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Effect of Personal Stress on Problem-Solving Ability of Physiotherapy Students



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Abstract

Stress plays a very significant role in today's life. Almost all groups and sections of the society are living stressful complicated life. No one can ignore it. This study aims to know the effect of personal stress on problem-solving ability of physiotherapy students. Purposively 100 students were selected and studied by researchers to measure their personal stress and problem solving ability. Result indicates that there is a high level of significant difference between the problem-solving ability of high and low stressed students. It is evident that low stressed students were significantly higher in their problem solving ability. Significant difference was observed between High and Low stressed Girls. Similar result was found while comparing High and Low stressed Boys. While comparing problem solving ability of Boys and Girls it is evident that gender difference has shown no significant impact on problem solving ability.

Keywords: Personal Stress, Problem-Solving Ability, Stress, Behaviour Change.

Introduction

We are living in the age of stress. It is truly an uncommon situation which everyone facing but we cannot remove it. Sometimes it seems to have that we are living in unexpected and unwanted situation which surrounds us. Depression is a condition in which one feels blue or sad. When an individual makes negative judgments about himself, he tends to develop negative self-concepts. These negative self-concepts emerging from a great force of depression (Beck & Alford, 2009). Stress, in everyday terms, is a feeling that people have when they are overloaded and struggling to cope with demands. These demands can be related to finances, work, relationships, and other situations, or anything that poses a real or perceived challenge or threat to a person's well-being can cause stress. Stress can be a motivator. It can be essential to survival. The "fight-or-flight" mechanism can tell us when and how to respond to danger. However, if this mechanism is triggered too easily, or when there are too many stressors at one time, it can undermine a person's mental and physical health and become harmful. (Nordqvist, 2017)

By a Stressor how to solve their problems it is a serious matter. And it is question that what is the problem solving ability is. During last few decade a good deal of progress has been made in the understanding of children's problem-solving strategies in discrimination tasks and in the description of related development Trends (Kemler, 1978). Problem-solving is an orderly process. It begins with a definition of the problem, asking first of all if it is a real problem, next comes working on the problem organizing it is the relation to principles and lastly going through the process of coming to a conclusion determining the best possible one. Effective problem solving then involves doing something about that conclusion. Reviewing our activity is necessary to building good thinking habits so that we know what to do or not to do when next we meet similar problem. The review is important in enabling us to learn from experience. (Gilmer, V.H., 1970)

Problem-solving has a special importance in the study of mathematics. A primary goal of mathematics teaching and learning is to develop the ability to solve a wide variety of complex mathematics problems (James W. Wilson, Maria L. Fernandez, and Nelda Hadaway (1993). Stanic and Kilpatrick (1988) traced the role of problem solving in school mathematics and illustrated a rich history of the topic. Mathematics is synonymous with solving problems -- doing word problems, creating

patterns, interpreting figures, developing geometric constructions, proving theorems, etc. On the other hand, persons not enthralled with mathematics may describe any mathematics activity as problem solving (Wilson, Fernandez, and Hadaway, 1993). A problem is a situation, in which a person tries to find a solution and does not exactly know how but still tries to solve it.

Review of Literature

Yulindar, Setiawan (2018) studied 35 high school students to find out the influence of enhancement of problem-solving ability before and after learning using Real Engagement in Active Problem Solving (REAPS) model on the concept of heat transfer. The result of problem solving ability of students is obtained through the test in the form of 3 description questions. Based on data analysis, the value of N-Gain is 0.43 and the enhancement of student's problem-solving ability was medium.

Ilubis, Panjaitan (2017) analysed the student's mathematical problem-solving ability of class VIII-2 students. This type of research is qualitative-descriptive. Based on the results of research conducted, shows the percentage of students' ability to understand the problem reached 87.10% and in the excellent category, the percentage of problem-solving ability of students to plan and 40.32% in the un-favourable category, the percentage of the student's ability to solve the problem according to plan 21.19% and classified in very less, the percentage of the student's ability to re-examine the results obtained 48.39% and in the un-favourable category, while the average percentage reached 49.25% and in the un-favourable category.

