The Relationship Between Psychological Distress and Sleep Quality Among Irish Student

Nurses

Eoin King

BA (Hons) Psychology

National College of Ireland

Submitted to the National College of Ireland, April 2019

Submission of Thesis and Dissertation

National College of Ireland

Research Students Declaration Form

(Thesis/Author Declaration Form)

Name: Eoin King

Student Number: 16753775

Degree for which thesis is submitted: BA (Hons) Psychology

Material submitted for award

(a) I declare that the work has been composed by myself.

(b) I declare that all verbatim extracts contained in the thesis have been distinguished by quotation marks and the sources of information specifically acknowledged.

(c) My thesis will be included in electronic format in the College Institutional Repository TRAP (thesis reports and projects)

(d) *Either* *I declare that no material contained in the thesis has been used in any other submission for an academic award.

Or *I declare that the following material contained in the thesis formed part of a submission for the award of

_____

(State the award and the awarding body and list the material below)

Signature of research student: Eoin King

Date: 1/04/2019

Submission of Thesis to Norma Smurfit Library, National College of Ireland

Student name: Eoin King   Student number: 16753775

School: School of Business   Course: Psychology

Degree to be awarded: BA (Hons) Psychology

Title of Thesis: The Relationship Between Psychological Distress and Sleep Quality Among Irish Student Nurses

One hard bound copy of your thesis will be lodged in the Norma Smurfit Library and will be available for consultation. The electronic copy will be accessible in TRAP (http://trap.ncirl.ie/), the National College of Ireland's Institutional Repository. In accordance with normal academic library practice all these lodged in the National College of Ireland Institutional Repository (TRAP) are made available on open access.

I agree to a hard-bound copy of my thesis being available for consultation in the library. I also agree to an electronic copy of my thesis being made publicly available on the National College of Ireland's Institutional Repository TRAP.

Signature of Candidate: Eoin King

Acknowledgements

My thanks and praise go towards every single registered nurse who was gracious enough to complete my surveys, without the overwhelming response this dissertation would not have been possible. To my friends and family who were so supportive throughout this difficult year I shall be forever in your debt. I would further like to thank my supervisor Michael Cleary-Gaffney for his guidance and reassurance during the year. Michaels willingness and generosity to lend a helping hand over the course of such a hectic pair of semesters is a testament to his character. Lastly, I would like to dedicate the contents of my work to Meaghan Miller, whom I hope I made proud through my trying efforts this year. 18-07-2018.

Abstract

Aims: The current research study sought to investigate the relationship between psychological distress and sleep quality within a student nurse population. The relationships between work schedule, stage of nursing, depression, anxiety and stress were also investigated.

Method: The sample consisted of 216 females and 11 males (N = 227). Age ranged from 18 to 54, mean age (M) = 24 and standard deviation (SD) = 7.05. A convenience sampling technique was used to gather participants. Psychological Distress was measured with The Kessler Psychological Distress Scale (K10), depression, anxiety and stress were measured with The Depression Anxiety Stress Scale (DASS-42) and sleep quality was measured with The Pittsburgh Sleep Quality Index (PSQI). Age, gender, nationality, work schedule and stage of nursing were included in a general demographic questionnaire.

Results: There was a moderate, positive correlation between psychological distress and levels of sleep quality (r = .35, n = 227, p < .001). There was a significant difference in scores in levels of sleep quality (t(161) = 1.20, p = .23) with shift working student nurses (M = 10.64, SD = 2.70) scoring higher than non-shift working student nurses (M = 10.03, SD = 2.89). There was no statistically significant difference at $p > .05$ level in (K10) scores for the four groups. F (3, 233) = .18, p = .90. Depression, anxiety and stress revealed no statistically significant differences as measured by the Depression, Anxiety and Stress Scale (DASS-42) across the four different nurse groups

Conclusion: The implementation of mindfulness and stress management intervention programmes designed for the nursing community empirically reduce psychological distress symptoms and increase patient care quality.

Contents

Introduction

Psychological distress is a distinct state of emotional suffering which is exemplified by symptoms of depression and anxiety (Ridner, 2004). Symptoms frequently coincide with common somatic complaints as well as a wide range of chronic conditions. Psychological distress risk factors include stress-related sociodemographic influences and inadequate inner and external resources (Arvidsdotter, Marklund, Kylén, Taft, & Ekman, 2015). Current research has uncovered that individual stress is significantly related to high levels of depression, anxiety and burnout, while work-related factors such as high demands, poor support and lack of control also contribute to high levels of psychological distress (Marchand, Demers, & Durand, 2005).

Psychological Distress

An occupation which encompasses a multitude of psychological distress risk factors is nursing (Su, Weng, Tsang, & Wu, 2009). Nurses are among the most employed individuals within the area of professional health (Suzuki et al., 2004). The environment that these nurses work in can induce feelings of intense stress, not only from the mental strain that comes with working in a hospital but physical strain too (Tzeng, Chung, Fan, Lung, & Yang, 2009). Psychological distress is a common crisis among the nursing community, not only affecting the nurses at hand but also the quality of care they provide for patients (Su, Weng, Tsang, & Wu, 2009). Previous research examining levels of psychological distress in a student nursing population appear to be scarce in quantity, however results present high levels of psychological distress consistently throughout population samples (Aiken et al., 2001) literature suggests that psychological distress has a significantly negative impact on workplace relationships (Kato, 2013). The patient carer relationship is a central aspect within a

nurses' professional life (Luker, Austin, Hogg, Ferguson, & Smith, 1998), psychological distress impacts these relationships by inducing negative coping mechanisms to deal with problematic patients (Rice, 2012) Current research has shown that the negative coping mechanism nurses primarily adopt when faced with such difficulties is known as the distance coping mechanism (Kato, 2013). Distancing coping leads to poor interpersonal relationships in the workplace (Viswesvaran, Sanchez, & Fisher, 1999), thus the deterioration of interpersonal relationships at work can also result in psychological and physiological dysfunctions which can impact the quality of care provided for patients. Current findings also suggest that psychological distress may cause an interference within an individual's educational achievement, specifically those enrolled in an Irish educational system (Deasy, Coughlan, Pironom, Jourdan, & Mannix-McNamara, 2016). Due to the work placement requirements that Irish student nurses must undertake as well as maintaining their academic performance, the prevalence for psychological distress among Irish student nursing communities' merits analysis.

Current theory suggests that increases in psychological distress among student nurse populations is as a result of the transition from the educational system into working life (Maben & Clark, 1998). Additional responsibilities along with a professional role within the health care system have been hypothesized as significant contributing factors towards psychological distress among population samples (Escot, Artero, Gandubert, Boulenger, & Ritchie, 2001). The previous findings suggest that student nurses are most at risk within nursing community populations, thus require further in-depth research regarding their levels of psychological distress and the impact it may or may not have towards the additional aspects of their lives. Environmental factors which appear to instigate an increase in levels of psychological distress within student

nursing populations include poor support within their profession, increased alteration of circumstances, a depletion of resources and staff, and the consistent exposure to suffering and death (Chang, Hancock, Johnson, Daly, & Jackson, 2005). Longitudinal research examining the levels of psychological distress of full-time nurses compared to their student nurse counterparts found that psychological distress is at its highest among those whom are in the commencing stages of employment, particularly student nurses (Watson et al., 2009). Watson and colleagues' findings further add to the growing need for additional research in regards to student nurse's emotional well-being and levels of functioning. However, student nursing populations have been neglected within population-based studies concerned with investigating psychological distress and the health practicing community, particularly those practicing within Ireland. The lack of research conducted within an Irish student nurse population and the growing public concern for the practicing nurses of Irelands welfare suggests that more in depth research into student nurse's psychological well-being is warranted (Fealy & McNamara, 2015).

