The Resilience and Associated Factors of Undergraduate Physical Therapy Students at King Saud University: A Cross-Sectional Study

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Abstract

Background: Resilience plays an important role among physical therapy (PT) students when facing an academic pressure and stress.

Aim of Study: This study aimed to investigate the resilience level and also the associated factors to resilience among physical therapy students at King Saud University (KSU).

Material and Methods: This cross-sectional study was conducted among physical therapy students at King Saud University during the period of January to March 2023, using an online self-administered questionnaire. Participants were invited to complete the online questionnaire via Monkey Survey, which was sent via email or social media, such as WhatsApp messages. This survey included two sections; section 1 involved participant's characteristics, section two included the Brief Resilience Scale (RRS). This scale was used to assess the prevalence of resilience among the physical therapy students.

Results: This study found that the physical therapy students at KSU had normal resilience level. The findings of this study showed that age was significantly associated with resilience, while no significant association was found between resilience and other measured factors such as (gender, cumulative GPA, academic year, academic stress and sleeping difficulties).

Conclusion: Normal resilience level was observed among the physical therapy students at KSU. Resilience level was significantly associated with age factor but not with other measured factors. Further related factors were recommended to be addressed in relation to resilience in more details in future studies.

Key Words: *Resilience – Physical therapy – Students – Academic stress – Academic year.*

Introduction

HEALTH-CARE students suffer from work pressure, time, emotional issues and high levels of stress affecting their physical and mental health and quality of life negatively [1]. Academic stress includes difficulty of the course curriculum, insufficient time for submitting assignments [2], unconfident with unskilled conditions causing possible errors might happen during dealing with patients and using practical equipment [3].

Previous studies found that there were several levels of psychological stress among different specialities of health-care givers, it was found that nurse students had higher psychological stress compared to occupational and physical therapy students [4]. Nevertheless, it was shown that dentistry students had significant greater stress than medicine, nursing, pharmacy and applied medical sciences students [5]. Thus, increased attention to resilience should bepaid among health-care professions [6].

Resilience can be defined as the capability to adapt, rebound and bounce back from stress [7,8]. The original English word of resilience was resile which means "to bounce or spring back" [9]. The assessment of resilience depends on numerousfactors and properties that help to make it applicable [10]. They developed a brief resilience scale for measuring the resilience level and also they confirmed that it was valid and reliable measure to assess the ability to adapt and bounce back from stress and also it was recommended to use for medical researches [7].

In the literature review, there were many studies have been done in different countries addressed the resilience level among health-care professional education, it was found that after 2011 around 80% of these studies have been done in Europe and North America [6]. Most of the previous studies in the literature were performed among medicine, nursing, psychology and general health sciences students [11]. Medical and nursing students in Finland had the highest level of resilience score, followed by students in China and Japan respectively [12]. On the other hand, there was little attention and limited studies addressed the resilience level among phys-

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ical therapy students [11]. Even though, it was reviled in the literature the essential of promoting the resilience among health-care professions [6]. And also there was limited studies assessed the associated factors that may interfere with resilience among physical therapy students. Thus, finding the resilience level among physical therapy students would improve their physical and mental performance, being socially active and giving a good health services for patients, this would affecting positively on their quality of life. In addition to increase the physical therapy students' awareness about resilience which would improve optimal health for health-care givers. Therefore, this study aims were to investigate the resilience level among physical therapy students at King Saud University, and also to assess the associated factors to resilience among physical therapy students at King Saud University.

It was hypothesized that the resilience level will be high among physical therapy students at King Saud University, and there are related factors may enhance the resilience level among the study population.

Material and Methods

Study design and settings:

An online self-administered questionnaire was used to conduct this cross-sectional study.

The Participants:

Participants in this study were undergraduate physical therapy students at KSU, between the age of 18-25, both male and female, single and living with their families. The sampling method was convenient. Incomplete responses or responses from students under medication for any mental health issue were excluded.

Sample size calculation:

Based on a web-based sample size calculator (www.calculator.net/sample-size-calculator.html) and the current physical therapy students' number and at confidence level of 90% and a 5% margin of error, 132 students were needed.

