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An Effect of Perceived Social Support on Psychological Distress Among Engineering Students

P.P. Mohamed Afread[1,*], A. Nilofer[1], S. Praveena[1], S. Aashath Bee[1] and M. Vasuki[1]

[1]*Department of psychology, Theivanai Ammal College for Women (Autonomous)*
Villupuram 605 602, Tamil Nadu, India
[*]*Corresponding Author's Mail Id: mohamedafreadpp@gmail.com*

Abstract

The present study relies on the effect of perceived social support with respect to psychological distress among engineering graduates. The study comprises of 146 engineering students as samples, by using the technique of simple random sampling method. The multi-dimensional scale for perceived social support (MSPSS) and Kessler psychological distress scale (K10) were used to establish the relationship between perceived social support and psychological distress. Pearson correlation coefficient, independent sample t test, one-way ANOVA analysis and simple linear regression analysis has been used to predict the psychological distress in accordance with perceived social support and the test results obtained were resulted in negative correlation. In addition to this, the independent sample t test determined that gender has no significant differences between perceived social supports as well as the psychological distress. The one-way ANOVA analysis revealed that there is a statistically significant difference in the perceived social support and psychological distress with respect to branch of study, age whereas the year of study was significant only with psychological distress. Simple linear Regression analysis determined that perceived social support is a good predictor of psychological distress among the specified population.

Keywords: Perceived social support, Psychological distress, Engineering students, Correlation, ANOVA and Regression.

Introduction

In general terms psychological distress is described as the state of disclosing the symptoms of anxiety and depression followed by an emotional suffering that involves functional impairment. It is most common to be experienced by the individuals by most of the aspects in their daily routine. Psychological distress is defined as the symptoms of stress, anxiety and depression which are of not specific in nature (Kessler, 2002). Some may experience it by getting fired from the current job which results in expressing the characteristics of depression and short temperament which describes the state of psychological distress. In more specific, the younger adults who lie between the age group of 18 to 25 tend to experience it more, since the shift of life occurs in those years of age, but some may possess the ability to overcome the psychological distress. Anxiety and depression have the tendency to occupy and take over the change with good state of living to an indigent state and thus creates a negative impact such as irritability, anxiousness, low mood and the loss of ability to deprive pleasure which resists the individuals to create a meaning to their lives.

The present study, stresses the importance of perceived social support as one the most appropriate factor to enable the balance between psychological distresses and to cope up with it. The attributes of how the individuals perceive the availability of support from their community with respect to adversity could help them to get rid of the psychological distress. Many studies revealed that the availability of such support which has been perceived by the individuals has led them to lead a stress free, good and peaceful life. The

negative aspect, which is psychological distress, could show no more dominance on the individual's living when there is a presence of perceived social support in their lives. Elliot and Gramling in 1990 revealed that the perceived social support has the ability to reduce the psychological distress among college students. Perceived social support is the perception about, how reliable network an individual has in their life. The availability and existence of such support brings out good psychological well-being and also physical well-being of an individual. Elliot and Gramling in 1990 revealed that the perception about social support has the ability to reduce the psychological distress among college students.

Objectives:

1. The main purpose of this study is to find out the relationship between perceived social support and psychological distress among engineering students.
2. To determine whether the perceived social support is the good predictor of psychological distress among engineering students.
3. It also intended to examine the relationship between perceived social support and psychological distress with respect to the demographics.

Methodology:

The present study consists of 146 convenient samples. The study was carried out in a specific population of engineering students. The responses from the samples were collected from the local colleges of Villupuram district of Tamil Nadu. Simple random sampling technique was encountered to collect the data. The subjects were asked to fill out the consent form, with whole of willingness and no objection for the participation in this present study. Confidentiality was maintained and ensured to the participants throughout the study. The statistical package for social sciences version 28 was encountered and Pearson correlation, independent sample t test, ANOVA and regression analysis was used to check whether the it meets some of the assumptions like the presence of negative relation among perceived social support, how good the perceived social support in predicting the psychological distress and significance of some of the demographic variables like age, gender, year of study, branch of study. This study considered perceived social support as the independent variable and psychological distress as the dependent variable. Kessler psychological distress scale (K 10) which was developed by Ronald Kessler, based on a five-point rating scores with Cronbach's alpha as .93 (Kessler et al., 2002) and multidimensional scale for perceived social support (MSPSS) by Zimet et al., based on a seven-point rating scores with good validity and internal consistency of the scale was found using test-retest reliability with .85 for the whole scale.

