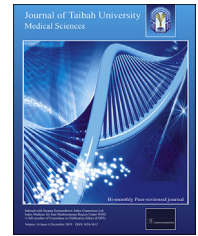




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Original Article

## Comparison of health-promoting lifestyle behaviours between female students majoring in healthcare and non-healthcare fields in KSA

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### المخلص

**أهداف البحث:** تعد المرحلة الجامعية مرحلة حرجة بالنسبة لجيل الشباب، حيث في هذه الفترة يميل الطلاب إلى تبني وتعزيز مجموعة من السلوكيات غير الصحية. مما قد يكون لها تأثير سلبي على رفاهيتهم وصحتهم. ويعتبر نمط الحياة المعزز للصحة هو أحد المحددات المهمة للحالة الصحية كما يعتبر عاملاً رئيساً في الحفاظ على الصحة وتعزيزها. أدت المقارنات بين عادات نمط الحياة الصحية للطلبات الجامعية المتحقات بالبرامج غير الصحية (الدراسة الحالية) والبرامج ذات الصلة بالصحة (المنشورة سابقاً) إلى تحديد الاختلافات والارتباطات بين هذه العادات والخصائص الديموغرافية.

**طرق البحث:** أجريت هذه الدراسة المستعرضة باستخدام مقياس نمط الحياة الشخصية على الطالبات في السنة الثالثة والرابعة في البرامج غير الصحية (عدد = 411). تمت مقارنة بيانات الدراسة الحالية مع البيانات المنشورة مسبقاً عن طالبات البرامج الصحية (عدد = 249).

**النتائج:** لوحظ انخفاض درجة المقياس بشكل عام مع تباين كبير بين المجموعتين بينما لوحظ وجود علاقة معنوية بين الدرجات الإجمالية ونطاقات المجال مع المتغيرات الديموغرافية. كان لدى طلاب البرامج غير الصحية مشاركة أكثر نشاطاً في النشاط البدني بشكل ملحوظ من الطلاب ذوي البرامج ذات الصلة بالصحة، والذين أظهروا مسؤولية صحية أفضل ونموا روحياً وممارسات للعلاقات الشخصية. مع تقدم سنوات الدراسة، كما لوحظ انخفاض في النمو الروحي عند طلاب البرامج غير الصحية وسوء إدارة القلق عند طلاب البرامج ذات الصلة بالصحة.

**الاستنتاجات:** إن الدرجات الإجمالية للمقياس كانت منخفضة لكلا المجموعتين. وكانت الدرجة ذات المعدل الأعلى في النمو الروحي والأدنى في الصحة البدنية.

مما تعكس موقف الأجيال الحالي. هذه النتائج تتطلب إدخال "منهج الرفاهية والصحة" مع وجود بنية تحتية كافية ونشر ثقافة عقلية الرفاهية.

**الكلمات المفتاحية:** السلوك الصحي؛ نمط الحياة؛ المهن غير الصحية؛ طلاب الجامعة

### Abstract

**Objective:** University students are considered to be at a critical stage of their lives. As members of the young generation, they tend to adopt unhealthy behaviours. These behaviours can adversely impact their health. Level of health promotion is a significant determinant of health status. This study compared healthy lifestyle habits of female university students enrolled in health-related (previously published) and non-health-related (present study) programmes in the KSA to identify variations and associations between such habits and demographic characteristics.

**Methods:** A cross-sectional study, using the Health-Promoting Lifestyle Profile II (HPLP-II) questionnaire, was conducted on third- and fourth-year non-health profession female students (n = 411). The data were compared with previously published data on female health profession students (n = 249).

**Results:** A low overall HPLP-II score of  $2.39 \pm .358$  with significant variation between the two groups was observed ( $p < .05$ ). Significant correlations ( $p < .05$ ) were found between the total and domain scores by demographic variables. The non-health group had significantly more frequent engagement in physical activity than the health group, who showed better health responsibility, spiritual growth, and interpersonal relation practices. Decline of spiritual growth in non-health group

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and poor stress management in health group were also found.

**Conclusions:** Low overall HPLP-II scores in both groups, with the highest mean score in spiritual growth and lowest in physical health, reflect the current attitude of the young generation. The introduction of a ‘wellbeing and health curriculum’ with adequate support from the physical environment and a culture that promotes physical wellbeing is needed.