Instrument and procedures:

A self-administered questionnaire consists of two sections. The first section included five questions related to socio-demographic and academic information (age, gender, living arrangement, cumulative GPA, and academic year level) in addition to two closed ended questions related to the feeling of academic stress and sleeping difficulties).

Brief resilience scale:

The second section included the Brief Resilience Scale. This scaleconsists of six items in total with 5-point Likert scale; Items 1, 3 and 5 showed positive worded, however, items 2, 4 and 6 showed negative worded. The BRS was scored by calculating the mean of these six items; 1.00-2.99: Low resilience, 3.00-4.30: Normal resilience, 4.31-5.00: high resilience. The following statement was recommended for responding to the BRS scale "Please indicate the extent to which you agree with each of the following statements by using the following scale: 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree" [7,13].

Participants were invited to complete the online questionnaire via Monkey Survey, which was sent via email or social media, such as WhatsApp messages, during the period of January to March 2023. A barcode has also been created and displayed in the college of applied medical sciences at KSU.

Ethical consideration:

Study approval was granted by the College of Medicine at KSU's Institutional Review Board (Ref. 22/1030/IRB). Information about the study, the length of the questionnaire, and contact information were added to the online survey. In a consent statement, participants gave their consent to participate in the online questionnaire. Information about the participants was kept confidential.

Statistical analysis:

The online questionnaire data was exported into a statistical analysis program (Statistical Package for Social Studies (SPSS) version 29). Data normality was assessed using the Shapiro-Wilk test. A descriptive statistic was presented for categorical variables as frequencies and percentages (%) and for continuous variables as mean and standard deviation (SD). The relationships between the dependent variables (levels of resilience as ordinal variables), and the independent variables were examined using Kendall's τ coefficient (τ_b) for ordinal or continuous variables (age, cumulativeGPA, and academic year), and Pearson's chi-square test (X^2) for categorical variables (gender, academic stress, and sleeping difficulties). We used a 95% confidence interval (CI).

Results

Participants' characteristic:

A total of 142 physical therapy students were involved in the current study. Table (1) showed the participants' characteristics, it was presented that their mean±SD age was 21±1.3 years. More than half of the study participants were females (57.5%). About one third of the students had the highest cumulative GPA with 4.5/5 and in the 1st academic year level (34% and 33.8% respectively). The majority of the participants had an academic stress (75.4%), and more than half had sleeping difficulties (54.9%).

Table (1): Participants' characteristics (n=142).

Characteristics		
Age range (years) Mean ± SD (min-max)	21±1.3 (18-25)	
Gender N (%)	Male Female	60 (42.3) 82 (57.5)
Cumulative GPA/5 N (%)	4.5-5 4-4.5 3.5-4 3-3.5 ≤2.99	48 (34) 43 (30.3) 32 (22.5) 14 (9.9) 5 (3.5)
Academic year N (%)1	1st year 2nd year 3rd year 4th year	48 (33.8) 41 (28.9) 32 (22.5) 21 (14.8)
Academic Stress N (%)	Yes No	107 (75.4) 35 (24.6)
Sleeping Difficulties N (%)	Yes No	78 (54.9) 64 (45.1)

min: Minimum.   GPA: Grade point average. N : Number.
max: Maximum. SD : Standard deviation.   % : Parcentage.

Prevalence of resilience:

The brief resilience mean score was 3.15±0.56 among the physical therapy students at King Saud University, which indicated to normal resilience level. It was found that the majority of the participants approximately 68.31% reported normal levels of resilience as shown in Fig. (1).
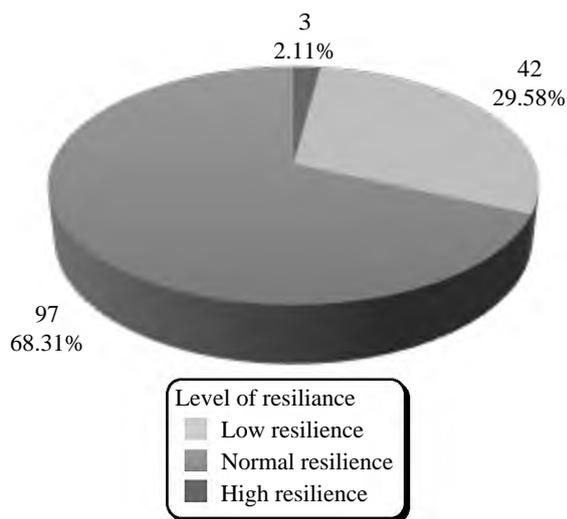

Fig. (1): Resilience level.