Result and discussion:

As of stated priorly, SPSS version 28 was used to interpret the collected sample's responses and analyzed clearly. The results are as follows,

Table 1 shows the independent sample t test for perceived social support with respect to gender:

Variables	Sub variables	N	Mean	SD	t	P
Gender	Male	78	65.26	13.247	-1.003	0.317
	Female	68	67.51	13.928		

P>0.05 (Not significant)

The independent sample t test was used to compare the mean and standard deviation between two independent variables and to check whether it draws out the significance in relationship between them. The test results obtained, revealed that there are no significant differences in the participants level of perceived social support with respect to gender ($t = -1.003$, $p > 0.05$). The significance level obtained in the test is more than 0.05 level of

significance. Thus, null hypothesis "there will be no significant differences between the perceived social support and gender among engineering students" is accepted and the mean scores are revealed as high to females (mean = 67.51, SD = 13.928) than that of males.

Table 2 shows the one-way ANOVA analysis for perceived social support with respect to year of study:

Variable	Sub variable	N	Mean	SD	F	P
Year of study	First year students	5	73.80	5.805		
	Second year students	17	65.59	12.679		
	Third year students	112	66.66	14.201	1.185	0.318
	Final year students	12	60.92	9.298		

P>0.05 (Not significant)

With the use of one-way ANOVA analysis in this present study, the unique four years of study with respect to perceived social support are distinguished and the results indicated that there is no statistically significant difference exists between the independent variables of at least two groups of year of study and the dependent variable which is perceived social support. The test result discloses that there is no statistically significant differences in the mean scores of the year of study between at least two groups (f (3, 142) = 1.185, P > 0.05) with regard to perceived social support. The mean scores of the first-year students are significantly high (Mean = 73.80, SD = 5.805) when compared to the other rest of the sub variables. Thus, alternative hypothesis "there will be a significant difference between the year of study and perceived social support among engineering students" is rejected and null hypothesis is accepted.

Table 3 shows the ANOVA analysis for perceived social support with respect to branch of study:

Variables	Sub variables	*N*	Mean	*SD*	F	P
Branch of study	Biotechnology	31	73.39	11.04		
	Computer science engineering	36	63.58	9.74		
	Electronics and communication engineering	45	63.84	10.04	9.788	0.001
	Electrical and electronics engineering	14	61.57	15.02		
	Information technology	7	49	27.82		

Pharmaceutical engineering	13	79.92	8.08	

P<0.01 (significant)

The one-way ANOVA analysis was used to compare the effect of six different branches of engineering study on the perceived social support and indicated that there is a statistically significant difference between the independent variable of least two groups with respect to the dependent variable. The independent variable is considered as the branch of study and the dependent variable is considered as perceived social support. The test results revealed that there is statistically significant difference in the branch of study between at least two groups (f (5, 140) = 9.788, P = <0.01) with respect to perceived social support. The mean scores are statistically high for the students pursuing pharmaceutical engineering (Mean = 79.92, SD = 8.08) when compared to the other five sub variables. Thus, the alternative hypothesis "there will be a significant difference between the branch of study and perceived social support" is accepted.

Table 4 shows the ANOVA analysis for perceived social support with respect to age:

Variables	Sub variables	N	Mean	SD	F	P
Age	18	7	69.29	6.96		
	19	36	66.11	8.82		
	20	58	62.07	16.11	2.90	0.016
	21	34	72.41	12.19		
	22	8	70.25	13.39		
	23	3	64.00	10.14		

P<0.05 (significant)

The one-way ANOVA test is used to compare the effect of different age group of engineering students upon perceived social support and indicated that there is a statistically significant difference between the independent variable of least two groups of ages with respect to the dependent variable which is perceived social support. The test results revealed that there is a statistically significance difference in the mean scores of the age between at least two groups (f (5,140) = 2.909, P = <0.05) with respect to perceived social support. The mean scores are high for the sub variable for age, twenty-one (Mean =72.41, SD = 12.19) when compared to the other five sub variables. Thus, the alternative hypothesis "there will be a significant difference between age and psychological distress" is accepted.

Table 5 shows the independent sample t test for psychological distress with respect to gender:

Variable	Sub variable	N	Mean	SD	t	P
Gender	Male	78	20.76	8.828	-0.812	0.418
	Female	68	21.94	8.748		

P>0.05 (Not significant)

The statistically significant difference in the psychological distress with regards to gender was carried out using the independent sample t test and resulted in indicating, that there are no significant differences in the participants level of psychological distress with respect to gender (t = -0.812, p = 0.418). The significance value established in the test is more than 0.05 level of significance. Thus, the null hypothesis "there will be no significant

differences for the perceived social support with respect to gender among engineering students" is accepted and the mean scores disclosed with females (mean = 21.94, SD = 8.74) are higher than that of males.