**Keywords:** Health behaviours; Lifestyle; Non-health professions; University students

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## Introduction

Health is not merely an absence of disease, rather it is a well-functioned state of being—mentally, socially, physically, and spiritually.<sup>1</sup> Health is an ever-evolving and complex continuum<sup>2,3</sup> which is significantly influenced by an individual’s lifestyle habits.<sup>4</sup> Adopting health-promoting lifestyle behaviours,<sup>2</sup> defined as ‘whole actions and beliefs which individuals enforce in order to stay healthy and prevent themselves from diseases’,<sup>5</sup> may bring an advertent and long-desired change in one’s life. Healthy behaviours encompass a variety of domains, such as physical practices, health responsibilities, spiritual growth, nutrition, stress management, and interpersonal relationships.<sup>4</sup> In its publication *The Second Decade: Improving Adolescent Health and Development*, the World Health Organization stresses the importance of healthy behaviours for all nations.<sup>6</sup> However, around the globe, the young generation shows a low tendency toward participating in health promotion activities, as they believe that they are in a healthy stage of life.<sup>6</sup> Ozkan and Solmaz<sup>7</sup> pointed out that today’s generation, known as ‘Generation Z’ or ‘the Internet generation’ (born 1995 and onwards), is highly tech-savvy, addicted to devices, and socializes in virtual spaces. This phenomenal change of attitudes is thought to have a considerable impact on their psychology, social life, health, and wellbeing. Hoque (2018)<sup>8</sup> discussed the importance of safeguarding the mental and physical wellbeing of this generation. Numerous studies have demonstrated that university age is a dynamic, transitional, and critical stage in which cognitive, physical, social, and emotional developmental changes occur and are inculcated.<sup>9</sup> This critical time in which individuals adopt healthy and unhealthy lifestyle habits offers an opportunity to be seized.<sup>2</sup> Research in adult psychology also indicates that university students in this period of life have better control

over their behaviours and greater self-control, and take more responsibility for their health than younger students.<sup>6</sup>

The literature is saturated with studies proclaiming that students adopt a range of unhealthy behaviours, such as poor resting and relaxation habits, irregular sleeping patterns, high stress levels, high consumption of fast food, inadequate nutritional intake, unprotected sex, sedentary lifestyles, smoking addiction, and physical inactivity. Such unhealthy behaviours have adverse impacts on the health and wellbeing of these students, leading to increased risk of coronary heart disease, diabetes, and obesity.<sup>9,10,11</sup>

Ansari et al.<sup>12</sup> conducted a recent study in the KSA that revealed a high (47.3%) prevalence of risky behaviours (mainly physical inactivity, fast driving, smoking, and drifting) among university students. The authors also found that 28% of university students indulged in smoking, and 66.6% were physically inactive. Azhar and Syed<sup>13</sup> demonstrated that the prevalence of unhealthy behaviours among university students was different based on the type of profession. For instance, the prevalence of smoking was greater among female students enrolled in non-health profession programmes (4.2%) than in those enrolled in medical profession programmes (.32%). Another cross-sectional study examined the lifestyle habits (physical inactivity) of medical (49%) and nonmedical (35%) students in Malaysia. The gender breakdown of the data revealed that more female students than male students (44% vs. 30%) pursued physical inactivity.<sup>14</sup> Another significant difference between college students in health and non-health programmes was in the tendency to seek guidance or counselling in matters related to their health.<sup>15</sup> In addition, 21% of female medical students reported that they performed a breast self-examination test on a monthly basis, whereas only 16% of female nonmedical students performed the test monthly.<sup>15</sup>

Herzallah (2019)<sup>16</sup> suggested in his recent research that morbidity and mortality have considerably increased in the KSA as a result of noncommunicable lifestyle-related diseases.<sup>16</sup> Lifestyle changes can have strong implications on the health and wellbeing of an individual and in turn on generations. Unfortunately, findings from ‘Jeeluna’<sup>9</sup> exposed a lack of surveillance systems to monitor lifestyle behaviours and trends in youths and adults in this part of the world. However, even the scarce research on health-promoting behaviours has confirmed that sedentary and physically inactive lifestyles are dominant in the Saudi people.<sup>9</sup>

Few studies have been conducted on students’ health-promoting behaviours in the KSA, and those that have been conducted have mainly been on health profession programmes.<sup>17</sup> To the best of the author’s knowledge, no official research has been conducted to explore this matter among non-health profession students studying at Imam Abdulrahman Bin Faisal University (IAU). This study compared healthy lifestyle behaviours among non-health profession female students with previously published results on health profession female students<sup>17</sup> at IAU in the KSA. This research aimed to discover any significant differences in the healthy lifestyle behaviours of the two

groups in demographic variables, and to identify any possible associations between healthy lifestyle behaviours and demographic characteristics.