Sleep Quality

Psychological distress is not the only health hindrance student nurses encounter throughout their professional lives, as poor sleep quality is also emerging as significantly problematic among nursing communities (Dong, Zhang, Sun, Sang, & Xu, 2017). A high level of sleep quality is considered an essential aspect towards the maintenance of the physical, cognitive and psychological well-being of an individual (Ferrie, Kumari, Salo, Singh-Manoux, & Kivimaki, 2011). Persistent sleep loss results in excessive daytime sleepiness which contributes towards a decrease in attention span, impaired cognitive status and performance ability (Pilcher & Huffcutt, 1996). Insufficient sleep and the quality in which it is attained also has a significant negative

impact on mood and behaviour (Baldwin & Daugherty, 2004). The negative emotional and physical impacts that poor sleep quality produces within an individual has a significant effect on the quality of work they provide within their chosen occupation (Sun et al., 2015). For nurses the impact of poor sleep quality increases the risk for errors in judgment and decision making. When confronted with the responsibility of making decisions about patient care, a nurse may make the wrong decision, leading to harmful patient outcomes (Rothschild, 2009).

Current longitudinal research examining the levels of sleep quality among both student nurses and newly qualified nurses in Sweden indicate that the most pronounced decline in sleep quality occurs during the transition between student and working life (Hasson & Gustavsson, 2010). Findings from this research suggests that student nurses are significantly more vulnerable to poorer sleep quality than their full-time counterparts, thus this may impact the quality of care they provide for patients. Although Hasson and Gustavsson's study provides significant research towards the understanding of sleep quality decline among student nurses, the authors do appear to have excluded the impact of psychological distress as a contributing factor. The authors do hypothesize within their discussion that distress may have influenced results, but no analysis of the phenomena was conducted within the study. The authors self-proclaimed vacancy within the literature merits further investigation, in order for a more comprehensive exploration into student nurses sleep quality.

Shift-Work

Current research suggests that a distinctive factor that may contribute to poor sleep quality among nurses is the continued variability of their shift work. Shift-work is a method of workplace organisation where an individual's occupational hours are

distributed outside traditional working hours (Elovainio, Kivimäki, & Helkama, 2001). Over recent years an abundance of research has been conducted investigating the influence shift-work has on the physical and mental well-being of an individual. Recent Meta-analyses from Oita University Japan based on a quantitative combination of data from 30 studies showed that shift work significantly increased the risk of the following disorders: breast cancer, diabetes mellitus, preterm delivery, low, menstrual disruption, infertility, ischemic heart disease, and ischemic stroke (Itani & Kaneita, 2016). Additionally, several modern research studies have also uncovered a significant relationship between occupational shift work and the associated health risks it may induce (Nene et al., 2018). The health risks such as obesity, cardiovascular disease and impairment in cognitive functioning have been theorised as consequences of shift-work placement. The adverse health risks are due to the chronic misalignment between an individuals endogenous circadian timing system and behavioural cycles such as the sleep/wake and fasting/feeding cycles (Foster & Wulff, 2005).

Shift-work plays a pivotal role throughout the duration of a student nurses' life, but what impact does this have on their quality of sleep and sleeping patterns. The inclusion of shift work into a nurse's work schedule has a significant impact on their circadian rhythm according to previous research (Saleh, Awadalla, El-masri, & Sleem, 2014). Disturbances in one's sleep pattern is not only detrimental towards their health but can also lead to impairments in decision making and an increase in mental errors (Caruso, 2013). During the formative years of a student nurses career a swift adaptation into shift work hours is imperative in order to combat negative consequences such as social dysfunction, burnout, job satisfaction, sleep disturbance and life disruption (West, Ahern, Byrnes, & Kwanten, 2007). Previous findings

comparing shift-working nurses with non-shift working nurses found significant differences in levels of sleep quality between both groups. Shift-working nurses incurred poorer levels of sleep quality while also displaying adverse health symptoms associated with circadian rhythm disruption (Mendes & Martino, 2012).

One such study which sought to examine the impact of shift work on nurses was conducted via a cross-sectional study using a sample of 888 nurses from the National Health Service (NHS). Participants sleep quality was measured using the Pittsburgh Sleep Quality Index (PSQI), results indicated that both non-shifts working nurses and (NSWN) and shift-working nurses (SWN) both display a high prevalence for poor sleep quality, however shift-work alone was the only independent risk factor associated with poor sleep quality (McDowell, Murphy & Anderson, 2017). A self-proclaimed limitation to the present study is the lack of accountability for participants levels of psychological distress as a contributing factor towards the participants poor sleep quality. Researchers made this conscious decision in order to maximize response rates, however this left a significant gap within their literature.

Rationale

The present study seeks to attain an enhanced understanding into the psychological well being of Irelands student nurses, as well as expanding the literature regarding the relationship it may hold with sleep quality. Current theory suggests that psychological distress is a contributing factor towards the decline of an individual's sleep quality (Chen, 2018), the deterioration of an individual's sleep quality has also been theorised as a primary cause for impairments in cognition and attention performance (Gobin, Banks, Fins, & Tartar, 2015). The sustained maintenance of a nurses' cognitive functioning and performance has a significant impact into the quality of care they

provide (Su, Weng, Tsang, & Wu, 2009), therefore this chain like action of events could impact the welfare of their patients.

To the authors knowledge Irish student nurses have been disregarded with little to no research being conducted utilizing them as a sample population. Current findings from Timmins, McCabe & McSherry (2012) from the Republic of Ireland show that 71% of 234 registered nurses indicated an insufficient amount of support from management, as well as a lack of encouragement from fellow peers and professionals. The present research study will provide empirical evidence as to how the working conditions of Irish student nurses effect their psychological well-being during the commencement stages of employment and the quality of sleep they attain during their occupational lives.

Research Aims and Objectives

The present research aims of the current study are to investigate the levels of psychological distress and sleep quality among Irish student nurses and full-time nurses, as well as an investigating the association between them. Furthermore, the aim of the current study is to analyse the difference of sleep quality among those student and full-time nurses who have partaken in shift work during their previous six-weeks of work and those who did not. The reason for this is to identify if shift work has a significant impact on participants sleep quality scores and levels of psychological distress. To the authors knowledge the student nursing population of Ireland has been marginalised within practicing health care provider samples. The present research hopes to initiate an amendment into the literature and provide a contemporary exploration into an Irish student nursing sample.

Research questions include:

➢ Is there a relationship between levels of psychological distress and levels of sleep quality?

➢ Does shift work play a role in levels of sleep quality?

➢ Does the stage of nursing and work schedule play a role in levels of psychological distress?

➢ Does the stage of nursing and work schedule play a role in levels of depression, anxiety and stress?

Hypothesis 1: Higher levels of psychological distress will be associated with poorer levels of sleep quality for all participants.

Hypothesis 2: Student shift working participants will display significantly poorer levels of sleep quality to non-shift working student nurses.

Hypothesis 3: Student shift working participants will display significantly higher levels of psychological distress to their non-shift working counterparts.

Hypothesis 4: Student shift working nurses will display significantly higher levels of depression, anxiety and stress than any other group (Full-time nurse shift work, Full-time nurse non-shift work and Student nurse non-shift work).