Associated Factors with resilience level:

Students with higher age reported higher levels of resilience (τ_b=0.16, $p<0.05$), however other factors (gender, cumulative GPA, academic year, academic stress and sleeping difficulties) were found not to be associated with resilience among physical therapy students as shown in Table (2). It was

shown a negative non-significant association between cumulative GPA and resilience among the physical therapy students.

Table (2): Correlation between level of resilience and participants' characteristics.

Variables	τ_b	SE	*p*-value
Age	0.16	0.07	0.03
Cumulative GPA/5	−0.04	0.07	0.54
Academic year	0.11	0.07	0.13
	X^2	df	*p*-value
Gender	1.04[a]	1	0.31
Academic stress	1.01[a]	1	0.31
Sleeping difficulties	0.12	1	0.73

τ_b: Kendall's τ coefficient.
SD: Standard error.
X^2: Pearson's chi-square test.
df: Degree of freedom.
The significant level was set as *p*<0.05.

Discussion

This study was conducted to assess the prevalence of resilience among PT students at KSU, as well as to examine the associated factors to resilience among the study population. According to the results of this study, KSU Physical Therapy students are generally resilient. It is evident that these students possess the necessary qualities for coping with the challenges they encounter during their education and training because of their high prevalence of normal resilience. The age of this population is an important factor that contributes to its resilience.

The current study showed that undergraduate PT students at KSU had normal resilience level, which was supported by other studies [13,14]. It could be that the participants of this study are more resilient because they live with their families, which means they are socially supported, have positive emotions, and experience less stress. In a previous study of undergraduate Doctorate of Physical Therapy (DPT) students, lower stress levels, greater positive emotions, and greater coping flexibility were associated with higher levels of resilience [14]. Moreover, many previous studies supported that health professional students and practitioners were associated with lower stress and higher levels of resilience [15-18]. Another possible explanation for having normal resilience level among our PT students, they might be doing more exercises and physically active, which is in agreement with the literature review, which reported that physical activity contributed to lowering stress and increasing resilience [15,19,20].

This study has shown that there was positive significant association between age and resiliencelevel which was in line with other studies [21-24]. This highlights that increase age contributed to higher resilience level, despite of that our participants were

undergraduate students, with young age, and small sample size. It was suggested to do further research including postgraduate students. It was suggested that older adults may have encountered various challenges and learned valuable lessons throughout their lives, enabling them to navigate stressful situations more effectively. In addition, life experience and emotional intelligence can contribute to better stress management in older adults leading to higher resilience.

The findings of this study showed that there was no association between gender and resilience, which was in line with other study [25], conversely, it was in contrast with other various studiesthat have been done in different countries, such as in the United States [26], Australia and Sweden [27], United Kingdom [21], and Hungarian [28] they found that female undergraduate PT students were associated with lower resilience level compared to male PT students. On the other hand, there was no significance difference between both gender in Israel [27]. Thus, there was varies results in terms of the association between resilience and gender. In this study, the small sample size could be the possible reason for this contrast results. In this study both genders adopt similar coping strategies, rely on similar sources of support, and experience similar physiological responses to stress. By recognizing these similarities, we can collectively work towards promoting healthier and more resilient responses to stress, regardless of gender.

It was reported that PT students involve greater stress and anxiety more than other non-healthcare students [26,29,30]. Academic stress for PT students was higher than personal or financial stress [2,27,29,30]. In the current study, although the majority of the participants around 75% had academic stress but it didn't show significant association between academic stress and resilience level among PT students at KSU.

