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RESEARCH ARTICLE

The relationship between academic resilience and academic performance among pharmacy students

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Abstract

Objective: To evaluate academic resilience and investigate its relationship with academic performance among undergraduate pharmacy students. **Methods**: This was a cross-sectional study conducted among undergraduate pharmacy students in a public university in Malaysia using an adapted and pretested 16-item academic pharmacy resilience scale (APRS-16). Demographic and academic performance data were collected using an online self-administered questionnaire from December 2019 and January 2020 and analysed using descriptive and inferential analyses. **Results**: A total of 247 students completed the survey (response rate was 55.6%). Overall, the students had moderate academic resilience score (median: 59; interquartile range [IQR]: 37 – 80). Female students had significantly higher academic resilience score than males (60 [41 – 80] versus 56 [37 – 69]). Academic resilience score was higher among year one students (62 [42 – 74]) compared to year two (57.5 [37 – 80]), year three (59 [37 – 78]) and year four (58 [44 – 77]) students. There was a positive relationship between academic resilience score and students' cumulative grade point average (CGPA) (r = 0.250) and GPA (r = 0.154). **Conclusion:** Undergraduate pharmacy students have moderate academic resilience. Academic resilience varies based on gender and year of study, and it is significantly associated with academic performance.

Introduction

Stress has a negative impact on the psychological well-being and academic performance of undergraduate students (Ribeiro *et al*., 2018). It has been reported that stress level is higher among pharmacy students than the general population (Garber *et al.,* 2017), and this affects their health-related quality of life (Marshall *et al*., 2008). Stress level among pharmacy students increases over the course of the semester (Opoku-Acheampong *et al.,* 2017) and also during training as compared to the stress level at the point of entry into the pharmacy training programme (Hirsch *et al*., 2019). Resilience is identified as an important non-cognitive trait that students need to develop and acquire to help them overcome academic stress, adversity, threat and setback and to improve their well-being (Kang *et al.,* 2019). There is a significant relationship between resilience and academic and personal well-being among university students (Stoffel & Cain, 2018).

Academic resilience refers to resilience in the educational context and is defined as a student's ability to improve academic performance after an adverse event such as failing an individual assessment (*e.g.* test, objective structured clinical examination) or course (Cassidy, 2016). Several studies conducted among medical and nursing students have been previously reported. In one study, Tempski and colleagues found that there is a significant association between a high level of resilience and better quality of life and a positive perception of learning environments among medical students (Tempski *et al*., 2015). The relationship between resilience and academic

performance among students has yielded inconsistent results. Elizondo-Omana and colleagues revealed that there is no correlation between resilience score and academic performance in a gross anatomy course among medical students (Elizondo-Omaña *et al*., 2010). However, studies have reported that there is a weak relationship between academic resilience and academic performance among nursing students (Beauvais *et al*., 2014; Pitt *et al*., 2014). In pharmacy education, there are very few studies pertaining to academic resilience. Chisholm-Burns and colleagues developed and validated the Academic Pharmacy Resilience Scale 16 (APRS-16) specifically to measure academic resilience among pharmacy students. They found that pre-clinical Doctor of Pharmacy students have moderately high academic resilience (Chisholm-Burns *et al*., 2019). There is a paucity of studies that have described the relationship between academic resilience and academic performance among pharmacy students. The objectives of this study were to evaluate academic resilience among undergraduate pharmacy students and to examine its relationship with academic performance. Resilience is critical in helping undergraduate pharmacy students overcome difficulties such as the psychological distress caused by the COVID-19 pandemic and the sudden transition to online learning.

Methods

Study design and setting

This was a cross-sectional study conducted among undergraduate pharmacy students in a public university located on the East Coast of the Malaysian peninsular using an electronic adopted questionnaire. The school of pharmacy involved in this study has a population of 474 undergraduate students, with females constituting 74.3% of the population. The school offers a four-year Bachelor of Pharmacy degree programme.

Study population and sample size

The study population included all undergraduate pharmacy students in all the levels (year one, two, three and four). Participation in the study was voluntary, and no incentive was given to participants. Undergraduate pharmacy students who declined to participate and those who participated in the pilot study were excluded from the final analysis. Postgraduate pharmacy students and non-pharmacy students were also excluded from the study. There were 474 undergraduate pharmacy students at the school at the time of the survey. The sample size was calculated using Raosoft Sample Size Calculator with the following assumptions; 95% confidence interval, 5% margin of error and 50% response distribution. The minimum sample size required was calculated as 213 undergraduate pharmacy students. A convenient sampling technique was used to recruit participants in this study.