Method

Participants

Participants within the current study that were working nurses employed throughout the Republic of Ireland ($N = 227$). Inclusion criteria within the current study were registered working nurses within the Republic of Ireland. All participants wilfully accepted to participate in the study. The sample included female (94.3%, $n = 216$) and male (4.8%, $n = 11$). Participants were divided into four separate groups in accordance to their stage of nursing and work schedule over the previous 6 weeks. Student nurse non-shift ($N = 38$), student nurse shift-work ($N = 125$), nurse non-shift work ($N = 30$) and nurse shift work ($N = 34$). Participants median age was 24 and all participants were of Irish nationality.

Design:

A quantitative within groups design was implemented to conduct correlational analysis for the investigation into the relationship between psychological distress and sleep quality. A convenience sampling technique was also utilized within the current study via the social media outlet known as Facebook. Independent (predictor) variables were stage of nursing, work schedule, psychological distress while the dependent (criterion) variable was sleep quality. Psychological distress subscales of depression, anxiety and stress were also manipulated as predictor variables to examine their relationships with sleep quality. Descriptive statistics were run to calculate the mean, standard error mean, median, standard deviation and range of all variables. Further inferential statistics were conducted in order for a more in-depth analysis of data. A Pearson Product Moment correlation was conducted to determine the

relationship between levels of psychological distress and sleep quality. An independent samples t-Test was conducted to determine examine mean levels of sleep quality among student shift working and student non-shift working participants. A one-way between groups analysis of variance was conducted to determine if there was a significant difference in mean scores of psychological distress across the four different nursing groups, (Group 1: Student nurse non-shift; Group 2: Student nurse shift; Group 3: Full time nurse non-shift; Group 4: Full time nurse shift). Three separate Kruskal-Wallis tests were conducted to determine if there was a significant difference in mean scores across the four groups for depression, anxiety and stress.

Measures

Sleep Quality: The *Pittsburgh Sleep Quality Index* (PSQI) is an efficient instrument used to measure the quality and patterns of sleep in adults. The (PSQI) distinguishes "poor" from "good" sleep quality by quantifying seven areas (components): subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medications, and daytime dysfunction over the last month. The (PSQI) global score is then calculated by a total of the seven component scores, the global score ranges from 0 to 21 and is classified by the lower the score the greater the overall sleep quality. Scores over 5 indicate poorer quality of sleep (Buysse, Reynolds, Monk, Berman & Kupfer, 1989). The overall (PSQI) Cronbach's alpha was satisfactory ($\alpha = .69$).

Psychological Distress: The *Kessler Psychological Distress Scale* (K10) is a 10-item questionnaire which provides a global measure of distress based on questions about anxiety and depressive symptoms that a person has experienced in the most recent 4-week period. Participants responses are added up and the total score is the global

score on the Kessler Psychological Distress Scale (K10). Scores will range from 10 to 50. Participants who score under 20 are likely to be well while participants who score 20-24 are likely to have a mild mental disorder. Participants who score 25-29 are likely to have moderate mental disorder and those who score 30 and over are likely to have a severe mental disorder (Kessler et al., 2002). The reliability of The *Kessler Psychological Distress Scale* (K10) was based on the Cronbach's alpha values. The overall (K10) Cronbach's alpha was satisfactory ($\alpha = .87$).

Depression, Anxiety and Stress: The *Depression Anxiety Stress Scale* (DASS) is a 42-item self-report measure of the 3 subscales of anxiety, depression and stress developed by Lovibond and Lovibond (1995). Participants responded to all (DASS) items using a 4-point Likert scale (from 0 = "Did not apply to me at all" to 3 = "Applied to me very much or most of the time"). Scores range from 0-42 and higher scores on each subscale indicate higher levels of anxiety, depression and stress. The reliability of The *Depression Anxiety Stress Scale* (DASS) was based on the Cronbach's alpha values. The overall (DASS) Cronbach's alpha was satisfactory ($\alpha = .97$).

Procedure

Participants were invited to take part via a Facebook post on the Irish Nursing and mid-wife group via simple random sampling. Participants were informed that participation in the study was voluntary and all answers were confidential. Participants were instructed to answer four specific demographical questions before commencing the questionnaire. The five questions were firstly age, gender,

nationality, stage of nursing and work schedule (Have you partaken in shift work over the past 6 weeks). Participants were instructed to complete the questionnaire which included three scales and three subscales. The questionnaires were administered as follows, (Pittsburgh Sleep Quality Index (PSQI), Kessler Psychological distress scale (K10) and the Depression, Anxiety and Stress Scales (DASS-42), the (DASS-42) included three subscales which measured Depression, Anxiety and Stress. The questionnaire duration ranged between 15-20 minutes. No incentives were used for participant recruitment, and all participants were instructed that they were free to withdraw from the study at any time. All participants provided written informed consent. Ethical approval for the study was provided by the Ethical Review board of the National College of Ireland. Data was collected via Google forms ("Google Forms: Free Online Surveys for Personal Use", 2019), transported into a Microsoft Excel (2007) spreadsheet and finally recoded, computed and analysed using SPSS (IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp.)

Results

Descriptive Statistics

Histograms were initially inspected for each variable to check for kurtosis and skewness. Global sleep quality and global psychological distress were found to be normally distributed. Global depression, anxiety and stress were negatively skewed and found to be non-normally distributed upon further examination of Kolmogorov-Smirnov tests, probability plots, and boxplots. Parametric and non-parametric tests were appropriately employed according to the data distribution, see (Appendix E). Further details of descriptive data are shown below in Table 1.

Table 1

Variable	Frequency	Valid Percentage
Gender		
Male	11	4.8
Female	216	95.2
Profession		
Nurse	70	30.8
Student nurse	157	69.2
Work Schedule Status		
Student nurse non-shift work	38	16.7
Student nurse shift work	125	55.1
Nurse non-shift work	30	13.2
Nurse shift work	34	15.0

Nationality

Irish	227	100

Frequencies for the current sample of Student nurse non-shift work, Student nurse

shift work, Nurse non-shift work and Nurse shift work (N = 227).

Table 2

Descriptive statistics of all continuous variables (N = 227)

	Mean (95% Confidence Intervals)	Std. Error Mean	Median	SD	Range
Age	26.70 (27.62-25.78)	.468	24	7.05	18-54
Psychological Distress	28.64 (29.55-27.73)	.461	28	6.95	13-46
Sleep Quality	10.53 (10.87-10.19)	.173	11	2.61	4-16
Depression	15.21 (16.66-11.39)	.733	13	11.05	0-42
Anxiety	12.51 (13.63-10.98)	.567	11	8.54	0-39
Stress	20.12 (21.37-18.87)	.635	19	9.58	1-41

Inferential Statistics

Correlation

Hypothesis 1:

The relationship between psychological distress and sleep quality was investigated using the Pearson product-moment correlation coefficient. Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity and homoscedasticity. There was a moderate, positive correlation between the two variables ($r = .35$, $n = 227$, $p < .001$). This indicates that the two variables share approximately 12% of variance in common. Results indicate that higher levels of psychological distress are associated with poorer levels of sleep quality.

