Association Between Levels of Stress with Academic Performance of Nursing Students at Institute of Nursing, Wah Cantt.

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1. Introduction

1.1. Background

Stress can be defined as any type of change that causes physical, emotional or psychological strain. Stress is your body's response to anything that requires attention or action. Everyone experiences stress to some degree. The way you respond to stress, however, makes a big difference to your overall well-being. Academic performance/achievement is the extent to which a student, teacher, or institution has attained their short or long-term educational goals and is measured either by continuous assessment or cumulative grade point average (CGPA).

The study aim will be to assess the relationship between stress and academic performance of nursing students and also determine the major stressors of students. Descriptive correlational study design will be used. 53 nursing students will be selected through non-probability convenient sampling. Questionnaire will be distributed to Nursing students, perceived stress scale will be used to collect the data.

This study will identify the stress level and academic performance of nursing students studying in Institute of Nursing, Wah Cantt.

Keywords: Stress; Academic performance; Cumulative grade point average; Perceived stress scale.
Gamal (2019) illustrated that students suffered from high level of stress in the clinical setting and reported that common stressors among the students are independently caring to the patients, high expectations of teachers and clinical staff, and clinical assignments. The study was conducted in the Private University from January, 2019 to May, 2019. Population of the study were nursing students and the sample size was 191. Stress is the hindering factor for learning whereas effective coping behavior can facilitate learning (Zayyat, A., et al., 2019).

The correlational study is conducted by Dr. Jordan and H. Lego (2018). This study will assesses the level of stress and its relationship to the academic performance of the nursing and midwifery students. It was found that as respondents stress level raises their academic performance declines (Jordan, D., et al., 2018). Stress, is a part of the student experience enough evidence suggests that comparatively to other trainings nursing students experience high levels of stress, psychological morbidity, and depression (Zvauya, D., et al., 2017). A mixed method sequential study (2012) was performed by Sohail N. in “Allama Iqbal Medical College Lahore”. The study declared that there is moderate negative (-0.583) and significant (P<0.01) correlation between academic performance and level of stress. Moreover the study shows a diversity of stress sources and high level of stress in medical students (Sohail, N., 2012).

1.2. Significance of the Study

Nursing students commonly experience anxiety and stress during their initial clinical training and practice. Stress during study can result in several negative outcomes, such as poor academic performance, elevated burnout levels and diminished personal well-being. All these are detrimental to the achievement of the goal of training, and study which is to prepare competent nurses. Therefore, it is vital for teachers to be aware of the factors that may prompt increases in the level of stress among nursing students. There is evidence to support the idea that helping students to develop positive stress coping abilities is useful for their successful adaptation to several stressors throughout their learning.

1.3. Problem statement

Nursing students are exposed to several stressors during their studies and training. The aim of this study is to assess the levels of stress (mild, moderate, severe) and their effect on the academic performance experienced by nursing students at Institute of Nursing, Wah Cantt.

1.4. Purpose statement

The purpose of this study was to assess the level of stress and relationship between performances of nursing students who were studied at ION, Wah Cantt.

2. Definition of Key Terms

2.1. Conceptual Definition of Stress

Lazarus and Folkman (1984) explained stress as a condition or a feeling felt when a person perceives that the demands exceed the personal and social resources that the individual can mobilize to manage the condition.

2.2. Operational Definition of Stress

Stress defined as the body coping mechanism adapts to external stimuli and changes in the surrounding environment (Frank Morelli, 2020).
2.3. Conceptual Definition of Academic Performance

Academic performance is the extent to which a student, teacher or institution has attained their short- or long-term educational goals.

2.4. Operational Definition Academic Performance

Refers to how the student obtains a score in a given exercise in class, homework or exams. It is measured by the grades they get and also their participation in class (Nana & Gowtham, 2014).

PSS: The Perceived Stress Scale is the most widely used psychological instrument for measuring the perception of stress.