## Materials and Methods

This cross-sectional study was conducted during the 2016–2017 academic year. All third- and fourth-year female students enrolled in non-health profession programmes (specifically accounting, management information system, and finance) in the female division of IAU were invited to take part in the study. Participation was voluntary, and the students were guaranteed that their anonymity would be maintained. All participants provided prior written consent. Ethical approval was obtained from the institutional review board at IAU.

The Health-Promoting Lifestyle Profile II (HPLP-II) paper-pencil based questionnaire (Arabic version)<sup>18</sup> was used to assess health-promoting lifestyle habits. The objective of the present study matched the information provided on the cover page of the survey. The survey includes 52 items classified into 6 domains: physical activity (8 items), spiritual growth (9 items), health responsibility (9 items), nutrition (9 items), stress management (8 items), and interpersonal relations (9 items). The items asked the students about the extent of their engagement in a range of healthy behaviours using a 4-point Likert scale, ranging from 1 ('never') to 4 ('routinely').

The obtained data was compared with the author's previously published study data on women in health profession programmes<sup>17</sup> (specifically, physical therapy, clinical laboratory sciences, respiratory care, health information management and technology, cardiac technology, and clinical nutrition) in the female division of IAU. To obtain the mean score for each domain, the sum of the scores for all statements in that domain was divided by the number of items in that domain. To calculate the overall mean HPLP-II score, the scores on all of the items were summed and divided by the number of items. The subsequent scores were utilized as an index/guide of health-promoting lifestyle behaviours; for all items, higher scores indicated a higher level of health promotion. The mean scores of the domains were classified as low (<2.5) moderate (between 2.5 and 3), or high (>3). Various sociodemographic characteristics, such as

the type of profession, age, and year of study of the students, were included in the analysis.

## Statistical analysis

The Statistical Package for Social Sciences, version 19 (IBM Corporation, Chicago, Illinois, USA), was used to analyse the data. Descriptive statistics, such as the mean, median, standard deviation, and interquartile range, are reported for continuous variables. Categorical variables are presented as frequencies and percentages. A comparative analysis of mean scores for the overall HPLP-II and its six domains according to the students' demographic variables were performed with an independent sample t-test. Pearson's rho coefficient was calculated to examine associations among the study variables. A *p* value of less than .05 was considered statistically significant. The results were compared with a previously published study from the KSA that also used the HPLP-II.<sup>17</sup>

## Results

For the non-health profession students studying at IAU in the KSA, a 75% (307 out of 411) response rate was obtained. One hundred thirty-seven (45%) of those respondents were third-year students, and 170 (55%) were fourth-year students. There were 132 (43%) between the ages of 19 and 21 years and 175 (57%) between the ages of 22 and 24 years. For health profession students studying at IAU in the KSA,<sup>16</sup> 216 of the 249 students responded, resulting in a response rate of 87%. Ninety-five (44%) of those respondents were third-year students, and 121 (56%) were fourth-year students. There were 147 (68%) between the ages of 19 and 21 years and 69 (32%) between the ages of 22 and 24 years.

Table 1 shows the mean, median, standard deviation, and interquartile range of the overall HPLP-II scores and the mean scores of the six domains for both the non-health and health profession students. The physical activity domain had the lowest mean score for non-health and health profession students ( $2.032 \pm .518$ ;  $1.923 \pm .624$ , respectively), whereas the spiritual growth domain had the highest mean score for the non-health and health profession students ( $2.708 \pm .517$ ;  $2.889 \pm .552$ , respectively). Comparisons of lifestyle behaviours between non-health and health profession students

**Table 1: Descriptive statistics of mean scores of the overall HPLP-II and its domains for non-health and health profession students (N = 523).**