Independent Samples t-Tests

Hypothesis 2:

An independent samples t-test was conducted to compare levels of sleep quality between shift working and non-shift working student nurses. There was a significant difference in scores ($t(161) = 1.20$, $p = .23$) with shift working student nurses ($M = 10.64$, $SD = 2.70$) scoring higher than non-shift working student nurses ($M = 10.03$, $SD = 2.89$). The magnitude of the differences in the means (mean difference = 0.61, 95% CI: 1.62 – 1.43) was small (Cohen's $d = .21$).

One-way between-groups analysis of variance

Hypothesis 3:

A one-way between-groups analysis of variance was conducted to explore the impact of work schedule on levels of psychological distress, as measured by the Kessler Psychological distress scale (K10). Participants were divided into four groups according to their work schedule (Group 1: Student Nurse Non-Shift; Group 2: Student Nurse Shift; Group 3: Full Time Nurse Non-Shift; Group 4: Full Time Nurse Shift). The was no statistically significant difference at $p > .05$ level in (K10) scores for the four groups. $F (3, 233) = .18$, p = .90. The difference in mean scores between groups was quite small. The effect size calculated using eta squared was .02. Post-hoc comparisons using the Tukey HSD test indicated that the mean score for Group 1 ($M = 28.39$, $SD = 6.19$) was not significantly higher (p = .99) than Group 2 ($M = 28.78$, $SD = 6.96$), Group 3 ($M = 27.90$, $SD = 8.15$) or Group 4 ($M = 29.06$, $SD = 6.85$).

Kruskal-Wallis Test

Hypothesis 4:

A Kruskal-Wallis Test revealed no statistically significant difference in stress as measured by the Depression, Anxiety and Stress Scale (DASS-42) across four different nurse groups (Group 1: Student Nurse Non-Shift; Group 2: Student Nurse Shift; Group 3: Full Time Nurse Non-Shift; Group 4: Full Time Nurse Shift). (Group 1, $n = 38$, Group 2, $n = 125$, Group 3, $n = 30$, Group 4, $n = 34$), $x^2 (3, n = 227) = 4.01$, $p = .260$. The Student Nurse Shift working participants recorded a higher median score ($Md = 122$) than the other three nursing groups, Group 1 ($Md = 102$), Group 3 ($Md = 101$), Group 4 ($Md = 113$).

A Kruskal-Wallis Test revealed no statistically significant difference in depression as measured by the Depression, Anxiety and Stress Scale (DASS-42) across four different nurse groups (Group 1: Student Nurse Non-Shift; Group 2: Student Nurse Shift; Group 3: Full Time Nurse Non-Shift; Group 4: Full Time Nurse Shift). (Group 1, $n = 38$, Group 2, $n = 125$, Group 3, $n = 30$, Group 4, $n = 34$), x^2 (3, $n = 227$) = .73, $p = .87$. The Student Nurse Shift working participants recorded a higher median score ($Md = 117$) than the other three nursing groups, Group 1 ($Md = 108$), Group 3 ($Md = 111$), Group 4 ($Md = 110$).

A Kruskal-Wallis Test revealed no statistically significant difference in anxiety as measured by the Depression, Anxiety and Stress Scale (DASS-42) across four different nurse groups (Group 1: Student Nurse Non-Shift; Group 2: Student Nurse Shift; Group 3: Full Time Nurse Non-Shift; Group 4: Full Time Nurse Shift). (Group 1, $n = 38$, Group 2, $n = 125$, Group 3, $n = 30$, Group 4, $n = 34$), x^2 (3, $n = 227$) = .73, $p = 1.99$. The Full Time Nurse Shift working participants recorded a higher median score ($Md = 119$) than the other three nursing groups, Group 1 ($Md = 100$), Group 2 ($Md = 116$), Group 3 ($Md = 117$).

Discussion

The concept of psychological distress among nursing communities is still a topic which warrants deeper investigation in order for true understanding to occur (Chang, Hancock, Johnson, Daly, & Jackson, 2005). The fundamental intention of the current study was to further this understanding by examining the relationship psychological distress and sleep quality hold within a nursing sample. The current study held an alternative perspective from the previous empirical research which sought to examine both variables independently (Watson et al., 2009). The current study was carried out on the proposition that psychological distress and sleep quality are in fact related and hoped to satisfy a vacancy within the literature by examining Irish student nurses. Furthermore, the inclusion of participants workplace schedule was also included for additional examination on the impact shift work holds within the population (Hasson & Gustavsson, 2010). The investigation into this relationship can allow for intervention, prevention and support programmes for prospective nurses, with the desire that adverse levels of psychological distress and poor sleep quality may be decreased within this community.

This study was conducted with the purpose of investigating four nursing group hypotheses'; Hypothesis 1: Higher levels of psychological distress will be associated with poorer levels of sleep quality for all nurse participants. Hypothesis 2: Student shift working participants will display significantly poorer levels of sleep quality to non-shift working student nurse participants. Hypothesis 3: Student shift working participants will display significantly higher levels of psychological distress than any other group. Hypothesis 4: Student shift working nurses will display significantly higher levels of depression, anxiety and stress than any other group (Full-time nurse shift work, Full-time nurse non-shift work and Student nurse non-shift work).

Results from the present study support the first hypothesis that higher levels of psychological distress are associated with poorer levels of sleep quality. Results found a moderate positive correlation in the relationship between psychological distress and sleep quality in all nursing participants. Results also supported the hypothesis that student shift working nurses will display significantly poorer levels of sleep quality to non-shift working student nurses as a significant difference in mean scores was found. However, results also indicated that no significant difference in levels of psychological distress were found between all four groups. Furthermore, although student shift working nurses did display higher levels of depression and anxiety than any other group, the difference in mean scores was not significant. Based on these findings, Hypothesis 1 and Hypothesis 2 are accepted while Hypothesis 3 and Hypothesis 4 are rejected.

In concert with clinical impressions and previous studies (Chen, 2018), participants with high levels of psychological distress incurred poorer levels of sleep quality within the present study. Furthermore, in agreement with previous research shift working participants displayed significantly poorer levels of sleep quality to any other group (McDowell, Murphy & Anderson, 2017). In addition, contemporary research examining the difference in sleep quality within a shift working and non-shift working nursing sample found comparable results to the current study's findings. Results from a quality of sleep analysis demonstrated that nursing participants that had not worked on a shift-work over their previous 6 weeks of placement displayed significantly higher levels of sleep quality to their shift-working counterparts (Mendes & Martino, 2012). The congruent findings from these previous studies further strengthen the hypothesis that shift work has a negative effect on student nurse's levels of sleep quality.

However, the results from Hypothesis 3 within the current study conflict with the primary findings of (Watson et al., 2009), whom suggest that student nurses display significantly higher levels of psychological distress than their full-time counterparts. Although additional research is scarce in regards to comparative studies including student nurse's vs full-time nurses, the results from Hypothesis 4 appear to appose a plethora of research regarding the depression, anxiety and stress levels among student nurse populations. Cross-sectional research examining 331 nursing students (Ross et al., 2005) revealed that 50.1% of participants displayed significantly high levels of depression, while depression was positively correlated to stress, thus contrasting the findings from the current studies fourth hypothesis. Further conflicting research can be observed via the cross-sectional examination of 1,200 nursing students within, the Swedish educational system. Findings indicated that nursing students as a group show high levels of self-reported depression specifically those under the age of 30 (Christensson, Vaez, Dickman, & Runeson, 2010). Results from the current study's findings suggest that depression, anxiety and stress are moderate among all participants, proposing that further research conducted with an increased sample size may prove advantageous.