Survey instrument

The questionnaire used for this study included the Academic Pharmacy Resilience Scale 16 (APRS-16) adapted from a previously published article (Chisholm-Burns *et al*., 2019). The APRS-16 consists of four subscales, including "*negative affect and emotional response*" (five items), "*reflecting and adaptive help-seeking*" (five items), "*adaptive thought processes*" (three items) and "*perseverance*" (three items) (Chisholm-Burns *et al*., 2019). The "*negative affect and emotional response*" subscale measures negative reactions to academic adversity, including disappointment and depression; the "*reflecting and adaptive help-seeking*" subscale evaluates how students reflect over academic difficulty and their approaches to overcome or adapt to the situation; the "*adaptive thought processes*" subscale investigates students' thoughts in the process of overcoming academic challenges; while the "*perseverance*" subscale looks at how the students sustain efforts to pursue goals despite academic challenges. Words such as Pharm.D. and residency were modified to meet local pharmacy training and practice. No item was deleted from the original APRS-16 scale, and no new item was added. In addition, a section was added to collect information on students' demographics and academic performance (cumulative grade point average (CGPA) and grade point average (GPA) in the last semester). GPA in the last semester is a measure of academic performance in the semester before the survey and reflects performance in pharmacy curriculum courses, while CGPA is the average of GPAs and represents overall performance in the completed semesters (for both the pharmacy curriculum and foundation courses). In view of the changes made to the APRS-16, the scale was sent to two senior lecturers in the Department of Pharmacy Practice for validation. The questionnaire was written in the English language and pre-tested among 30 undergraduate pharmacy students (using the electronic questionnaire) in November 2019. The Cronbach-alpha was found to be 0.78. The APRS-16 scale uses a five-point Likert Scale to assess participants' responses to academic adversity (Chisholm-Burns *et al*., 2019). The score for the APRS-16 ranges from 16 to 80, with a higher score representing higher resilience.

Data collection

The data was collected electronically using Google Form. The hyperlink to the online questionnaire was sent to all the undergraduate pharmacy students in the school through the WhatsApp groups of the respective levels (level 1–4). The data was collected between 2nd December 2019 and 31st January 2020. A reminder was sent to all the students on a weekly basis, and students were advised to avoid multiple submissions. Participation was voluntary, and no financial incentive was provided to the students. Respondents were informed that submission of responses implied consent to participate in the study. The respondents were informed that the response was anonymous and confidential. The protocol for this study was reviewed and approved by the International Islamic University Malaysia Research Ethics Committee (reference number: IIUM/504/14/11/2/IREC 2020-022).

Data analysis

The responses to the APRS-16 scale were transformed into scores using the following criteria: one point for strongly disagree and five points for strongly agree in the case of positively worded items, while negative items were reverse coded. The maximum and minimum score for the APRS-16 scale was 80 and 16, respectively. A total score below 40 was categorised as poor, while 40 – 59 and 60 and above were grouped as 'moderate' and 'good' academic resilience, respectively. The data were analysed using Statistical Package for the Social Science (SPSS) version 23. Both inferential and descriptive analyses were used. For descriptive analysis, categorical variables were presented as frequencies and percentages, while continuous variables were described using mean and standard deviation. The differences in academic resilience based on demographic variables were assessed using non-parametric tests (Mann-Whitney and Kruskal Wallis tests in the case of two and three or more groups, respectively) because academic resilience was measured using an ordinal scale, and the data were not normally distributed. Therefore, the data did not fulfil the assumptions for parametric analyses. Median scores and interquartile ranges were used to describe inferential analyses. A *p*-value less than 0.05 was considered statistically significant. Spearman's correlation was used to determine the relationship between academic resilience and academic performance.

Results

Demographic characteristics of the respondents

There were 474 undergraduate pharmacy students in the school at the time of the survey; 30 students participated in the pilot study and were eventually excluded from the final analysis. Of the 444 students invited to participate in the survey, 247 students completed the questionnaire corresponding to a 55.6% response rate. The mean age of the respondents was 21.4 ± 1.5 years, and females represented more than two-thirds of the respondents. Year three had the highest number of respondents (34.7%), followed by year two and four students (25.8% each). Most of the students (41.1%) were from low family income backgrounds. Most of the students had a GPA in the last semester and a cumulative grade point average that ranged between 3.0 – 3.49 points (Table I).