Domains	Non-health Profession (n = 216)		Health Profession <sup>a</sup> (n = 307)		P value
	Mean (SD)	Median (IR)	Mean (SD)	Median (IR)	
Health Responsibility	2.121 (.479)	2.111 (0.667)	2.306 (.621)	2.222 (0.778)	.000
Physical Activity	2.032 (.518)	2.000 (0.625)	1.923 (.624)	1.875 (0.75)	.030
Nutrition	2.281 (.436)	2.333 (0.556)	2.358 (.526)	2.333 (0.778)	.071
Spiritual Growth	2.708 (.517)	2.667 (0.667)	2.889 (.552)	2.889 (0.778)	.000
Interpersonal Relations	2.644 (.480)	2.556 (0.556)	2.771 (.505)	2.778 (0.667)	.004
Stress Management	2.306 (.465)	2.250 (0.5)	2.345 (.521)	2.313 (0.625)	.361
Overall Score	2.355 (.319)	2.365 (0.293)	2.443 (.403)	2.414 (0.514)	.006

**Notes:** \*Significant at  $\alpha < .05$  (2-tailed); a, source: Al-Qahtani.<sup>17</sup>

**Abbreviations:** HPLP-II, Health-Promoting Lifestyle Profile II questionnaire; SD, standard deviation; IR, interquartile range.

**Table 2: Descriptive statistics of the overall HPLP-II scores and the scores of the HPLP-II domains for non-health and health profession students based on their year of study and age group.**

			Non-health Profession			Health Profession <sup>a</sup>		
			Mean (SD)	Median (IR)	<i>P</i> value	Mean (SD)	Median (IR)	<i>P</i> value
Health Responsibility	Year of Study	3rd	2.02 (.478)	2.11 (.67)	.001	2.33 (.635)	2.22 (.89)	.595
		4th	2.20 (.468)	2.22 (.47)		2.29 (.611)	2.22 (.78)	
	Age Group	19–21	2.10 (.482)	2.11 (.78)	.439	2.33 (.662)	2.22 (.89)	.470
Physical Activity	Year of Study	3rd	1.99 (.578)	1.88 (.97)	.215	1.97 (.623)	1.88 (.88)	.338
		4th	2.06 (.465)	2.13 (.63)		1.89 (.624)	1.88 (.88)	
	Age Group	19–21	2.06 (.549)	2.00 (.75)	.325	1.94 (.615)	1.88 (.75)	.576
Nutrition	Year of Study	3rd	2.27 (.450)	2.22 (.56)	.667	2.39 (.527)	2.33 (.78)	.465
		4th	2.29 (.424)	2.33 (.44)		2.33 (.527)	2.33 (.72)	
	Age Group	19–21	2.29 (.446)	2.33 (.56)	.683	2.38 (.547)	2.44 (.78)	.282
Spiritual Growth	Year of Study	3rd	2.77 (.610)	2.78 (.89)	.048	2.91 (.578)	2.89 (.89)	.680
		4th	2.65 (.422)	2.67 (.47)		2.88 (.532)	2.89 (.72)	
	Age Group	19–21	2.77 (.571)	2.67 (.89)	.075	2.93 (.574)	3.00 (.89)	.187
Interpersonal Relations	Year of Study	3rd	2.70 (.510)	2.67 (.78)	.069	2.81 (.497)	2.89 (.67)	.349
		4th	2.60 (.452)	2.56 (.56)		2.74 (.511)	2.67 (.56)	
	Age Group	19–21	2.70 (.515)	2.67 (.78)	.090	2.80 (.514)	2.78 (.67)	.297
Stress Management	Year of Study	3rd	2.29 (.490)	2.25 (.59)	.641	2.38 (.563)	2.38 (.75)	.404
		4th	2.32 (.447)	2.37 (.38)		2.32 (.487)	2.25 (.50)	
	Age Group	19–21	2.32 (.478)	2.25 (.63)	.709	2.42 (.544)	2.38 (.63)	.003
Overall Score	Year of Study	3rd	2.35 (.370)	2.35 (.49)	.740	2.47 (.431)	2.46 (.60)	.316
		4th	2.36 (.273)	2.37 (.23)		2.42 (.380)	2.40 (.49)	
	Age Group	19–21	2.38 (.353)	2.37 (.44)	.250	2.48 (.422)	2.46 (.54)	.090
		22–24	2.34 (.291)	2.37 (.23)		2.37 (.351)	2.35 (.41)	

Notes: \*Significant at  $\alpha < .05$  (2-tailed); a, source: Al-Qahtani.<sup>17</sup>

Abbreviations: HPLP-II, Health-Promoting Lifestyle Profile II questionnaire; SD, standard deviation; IR, interquartile range.

showed that there were significant differences ( $p < .05$ ) between the two groups regarding health responsibility, physical activity, spiritual growth, interpersonal relations, stress management, and overall HPLP-II scores. Non-health profession students scored significantly lower on all previously mentioned domains (except the physical activity domain) and the overall HPLP-II compared with the health profession students.