3. Literature Review

Watson R, Rahman S, Ali PA. (2017) Studied To find the Factors causing stress among Nursing students in Pakistan through Stressors In Nursing students scale. 726 nursing students from 11 schools of nursing in Karachi were included in the Study and Data was collected by using questionnaire & analyzed through descriptive inferential statistics. The aim of this study was to identify the perception of stressors in nursing students due to the effect of demographic variable on academic performance. The results of this study found that total score or more stress related to male gender. This level of stress generally increasing with form first to final year of nursing program and more in private school then in public sector nursing school. Culture Also play major role in stress experienced by different students of different culture.

Moderate levels of stress was observed in dental students through a cross sectional study Lower GPA was also observed. Performance pressure, self-efficacy beliefs and work overload were among frequent stressors. Lin et al. (2020). Stress and its association with academic performance among dental undergraduate students in Fijian, China: BMC Medical Education, 20: 181.

Literature (Altaf, S. et al., 2013) supported that there is a relationship between student's performance and academic stress. Moreover females perceive more stress, older students feel less stressed than younger students and stress levels greatly increases at end of the semester.

Altaf, S. & Kausar , H. (2013). Effects of perceived academic stress on student's performance: FMU journal of social sciences, 7(2), 146-151. In this descriptive correlational study, stress associated with the preparation for and prospect of final examinations received the highest overall mean stress rating, causing "a lot of stress". While attendances and relationships with lectures received the lowest mean stress rating. The method for the collection of data used in this study was perceived stress Scale 14 and stress survey. Moderate level of academic related stress is perceived by graduate students. The stressors include preparation of examination, the excessive workload, the expectations of lecturers.

Brown, K. et al., 2016: The study was conducted in the University of Cape Coast, School of Business in order to analyze the effect of stress on academic performance among students. The study aim was to examine impact and related risk when it was not managed properly. To full fill this aim three research questions was tested and literature
review was focused on impact, sources and managing techniques. Data was collected through questionnaire method. Convenience sampling method and random sampling method was also used. In this study it was discovered that academic stress could be controlled through providing education related to having enough rest, exercising, how to cope with stress to students.

### 4. Framework

#### 4.1. Theoretical framework

Over the years, several theories have been developed by a number of authors to help students understand stress, its manifestations and its impacts. Lazarus stress theory is the main theory supporting our research.

#### 4.2. Lazarus stress theory

Lazarus and Folkman (1984) explained that stress is a condition or feeling that is felt when a person perceives that the demands exceed the personal and social resources that the person can mobilize to manage the condition. This is also called the "coping and transactional stress model." Therefore, the individual perception of the psychological situation is the critical factor. According to Lazarus, the effects of stress on a person are based more on the feeling of threat, vulnerability and ability to cope with that person than on the stressful event itself.

Lazarus and Folkman's (1984) Transactional Model of Stress is used as the theoretical framework underlying this study. The model describes how an individual reacts to specific stressors in the external environment. According to Lazarus and Folkman (1984), no event or situation is inherently stressful. Instead, the stressor is defined by the subjective judgment of the situation that is considered threatening, damaging or taxing available resources. So, the way that people react to similar stressors varies due to the different perception that they have.

According to Lazarus, psychological stress is a particular relationship between the person and the environment that the person evaluates as taxing or exceeding their resources and endangering their well-being. For example, too many assignments in a short period of time can make a student believe that they will certainly not finish within the allotted time. Lazarus and Folkman's (1984) stress theory is particularly relevant as an analytical framework, as it will help us better study some key stressors that can ultimately affect students’ academic performance and how to manage or control these academic stressors.

Lazarus theory of stress believes that academic stress can be assessed in two main ways, namely:

- Primary assessment.
- Secondary assessment.