Future implications

The results from the current study indicate that psychological distress has a significant impact on the quality of sleep attained within the population sample. Previous research has consistently outlined the negative impact psychological distress has on patient carer relationships (Rice, 2012) Additionally, previous findings have also illuminated the detrimental effect poor sleep quality has on cognitive functioning (Caruso, 2013). Therefore, the development of prevention strategies in decreasing levels of psychological distress shall theoretically, result in an increase in sleep

quality. Such prevention strategies posit benefits not only among student nurses but the nursing population as a whole, thus improving patient care and levels of cognitive functioning.

The Worksite Stress Management Programme

The multi-model stress management intervention developed by Jones & Johnston (2000) was conceived for the purpose of student nurse stress reduction. The premise of the intervention strategy was to facilitate adaptive coping mechanisms for student nurses during their transitional period into occupational placement. The multi-model included two distinct intervention strategies which are implemented through a total of 12 group sessions. The first strategy outlined within the Jones & Johnston (2000) model is self-monitoring and coping skills for distress symptoms. The strategy is comprised of the following 6-sessions. (Session I), the introduction and implementation of constructive problem-solving strategies to change situations. (Session 2), the use of the cognitive technique of situational reappraisal. (Session 3), the development of time and self-management skills to improve personal effectiveness in the academic setting and to increase health protecting behaviour. (Session 4) the use of experiential learning as a central teaching strategy, student nurses are encouraged to apply these techniques to personally relevant clinical, academic and home/work settings. Individual and group reflection follows practice in both classroom and real-life settings. Sessions 5 and 6 also enable the application of previously attained generic stress management skills to situations of current concern. Following the coping-skills management intervention student nurses are introduced to the relaxation intervention. The six-session relaxation intervention allows student nurses to implement a systematic strategy in dealing with the rigorous period of clinical experience. The relaxation intervention consists of the following sessions

over the course of a 6-week period (Session l), release-only relaxation (Session 2), rapid relaxation training. (Session 3) introduction into the techniques of autogenic relaxation and meditation. (Session 4,5 and 6), practice in the application of rapid relaxation in real life situations. (Jones & Johnston, 2000). Jones & Johnston (2000) outline that the multi-model stress management intervention when delivered in groups reduces affective distress and increases adaptive coping use in both clinical and academic settings. The implementation of programmes similar to this previous research may prove beneficial within third level nursing institutions and their students.

Resilience Enhancement

The strengthening of nurse's resilience has been theorised as a significant contributing factor towards improvements in levels of psychological distress (Shapiro, Astin, Bishop, & Cordova, 2005). Foureur and colleagues (2013) developed a modified mindfulness program which has been utilized within psychologically distressed nursing communities to great effect. The 8-week model utilises group discussion methods in order for nurses to compare and contrast the pleasant and unpleasant aspects of their profession in a pier focused environment (Foureur, Besley, Burton, Yu, & Crisp, 2013). Subsequently nurses are introduced to Acceptance & Commitment Therapy (Bach & Hayes, 2002) strategies such as grounding and defusing techniques. The techniques are presented and instructed to be practiced daily in order for mindfulness to become implemented in daily life, particularly in the work environment. Previous findings illustrate significant improvements in general health and the experience of stress within population samples. The implementation of this mindfulness model may prove beneficial within nursing populations and provide significant improvements in the levels of psychological distress they experience.

Strengths and Limitations

Several limitations within the current study must be acknowledged when discussing findings. Primarily, the within-groups design prevents casual inferences towards the target population. The implementation of a within-groups design was necessitated by the limited time frame and funding available to the researcher. An additional limitation is also the sampling strategy utilized within the current study, it is highly probable that convenience sample caused bias within results thus diluting generalisability. A further limitation which limits generalisability of results to the nursing population is the small sample size ($N = 227$). Males were also highly underrepresented within the current study, female (94.3%, n = 216) and male (4.8%, n = 11). The significant lack of male participants suggest that findings are substantially more relevant towards the female gender. The final limitation within the current study is the absence of the investigation into chronotype and social-jetlag. Due to time restrictions these variables were regrettably removed from the current study prior to data collection. Future studies should investigate the assessment of student nurses chronotypes and the influencing factors social jetlag has on their psychological well-being (Chang & Jang, 2018). The need to investigate social jetlag among nursing populations is imperative as cognitive performance is impacted while work ability is also greatly reduced (Yong et al., 2016). A reduction and negative impact on cognitive function and performance ability can have a harmful influence on the quality of care provided for a patient (Rothschild, 2009). Therefore, future researchers should consider the inclusion of these variables.

Particular strengths within the current study can be found by its contemporary nature. Previous findings have been scarce when comparing student nurses with their full-time counterparts (Watson et al., 2009), while to the authors knowledge this is the

first study of its kind which sought to examine student nurses within an Irish population sample. Further strengths include the comparative nature between the chosen variables and nursing groups while displaying research which can be further investigated with the appropriate funding, time and rigour.

Conclusion

Upon review of the current study's findings a multitude of conclusions have been reached. Primarily, high levels of psychological distress were significantly correlated with poor levels of sleep quality, not only within the student nursing participants but within all nursing groups. The implementation of intervention strategies aimed at reducing psychological distress should be at the forefront of the nursing community and their peers. Furthermore, the alleviation of these symptoms not only benefits the nurses at hand but also reduces risks of improper patient care and the manifestation of negative coping mechanisms (Rice, 2012). The well-being of Irelands nurses has been of significant public concern during the year 2019, the current study hopes to illuminate the difficulties that these nurses endure. Prospective researchers should aspire to enhance these findings and further expand on the deficiency in literature regarding Irish nurses as a whole.

The persistent exposure to suffering and death is a burden nurses wilfully except for the greater good of their communities (Chang, Hancock, Johnson, Daly, & Jackson, 2005). Nurses witness and carry the heartache of families and individuals throughout their lives and for this reason they may find solace through the fitting words of Emerson (1836) "To know even one life has breathed easier because you have lived, that is to have succeeded."

References

Aiken, L. H., Clarke, S. P., Sloane, D. M., Sochalski, J. A., Busse, R., Clarke, H., …

Shamian, J. (2001). Nurses' reports on hospital care in five countries. *Health

Affairs*, *20*(3), 43-53. doi:10.1377/hlthaff.20.3.43

Arvidsdotter, T., Marklund, B., Kylén, S., Taft, C., & Ekman, I. (2015). Understanding

persons with psychological distress in primary health care. *Scandinavian Journal of

Caring Sciences*, *30*(4), 687-694. doi:10.1111/scs.12289

Bach, P., & Hayes, S. C. (2002). The use of acceptance and commitment therapy to prevent

the rehospitalization of psychotic patients: A randomized controlled trial. *Journal of

Consulting and Clinical Psychology*, *70*(5), 1129-1139. doi:10.1037//0022-

006x.70.5.1129

Baldwin, D. C., & Daugherty, S. R. (2004). Sleep deprivation and fatigue in residency

training: Results of a national survey of first- and second-year residents. *Sleep*, *27*(2),

217-223. doi:10.1093/sleep/27.2.217

Barnes, C. (2002). Handbook of stress, Coping and health edited by Virginia Hill Rice, Sage

Publications, Thousand Oaks, 604 pages, f40.00, ISBN 0 761 91821 3. *Journal of

Advanced Nursing*, *37*(2), 219-219. doi:10.1046/j.1365-2648.2002.2118d.x

Buysse, D. J., Reynolds, C. F., Monk, T. H., Berman, S. R., & Kupfer, D. J. (1989). The

