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Barriers to Seeking Physical and Mental Health Care Among Healthcare Students in Riyadh, Saudi Arabia: A Cross-Sectional Study

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Abstract

Background

Medical students face high levels of stress and depression during training, increasing medical errors and impairing performance. However, few students seek professional help, often self-medicating or relying on peers because of stigma, confidentiality concerns, limited awareness of available services, fear of intervention, and lack of time.

Methods

A cross-sectional, self-administered online survey was conducted among healthcare students enrolled in Medicine, Dentistry, and Pharmacy courses at King Saud bin Abdulaziz University for Health Sciences and King Saud University, Riyadh, Saudi Arabia, from September 9, 2025, to July 1, 2026. Students were selected by stratified random sampling and invited by email (2,000 invitations); 482 students completed the 28-item Barriers to Health Care Seeking Questionnaire (14 matched mental and physical healthcare item pairs, five-point response scale, positively worded items reverse-scored) together with sociodemographic and health-related questions. Data were analyzed using IBM SPSS Statistics for Windows, version 27 (IBM Corp., Armonk, New York, United States). Descriptive statistics and Cronbach's alpha were calculated; mental and physical barrier scores were compared using the paired-samples t test and Wilcoxon signed-rank test (Cohen's dz); scores across colleges were compared using Welch's analysis of variance and the Kruskal-Wallis test with post hoc tests; and independent predictors were identified using multivariable linear regression. P values were adjusted for multiple comparisons (Holm procedure), with two-tailed significance set at $p<0.05$ and 95% confidence intervals (CIs) reported.

Results

Among the 482 participants (mean age 21.68 years) studying medicine (72.8%), dentistry (14.5%), and pharmacy (12.7%), mental health care barriers exceeded physical health care barriers by a mean of 4.11 points (95% CI 3.56-4.66, $p<0.001$), and 66.2% scored higher on the mental health barriers subscale. Lack of time was the most commonly reported barrier (70.1%), followed by cost (35.8%) and uncertainty about where to seek help (33.3%). The greatest mental-physical care gaps involved fear of harming grades/career prospects, confidentiality, perceived lack of benefit of consultation, and reluctance to see a known clinician. Physical health care barriers varied significantly across colleges and were lowest among medical students; mental health care barriers did not differ across colleges. Only college of study was independently associated with physical health barriers, and not with mental health barriers.

Conclusion

Healthcare students at two universities in Riyadh perceived greater barriers to mental health care than to physical health care, and this gap was accompanied by higher perceived confidentiality, career concerns, and clinician familiarity, alongside widespread time constraints. This suggests that structural changes, such as separating health services from academic assessment and strengthening confidentiality-related policies, are potential strategies that warrant further evaluation.

Categories: Medical Education, Psychiatry, Public Health
Keywords: healthcare seeking behavior, help seeking, medical students, mental health barriers, stigma

Introduction

Medical students face considerable stress during their training, as documented globally [1,2]. Medical students in Saudi Arabia have also been found to experience high levels of depression and stress [3]. Due to time constraints, medical students often overlook stress-related mental health issues [4], which are further aggravated by sleep deprivation and limited social interaction [5].

Increased stress and depression among medical students may compromise patient safety, resulting in medical errors [6]. Additionally, psychological distress can interfere with a student's well-being, academic performance, and working relationships, all of which are essential to clinical practice [7]. Instead of seeking proper treatment, students often self-medicate or seek informal prescriptions from peers and colleagues [8]. According to the literature, 17.0% of Saudi medical students reported counseling sessions with seniors as a stress-coping strategy [9]. Professional help-seeking among Saudi medical students remains low despite considerable psychological distress: in a study of 480 undergraduate medical students in the Eastern Province, 42.5% reported needing mental health services, but only 16.2% reported using them [10]. Furthermore, clinical placements and clerkships require students to be psychologically and physically capable of fulfilling clinical duties, and the transition from medical school to clerkship imposes significant physical and psychological stress on students [11].

Mental health services were often avoided because of stigma, confidentiality, lack of awareness about available services, and fear of unwanted intervention, whereas physical health services are often avoided because of lack of time, fear of side effects, and fear of impact on academic performance. Students viewed mental health consultations as having limited benefits and feared that seeking such consultations could lead to social ostracism from peers who perceived mental illness as a sign of weakness. The most common barriers overall were lack of time, fear of side effects, and academic implications [12]. Previous studies described barriers to mental and physical care separately, usually in different samples or with different instruments. To our knowledge, few studies have compared both sets of barriers in the same participants using matched items, and evidence from Saudi healthcare students remains limited. Our study addresses this by using the 14 matched item pairs of the Barriers to Health Care Seeking Questionnaire (BHSQ) in a within-participant design across three healthcare professional disciplines (Medicine, Dentistry, Pharmacy).