Table I: Characteristics of the students who participated in the study

Variable	Frequency	Percentage
Mean age (SD)	21.4 (± 1.5)	
Gender (female)	175	70.6
Marital status (single)	246	99.2
Year of study		
Year 1	34	13.7
Year 2	64	25.8
Year 3	86	34.7
Year 4	64	25.8
Grade point average (GPA) in the last semester†		
Less than 3.0	30	14.0
3.0 – 3.49	143	66.8
≥ 3.50	38	17.8
Cumulative grade point average (CGPA)		
Less than 3.0	29	11.7
3.0 – 3.49	144	58.1
≥ 3.50	75	30.2
Family income		
Low income (< RM 5,000)	102	41.1
Middle income (RM 5,000 – 10,000)	85	34.3
High income (> RM 10,000)	61	24.6

† For year 2, 3, and 4 students only. Year 1 students had no pharmacy school GPA at the time of the study, RM = Malaysian Ringgit

Academic resilience among students

Overall, the median total academic resilience score was 59 (interquartile range [IQR]: 37 – 80). The median score [IQR] for the four subscales; negative affect and emotional response, reflecting and adaptive help-seeking, adaptive thought processes, and perseverance were 15 (5 – 25), 20 (5 – 25), 12 (3 – 15) and 11 (5 – 15), respectively. The median score for all the items in the academic pharmacy resilience scale was 4.0, with the exception of three items under the "*negative affect and emotional response*" subscale (Table II). The academic resilience score showed that more than half of the students (56.9%) get disappointed whenever they experience academic setbacks. More than two thirds (76.2%) seek encouragement from family and friends.

Table II: Responses of the students to the items on the academic pharmacy resilience scale

No	Variable	Frequency (%)					Median (IQR)
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	
Negative affect and emotional response							
1	I would begin to think my chances of success at university were poor	38 (15.3)	93 (37.5)	60 (24.2)	49 (19.8)	8 (3.2)	4.0 (1 – 5)
2	I would probably get depressed	24 (9.7)	49 (19.8)	96 (38.7)	56 (22.6)	23 (9.3)	3.0 (1 – 5)
3	I would be very disappointed	10 (4.0)	30 (12.1)	67 (27.0)	92 (37.1)	49 (19.8)	4.0 (1 – 5)
4	I would begin to think my chances of getting the job I want were poor	18 (7.3)	59 (23.8)	81 (32.7)	70 (28.2)	20 (8.1)	3.0 (1 – 5)
5	I would feel like everything was ruined and was going wrong	37 (14.9)	73 (29.4)	65 (26.2)	52 (21.0)	21 (8.5)	3.0 (1 – 5)
Median score (IQR)				*15 (5 – 25)*			
Reflecting and adaptive help-seeking							
6	I would try to think of new solutions	6 (2.4)	5 (2.0)	38 (15.3)	155 (62.5)	44 (17.7)	4.0 (1 – 5)
7	I would use my past successes to help motivate myself	6 (2.4)	8 (3.2)	36 (14.5)	111 (44.8)	87 (35.1)	4.0 (1 – 5)
8	I would set my own goals and achievements	5 (2.0)	4 (1.6)	46 (18.5)	140 (56.5)	53 (21.4)	4.0 (1 – 5)
9	I would seek encouragement from my family and friends	7 (2.8)	9 (3.6)	43 (17.3)	103 (41.5)	86 (34.7)	4.0 (1 – 5)
10	I would try to think more about my strengths and weaknesses to help me work better	5 (2.0)	5 (2.0)	44 (17.7)	119 (48.0)	75 (30.2)	4.0 (1 – 5)
Median score (IQR)				*20 (5 – 25)*			
Adaptive thought processes							
11	I would see the situation as a challenge	5 (2.0)	16 (6.5)	44 (17.7)	138 (55.6)	45 (18.1)	4.0 (1 – 5)
12	I would do my best to stop thinking negative thoughts	8 (3.2)	13 (5.2)	27 (10.9)	120 (48.4)	80 (32.3)	4.0 (1 – 5)
13	I would see the situation as temporary	6 (2.4)	10 (4.0)	47 (19.0)	123 (49.6)	62 (25.0)	4.0 (1 – 5)
Median score (IQR)				*12 (3 – 15)*			
Perseverance							
14	I would just give up	87 (35.1)	103 (41.5)	44 (17.7)	11 (4.4)	3 (1.2)	4.0 (1 – 5)
15	I would change my career plans	58 (23.4)	106 (42.7)	65 (26.2)	13 (5.2)	6 (2.4)	4.0 (1 – 5)
16	I would not change my long-term goals and ambitions	8 (3.2)	21 (8.5)	83 (33.5)	95 (38.3)	41 (16.5)	4.0 (1 – 5)
Median score (IQR)				*11 (5 – 15)*			
Total median score (IQR)				**59 (37 – 80)**			