Table 2 shows the overall mean scores and mean scores on the six domains of the HPLP-II for both non-health and health profession students by their demographic characteristics. For the non-health profession students, there were significant differences in health behaviours ( $p = .001; .048$ ) in the health responsibility and spiritual growth domains according to year of study. For the health profession students, there were significant differences in the stress management domain according to age group ( $p = .003$ ).

The correlation analysis of the overall mean scores and mean scores on the six domains of the HPLP-II with demographic variables by type of profession revealed that for non-health profession students, spiritual growth was significantly negatively associated with year of study ( $r = -.113$ ,  $p = .048$ ), and health responsibility was significantly positively associated with year of study ( $r = .182$ ,  $p = .001$ ). For health profession students, stress management was significantly negatively associated with age group ( $r = -.200$ ,  $p = .003$ ).

## Discussion

This study evaluated the health-related behaviour data of non-health profession students and then compared them with previously published data on health profession students<sup>17</sup> at IAU in the KSA. The overall mean HPLP-II scores of non-health and health profession students (mean = 2.35; 2.44, respectively) were lower than those of Japanese university students (mean = 2.50),<sup>19</sup> student nurses in Malaysia (mean = 2.57),<sup>20</sup> and Chinese nursing students (mean = 3.26).<sup>21</sup> In our study, the overall mean HPLP-II score of health profession students was similar to that of Indian medical students (mean = 2.44)<sup>2</sup> and slightly higher than that of Iranian medical students (mean = 2.43).<sup>22</sup>

In the present study, the highest mean scores for non-health and health profession students were in the spiritual growth domain. These results are in accordance with those of earlier studies<sup>2,3,7,23</sup> in which the score in the spiritual growth domain was found to be the highest score. The high score in this domain may be associated with religious and cultural factors.

In the present study, the lowest mean scores for non-health and health profession students were in the physical activity domain. These results are in accordance with the results of studies conducted by Al-Qahtani<sup>24</sup> in the KSA, Borle et al.<sup>23</sup> in India, Hosseini et al.<sup>25</sup> in Iran, Nassar and

Shaheen<sup>26</sup> in Jordan, Al-Khawaldeh<sup>3</sup> in Jordan, and Can et al.<sup>10</sup> in Turkey.

Low mean scores for both groups of students in the physical activity domain may be due to a number of possible reasons. The first and most important possible reason is that the cultural customs and weather conditions are not conducive to the use of outdoor public places for exercise and physical sports. The second possible reason is the high cost of fitness centre membership. Having to commute to those centres and the ability to allocate the time for physical activity in one's daily routine are other important factors. The Saudi primary and secondary education systems also lack this important component of wellbeing and health. It is incumbent upon the Female Division of the Ministry of Education to allocate a noncurricular physical activity time slot and to develop health promotion courses and awareness campaigns to motivate students to engage in physical activity.<sup>27</sup>

The findings of this study are in accordance with those of Nassar and Shaheen,<sup>26</sup> who demonstrated that university students tend to perform minimal physical activity. The results indicated that regardless of the type of profession, female students scored poorly in nutrition, stress management, health responsibility, and physical activity. The results also showed that the overall mean scores of the HPLP-II were low. Nevertheless, the results showed moderate levels of spiritual growth and interpersonal relations.

The comparative analyses of students by type of profession revealed that, generally, the overall score and scores for health responsibility, nutrition, spiritual growth, interpersonal relations, and stress management of non-health profession students were lower than those of health profession students. One probable explanation for this finding is that, because of the nature of the health profession, health students are more aware of the importance of adopting behaviours that promote health. A study conducted in KSA showed that the prevalence of unhealthy behaviours (particularly smoking) among female nonmedical students was greater than that among medical students.<sup>13</sup> In another cross-sectional study in Malaysia, approximately 62% of medical students and 58% of nonmedical students rarely performed physical activity.<sup>15</sup>

In the present study, the findings of significant differences in health-promoting behaviour between non-health and health profession students are in agreement with the findings of Norhaini et al.,<sup>15</sup> who demonstrated that there were differences in the health practices of medical and nonmedical students. It is interesting to note that in the present study, non-health profession students showed higher levels of physical activity than health profession students, though it is expected that health profession students would have greater awareness of the role of physical exercises in sustaining their health. Nevertheless, the results did not turn out as anticipated. One plausible explanation for the results could be the immense study load of health profession students. Our finding is in line with that of Norhaini et al.,<sup>15</sup> who found significant differences between medical and nonmedical students in their practice of physical exercise; specifically, 22% of nonmedical students and only 7% of medical students engaged in physical exercise more than three times a week.