Table 6 shows the ANOVA analysis for psychological distress with respect to year of study:

Variables	Sub variables	N	Mean	SD	F	P
Year of study	First year students	5	33.00	5.83	5.430	0.001
	Second year students	17	22.06	5.19		
	Third year students	112	20.13	8.89		
	Fourth year students	12	26.33	7.88		

P<0.01 (significant)

With the use of one-way ANOVA in this present study, the unique four years of study and the psychological distress among the engineering students are distinguished and the results indicated that there is a statistically significant difference exists between the independent variables of at least two groups of year of study and the dependent variable which is psychological distress. The test result discloses that there is a statistical significance in the mean scores of the year of study between at least two groups (F (3, 142) = 5.430, P < 0.01) with regard to psychological distress. The mean scores of the first-year students are high (Mean = 33.00, SD = 5.831) when compared to the other rest of the sub variables of the independent factors. Thus, the alternative hypothesis "there will be a significant difference for psychological distress with respect to the year of study among engineering students" is accepted.

Table 7 shows the ANOVA analysis for psychological distress with respect to branch of study:

Variable	Sub variable	N	Mean	SD	F	P
Branch of study	Biotechnology	31	16.26	9.82	10.434	0.001
	Computer science engineering	36	22.72	7.39		
	Electronics and communication engineering	45	25.33	6.75		
	Electrical and electronics engineering	14	23.71	6.66		

Information technology	7	24.29	8.97
Pharmaceutical engineering	13	79.62	8.08

P<0.01 (significant)

The one-way ANOVA analysis was used to compare the effect of six different branches of engineering study upon psychological distress and indicated that there is a statistically significant difference between the independent variable of least two groups of branches of study with respect to the dependent variable which is psychological distress. The test results revealed that there is a statistical significance difference in the mean scores of the branches of study between at least two groups (f (5,140) =10.434, P = <0.01) with respect to psychological distress. The mean scores are high for the sub variable of electronic and communication engineering (Mean =25.33, SD = 6.755) when compared to the other five sub variables. The level of significance revealed in the test is below than 0.05. Thus, the alternative hypothesis "there will be a significant difference between the branch of study and psychological distress" is accepted.

Table 8 shows the ANOVA analysis for psychological distress with respect to age:

Variable	Sub variables	N	Mean	SD	F	P
Age	18	7	23.71	4.11		
	19	36	22.92	6.59		
	20	58	22.12	8.35	4.753	0.000
	21	34	16.29	10.03		
	22	8	22.13	8.87		
	23	3	35.33	6.11		

P<0.01 (significant)

The one-way ANOVA test is used to compare the effect of different age group of engineering students upon psychological distress and indicated that there is a statistically significant difference between the independent variable of least two groups of ages with respect to the dependent variable which is psychological distress. The test results revealed that there is a statistically significance difference in the mean scores of the age between at least two groups (f (5,140) = 4.753, P = <0.01) with respect to psychological distress. The mean scores are high for the sub variable for age, twenty-three (Mean = 35.33, SD = 6.110) when compared to the other five sub variables. Thus, the alternative hypothesis "there will be a significant difference between age and psychological distress" is accepted.

Table 9 shows the Pearson correlation coefficient of perceived social support with respect to psychological distress:

Variables	Psychological distress
Perceived social support	-.376**

**correlation is significant at 0.01 levels

The Pearson correlation statistics indicated statistically significant difference with negative correlation between perceived social support and psychological distress (r = -.376, p<0.01) and resulted in, when there is the existence of perceived social support, the psychological distress would not be present in an individual's life pursuing engineering.

Table 10 shows the Regression analysis of perceived social support and psychological distress:

Regression weighs	B value	β value	R square	F	P- value
PSS [a] → PD [b]	-.243	-.376	.141	23.72	.000

Prediction is significant at p<0.01

a. Predictor variable – Perceived social support
b. Outcome variable – Psychological distress

A simple linear regression analysis was conducted to examine how well the perceived social support could predict the level of psychological distress. A scatterplot showed that the relationship between perceived social support and psychological distress was negative and linear and did not reveal any bivariate outliers. The correlation between perceived social support and psychological distress was statistically significant, (r (144) = .376, P < .01). The regression equation for predicting the psychological distress from perceived social support was $\hat{y}$ = 37.45-0.24x. The r^2 for this equation was .141; that is 14.1% of the variance in psychological distress was predictable from the level of perceived social support. For each one unit of increase in perceived social support, the psychological distress decreases by .243 points. For every one standard deviation increase in perceived social support, the psychological distress is decreased by .376 of the standard deviation.