Incebacak, Ersoy (2016) tried to find the relationship between problem solving ability and adopting appropriate strategy. The research question of the study is "what are the levels of sixth and seventh grade students' problem solving skills?" The aim of this study was to investigate the problem solving and problem-solving strategies levels of secondary school students. The study was carried out on randomly 72 students (35 male and 37 female) from the two provinces in the Black Sea region of Turkey. In this qualitative research for the case study, content analysis was applied. In this qualitative research for the case study, content analysis was applied in order to evaluate the data. In the study, five creative problems developed by Smith, which were adapted into Turkish by the researchers, were used as the data collection tools. It was observed that majority of the students had difficulty in solving non-routine problems.

Kim, Choi et.al. (2018) studied the relationship between problem solving ability and innovative behaviour. Universities engage in entrepreneurship education to increase social value creation, through students new opportunities recognition. This study argues that it is very important for cognitive abilities to be manifested as behaviour when students are new to opportunities recognition. For this purpose, the relationship between problem solving ability, innovation behaviour, and opportunity perception was verified empirically. This study was

conducted on 203 students who took entrepreneurship education courses at Korean universities. The results of this study showed that problem solving ability positively influenced innovation behaviour and opportunity perception. Innovation behaviour was identified as a key parameter that partially mediated the relationship between problem solving ability and innovation behaviour.

Pourrajab, Rabbani (2014) studied the impact of stress on academic performance of students. Stress can be regarded as any internal or external factors, which makes adaptation to difficult environment. The purpose of this paper is to describe the components of academic stress, as well as to identify the effect of stress on male and female students. Stress is considered as a positive or negative experience among the students. It can dominate the academic process and the privacy of the students. The result shows the difference between the level of stress of male and female students. This study offers and determines the impact of stress on male and female students. Stress is an unavoidable phenomenon in every aspects of students' life. The factors which are contributed to the stress are the management of time, intercommunication with teachers, high standards of parents, student-teacher ratio, distraction in unfavourable environment such as class, and expectations of teachers and etc. (Mazumdar, et al., 2012). The stress levels are different between male and female students (Amar, et al., 2008). Stress effects on the female more especially in academic career. It was also interesting to highlight that significant difference in the perception male and female students regarding the stressors. These various perceptions can be attributed to the male and female attitude.

Subramanian, Kadiravan (2017) investigated the effect of stress on academic activities of students. Stress becomes an integral part of human life. Anything that creates a challenge or a threat to our comfort is a stress. All kind of stress is not considered to be bad because it helps people to perform well. In academics, stress is unavoidable among students, and it influences students' performance in all academic activities. Academic stress plays a major role in determining the mental health of students. This study was conducted to explore the academic stress and its relationship with mental health among high school students. 200 high school students from Government and Private schools in and around Salem city, Tamilnadu were selected through stratified random sampling and the data was collected with Educational Stress Scale for Adolescents and Positive Mental Health Scale. The results revealed that students from private school experienced higher academic stress than that of government school students, and private school students have higher mental health status than their counterpart. It was also found that academic stress had a significant relationship with the mental health of high school students. The implications of this are presented in this article.

Li, Sun et. al. (2019) investigated the status of occupational stress and its influence on the quality