This study aimed to measure the barriers to seeking physical and mental health care among healthcare students in Riyadh. The primary objective was to compare, within the same student, the barriers to seeking physical health care with the barriers to seeking mental health care. The secondary objectives were to compare these barriers across the Colleges of Medicine, Dentistry, and Pharmacy, and to examine which student characteristics were associated with barrier scores.

Materials And Methods

This was a cross-sectional study conducted using a self-administered online questionnaire to identify barriers to seeking physical and mental health care among healthcare students enrolled in the Colleges of Medicine, Dentistry, and Pharmacy at King Saud bin Abdulaziz University for Health Sciences and King Saud University in Riyadh, Saudi Arabia, from September 9, 2025, to July 1, 2026.

This study was conducted in accordance with the Declaration of Helsinki and approved by the Institutional Review Board of King Abdullah International Medical Research Center, Riyadh, Kingdom of Saudi Arabia (study number: NRR25/020/8) on September 9, 2025. All participants reviewed a digital cover letter that explained the objectives of the research, the estimated five-minute duration, and the measures taken to ensure data confidentiality. We informed participants that their participation was entirely voluntary and that they could withdraw at any time. Since the survey was administered electronically, a waiver of written informed consent was granted. By clicking the ‘Next’ button to begin the survey, participants provided their digital implied consent to take part in the study. No identifying information was collected.

Study population and sampling

All healthcare students enrolled in the Colleges of Medicine, Dentistry, and Pharmacy at the two participating universities during the study period were eligible. The minimum required sample size was calculated using the standard formula for estimating a single proportion [13]:

$n = \frac{Z^2 \times P(1-P)}{d^2}$, where n is the minimum required sample size, Z is the standard normal value at the 95% confidence level (1.96), P is the expected proportion (taken as 0.5, because no prior estimate was available and this value yields the maximum sample size), and d is the margin of error (0.05). Accordingly, $n = \frac{1.96^2 \times 0.5 \times 0.5}{0.05^2} \approx 384$. This sample size was increased by 20% and set at 461 to account for non-respondents. This calculation addresses the descriptive objectives (estimating proportions). It was not calculated for the paired comparison or the regression analyses. A sensitivity analysis showed that the achieved sample (n = 482) could detect a paired effect as small as dz ≈ 0.13 and a regression effect of $f^2 \approx 0.03$ ($\alpha = 0.05$, 80% power).

Participants were recruited using stratified random sampling from the official student lists of the participating universities. The sampling frame was stratified by academic year (five levels) and gender (two levels), giving 10 strata. In each round, 20 students were randomly selected from each stratum (100 male and 100 female students; 200 students in total) and invited by email with the survey link. This process was repeated in successive rounds, each with a new set of 200 students who had not been invited before. The

stopping rule, specified a priori, was attainment of the minimum required sample size of 461 completed responses; no cap on the number of invitations was set. This target was reached after 2,000 invitations (10 rounds), and the survey link was closed on July 1, 2026. Because responses continued to arrive after the final round was sent, the final sample was 482 (response rate 482/2000, approximately 24%). Equal allocation was used across strata, so the sample is not proportional to the size of each stratum in the population. Although invitees were randomly selected, participation was voluntary. All respondents answered every item, so no incomplete responses were excluded.

Data collection, instrument administration, and study variables

The survey was administered using Google Forms (Google LLC, Mountain View, California, United States). Data were collected using the BHSQ, a self-administered 28-item instrument developed and originally validated by Sarkar and Menon [14] using a four-point response format, comprising 14 matched item pairs addressing mental and physical health care. The BHSQ was used with permission. Items were presented in a fixed alternating order (each mental health item followed by its matched physical health item). We used a five-point response format with a neutral midpoint, rather than the original instrument's four-point format, to avoid forcing a response. Because the response format was modified, the validity evidence reported in the original study does not automatically apply to the adapted version. We therefore treated this as an adapted instrument (with permission) and report its psychometric properties in this sample (see Appendix A). We reverse-scored the six positively worded items so that higher scores consistently reflected greater perceived barriers, and all descriptive statistics were reported on this barrier-directed scale. The subscale scores therefore ranged from 14 to 70, and the total scores ranged from 28 to 140. Responses were exported to a coded spreadsheet without identifiers, protected with a password, and accessible only to the researchers.