The results of the comparative analysis of both non-health and health profession students by age group showed that the

mean score for the health responsibility domain among senior (fourth-year) students was significantly higher than that of junior (third-year) students. This finding may be partially explained by the difference in level of maturity between senior and junior students; students are likely to become more responsible for their health as they move further along in their studies. The mean score for the spiritual growth domain among junior (third year) students was significantly higher than that among senior (fourth year) students. This result could be explained by the fact that junior students generally do not have as heavy a school workload as fourth-year students, and this might have led to allocation of more time for spiritual growth practices. This finding is in general agreement with that of Nasir et al.,<sup>28</sup> who found that third-year students had the highest prevalence of a healthy lifestyle (i.e. performing nine or more healthy practices), while fourth-year students had the highest prevalence of a fairly healthy lifestyle (i.e. performing 5 to 8 healthy practices).

On the other hand, the results for health profession students showed that the mean stress management score of the younger health profession students (i.e. 19–21 years old) was significantly higher than that of the older health profession students (i.e. 22–24 years old). This finding contradicts that of Borle et al.,<sup>23</sup> who found no significant differences in stress management behaviour among nursing students based by age group. The above evidence from the literature suggests that it is necessary to develop strategies to build up a more resilient student force in the health-related professions.

The literature review found inconsistent results regarding the significant differences in students' practices of healthy behaviours in relation to their year of study. For example, the findings of studies by Hosseini et al.<sup>25</sup> and Mašina et al.<sup>29</sup> revealed that the scores of senior-level students increased in some domains of the HPLP-II, whereas they declined in other domains. However, the findings of Al-Khawaldeh<sup>3</sup> confirmed the absence of significant variations in the practices of the six domains of the HPLP-II with respect to students' year of study.

The results of the correlation analysis by type of profession showed that there was a significant negative relationship between the spiritual growth score and year of study for non-health profession students. The health responsibility score was significantly positively associated with the year of study among non-health profession students. One probable explanation for this finding may be that as students progress in age, they become more aware of healthy life options and their impact on physical and mental wellbeing. However, their impulsive nature (characteristic of Generation Z) does not allow them to be consistent<sup>7,8</sup> with these and spiritual practices.

The mean score on the stress management domain was significantly negatively related to age group among the health profession students. These results are in agreement with the findings of Can et al.<sup>10</sup> but contradict those of Al-Khawaldeh<sup>3</sup> and Nassar and Shaheen.<sup>26</sup> Our finding may be related to the educational culture of our institution where stress tends to build up each progressive year due to ever-growing academic demands.

In conclusion, the overall mean HPLP-II scores of the non-health and health profession students who were women were low, reflecting the attitudes of today's learners. The highest mean score was obtained in the spiritual growth domain, and the lowest mean score was obtained in the

physical activity domain. The senior non-health profession students showed higher responsibility for their health but lower responsibility for their spiritual growth health behaviours compared with the junior students. The mean score for the stress management domain of younger health profession students were higher than those of older students. Based on the findings of this study, non-health and health profession students do not perform health-promoting lifestyle behaviours on a regular basis, and their lifestyle behaviour scores are inordinately low.

The findings of this study can be used in the implementation of reforms in institutional academic culture. Physical facilities to promote health dexterity, support groups, health clubs, and even virtual clubs where students can share inspirational stories may facilitate the much-needed changes. The dissemination of the findings of this study by poster presentations and seminars may help the students and the administration to bring about educational reforms. These may be in the form of dedicated times and sessions to achieve mindfulness and wellbeing.

The primary limitation of this study is the non-generalizability of the results to all university students. As the participants were recruited from one major university in the Eastern Province of the KSA, and only female students were included. Therefore, it is highly recommended that similar studies be conducted to explore the health-promoting behaviours of students at other universities.

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#### Conflict of interest

The author has no conflict of interest to declare.

#### Ethical approval

Ethical approval (IRB-2016-03-016) was obtained from the Institutional Review Board at IAU, KSA.

#### Consent

Prior written informed consent was obtained from all the study participants. Participation in the study was voluntary, and the students were assured of anonymity.

#### Acknowledgment

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