SHORT REPORT

Resilience and academic performance: Exploring the link in dental students

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Abstract

This study aims to assess the correlation between the resilience level of dental students (preclinical and clinical years) and its effects on their academic performance.

It is a correlational research study that was carried out on second, third, and final-year dental students at Lahore Medical & Dental College, Lahore. Academic resilience was judged by using the academic resilience scale (ARS-30). The correlation between resilience and academic performance was established by applying the bivariate Pearson correlation.

The mean age of the students was 21.49±1.39 years. Among 196 dental students from different years, 132(67.35%) were females and 64(32.65%) were males. A strong positive correlation was observed between the academic performance and resilience of dental students, i.e. r=0.774. From the results, it can be concluded that there is a positive correlation between academic resilience and academic performance among dental students.

Keywords: Resilience, Dental students, Academic performance.

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Introduction

Resilience is the ability and capacity to recover from stress. A person needs to have the capability to rebound from hardship and defy odds. Stressful events are encountered by every person, and a significant number of individuals face traumatic experiences at some stage in their lives. Consequently, it is crucial to comprehend the process of developing and improving resilience, as it holds immense importance in not only fostering effective coping mechanisms but also reducing maladaptive coping strategies and stress responses.[1]

Psychological and behavioural therapies have been used to enhance resilience, resulting in a reduction of symptoms associated with mental disorders and an improvement in mental flexibility.[2]

Resilience is linked to education, institution's environment, and academic performance in several ways. One of the contributing aspects to resilience is widely considered to be access to education. As a result, it may act in a variety of ways, such as serving as a compensating mechanism that gives a student a sense of competence, allowing them to temporarily leave an unfavourable environment, enabling them to make up for deficiencies, and serving as a motivating factor for further learning.

Academic resilience is recognised as a dual force, serving as both a motivator for achieving academic and personal goals and a source of effective mechanisms to cope with stress and anxiety experienced within the university environment.[1]

In academic life, individuals encounter a range of reasons or risk factors that can include chronic illness, experiencing natural disasters, facing financial difficulties, etc. These risk factors not only have adverse effects on a learner's academic journey but can also impact their progress in various domains.[3]

Despite the presence of risk factors, there are additional factors known as protective factors that play a significant role in the academic achievements of resilient learners. These protective factors contribute to positive adaptation and successful outcomes.[4]

Maintaining resilience may have broader effects on students by lowering their risk of depression or anxiety, which could have a good impact on their potential academic success as well as their overall health both now and in the future.[5]

It's important to recognise that dental education can be demanding and stressful, and the resilience level of dental students can fluctuate over time. The emergence of resilience in dental students may be influenced by a variety of circumstances. Two of these factors are: coping mechanisms and social support. Motivation has been identified as a predictor of performance among high achievers. On the other hand, self-assuredness is an individual attribute that has the potential to enhance performance among low achievers.[6]

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Moreover, several studies provide evidence supporting the correlation between stress and levels of burnout. Dental students in the clinical stages of their education often encounter elevated levels of burnout, primarily due to the specific requirements of dental programmes.[7]

Academic resilience has long-term benefits beyond academic performance. It prepares students for the ever-changing demands of higher education and the workplace, where they will encounter various challenges and uncertainties. Dental students in Pakistan experience significant distress that deviates from the norm, leading to a persistent inability to sustain happiness throughout their academic journey, from the first year to the final year. Their mental well-being and overall happiness are therefore compromised.[4]

Happiness is an internal state characterised by a sense of fulfilment and satisfaction, encompassing a range from contentment to intense joy. It serves as an indicator of subjective well-being and overall quality of life. Furthermore, it improves an individual's capacity to work effectively within a team, ultimately contributing to success in the workplace.[5]

Methods and Results

This research was conducted at Lahore Medical and Dental College (LMDC), Lahore. Data were retrieved in collaboration with the Dental Education Department of the college, after appropriate institutional approvals (Letter of Approval from Principal/Dean Dental College, LMDC, and full clearance by Institutional Review Board, UCMD). No student-identifying data elements were included in the dataset (i.e. student's name, serial number, father's name, address, etc.). Confidentiality was maintained. Informed consent and demographic details were taken from all the participants.