The primary assessment is when an individual decides whether a situation is threatening or positive. There are three things an individual should assess:

- How serious is the threat to this person?
- Is it a positive encounter?
- Is it difficult or harmful?
If a person decides that the situation is threatening, the following effects can occur: injury, illness, worry, anger, disgust, disappointment, anxiety and fear. For example, when a student perceives a high probability of failing a particular course, he begins to worry and sometimes he can get sick before the actual event occurs.

Secondary assessment occurs when we assess the resources available to fight or cope with the stressor. A person can choose to use internal options (willpower, internal strength) or external options (peers, professional help). For example, when a student does not understand a particular lesson, he may choose to devote more time to this particular lesson or ask for help from friends or a teacher.

Lazarus theory of stress has also developed two key strategies to handle or manage school stress. They are:

- Coping with problems.
- Emotional adaptation.

Problem-based coping is used when we feel that we are in control or can handle the source of the problem. There are four steps to managing this stress:

- Define the problem.
- Generate alternative solutions.
- Learn new skills to deal with stressors.
- Re-evaluate and find new standards of behavior.

Emotional adjustment is used when an individual feel that he cannot handle the source of the problem. Therefore, this leads people to avoid stressful situations, to distance themselves from stressors, to accept or seek medical assistance. For example, when a student fails the exam, he feels vulnerable or threatened by what other people around him are saying, in addition to the stressful event itself.

According to Laurence, Williams and Eiland (2009), theories of stress can be classified into three aspects:

- Response theories.
- Stimulus theories.
- Transaction theories.

According to response theories, stress is understood as a response by people to external pressures or to stressors, such as too many assignments in a short time. Stimulation theories seek to understand stress from the perspective of major events such as humanitarian disasters, chronic activities and other life threatening activities. In transactional or process theories, stress is studied as a complex set of interactions and adjustments between the person and the environment. Lazarus and Folkman (1984) are the most popular transaction theory. Through their transactional model, they emphasize the “transactional” nature of stress, by arguing that it is a two-way process by which the environment produces stressors and the individual finds ways to manage them.

4.3. Conceptual Framework

This framework sorts to give a pictorial view of the effect of academic stress on student’s performance.
4.4. Objectives of the study

- To find out the common stressors of nursing students.
- To assess the level of stress among nursing students.
- To evaluate the academic performance of nursing students.
- To determine the relationship of stress and academic performance.

4.5. Study questions

- What are the common stressors of nursing students?
- What is the level of stress among nursing students?
- What is the level of academic performance of nursing students?
- Is there any relationship of stress and academic performance?

4.6. Hypothesis

4.6.1. Null Hypothesis:

There is no relationship between stress and academic performance.

4.6.2. Alternative Hypothesis:

There is significant relationship between stress and academic performance.

5. Methodology

5.1. Study Design

It was Descriptive Correlational Study Design. Simple random sampling method was used. Data was collected at a college of nursing Rawalpindi.

5.2. Sample Size

\[ n = \left( \frac{Z_{\alpha} + Z_{\beta}}{C(r)} \right)^2 + 3 \]

Here, \( Z_{\alpha} \) = Standardized value of Z at 95% confidence level; \( Z_{\beta} \) = Standardized value of Z at 80% power of study;
According to above values, calculated sample size is 53 (Sahir, A. et al, 2019).

5.3. Sample Selection

5.3.a. Inclusion Criteria:
- Nursing students of Generic BScN of Prof II, III & IV

5.3.b. Exclusion Criteria:
- Students of Generic BScN Prof-I
- Students of Post RN

5.4. Data Collection method

A Literature based questionnaire from a published study was used after taking permission from the author for data collection from participants. PSS (perceived stress scale) has been used for investigation of stress level. The second tool of investigation was the academic record of the students.

5.5. Data Analysis

The Data will be analyzed by using SPSS version 23. The stress level was analyzed by perceived stress scale which is as follows:

<table>
<thead>
<tr>
<th>Score</th>
<th>Descriptive equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-33</td>
<td>Low stress</td>
</tr>
<tr>
<td>34-66</td>
<td>Moderate stress</td>
</tr>
<tr>
<td>67-100</td>
<td>High stress</td>
</tr>
</tbody>
</table>

25 items have been selected in questionnaire. Each question carries four marks and every question carry equal marks. Total score is equal to 100 (Lego et al., 2018).