Pittsburgh sleep quality index: A new instrument for psychiatric practice and

research. *Psychiatry Research*, *28*(2), 193-213. doi:10.1016/0165-1781(89)90047-4

Caruso, C. C. (2013). Negative impacts of shiftwork and long work hours. *Rehabilitation

Nursing*, *39*(1), 16-25. doi:10.1002/rnj.107

Chang, E. M., Hancock, K. M., Johnson, A., Daly, J., & Jackson, D. (2005). Role stress in

nurses: Review of related factors and strategies for moving forward. *Nursing and

Health Sciences*, *7*(1), 57-65. doi:10.1111/j.1442-2018.2005.00221.x

Chang, S. J., & Jang, S. J. (2018). Social jetlag and quality of life among nursing students: A cross-sectional study. *Journal of Advanced Nursing*. doi:10.1111/jan.13857

Chen, H. (2018). Roles of mindfulness and perceived social support in mediating the effect of psychological distress on sleep quality of college students. *NeuroQuantology*, *16*(4). doi:10.14704/nq.2018.16.4.1213

Chen, H. (2018). Roles of mindfulness and perceived social support in mediating the effect of psychological distress on sleep quality of college students. *NeuroQuantology*, *16*(4). doi:10.14704/nq.2018.16.4.1213

Christensson, A., Vaez, M., Dickman, P. W., & Runeson, B. (2010). Self-reported depression in first-year nursing students in relation to socio-demographic and educational factors: A nationwide cross-sectional study in Sweden. *Social Psychiatry and Psychiatric Epidemiology*, *46*(4), 299-310. doi:10.1007/s00127-010-0198-y

Deasy, C., Coughlan, B., Pironom, J., Jourdan, D., & Mannix-McNamara, P. (2016). Psychological distress and help seeking among'st higher education students: Findings from a mixed method study of undergraduate nursing/midwifery and teacher education students in Ireland. *Irish Educational Studies*, *35*(2), 175-194. doi:10.1080/03323315.2016.1146157

Dong, H., Zhang, Q., Sun, Z., Sang, F., & Xu, Y. (2017). Sleep disturbances among Chinese clinical nurses in general hospitals and its influencing factors. *BMC Psychiatry*, *17*(1). doi:10.1186/s12888-017-1402-3

Elovainio, M., Kivimäki, M., & Helkama, K. (2001). Organizational justice evaluations, job control, and occupational strain. *Journal of Applied Psychology*, *86*(3), 418-424. doi:10.1037//0021-9010.86.3.418

Emerson, R. W. (1836). *Nature* (1st ed.). Boston, MA: James Munroe and Company.

Escot, C., Artero, S., Gandubert, C., Boulenger, J. P., & Ritchie, K. (2001). Stress levels in nursing staff working in oncology. *Stress and Health*, *17*(5), 273-279. doi:10.1002/smi.907

Fealy, G. M., & McNamara, M. S. (2015). Transitions and tensions: the discipline of nursing in an interdisciplinary context. *Journal of Nursing Management*, *23*(1), 1-3. doi:10.1111/jonm.12282

Ferrie, J. E., Kumari, M., Salo, P., Singh-Manoux, A., & Kivimaki, M. (2011). Sleep epidemiology--a rapidly growing field. *International Journal of Epidemiology*, *40*(6), 1431-1437. doi:10.1093/ije/dyr203

Foster, R. G., & Wulff, K. (2005). The rhythm of rest and excess. *Nature Reviews Neuroscience*, *6*(5), 407-414. doi:10.1038/nrn1670

Foureur, M., Besley, K., Burton, G., Yu, N., & Crisp, J. (2013). Enhancing the resilience of nurses and midwives: Pilot of a mindfulnessbased program for increased health, sense of coherence and decreased depression, anxiety and stress. *Contemporary Nurse*, *45*(1), 114-125. doi:10.5172/conu.2013.45.1.114

Gobin, C. M., Banks, J. B., Fins, A. I., & Tartar, J. L. (2015). Poor sleep quality is associated with a negative cognitive bias and decreased sustained attention. *Journal of Sleep Research*, *24*(5), 535-542. doi:10.1111/jsr.12302

Google. (2019, January 1). Google Forms: Free Online Surveys for Personal Use. Retrieved from https://www.google.com/forms/about/

Hasson, D., & Gustavsson, P. (2010). Declining sleep quality among nurses: A population-based four-year longitudinal study on the transition from nursing education to working life. *PLoS ONE*, *5*(12), e14265. doi:10.1371/journal.pone.0014265

Itani, O., & Kaneita, Y. (2016). The association between shift work and health: a review. *Sleep and Biological Rhythms*, *14*(3), 231-239. doi:10.1007/s41105-016-0055-9

Jones, M. C., & Johnston, D. W. (2000). Evaluating the impact of a worksite stress management programme for distressed student nurses: A randomised controlled trial. *Psychology & Health*, *15*(5), 689-706. doi:10.1080/08870440008405480

Kato, T. (2013). Assessing coping with interpersonal stress: Development and validation of the interpersonal stress coping scale in Japan. *International Perspectives in Psychology: Research, Practice, Consultation*, *2*(2), 100-115. doi:10.1037/ipp0000002

Kessler, R. C., Andrews, G., Colpe, L. J., Hiripi, E., Mroczek, D. K., Normand, S. T., … Zaslavsky, A. M. (2002). Kessler psychological distress scale. *PsycTESTS Dataset*. doi:10.1037/t22929-000

Lovibond, P., & Lovibond, S. (1995). The structure of negative emotional states: Comparison of the depression anxiety stress scales (DASS) with the Beck depression and anxiety inventories. *Behaviour Research and Therapy*, *33*(3), 335-343. doi:10.1016/0005-7967(94)00075-u

Luker, Austin, Hogg, Ferguson, & Smith. (1998). Nurse-patient relationships: the context of nurse prescribing. *Journal of Advanced Nursing*, *28*(2), 235-242. doi:10.1046/j.1365-2648.1998.00788.x

Maben, J., & Clark, J. M. (1998). Project 2000 diplomates' perceptions of their experiences of transition from student to staff nurse. *Journal of Clinical Nursing*, *7*(2), 145-153. doi:10.1111/j.1365-2702.1998.00119.x

Marchand, A., Demers, A., & Durand, P. (2005). Do occupation and work conditions really matter? A longitudinal analysis of psychological distress experiences among

Canadian workers. *Sociology of Health and Illness*, *27*(5), 602-627.
doi:10.1111/j.1467-9566.2005.00458.x

McDowall, K., Murphy, E., & Anderson, K. (2017). The impact of shift work on sleep
quality among nurses. *Occupational Medicine*, *67*(8), 621-625.
doi:10.1093/occmed/kqx152

Mendes, S. S., & Martino, M. M. (2012). Trabalho em turnos: estado geral de saúde
relacionado ao sono em trabalhadores de enfermagem. *Revista da Escola de
Enfermagem da USP*, *46*(6), 1471-1476. doi:10.1590/s0080-62342012000600026

Nena, E., Katsaouni, M., Steiropoulos, P., Theodorou, E., Constantinidis, T., &
Tripsianis, G. (2018). Effect of shift work on sleep, health, and quality of life of
health-care workers. *Indian Journal of Occupational and Environmental
Medicine*, *22*(1), 29. doi:10.4103/ijoem.ijoem_4_18

Pilcher, J. J., & Huffcutt, A. I. (1996). Effects of sleep deprivation on performance: A meta-
analysis. *Sleep*, *19*(4), 318-326. doi:10.1093/sleep/19.4.318

Rice, V. H. (2012). *Handbook of stress, coping, and health: Implications for nursing
research, theory, and practice* (1st ed.). Thousand Oaks, CA: SAGE.