This was a correlational study with a quantitative analytical approach. The data was collected from preclinical and clinical years, i.e. second year, third year, and final year BDS students. The data was collected through google forms and then converted to an Excel sheet and then SPSS version 23 was used to analyse it. ARS-30 questionnaire explores various aspects of resilience, providing a measure of academic resilience based on students' specific adaptive cognitive-affective and behavioral responses to academic adversity. It is already validated and has good internal reliability and construct validity.[1] It was distributed through email in respective classes.

Academic resilience scale (ARS-30) was used to collect data which is a closed-ended questionnaire. It was developed by the researchers to assess the ability of the students to cope with academic challenges and persist in their academic pursuits despite obstacles and setbacks. The association was analysed using bivariate analysis. The *p*-value was calculated to reject the null hypothesis.

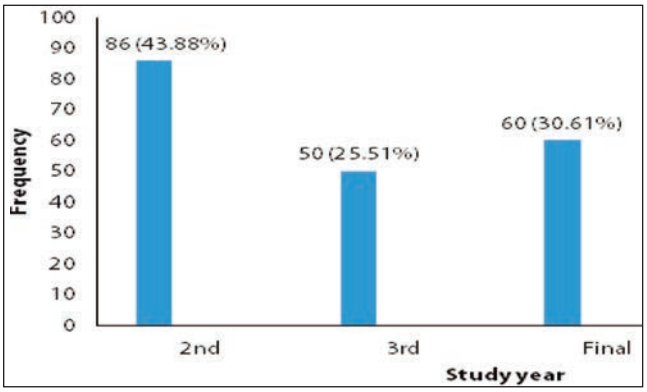

Figure-2: Frequency distribution of study years of the students.

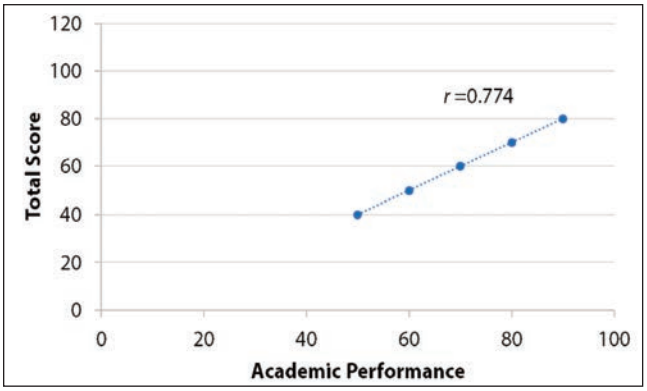

Figure-2: Correlation between the academic performance of students and academic resilience (ARS-30) score.

Figure 1 shows that out of 196 students, 86 (43.88%) were from second year professional, 50 (25.51%) from third year, and 60 (30.61%) from final year professional.

The mean total ARS-30 scores of the students were 74.19±8.85 with minimum and maximum scores of 46 and 94, respectively. The higher score of ARS-30 showed greater academic resilience.

In terms of academic performance, the mean percentage of students was 70.69±8.79% with minimum and maximum percentages of 57 and 90, respectively.

A strong positive correlation was observed in terms of the relationship between academic performance and academic resilience score (ARS 30), i.e. r=0.774 as shown on figure 2. In simple words, it can be said that when academic resilience increases in students their academic performance also increases.

According to this study, factors of perseverance and reflecting adaptation showed a strong positive correlation

with the academic performance of the students, i.e. *r*=0.604 and 0.640, respectively. On the other hand, a weak positive correlation of academic performance with factor negative effect was observed, i.e. *r*=0.328.

