The International Journal of Indian Psychology
ISSN 2348-5396 (Online) | ISSN: 2349-3429 (Print)
Volume 9, Issue 4, October- December, 2021
DIP: 18.01.225.20210904, DOI: 10.25215/0904.225
http://www.ijip.in

Research Paper

Resilience and Proactive Coping in Engineering Graduates with Internal and External Locus of Control During Covid-19 Pandemic

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ABSTRACT

The present research aims to study and compare the level of resilience and proactive coping among Engineering graduates of the year 2020 during the COVID-19 Pandemic. The study compares two groups of Engineering graduates, those with an internal locus of control and an external locus of control. It also explores the relationship between resilience and proactive coping in the two groups. The data was collected during the month of November in the post lockdown period. The sample consisted of 60 individuals divided into two groups of internal and external locus of control. The data was then subjected to test of normality and other parametric statistics. Results showed that there was a significant difference in the level of resilience and proactive coping of individuals with internal and external locus of control. The findings also showed that there is a positive relationship between resilience and proactive coping in individuals who have internal and external locus of control respectively. One significant finding of the study was that Engineering graduates who had external locus of control were found to be more resilient than those with internal locus of control.

Keywords: *Covid-19 Pandemic, Resilience, Proactive Coping, Locus of Control, Engineering Graduates*

Every year, millions of young Indians make their next major academic advancement or career choice, completing their college-leaving examinations. However, in 2020 it has not been a smooth transmission for many young students. The COVID-19 Pandemic played havoc, crushing exam schedules, career plans and the greatest of all—the job market. The economy which was already slowing down when India was under lock-down in March 2020, has further slowed down. The engineering industry, which is closely related to the automotive and infrastructure industries, is of strategic significance to the economy of India. The present state of uncertainty has caused anxiety and depression among the students, particularly to those who are waiting to launch a new profession.

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Received: October 08, 2021; Revision Received: December 27, 2021; Accepted: December 28, 2021

The objective of the present study was to study and compare resilience and proactive coping in recent engineering graduates of the year 2020 with the belief system of internal and external locus of control. The first objective was to compare the level of resilience and proactive coping in engineering graduates with internal and external locus of control. The second objective was to study the relationship between resilience and proactive coping in engineering graduates with internal locus of control and similarly in individuals with external locus of control.

Locus of control

Locus of control stems from social learning theory and Weiner's attribution theory and refers to a person's perception about the underlying root causes of successes or failures in his or her life. (Rotter, 1954; Weiner, 1974)**.** Rotter (1990) describes the internal locus of control as: 'the degree to which persons expect that a reinforcement or an outcome of their behavior is contingent on their own behavior or personal characteristics'. Rotter (1990) describes the external locus of control as: 'the degree to which persons expect that the reinforcement or outcome is a function of chance, luck, or fate, is under the control of powerful others, or is simply unpredictable'.

Resilience

'Protective factors which modify, ameliorate, or alter a person's response to some environmental hazard that predisposes to a maladaptive outcome' (Rutter, 1987).

Proactive Coping

Aspinwall and Taylor (1997) define that proactive coping as a process through which one prepares for potential future stressors, possibly averting them altogether.

Proactive coping is defined as "consisting of efforts undertaken in advance of a potential stressful event to prevent it or to modify its form before it occurs". The processes through which people anticipate potential stressors and act in advance to prevent them can be seen as proactive behavior. To the extent that individuals offset, eliminate, reduce or modify impending stressful events, proactive behavior can eliminate a great deal of stress before it occurs. The skills associated with this behavior include planning, goal setting, organization and mental simulation (Aspinwall & Taylor, 1997).

REVIEW OF LITERATURE

Dangi Ravi Rai et al. (2020) explored the stress level and coping strategies among youth during coronavirus disease lockdown in India. The study showed that 73.26% of young people had severe stress after 15 days and 80.86% had severe stress after 21 days of lockdown, and that stress levels rose day by day. The research also revealed that there was a substantial gap in the stress levels between 15 days and 21 days of lockdown. The study further concluded that participants used coping techniques such as yoga, exercise, diversion therapy, such as spending time with the family and watching tv to cope with stress.