Conclusions:

The Pearson correlation coefficient analysis concluded that perceived social support has significant negative relationship with regards to psychological distress among engineering students at 99% of confidence interval with r value as -.376. The one-way ANOVA analysis determined that the year of study, branch of study in engineering and age with respect to perceived social support and psychological distress were calculated and the results obtained was, the year of study was significant only with psychological distress but not with perceived social support. Age had significant difference with respect to both the perceived social support as well as psychological distress. The branch of study in engineering had significant differences with respect to both perceived social support and also psychological distress. There were no significant differences found on the basis of gender with respect to perceived social support and psychological distress. The simple linear Regression analysis was used in-order to determine how good the relationship is about the perceived social support and psychological distress and to check whether perceived social support is a good predictor of psychological distress or not. The results obtained with regression analysis revealed that perceived social support is the good predictor of psychological distress among engineering students and all the assumption like continuous variables, outliers check was analysed with normal pp plot graph and standardised residual statistics, Durbin-Watson test was used to check the independence of observation and linear relationship were all met to run the regression analysis in this study.

Limitations:

As of my interest the present study focussed on the students pursuing only engineering, I would suggest to explore the sample population based of different sectors of students pursuing different fields of the study along with engineering to find out the relationship between the perceptions of social support in correspondence to the student's state of living with psychological distress. The data was collected only from the Villupuram district, the population parameters could be extended further on, to get a clear view about how students perceive the social support and based on that how could can they be impacted by psychological distress either in a good or bad state when it is measured from various districts and places, in addition to this we can also able to know about how those diverse parameters of living could enhance the student's ability to make understandings of such support. The sample size is only 146 for this study; I could suggest covering much more samples beyond this size. The further researchers can add some mediating variables to perceived social support and psychological distress, such that the what so ever mediating role is considered could able to give more detailed conclusions about those two variables.

References:

1. Gregory D. Zimet, Nancy W. Dahlem, Sara G. Zimet and Gordon K. Farley (1988); the multidimensional scale for perceived social support, June 2010, Journal of personality assessment. https://psycnet.apa.org/record/1988-18939-001

2. Brenda Fernanda Pereira da silva, Lais Santos-Vitti, Andre Faro; Kesseler psychological distress scale: Internal structure and relation to other variables, March 2021. https://www.scielo.br/j/pusf/a/pTLTXGwmy9Hp77rhY3wT6xr/?lang=en&format=pdf

3. Yvonne Stolk, Ida Kaplan and Josef Szwarc; clinical use of the Kessler psychological distress scale with culturally diverse groups, April 2014, International Journal of Methods in Psychiatric Research. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6878546/

4. Zimet G.D., Powell S.S., Farley G.K., Werkman S and Berkoff K.A; psychometric characteristics of the Multidimensional scale of Perceived Social Support, 1990, Journal of Personality assessment. https://pubmed.ncbi.nlm.nih.gov/2280326/

5. Ronald C. Kessler, Joseph C. Gfroerer, Ronald W. Manderscheid; screening for serious Mental Illness in the General Population, 2003, Arch Gen Psychiatry. https://pubmed.ncbi.nlm.nih.gov/2280326/

6. Martha Vungkhanching, Jenny C. Tossing and Karen N. Tossing; psychological distress, coping and perceived social support in Social Work students, October 2016, British Journal of Social Work. https://academic.oup.com/bjsw/article-abstract/47/7/1999/2439445

7. Januka Khatiwada, Basilua Andre Muzembo, Koji Wada and Shunya Ikeda; the effect of perceived social support on psychological distress and life satisfaction among Nepalese migrants in Japan, February 2021, Plos One Journal. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0246271

8. Razi Sultan Siddiqui, Dr Anjum Ara Jahangir, Dr Atif Hassan; gender differences on Perceived Social Support and Psychological Distress among University Students, September 2021, Global management Journal for academics and corporate office. https://gmjacs.bahria.edu.pk/index.php/ojs/article/view/103

9. Khushboo Kumar and Rachna Chaturvedi; an empirical study of social support, stress and life satisfaction among engineering graduates: mediating role of perceived work/study life balance, January 2018, ResearchGate. https://www.researchgate.net/publication/323648371_An_empirical_study_of_social_support_stress_and_life_satisfaction_among_engineering_graduates_mediating_role_of_perceived_workstudy_life_balance

10. Vishnu Priya S and Amala Sudarsan; Psychological distress and perceived social support among young adults during

COVID-19, June 2020, The International Journal of Indian Psychology.

11. Yusliza Mohd. Yusoff and Abdul Kadir Othman; An early study on perceived social support and psychological adjustment among International Students: the case of a higher learning institution in Malaysia, September 2012, Journal of Studies in International Education. https://www.researchgate.net/publication/258157788_Self-Efficacy_Perceived_Social_Support_and_Psychological_Adjustment_in_International_Undergraduate_Students_in_a_Public_Higher_Education_Institution_in_Malaysia

12. Rubia Cobo-Rendon, Yaranay Lopez-Angulo, Maria Victoria Perez-Villabos and Alejandro Diaz-Mujica; Perceived social support and its effects on changes in the affective and Eudaimonic well-being of Chilean University Students, December 2020, Frontiers in Psychology. https://www.frontiersin.org/articles/10.3389/fpsyg.2020.590513/full