5.6. Ethical Considerations

Ethical considerations have been followed according to the ethical principles of Helsinki declaration:
- Privacy of the participant has been maintained.
- Consent has been taken from all the participants.
- Confidentiality of information have been respected.
- The autonomy of the Participants has been respected.
- Participants have the right to refuse the study without any coercion.

6. Results

Stress can be defined as any type of change that causes physical, emotional or psychological strain. The aim of the study was to assess the relationship between stress and academic performance of nursing students and also
determine the major stressors of students. This study identified the stress level and academic performance of nursing students studying at college of Nursing, Rawalpindi. This study also assessed the relationship of age, gender and qualification. Nursing students commonly experience anxiety and stress during their initial clinical training and practice. Identification of stress level and stressors is detrimental to the achievement of the goal of training, and study which is to prepare competent nurse.

**Demographic Variables of the Study**

**Table 1. Age**

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>19-22</td>
<td>38</td>
<td>71.7</td>
</tr>
<tr>
<td>23-25</td>
<td>15</td>
<td>28.3</td>
</tr>
<tr>
<td>Total</td>
<td>53</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 1 describes that most of the respondents (71%) of respondents belongs to age group of 19 years to 22 years. Only 28.3% of respondents belongs to age group of 23 to 25 years of age.

**Figure 1. Age**

**Table 2. Gender**

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>13</td>
<td>24.5</td>
</tr>
<tr>
<td>Female</td>
<td>40</td>
<td>75.5</td>
</tr>
<tr>
<td>Total</td>
<td>53</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 2 illustrates that respondents were 13 males and 40 females in this study. Percentage of male were 24.5% and females were 75.5%. This variation between gender is presumed due to female dominancy in Nursing profession.
Figure 2. Age

Table 3. Qualification

<table>
<thead>
<tr>
<th>Qualification</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>GNBSN Prof II</td>
<td>18</td>
<td>34.0</td>
</tr>
<tr>
<td>GNBSN Prof III</td>
<td>18</td>
<td>34.0</td>
</tr>
<tr>
<td>GNBSN Prof IV</td>
<td>17</td>
<td>32.1</td>
</tr>
<tr>
<td>Total</td>
<td>53</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 3 shows that 18 respondents are from 2nd professional of generic BScN while 18 and 17 respondents belong to 3rd and 4th Professional of Generic BScN respectively. This means that respondents belong to each prof equally.
Table 4. Academic Performance

<table>
<thead>
<tr>
<th>Academic Performance</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>55-69%, Satisfactory</td>
<td>18</td>
<td>34</td>
</tr>
<tr>
<td>70-84%, Very Good</td>
<td>35</td>
<td>66</td>
</tr>
<tr>
<td>Total</td>
<td>53</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 4 shows that 34% of participants scored satisfactory result and 66% of participants fall under category of very good results (70-84%). This means that most of participants (above average) are showing very good results.

Figure 4. Academic Performance

Table 5. Cross Tabulation: Gender vs Stress Level

<table>
<thead>
<tr>
<th>Cross Tabulation: Gender vs Stress Level</th>
<th>Stress level</th>
<th>Total</th>
<th>Chi-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>34-66</td>
<td>67-100</td>
<td>P value</td>
</tr>
<tr>
<td>Gender of the participant</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>13</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>Female</td>
<td>38</td>
<td>2</td>
<td>40</td>
</tr>
<tr>
<td>Total</td>
<td>51</td>
<td>2</td>
<td>53</td>
</tr>
</tbody>
</table>