Ridner, S. H. (2004). Psychological distress: concept analysis. *Journal of Advanced
Nursing*, *45*(5), 536-545. doi:10.1046/j.1365-2648.2003.02938.x

Ross, R., Zeller, R., Srisaeng, P., Yimmee, S., Somchid, S., & Sawatphanit, W. (2005).
Depression, Stress, Emotional support, and self-esteem among baccalaureate nursing
students in Thailand. *International Journal of Nursing Education Scholarship*, *2*(1).
doi:10.2202/1548-923x.1165

Rothschild, J. M. (2009). Risks of complications by attending physicians after performing
nighttime procedures. *JAMA*, *302*(14), 1565. doi:10.1001/jama.2009.1423

Saleh, A. M., Awadalla, N. J., El-masri, Y. M., & Sleem, W. F. (2014). Impacts of nurses' circadian rhythm sleep disorders, fatigue, and depression on medication administration errors. *Egyptian Journal of Chest Diseases and Tuberculosis*, *63*(1), 145-153. doi:10.1016/j.ejcdt.2013.10.001

Shapiro, S. L., Astin, J. A., Bishop, S. R., & Cordova, M. (2005). Mindfulness-based stress reduction for health care professionals: Results from a randomized trial. *International Journal of Stress Management*, *12*(2), 164-176. doi:10.1037/1072-5245.12.2.164

Su, J., Weng, H., Tsang, H., & Wu, J. (2009). Mental health and quality of life among doctors, nurses and other hospital staff. *Stress and Health*, *25*(5), 423-430. doi:10.1002/smi.1261

Sun, W., Yu, Y., Yuan, J., Li, C., Liu, T., Lin, D., … Shan, G. (2015). Sleep duration and quality among different occupations--China national study. *PLOS ONE*, *10*(3), e0117700. doi:10.1371/journal.pone.0117700

Suzuki, K., Ohida, T., Kaneita, Y., Yokoyama, E., Miyake, T., Harano, S., … Uchiyama, M. (2004). Mental health status, Shift work, and occupational accidents among hospital nurses in Japan. *Journal of Occupational Health*, *46*(6), 448-454. doi:10.1539/joh.46.448

Timmins, F., McCabe, C., & McSherry, R. (2012). Research awareness: Managerial challenges for nurses in the Republic of Ireland. *Journal of Nursing Management*, *20*(2), 224-235. doi:10.1111/j.1365-2834.2012.01333.x

Tsukasa Kato, T. (2014). Coping with interpersonal stress and psychological distress at work: comparison of hospital nursing staff and salespeople. *Psychology Research and Behavior Management*, *7*(1), 31. doi:10.2147/prbm.s57030

Tsukasa Kato, T. (2014). Coping with interpersonal stress and psychological distress at
work: comparison of hospital nursing staff and salespeople. *Psychology Research
and Behavior Management*, 31. doi:10.2147/prbm.s57030

Tzeng, D., Chung, W., Fan, P., Lung, F., & Yang, C. (2009). Psychological morbidity,
Quality of life and their correlations among military health care workers in
Taiwan. *Industrial Health*, *47*(6), 626-634. doi:10.2486/indhealth.47.626

Viswesvaran, C., Sanchez, J. I., & Fisher, J. (1999). The role of social support in the process
of work stress: A meta-analysis. *Journal of Vocational Behavior*, *54*(2), 314-334.
doi:10.1006/jvbe.1998.1661

Watson, R., Gardiner, E., Hogston, R., Gibson, H., Stimpson, A., Wrate, R., & Deary, I.
(2009). A longitudinal study of stress and psychological distress in nurses and
nursing students. *Journal of Clinical Nursing*, *18*(2), 270-278. doi:10.1111/j.1365-
2702.2008.02555.x

West, S. H., Ahern, M., Byrnes, M., & Kwanten, L. (2007). New graduate nurses adaptation
to shift work: Can we help? *Collegian*, *14*(1), 23-30. doi:10.1016/s1322-
7696(08)60544-2

Yong, M., Fischer, D., Germann, C., Lang, S., Vetter, C., & Oberlinner, C. (2016). Are
chronotype, social jetlag and sleep duration associated with health measured by work
ability index? *Chronobiology International*, *33*(6), 721-729.
doi:10.3109/07420528.2016.1167728

Appendices

Appendix A

Sleep Quality Assessment (PSQI)

What is PSQI, and what is it measuring?

The Pittsburgh Sleep Quality Index (PSQI) is an effective instrument used to measure the quality and patterns of sleep in adults. It differentiates "poor" from "good" sleep quality by measuring seven areas (components): subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medications, and daytime dysfunction over the last month.

INSTRUCTIONS:

The following questions relate to your usual sleep habits during the past month only. Your answers should indicate the most accurate reply for the majority of days and nights in the past month. Please answer all questions.

During the past month,

1. When have you usually gone to bed? _____
2. How long (in minutes) has it taken you to fall asleep each night? _____
3. What time have you usually gotten up in the morning? _____
4. A. How many hours of actual sleep did you get at night? _____
   B. How many hours were you in bed? _____

5. During the past month, how often have you had trouble sleeping because you	Not during the past month (0)	Less than once a week (1)	Once or twice a week (2)	Three or more times a week (3)
A. Cannot get to sleep within 30 minutes				
B. Wake up in the middle of the night or early morning				
C. Have to get up to use the bathroom				
D. Cannot breathe comfortably				
E. Cough or snore loudly				

5. During the past month, how often have you had trouble sleeping because you	Not during the past month (0)	Less than once a week (1)	Once or twice a week (2)	Three or more times a week (3)
A. Cannot get to sleep within 30 minutes				
B. Wake up in the middle of the night or early morning				
C. Have to get up to use the bathroom				
D. Cannot breathe comfortably				
E. Cough or snore loudly				
F. Feel too cold				
G. Feel too hot				
H. Have bad dreams				
I. Have pain				
J. Other reason (s), please describe, including how often you have had trouble sleeping because of this reason (s):				
6. During the past month, how often have you taken medicine (prescribed or "over the counter") to help you sleep?				
7. During the past month, how often have you had trouble staying awake while driving, eating meals, or engaging in social activity?				
8. During the past month, how much of a problem has it been for you to keep up enthusiasm to get things done?				
9. During the past month, how would you rate your sleep quality overall?	Very good (0)	Fairly good (1)	Fairly bad (2)	Very bad (3)

Appendix B

K10 Test

These questions concern how you have been feeling over the past 30 days. Tick a box below each question that best represents how you have been .