Leonie Kronborg et al. (2018) explored the importance of an internal focus to maintain resilience of academically able students. The goal of the study was to examine the relationship between the resilience of students and their source of control with their academic performance at the Paramedical School, Alborz University of Medical Sciences. It was a cross-sectional study conducted on 180 students with simple stratified random sampling. Data collection instruments included the demographic questionnaire, the student's cumulative score, Connor-Davidson standardized resilience questionnaires, and Rotter's control scale locus. The data

was evaluated and the Pearson and Spearman correlation coefficient, independent t-test and multiple linear regression were performed. The findings of the study revealed that there was a substantial interaction between the resilience and the control locus, i.e., the resilient people had an internal control locus. Male students and off-campus students were more resilient than others. In comparison, the academic success of female students and off-campus students was slightly higher than that of other students. The findings suggested that off-campus students were more resilient and had better academic performance than on-campus students.

MATERIALS AND METHODS

The aim of the research was to study and compare resilience and proactive coping in recent engineering graduates with internal and external locus of control. It was a quantitative study based on a comparative research design and the sampling method used was purposive sampling. The population included 60 engineering graduates of the year 2020, living in Wardha city of Maharashtra, India. The data was collected post the COVID-19 lockdown period in the month of November, 2020 through Google forms. After the collection of data, it was subjected to appropriate statistical analysis. The sample included 33 male and 27 female participants. The age of the participants ranged from 21 years to 24 years.

Objectives

- To compare the level of resilience in engineering graduates with internal and external locus of control.
- To compare the level of proactive coping in engineering graduates with internal and external locus of control.
- To study the relationship between resilience and proactive coping in engineering graduates with internal locus of control.
- To study the relationship between resilience and proactive coping in engineering graduates with external locus of control.

Hypotheses

- There will be no significant difference in level of resilience between engineering graduates with internal and external locus of control.
- There will be no significant difference in level of proactive coping between engineering graduates with internal and external locus of control.
- There will be no relationship between resilience and proactive coping in individuals with internal locus of control.
- There will be no relationship between resilience and proactive coping in individuals with external locus of control.

Variables

Resilience, proactive coping, locus of control.

Sample size

The population included 60 engineering graduates of the year 2020, living in Wardha city of Maharashtra, India. These 60 individuals are divided in two groups of 30. One group has 30 individuals who have internal locus of control and another group has 30 individuals who have external locus of control.

Testing Tools

- **IELC scale:** The internal external locus of control scale is developed by GK Valecha.
- **Resilience Scale:** The Resilience Scale developed by Wagnild & Young,1990.
- **Proactive coping inventory:** The Proactive Coping Inventory was developed by Greenglass et al.

RESULTS AND DISCUSSION

The present research aimed to study and compare the level of resilience and proactive coping in Engineering graduates of the year 2020, during the covid-19 pandemic. The study compared two groups of Engineering graduates with an internal and external locus of control.

Table 1: Independent t-test between internal and external locus of control and descriptive statistics

	LOCUS OF CONTROL	N	Mean	Std. Deviation	Std. Error Mean
Resilience	Internal LOC	30	139.033	14.779	2.698
	External LOC	30	160.533	15.051	2.747
Proactive Coping	Internal LOC	30	45.133	6.377	1.164
	External LOC	30	41.733	6.208	1.133

Table 1 shows the scores of resilience and proactive coping on two different groups that is internal and external locus of control. It was hypothesized that there will be no significant difference in the level of resilience of individuals with internal locus of control and individuals with external locus of control. From the table it can be seen that the mean of resilience for people with internal locus of control is 139.03 (SD=14.77) and for external locus of control is 160.53 (SD=15.05) indicating that individuals with external locus of control have higher resilience than individuals with internal locus of control. Hence the hypothesis is disproved.

This could be because of factors such as uncertainty that is prevailing all over the world due to which young graduates are unaware of what their future professional and personal life is going to be like. However, they feel they are not alone in this and all are affected. This result contradicts the findings in the study done by Leonie Kronborg (2018). The findings of the study revealed that there was a substantial interaction between the resilience and the control locus which refers to finding that the resilient people had an internal control locus.