The Cross-tabulation of Gender and Stress level shows that 100% of male respondents have moderate level of stress while 95% of female respondents also have moderate level of stress. Only few i.e. 05% female respondents face severe stress level. In conclusion we can say that females have higher tendency towards development of severe stress.
The cross tabulation of qualification (year of study) and stress level shows that 100% respondents of Prof II fall into category of moderate level of stress while 94.4% of respondents from Prof III and Prof IV have moderate level stress. Only 5.5% from Prof III as well as from Prof IV shows sever level of stress. It means that study results show increasing level of stress with promotion in study.
Table 7. Cross Tabulation: Age vs Stress Level

<table>
<thead>
<tr>
<th>Cross Tabulation: Age vs Stress Level</th>
<th>Stress level</th>
<th>Total</th>
<th>Chi-square</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>34-66</td>
<td>67-100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19-22</td>
<td>37</td>
<td>1</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>23-25</td>
<td>14</td>
<td>1</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>51</td>
<td>2</td>
<td>53</td>
<td>0.487</td>
</tr>
</tbody>
</table>

Figure 7. Cross Tabulation: Age vs Stress Level

Table 8. The Significant Relationship between Stress Level and Academic Performance

<table>
<thead>
<tr>
<th>The Significant Relationship between Stress Level and Academic Performance</th>
<th>Academic Performance</th>
<th>Stress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Performance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>1</td>
<td>-0.271*</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td>.050</td>
</tr>
<tr>
<td>N</td>
<td>53</td>
<td></td>
</tr>
<tr>
<td>Stress</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>-0.271*</td>
<td>1</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.050</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>53</td>
<td>53</td>
</tr>
</tbody>
</table>

*, Correlation is significant at the 0.05 level (2-tailed).

Correlations is significant, weak, negative relationship between Stress level & Academic performance. Calculated value of $r$ is minus 0.271.
7. Discussions

The purpose of this study was to discover the impact of stress on the academic performance in ION, Wah Cantt. Stress happens when person's burden exceeds the work's capacity. If stress is severe, prolonged in duration or occurring again and again it will affect the various aspects of life and Academic Performance is one of them. The study found that all the respondents have experienced one form of Academic Stress or the other. The results in the study show that most of respondents are Adults. Females are dominant. Students experienced moderate level of stress during their academic year. The correlational study is conducted by Dr. Jordan and H. Lego (2018). This study will assesses the level of stress and its relationship to the academic performance of the nursing and midwifery students. It was found that as respondents stress level raises their academic performance declines (Jordan, D., et al., 2018).

Moderate levels of stress was observed in dental students through a cross sectional study (Lin, X. et al., 2020). Lower GPA was also observed. Performance pressure, self-efficacy beliefs and work overload were among frequent stressors. Lin, X., et al. (2020). Stress and its association with academic performance among dental undergraduate students in Fijian, China: BMC Medical Education, 20: 181.


8. Conclusion & Recommendations

The study findings concluded that Institute Of Nursing students experience varying degree of academic stress which affects their academic performance. The study also shows that there is significant relationship between stress and demographic variables.

8.1. Recommendations

- There should be minimal decrease in the academic works of the students like no assignments at the weekend.
- Encourage students to work in groups.
- There should be planned extra-curricular activities.

8.2. Suggestions

- The future researchers should use large sample size from other institutions to validate these findings.
- The researcher should also focus on stressors and all those factors which lead to academic stress.
- The future researcher should collect data from equal ratio of male and female participants to minimize the effect of female dominancy in this study.

8.3. Limitations

Results are not generalizable due to: (i) Small sample size and (ii) Single study setting.
Declarations

Source of Funding
This study did not receive any grant from funding agencies in the public or not-for-profit sectors.

Competing Interests Statement
The authors have declared no competing interests.

Consent for Publication
The authors declare that they consented to the publication of this research work.

Ethical Approval
Ethical considerations have been followed according to the ethical principles of Helsinki declaration.

Author’s Contribution
All the authors took part in data collection and manuscript writing equally.

References