The findings of this study showed that around one third of the PT students around 33.8% were in the first academic year of the undergraduate PT students at KSU, and they have normal level of resilience. This study found that the PT students in the first academic year had more academic stress than other following years in the PT undergraduate program at KSU, this was in line with other previous study [31]. Moreover, this study found that there was no significant association between academic year and resilience level. Which was in agreement with other study has been done in the United States [32]. On the other hand, it was in contrast with other previous studies which found that academic stress was higher in the last years of academic years in the PT undergraduate program in Sweden, additionally similar findings were present for postgraduate PT students who had higher levels of academic stress compared to undergraduate PT students in Austral-

ia [21,27]. The probable clarification for this study results that as the participants were in the first academic year, consequently they would concentrate more about how to improve their academic basic knowledge in the program, this contributed to stress management and also, they were not met the advanced and complex courses in the program.

Unsurprisingly, it was found that academic success and good academic performance were associated with higher resilience among DPT students in the USA [22]. These findings were not in line with this finding, even though around one third of the study participants approximately 34% had an excellent GPA (4.5-5/5), however GPA variable was not associated with the resilience level. Larger sample size may be needed for further analysis.

The results of this study found that about half of the participants 54% had sleeping difficulties, nonetheless this was not associated with the resilience level. This was dissimilar with other previous studies which showed that sleeping difficulties was correlated with lower level of resilience and increased stress and poorer health [33] and higher levels of anxiety, depression and mental health disorders [34,35]. Mental health disorders, like anxiety and depression were stated to be high in the professional health care undergraduate students particularly who studying medicine, dentistry, nursing and physical therapy [21,27,36,37] contributed to sleeping difficulties among health undergraduate students [19].

Conclusion:

Mental health challenges are prevalent in the undergraduate physical therapy students. Normal resilience level was detected among the physical therapy students at KSU. The resilience level was significantly associated with age factor but not with other psychological factors. Further related factors were recommended to be addressed in relation to resilience in more details in future studies.

tion. The authors would like to thank PT studentsfor their valuable contribution to the data collection and support in the successful completion of the study.

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المرونة والعوامل المرتبطة بها لطلاب العلاج الطبيعى فى جامعة الملك سعود: دراسة عرضيه مستقطعه

المقدمه: تلعب المرونة دورًا مهمًا بين طلاب العلاج الطبيعى (PT) عند مواجهة الضغط والإجهاد الأكاديمى.

هدف الدراسه: هدفت هذه الدراسة إلى التعرف على مستوى المرونة والعوامل المرتبطة بالمرونة لدى طلاب العلاج الطبيعى فى جامعة الملك سعود.

طرق البحث: أجريت هذه الدراسة المقطعية بين طلاب العلاج الطبيعى فى جامعة الملك سعود خلال الفترة من يناير إلى مارس ٢٠٢٣، باستخدام إستبيان ذاتى عبر الإنترنت. تمت دعوة المشاركين لإكمال الاستبيان عبر الإنترنت عبر Monkey Survey، والذى تم إرساله عبر البريد الإلكترونى أو وسائل التواصل الاجتماعى، مثل رسائل WhatsApp. الواتس اب وقد تضمن هذا الاستطلاع الى قسمين؛ يتضمن القسم الأول خصائص المشاركين، بينما يتضمن القسم الثانى مقياس المرونة الموجز (RRS) تم استخدام هذا المقياس لتقييم مدى انتشار المرونة بين طلاب العلاج الطبيعى فى جامعة الملك سعود.

النتائج: وجدت هذه الدراسة أن طلاب العلاج الطبيعى فى جامعة الملك سعود لديهم مستوى مرونة طبيعى. كما أظهرت نتائج هذه الدراسة أن العمر يرتبط بشكل كبير بالمرونة، فى حين لم يتم العثور على ارتباط كبير بين المرونة والمقاسات الأخرى مثل العمر، المعدل التراكمى، السنه الدراسيه، الإجهاد الأكاديمى وصعوبات النوم.

الخاتمة: تمت إستنتاج ان هناك مستوى طبيعى للمرونه بين طلاب العلاج الطبيعي فى جامعة الملك سعود وأن هناك ارتباط فى مستوى المرونة بشكل كبير مع عامل العمر لدى الطلاب ولكن ليس مع العوامل المقاسة الأخرى. لذا تمت التوصية بدراسه شامله فيما يخص العوامل الأخرى ذات الصلة فيما يتعلق بالمرونة بمزيد من التفاصيل فى الدراسات المستقبلية.