It was also hypothesized that there will be no significant difference in the level of proactive coping of individuals with internal locus of control and external locus of control. From the table it can be seen that the mean of proactive coping for individuals with internal locus of control is 45.13 internal locus of control have slightly higher proactive coping than individuals with external locus of control. Hence the second hypothesis is disproved. A study done by Anna Antonina Nogaj (2017) showed a finding on similar lines which showed that there is a positive correlation between the inclination towards an internal locus of control and the task-oriented method of coping with stress in music school students during challenging circumstances.

It can be seen that individuals with external locus of control have scored higher on resilience than those with internal locus of control whereas, the former has scored lesser on proactive coping than the later. A study done by Paolo Stratta et al. (2015) found similar result which

showed that resilience does not exist as an indicator of a person's stability and non-changeability, rather as a more proxy predictor of a positive outcome that integrates with coping processes. Probably this would also be the case in the present study.

Table 2: Correlation between resilience and proactive coping in internal locus of control

		Resilience	Proactive Coping
Resilience	Pearson Correlation	1	.493**
	Sig. (2-tailed)		.006
	N	30	30
Proactive Coping	Pearson Correlation	.493**	1
	Sig. (2-tailed)	.006	
	N	30	30

***. Correlation is significant at the 0.01 level (2-tailed).*

Further it was hypothesized that there will be no relationship between resilience and proactive coping in individuals with internal locus of control. **Table 2** shows the correlation between the two variables. It can be seen that the correlation coefficient .493 is significant at 0.01 level indicating that there is a positive relationship between resilience and proactive coping under internal locus of control. Hence the hypothesis is disproved. It can be concluded that increase in resilience may lead to increase in proactive coping and vice versa, in individuals with internal locus of control.

Table 3: Correlation between resilience and proactive coping in external locus of control

		Resilience	Proactive Coping
Resilience	Pearson Correlation	1	.362*
	Sig. (2-tailed)		.049
	N	30	30
Proactive Coping	Pearson Correlation	.362*	1
	Sig. (2-tailed)	.049	
	N	30	30

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

Table 3 shows the correlation between resilience and proactive coping on the group of external Locus of control. It was hypothesized that there will be no relationship between resilience and proactive coping in individuals with external locus of control. It can be seen that the correlation coefficient .362 is significant at 0.05 level indicating that there is a positive relationship between resilience and proactive coping. Thus, the hypothesis is disproved. It can be concluded that increase in resilience may lead to increase in proactive coping and vice versa, in individuals with external locus of control. Similar result was found in a study done by Dana Georgescu (2019) which showed that there is a relationship between locus of control and resilience. Another study done by Susan E. Hahn (2000) found out that internals and externals have selected various coping strategies that have partly clarified the variations in their reactivity.

CONCLUSION

The findings of the study revealed that there is a significant difference in the level of resilience and proactive coping between engineering graduates who had internal locus of control and who had external locus of control. individuals with external locus of control showed more

levels of resilience than individuals with internal locus of control. But there was not much difference in the levels of proactive coping of the two groups.

It was also seen that there is a positive relationship between resilience and proactive coping of individuals with internal locus of control and similarly for individuals with external locus of control.

The results of the study can be used to form policies during such critical times, in the benefit of students who are looking forward to their future profession and jobs, also to raise awareness about how resilience and coping plays an important role in dealing through stressful times. The results can also be added in already existing literature of locus of control.

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Acknowledgement
The author appreciates all those who participated in the study, gave their meaningful time to complete the forms and helped to facilitate the research process.

Conflict of Interest
The author(s) declared no conflict of interest.

How to cite this article: Umate V. & Hamsa N. (2021). Resilience and Proactive Coping in Engineering Graduates with Internal and External Locus of Control During Covid-19 Pandemic. *International Journal of Indian Psychology*, *9*(4), 2388-2394. DIP:18.01.225.20210904, DOI:10.25215/0904.225