1. During the last 30 days, about how often did you feel tired out for no good reason?

1. None of the time	2. A little of the time	3. Some of the time	4. Most of the time	5. All of the time

2. During the last 30 days, about how often did you feel nervous?

1. None of the time	2. A little of the time	3. Some of the time	4. Most of the time	5. All of the time

3. During the last 30 days, about how often did you feel so nervous that nothing could calm you down?

1. None of the time	2. A little of the time	3. Some of the time	4. Most of the time	5. All of the time

4. During the last 30 days, about how often did you feel hopeless?

1. None of the time	2. A little of the time	3. Some of the time	4. Most of the time	5. All of the time

5. During the last 30 days, about how often did you feel restless or fidgety?

1. None of the time	2. A little of the time	3. Some of the time	4. Most of the time	5. All of the time

6. During the last 30 days, about how often did you feel so restless you could not sit still?

1. None of the time	2. A little of the time	3. Some of the time	4. Most of the time	5. All of the time

7. During the last 30 days, about how often did you feel depressed?

1. None of the time	2. A little of the time	3. Some of the time	4. Most of the time	5. All of the time

8. During the last 30 days, about how often did you feel that everything was an effort?

1. None of the time	2. A little of the time	3. Some of the time	4. Most of the time	5. All of the time

9. During the last 30 days, about how often did you feel so sad that nothing could cheer you up?

1. None of the time	2. A little of the time	3. Some of the time	4. Most of the time	5. All of the time

10. During the last 30 days, about how often did you feel worthless?

1. None of the time	2. A little of the time	3. Some of the time	4. Most of the time	5. All of the time

Appendix C

Depression, Anxiety and Stress Scales (DASS-42)

Identifier [   ]   **Date** [   ]

Please read each statement and select a number 0, 1, 2 or 3 which indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any one statement. This assessment is not intended to be a diagnosis. If you are concerned about your results in any way, please speak with a qualified health professional.

0 = Did not apply to me at all
1 = Applied to me to some degree or for some of the time
2 = Applied to me to a considerable degree or for a good part of time
3 = Applied to me very much or most of the time

#	Statement	
1	I found myself getting upset by quite trivial things	0
2	I was aware of dryness of my mouth	0
3	I couldn't seem to experience any positive feelings at all	0
4	I experienced breathing difficulty (e.g. breathlessness or excessively rapid breathing in the absence of physical exertion)	0
5	I just couldn't seem to get going	0
6	I tended to over-react to situations	0
7	I had a feeling of shakiness (e.g. legs going to give way)	0
9	I found myself in situations that made me so anxious I was most relieved when they ended	0
10	I felt that I had nothing to look forward to	0
11	I found myself getting upset rather easily	0

#	Statement	
12	I felt that I was using a lot of nervous energy	0
13	I felt sad and depressed	0
	I found myself getting impatient when I was delayed in any way (e.g. lifts, traffic	

Serenity Programme™ - www.serene.me.uk - Depression, Anxiety and Stress Scales (DASS-42)

12	I felt that I was using a lot of nervous energy	0
13	I felt sad and depressed	0
14	I found myself getting impatient when I was delayed in any way (e.g. lifts, traffic lights, being kept waiting)	0
15	I had a feeling of faintness	0
16	I felt that I had lost interest in just about everything	0
17	I felt I wasn't worth much as a person	0
18	I felt that I was rather touchy	0
19	I perspired noticeably (e.g. hands sweaty) in the absence of high temperatures or physical exertion	0
20	I felt scared without any good reason	0
21	I felt that life wasn't worthwhile	0
22	I found it hard to wind down	0
23	I had difficulty in swallowing	0

23	I had difficulty in swallowing	0
24	I couldn't seem to get any enjoyment out of the things I did	0
25	I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)	0
26	I felt down-hearted and blue	0
27	I found that I was very irritable	0
28	I felt I was close to panic	0

Serenity Programme™ - www.serene.me.uk - Depression, Anxiety and Stress Scales (DASS-42)

29	I found it hard to calm down after something upset me	0

30	I feared that I would be 'thrown' by some trivial but unfamiliar task	0
31	I was unable to become enthusiastic about anything	0
32	I found it difficult to tolerate interruptions to what I was doing	0
33	I was in a state of nervous tension	0
34	I felt I was pretty worthless	0
35	I was intolerant of anything that kept me from getting on with what I was doing	0
36	I felt terrified	0
37	I could see nothing in the future to be hopeful about	0
38	I felt that life was meaningless	0
39	I found myself getting agitated	0
40	I was worried about situations in which I might panic and make a fool of myself	0
41	I experienced trembling (e.g. in the hands)	0
42	I found it difficult to work up the initiative to do things	0
	Depression	0

Serenity Programme™ - www.serene.me.uk - Depression, Anxiety and Stress Scales (DASS-42)

	Normal	Mild	Moderate	Severe	Very severe
Depression	0 - 9	10 - 13	14 - 20	21 - 27	28 +
Anxiety	0 - 7	8 - 9	10 - 14	15 - 19	20 +
Stress	0 - 14	15 - 18	19 - 25	26 - 33	34 +

The maximum score of the DASS-42 is 42 in each of the depression, anxiety and stress scales. Lower scores are better. Privacy - please note - this form does not transmit any information about you or your assessment scores. If you wish to keep your results, either print this document or save this file locally to your computer. If you click 'save' before closing, your results will be saved in this document. These results are intended as a guide to your health and are presented for educational purposes only. They are not intended to be a clinical diagnosis. If you are concerned in any way about your health, please consult with a qualified health professional.

Appendix D

Participant information sheet

You are being invited to partake in a research study on the relationship between psychological distress symptoms and sleep quality among student nurses. This project is being conducted as part of thesis preparation by a final year psychology student attending The National College of Ireland. I am investigating if a student nurse population experience psychological distress symptoms due to their workplace environment, I am also investigating the quality of sleep of these student nurses who partake in shift work hours and non-shift work hours. This research is being supervised by Michael Cleary-Gaffney and has been approved by the National College of Ireland ethics committee.

WHAT WILL HAPPEN

In this study, you will be asked to firstly answer a single question regarding your work schedule (Have you partaken in shift work over the past 6 weeks), you will be asked your stage of nursing and your nationality. Following this you will be asked to complete four scales, (Pittsburgh Sleep Quality Index (PSQI), Kessler Psychological distress scale (K10) and the Depression, Anxiety and Stress Scales (DASS-42). The study typically takes 15-20 minutes across one session. Your participation in this study is voluntary and confidential.

PARTICIPANTS' RIGHTS/RIGHT TO WITHDRAW

You may decide to withdraw from the study only up until the point that the final set of statements is submitted. Once data is finally submitted, it is anonymous, and therefore data cannot be withdrawn past this point. Prior to this, participants are free to withdraw at any point by exiting their web browser. You may decide to stop being a part of the research study at any time before final submission without explanation.

CONTACT INFORMATION

FOR FURTHER INFORMATION

The researcher may be contacted at any point with questions/if assistance is needed at:

x16753775@student.ncirl.ie

Alternatively, the supervisor of the research Michael Cleary-Gaffney will be available to answer your questions about this study at any time.

Michael.Cleary-Gaffney@ncirl.ie

If you would like to find out about the final results of this study, you should contact the researcher at the email address above in April 2019 when a full copy of the finalized research project will be made available to any participants.

Demographic Questions

I have partaken in shift-work over the last 6 weeks

o Yes

o No

Age

Age: _____

Gender

o Male

o Female

What is stage of nursing are you currently in?

o Student Nurse

o Full-time nurse

Nationality

Nationality: _____

Appendix E:

Distribution of data.

Normal Q-Q Plot of PSQIGLOBALSCORE

Normal Q-Q Plot of TotalPsychologicalDistress

Normal Q-Q Plot of STRESSSUBSCALEDASS42

Normal Q-Q Plot of SUBSCALEDEPRESSIONDASS42

Normal Q-Q Plot of SUBSCALEANXIETYDASS42