Dentistry is regarded as a prestigious and fulfilling profession, offering numerous opportunities for personal and professional growth. However, it is also a demanding occupation that entails significant physical and mental stress, which can have an impact on the overall well-being of dentists. Despite the importance of understanding the level of happiness among dental students, studies exploring this aspect are relatively scarce on a global scale.[5]

In a study conducted by Wilawan Weraarchakul et al, it was noted that the average age of fourth- to sixth-year dental students was 22.9±1.0 year, with a range of 21 to 27 years. Children being from a married family but with parents living separately, was positively correlated with resilience quotient scores and was statistically significant at $p<0.05$.[8]

According to a study by Sofia Shehzad et al,[5] there was no significant difference between a student`s academic performance and gender. In contrast, Carlos S. Smith et al noted significant associations between resilience and various factors. Their study revealed that resilience was significantly associated with gender, with females displaying higher levels of resilience compared to males.[9]

In line with previous research, the present study revealed that women demonstrated higher overall scores, exhibited a structured coping style, had access to greater social resources for resilience, and reported lower perception of self-resilience compared to men. The possible reason for the contrary results in the current study and a few previously published studies is probably due to the difference in sample size and data collection method.[10]

In a study conducted by Mackenson Montas et al, out of the 3,292 respondents, 58% were females. The study observed that Hispanics reported significantly higher scores in grit and resilience, while Asian students had the lowest scores.[10,11]

In this study, the total score of the ARS-30 assessment tool was applied to dental students. The higher score of ARS-30 showed greater academic resilience. In our study, a strong positive correlation was observed between academic resilience and academic performance of dental students, i.e. *r*=0.774. The higher score of ARS-30 showed greater academic resilience.

A study conducted on a sample of undergraduate students provided evidence of strong internal consistency reliability and construct validation for the Adapted Resilience Scale (ARS). The analysis revealed the presence of a three-factor solution, indicating that the scale measures resilience across three distinct dimensions or subscales. It offers a valuable tool for researchers and practitioners to examine resilience levels and explore the factors associated with resilience among university students in Spain.[1]

A study conducted on Brazilian dental students revealed that those who obtained high scores in resilience demonstrated a lower prevalence of common mental disorders. Furthermore, the study indicated that resilience acted as a protective factor against common mental disorders.[11]

A study involving medical residents who had undergone mindfulness programmes and resilience training noted a significant 26% reduction in burnout rates. Additionally, the study revealed that there was an increase in resilience scores, which was associated with a decrease in safety events and an improvement in patient satisfaction.[12]

Another study examined the correlation between academic resilience and academic performance among dental students in Jordan. The study noted that academic resilience was positively correlated with academic performance and that academic resilience was a significant predictor of academic performance. The authors suggested that promoting academic resilience among dental students could enhance their academic performance.[11]

Finally, it can be stated that the correlation between academic resilience and academic performance of dental students has been a subject of much research and interest in recent years. Studies have consistently revealed a positive correlation between the two and have also identified underlying factors that may contribute to this correlation. Promoting academic resilience among dental students may be an important strategy for improving academic performance and supporting student success.

A significant limitation of this study is the small sample size that can affect the generalisability and reliability of the findings. Consequently, the results may be less robust and may not be applicable in a broader context. The use of data from a single-centre setting is another important limitation to consider when evaluating the results of a study. A single-centre study refers to research conducted within a specific institution, organisation, or geographical location, limiting the diversity and variability of the study population.

Conclusion

Academic resilience places the construct of resilience in an educational context and indicates a higher probability of achieving educational success even in the face of adversity. The study points to the significance that consists of

interventions that promote resilience, modifying support programmes, updating the curriculum, improving faculty development, and implementing a comprehensive strategy for student support in health professions education. Educational institutions may develop a learning environment that encourages resilience and enables dentistry students to succeed academically and professionally by putting these implications into practice. Therefore, promoting academic resilience among dental students could enhance their academic performance.

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Author Contribution:
FA: Data conception, acquisition, analysis, drafting, agreeable to be accountable for all aspect of work.
RAK: Design, revising critically, final approval.
MA: Revising critically, final approval.