Female students demonstrated a higher median total academic resilience score (60 [IQR: 41 – 80]) than males (56 [37 – 69]), $p = 0.001$). Also, a higher score was noted among females in the "*perseverance*" subscale (12 [5 – 15] versus 11 [7 – 15], $p = 0.028$). Year one students showed a higher total academic resilience score; 62 (42 – 74) compared to year two (57.5 [37 – 80]), year three (59 [37 – 78]) and year four (58 [44 – 77]) students, $p = 0.023$. Students with a CGPA ≥ 3.50 had higher scores in the "*reflecting and adaptive help-seeking*" ($p < 0.001$), "*adaptive thought processes*" ($p = 0.005$) and "*perseverance*" ($p < 0.001$) subscales, as well as in the total academic resilience score ($p < 0.001$), compared to the other two CGPA groups (Table III). There was no correlation between age, marital status and family income with total academic resilience score among the students.

Table III: Factors associated with academic pharmacy resilience scale score among the students

Variable	Median (IQR)				
	Negative affect and emotional response	Reflecting and adaptive help-seeking	Adaptive thought processes	Perseverance	Total APRS score
Marital status					
Single	15 (5 – 25)	20 (5 – 25)	12 (3 – 15)	11 (5 – 15)	59 (37 – 80)
Married	11 (7 – 15)	24.5 (24 – 25)†	13.5 (12 – 15)	12 (10 – 14)	61 (61 – 61)
Gender					
Female	15 (5 – 25)	20 (7 – 25)†	12 (3 – 15)†	12 (5 – 15)*	60 (41 – 80)†
Male	16 (5 – 24)	20 (5 – 25)	12 (3 – 15)	11 (7 – 15)	56 (37 – 69)
Year of study					
Year 1	16 (8 – 24)	21 (16 – 25)	12 (9 – 15)	12 (7 – 15)	62 (42 – 74)†
Year 2	15 (5 – 25)	20 (5 – 25)	12 (3 – 15)	11 (7 – 15)	57.5 (37 – 80)
Year 3	15 (6 – 25)	20 (5 – 25)	12 (3 – 15)	11 (7 – 15)	59 (37 – 78)
Year 4	15 (5 – 22)	20 (10 – 25)	12 (6 – 15)	11.5 (7 – 15)	58 (44 – 77)
Grade point average (GPA) in the last semester					
Less than 3.0	14.5 (6 – 21)	19 (10 – 25)	11 (3 – 15)	11 (5 – 15)	55 (44 – 73)
3.0 – 3.49	15 (5 – 25)	20 (5 – 25)	12 (3 – 15)	11 (7 – 15)	58.5 (37 – 80)
≥ 3.50	15 (5 – 24)	20 (15 – 25)	12 (7 – 15)	12 (7 – 15)	60 (44 – 74)
Cumulative grade point average (CGPA)					
Less than 3.0	15 (5 – 21)	19 (5 – 24)	11 (4 – 15)	10 (5 – 15)	55 (37 – 73)
3.0 – 3.49	15 (5 – 25)	20 (5 – 25)	12 (3 – 15)	11 (7 – 15)	58 (37 – 78)
≥ 3.50	15 (5 – 25)	21 (15 – 25)†	12 (3 – 15)†	12 (7 – 15)†	61 (42 – 80)†
Family income					
Low income	15.5 (7 – 25)	20 (5 – 25)	12 (3 – 15)	11.5 (7 – 15)	60 (37 – 80)
Middle income	15 (5 – 25)	20 (5 – 25)	12 (5 – 15)	11 (5 – 15)	59 (40 – 78)
High income	14 (5 – 24)	20 (5 – 25)	12 (3 – 15)	12 (7 – 15)	58 (37 – 77)