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of life of copper-nickel miners, in order to provide a theoretical basis for alleviating occupational stress to improve their quality of life. Stratified cluster sampling and a self-administered questionnaire survey were used. The Effort–Reward Imbalance (ERI) questionnaire and the SF-36 (36-Item Short Form) health survey scale were administered to all 2000 miners registered with a copper-nickel mining human resources department and who had been on duty for more than one year. The percentage of the copper-nickel miners suffering from occupational stress was 42.65%. A statistically significant difference was observed in relation to the prevalence of occupational stress among miners of different genders, ages, education levels, and operating units. The occupational stress detection rate was higher for males than females. Miners aged between 30 and 34 years exhibited the highest level of occupational stress compared to other age groups. Those with a junior college education exhibited the highest rate of occupational stress compared to those with other levels of education. Those working in the smelting unit exhibited the highest rate of occupational stress compared to those working in other operational units. Those classified as experiencing stress (an ERI score >1) had lower quality of life scores than miners classified as not experiencing stress (an ERI score ≤1). The results show that level of education, monthly income, and degree of occupational stress affect quality of life among copper-nickel miners. It was found that older age, lower income, higher education level, and higher degree of occupational stress were factors related to poorer quality of life. Copper-nickel miners have high levels of occupational stress, and occupational stress is a risk factor that can diminish quality of life.

Objectives of the Study

1. To study the difference in problem-solving ability among high & low stressed physiotherapy students.
2. To study the difference in problem-solving ability among high & low stressed male students.
3. To study the difference in problem-solving ability among high & low stressed female physiotherapy students.
4. To study the difference in problem-solving ability among male and female students.
5. To study the difference in problem-solving ability among high stressed male and female physiotherapy students.
6. To study the difference in problem-solving ability among low stressed male and female physiotherapy students.

Hypotheses of the Study

H01

There will be nosignificant difference in problem-solving ability among high & low Stressed physiotherapy students.

H02

There will be no significant difference in problem-solving ability among high & low Stressed male students.

H03

There will be no significant difference in problem-solving ability among high& low stressed female students.

H04

There will be nosignificant difference in problem-solving ability among male and Female physiotherapy students.

H05

There will be no significant difference in problem-solving ability among high stressed male and female students.

H06

There will be nosignificant difference in problem-solving ability among low stressed male and female students.

Methodology

The present study was planned to conduct over the Physiotherapy students. The study was delimited to randomly selected 100 BPT students (50 boys and 50 girls) to measure their Stress level and Problem-solving ability. ‘Personal Stress Source Inventory’ (PSSI) developed by Dr. Arun Kumar Singh was used to measure the stress of the sample. PSSI contains 35 items that gives the score range of 35 to 105. Students were categorized into high and low stressed groups on basis of score norms given in the manual of the Inventory. The problem-solving ability scores of total sample students was measured by applying ‘Problem Solving Ability Test’ (PSAT) developed by Roop Rekha Garg. PSAT contains 22 problems. One mark is awarded for each correct answer. In the present study Stress Level and gender difference were considered as Independent Variables and Problem solving ability was taken as Dependent Variable.

Statistical Analysis

To test the significance of above hypotheses, physiotherapy (BPT) Mean and standard deviation values were calculated for various comparison groups. Finallyhypothesis-wise‘t’-values were calculated.

Verification of Hypotheses

Hypothesis H01

There will be no significant difference in problem-solving ability among high & low stressedphysiotherapy students.

Table 1: Significance of difference in problem-solving ability among high& low stressed students

Group	Number	Mean	SD	‘t’ value
High Stress	37	10.92	1.48	14.91**
Low Stress	35	16.09	1.46	
df=70** significant at 0.01 level				

By observing the table no.1, the mean and the standard deviation values for high stressed students are 10.92 and 1.48 respectively.The mean and the standard deviation for the low stressed students are 16.09 and 1.46respectively. The calculated‘t’ value between the high and low stressed students is 14.91, which is highly significant at .01 level. Thus, the null hypothesis (H01) is rejected. It can be concluded that low stressed students are significantly higher on their problem-solving ability.

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Hypothesis H02

There will be no significant difference in problem-solving ability among high & low stressed male students.

