper/nurse _____

23. Because of my work as a nurse/helper, I have felt “on edge” (Tense, nervous, irritable, anxious) about various things _____
24. I like my work as a helper/nurse _____
25. I feel depressed because of the traumatic experiences of the people I nurse _____
26. I feel as though I am experiencing the trauma of someone I have nursed _____
27. I have beliefs that sustain me _____
28. I am pleased with how I am able to keep up with nursing techniques And protocols _____
29. I am the person I always wanted to be _____
30. My work makes me feel satisfied _____
31. I feel worn out because of my work as a nurse _____
32. I have happy thoughts and feelings about those I nurse and How I could help them _____
33. I feel overwhelmed because my case [work] load seems endless _____
34. I believe I can make a difference through my work _____
35. I avoid certain activities or situations because they remind me of Frightening experiences of the people I nurse/nursed _____
36. I am proud of what I can do to help _____
37. As a result of my work as a nurse, I have intrusive, frightening thoughts _____
38. I feel “bogged down” (Entangled, overwhelmed, prevented from Making progress) by the system _____
39. I have thoughts that I am a “success” as a helper _____
40. I can’t recall some important parts of my work (experiences) with trauma victims _____
41. I am a very caring person _____
42. I am happy that I chose to do this work _____

Section D: Workloads and Frequency of Exposure to Events/Cases

43. In the course of your work, how often are you exposed to the death of a patient? (note that death here means irreversible cessation of circulatory and respiratory functions or irreversible cessation of all functions of the entire brain, including the brainstem)
- a) Rarely b) Occasionally c) Quite Frequently
d) Very frequently e) Always
44. In the course of your work, how often are you exposed to **ANY** of the following?
- A patient undergoing a very painful procedure, patient with an incurable and distressing illness such as cancer in its late stages, patient that fails to improve after all possible interventions, patients in severe persistent pain, patient with severe traumatic injuries

- a) Rarely b) Occasionally c) Quite Frequently
d) Very frequently e) Always
45. How would you describe the workload in your unit/ward?
a) Very Low b) Low c) Moderate
d) High e) Very High
46. How would you describe your relationship with your supervisors?
a) Not stressful b) Slightly stressful c) Moderately stressful
d) Very stressful e) Extremely stressful
47. Do you experience any psychological stress in relation to your work as a nurse?
a) Yes b) No
48. If your answer to question 48 above is yes, what do you do in order to cope with the stress? (Explain)
-
.....
.....
.....
.....
49. What do you recommend should be done in order to reduce the stress related to your work as a nurse?
-
.....
.....
.....
.....

THANK YOU VERY MUCH FOR YOUR TIME