†denotes statistical significant difference ($p < 0.05$)

Correlational analysis (Table IV) demonstrated that there was a positive correlation between total academic resilience score and students' CGPA (r = 0.274, $p < 0.001$) and GPA in the last semester (r = 0.154, p = 0.025). There was also a significant relationship between CGPA and the three subscales; "*reflecting and adaptive help-seeking*" (r = 0.268, p = 0.001), "*adaptive thought processes*" (r = 0.205, p = 0.001) and "*perseverance*" (r = 0.260, p = 0.001). The correlation between GPA and "*adaptive thought processes*" and "*reflecting and adaptive help-seeking*" subscales was positive and significant (r = 0.166, p = 0.015 and r = 0.153, p = 0.025, respectively). There was no correlation between GPA and the remaining two subscales (Table IV).

Table IV: Relationship between academic resilience and academic performance among the respondents

Variables	CGPA		GPA in the last semester	
	Correlation co-efficient	P value	Correlation co-efficient	P value
Negative affect and emotional response	0.030	0.633	0.009	0.899
Reflecting and adaptive help-seeking	0.268	**0.001**	0.153	**0.025**
Adaptive thought processes	0.205	**0.001**	0.167	**0.015**
Perseverance	0.260	**0.001**	0.119	0.082
Total APRS score	**0.274**	**< 0.001**	**0.154**	**0.025**

CGPA: cumulative grade point average, GPA: grade point average

Discussion

The current study investigated academic resilience among undergraduate pharmacy students and its relationship with academic performance. The results revealed that undergraduate pharmacy students had moderate academic resilience. Chisholm-Burns and colleagues conducted a study among Doctor of Pharmacy students in the United States (US) that showed moderately high levels of academic resilience (median score: 60 out of 80) (Chisholm-Burns *et al.*, 2019). This implies that undergraduate pharmacy students have the moderate capacity to improve their academic performance after experiencing academic adversity or setback. Moderately high resilience levels have been reported among undergraduate and graduate nursing, and medical students (Beauvais *et al*., 2014; Houpy *et al*., 2017), although different scales were used to measure resilience. The students in this study also demonstrated moderately high scores in three out of the four subscales, including "*reflecting and adaptive help-seeking*", "*adaptive thought processes*", and "*perseverance*", while the "*negative affect and emotional response*" subscale had the lowest percentage score. Again, this was in consonance with the finding among Doctor of Pharmacy students in the US (Chisholm-Burns *et al.,* 2019) and suggested that undergraduate pharmacy students struggle with depression and disappointment when they are confronted with academic setbacks.

Higher resilience has been reported among lower-level students compared to those in higher levels of medical and pharmacy training (Faye *et al*., 2018; Chisholm-Burns *et al*., 2019). The current study corroborated this observation with year one students having significantly higher total academic resilience score compared to students in the other levels. The reason for this difference is not clear. One possible explanation is that students in higher levels were more likely to have experienced academic failures/setbacks during their pharmacy training compared to year one students, and as a result, they may provide a more accurate description of their responses to academic adversity. The current study also found that age, marital status and family income did not influence the total academic resilience score among the students; this is consistent with previous studies (Chisholm-Burns *et al*., 2019; McKinley *et al*., 2019). However, students who were married had higher scores in the "*reflecting and adaptive help-seeking*" subscale. The reason for this difference is unknown. Future studies should consider the influence of marital status on academic resilience.

It was also found that the total academic resilience score varied according to gender, with female students having a significantly higher score. This result does not align with previous studies conducted among Doctor of Pharmacy and Medical students in Brazil, India and US in which there was no difference in resilience score based on gender (Tempski *et al.,* 2015; Faye *et al*., 2018; Chisholm-Burns *et al*., 2019). A previous study also demonstrated that grit, another non-cognitive trait, is higher among female undergraduate pharmacy students than males (Abubakar *et al*., 2021). Houpy and colleagues demonstrated that male medical students have a higher resilience score (Houpy *et al*., 2017). These inconsistencies could be explained by methodological differences, such as the use of different scales and the demographic characteristics of the respondents. In the current study, there were more female respondents (70.6%), and this could have influenced the outcome. Additional studies are required to confirm the influence of gender on total academic resilience among pharmacy students.