Table 2: Significance of difference in problem-solving ability among high & low stressed male students

Stress of Male	Number	Mean	SD	't' value
High	17	10.88	1.54	10.68**
Low	18	16.17	1.38	
df=33 **significant at 0.01 level				

By observing the table 2 the mean and the standard deviation for high stressed male students are 10.88 and 1.54 respectively. The mean and the standard deviation for the low stressed male students are 16.17 and 1.38 respectively. The calculated 't' value between the high and low stressed male students is 10.68, which is highly significant at .01 level. Thus, the hypothesis (H02) is rejected. It can be inferred that low stressed group of male students are significantly higher than their counterpart group.

Hypothesis H03

There will be no significant difference in problem-solving ability among high stressed & low stressed group of female students.

Table 3: Significance of difference in problem-solving ability among high & low stressed female students

Group	Number	Mean	SD	't' value
High	20	10.95	1.47	10.003**
Low	17	16.00	1.58	
df=35 **significant at 0.01 level				

By observing the table 3 the mean and the standard deviation for high stressed female students are 10.95 and 1.47 respectively. The mean and the standard deviation for the low stressed female students are 16.00 and 1.58 respectively. The calculated 't' value between the high and low stressed female students is 10.003, which is highly significant at .01 level. Thus, the hypothesis (H03) is rejected. It can be inferred that low stressed female students were significantly superior in their Problem-solving ability than high stressed girls.

Hypothesis H04

There will be no significant difference in problem-solving ability among male and female physiotherapy students.

Table 4: Significance of difference in problem-solving ability among male and female students

Group	Number	Mean	SD	't' value
Male	35	13.60	3.04	0.466 (NS)
Female	37	13.27	2.96	
df=70 NS=not significant				

By observing the table 4 the mean and the standard deviation for Male student's problem solving ability scores are 13.60 and 3.04. The mean and the standard deviation for female students are 13.27 and 2.96. The calculated 't' value between the Male and

Female students is 0.466, which is not significant. Thus, the hypothesis (H04) is accepted. It can be concluded that there is no difference in problem-solving ability among male and female students.

Hypothesis H05

There will be no significant difference in problem-solving ability among high stressed male and female students.

Table 5: Significance of difference in problem-solving ability among high stressed male and female students.

Group	Number	Mean	SD	't' value
High stressed Male	17	10.88	1.54	0.141 (NS)
High stressed Female	20	10.95	1.47	
df=35 NS=not significant				

By observing the table 5 the mean and the standard deviation for high stressed Male students are 10.88 and 1.54 respectively. The mean and the standard deviation for the High stressed Female students are 10.95 and 1.47 respectively. The calculated 't' value between the high stressed male and female students is 0.141, which is not significant at .01 level. Thus, the null hypothesis is accepted. It can be concluded that there is no significant difference in problem-solving ability among high stressed male and female student.

Hypothesis H06

There will be no significant difference in problem-solving ability among low stressed male and female students.

Table 6: Significance of difference in problem-solving ability among low stressed male and female students.

Group	Number	Mean	SD	't' value
Low stressed Male	18	16.17	1.38	0.338 (NS)
Low stressed Female	17	16.00	1.58	
df=33 NS=not significant				

By observing table 6, the mean and the standard deviation for Low stressed Male students are 16.17 and 1.38 respectively. The mean and the standard deviation for the low stressed female students are 16.00 and 1.58 respectively. The calculated 't' value between the low stressed male and female students is 0.338, which is not significant. Thus, the hypothesis (H06) is accepted. It can be concluded that there is no significant difference in problem-solving ability among low stressed male and female students.

Conclusion

On the strength of results obtained from various hypotheses it can be concluded that Low stressed physiotherapy students are superior in their problem-solving ability in comparison to high stressed students. Low stressed Male students have shown better Problem-solving ability than high stressed Male students. Low stressed Women have also shown significant superiority in their problem-solving ability in comparison to high stressed women students. While

comparing problem solving ability on account of gender difference it is evident that gender has played no significant effect on problem solving ability..

Suggestions

Present study leads towards some interesting results that stress decreases the problem solving ability. It means students must maintain themselves at normal stress to achieve better performance level. It must be a great responsibility of all stakeholders of our education system to develop strategies of stress reduction.

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