Another finding of this study was that students with higher CGPA had significantly higher total academic resilience score, and higher scores in the three subscales of the APRS-16, namely "*reflecting and adaptive help-seeking*", "*adaptive thought processes*",; and "*perseverance*." These observations were confirmed using correlation analysis in which significant relationships between academic resilience scores and academic performance (CGPA and GPA in the last semester) were observed. This is not consistent with the result of a recent study conducted among first-year Pharm.D. students, which showed no association between academic resilience and students' performance in a pharmacy maths course (Chisholm-Burns *et al.,* 2021). The difference could be attributed to variations in the measurement of academic success. The current study evaluated overall performance (GPA and CGPA) while Chisholm-Burns and colleagues evaluated performance in a single course.

When compared to studies conducted among non-pharmacy students, Beauvais and colleagues reported that resilience correlates significantly with academic success in undergraduate and graduate nursing students, although the breakdown of the data revealed that the correlation between the two variables was not significant among undergraduate nursing students (Beauvais *et al.,* 2014). In another study, de la Fuentes and colleagues demonstrated that there is a significant linear relationship between resilience and academic achievement (de la Fuente *et al*., 2017). Additional studies are required to evaluate the association between academic resilience and students' performance in a course as well as their performance in a semester (GPA) or overall performance (CGPA).

The relationship between academic resilience and academic performance could be explained by a number

of factors. Firstly, there is a positive correlation between academic performance and learning and stress-coping strategies among undergraduate and graduate psychology students (de la Fuente *et al.*, 2017). Students who possess deep learning and problem-focused stress-coping skills are more resilient than those who use surface learning and emotion-based stress-coping strategies (de la Fuente *et al.,* 2017; Faye et al., 2018). This implies that resilient students have better learning and stress-coping skills and higher academic achievements. Secondly, resilient students have a better quality of life and lower anxiety and depression, which enable them to activate their coping mechanisms when they are confronted with academic setbacks (Tempski *et al*., 2015). Thirdly, the positive influence of social support from family, friends, colleagues and teachers on resilience has been previously reported (Fallon *et al*., 2010; Houpy *et al*., 2017; Faye *et al*., 2018; McKinley *et al*., 2019). Resilient individuals use social interaction with family, friends and colleagues to relieve stress and overcome setbacks (McKinley *et al.*, 2019), and this could improve performance or achievement. To strengthen this view, a recent study among Pharm.D. students in the U.S. supports the idea of the importance of the social support of pharmacy students against social isolation and how it consequently enhances their academic performance (Ray *et al*., 2019). This highlights the importance of providing supportive social platforms for students to discuss stress and coping strategies and receive motivation to overcome or adapt to academic challenges.

In this study, more than three-quarters of the students (76.2%) indicated that they would seek encouragement from my family and friends when they are confronted with academic adversity (item No. 9 under the "*reflecting and adaptive help-seeking*" subscale). Pharmacy academics and instructors (both in B. Pharm. and Pharm.D. programmes) should counsel pharmacy students to motivate and encourage them to seek help to overcome the disappointment and depression that occurs when they experience academic setbacks. The counselling should also identify the reasons for academic struggles and proffer effective solutions to help students to recover from the setbacks and succeed in their studies.

The current study has a number of limitations that warrant careful interpretation of its findings. Firstly, the results cannot be generalised because the study was conducted in one pharmacy school. Additional studies are required to validate the results of this study. Secondly, this is a cross-sectional study which is not as reliable as longitudinal study designs for establishing causal effect. However, the author's findings provide an insight into the possible relationship between academic resilience and academic performance among pharmacy students. Thirdly, a convenient sampling method was used in this study. This might introduce selection bias as responses could have been submitted by respondents who were interested in the research topic. However, the characteristics of the respondents (mean age, gender, marital status and year of study) mirrored those of all students in the school. Fourthly, the responses provided by the students were self-reported and could be susceptible to social desirability bias. Lastly, the adopted questionnaire (APRS-16) was developed for the didactic portion of the Pharm.D. programme and was used for all students in this study. However, a pilot study was conducted, and Cronbach's alpha was acceptable (0.78).

Conclusion

Undergraduate pharmacy students have moderate academic resilience with moderate scores observed in three of the four subscales; "*reflecting and adaptive help-seeking*", "*adaptive thought processes*", and "*perseverance*". The academic resilience score varies significantly based on gender and year of study. There is a weak positive relationship between academic resilience scores and academic performance among the students. Future studies should investigate the impact of interventions on academic resilience and academic performance among undergraduate pharmacy students.

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