Statistical analysis

We cleaned the data in Microsoft Excel (Microsoft Corporation, Redmond, Washington, United States) and exported them to IBM SPSS Statistics, version 27 (IBM Corp., Armonk, New York, United States), for analysis. Categorical variables were expressed as frequencies and percentages, and continuous variables as the mean ± standard deviation (SD), median, and interquartile range (IQR), as appropriate. Internal consistency was evaluated using Cronbach's alpha and corrected item-total correlations. Normality was assessed using the Shapiro-Wilk test alongside skewness and kurtosis values. As the Shapiro-Wilk test was significant for two of the three scores, despite the skewness and kurtosis remaining within ±1, both parametric and nonparametric tests were performed for all comparisons; the results were concordant throughout.

Matched mental and physical health items were compared among participants using a paired-samples t-test and Wilcoxon signed-rank test, with the effect size expressed as Cohen's dz. Scores across the three colleges of the two universities were compared using Welch's analysis of variance, which is preferred over the classical F test given unequal variances on Levene's test and disparate group sizes, together with the Kruskal–Wallis test (eta-squared); post hoc comparisons were conducted using the Games–Howell test and Dunn's test, respectively. Categorical associations were examined using the chi-square test.

Multivariable linear regression was used to identify factors independently associated with each subscale score. The variables of age, sex, collge, university, year of study, smoking status, and self-reported medical and psychological illness were entered simultaneously; no stepwise or statistical selection was used. Marital status and residential background were not entered because of limited variability (only seven participants were married, and all resided in Riyadh) and were reported descriptively. Model adequacy was evaluated using variance inflation factors, the Durbin-Watson statistic, the Breusch-Pagan test, and residual normality inspection.

Within each family of comparisons, p-values were adjusted using the Holm procedure, while exploratory bivariate analyses additionally reported Benjamini-Hochberg false discovery rate-adjusted values alongside unadjusted p-values. Bivariate associations were examined using the Mann-Whitney U test for two-group comparisons, the Kruskal-Wallis test for year of study, and Spearman correlation for age, with Benjamini-Hochberg adjustment. The Holm procedure was applied separately within three families of comparisons: The first comprised the 14 matched mental versus physical item pairs, which were adjusted together as 14 comparisons. The second comprised the pairwise comparisons between colleges, adjusted together as nine comparisons (three college pairs for each of the mental, physical, and total scores); the p-values adjusted were those from Dunn's test. The third comprised the item-level barriers compared across colleges, adjusted together as eight comparisons. All tests were two-tailed, with $p < 0.05$ considered statistically significant, and 95% confidence intervals are reported to indicate precision.

Sensitivity analyses were performed using G*Power [15] for the paired t-test and for multiple regression with nine predictors, using the achieved sample ($n = 482$; $\alpha = 0.05$, two-sided; power 80%). Because the sample size was not calculated a priori for these analyses, minimum detectable effects are reported instead of post hoc power.

Results

Participant characteristics

A total of 482 healthcare students participated in the study, of whom 351 (72.8%) studied medicine, 70 (14.5%) studied dentistry, and 61 (12.7%) studied pharmacy. The mean age was 21.68 years (SD 1.78), and 284 (58.9%) were women (Table 1). Informal routes to care were common: 236 (49.0%) self-medicated for a physical problem, 111 (23.0%) used psychiatric or sleep medication without a prescription, and 164 (34.0%) sought help from peers or seniors for a physical problem and 96 (19.9%) for a mental problem.

Characteristic	Sub-categories	Value
Age (years)	Mean±SD	21.68±1.78
	Median (IQR)	21 (20–23)
	Range	18–29
Gender, n (%)	Male	198 (41.1)
	Female	284 (58.9)
College of study, n (%)	Medicine	351 (72.8)
	Dentistry	70 (14.5)
	Pharmacy	61 (12.7)
University, n (%)	King Saud University	189 (39.2)
	King Saud bin Abdulaziz University for Health Sciences	293 (60.8)
Year of study, n (%)	1st year	46 (9.5)
	2nd year	111 (23.0)
	3rd year	107 (22.2)
	4th year	98 (20.3)
	5th year	120 (24.9)
Marital status, n (%)	Single	475 (98.5)
	Married	7 (1.5)
Residential background, n (%)	Riyadh	482 (100)
Current smoker, n (%)	Yes	33 (6.8)
Self-reported medical illness, n (%)	Yes	74 (15.4)
Self-reported psychological illness, n (%)	Yes	51 (10.6)
Ever self-medicated for a physical problem, n (%)	Yes	236 (49.0)
Ever self-medicated with psychiatric or sleep medication, n (%)	Yes	111 (23.0)
Ever sought help from peers or seniors for physical problems, n (%)	Yes	164 (34.0)
Ever sought help from peers or seniors for mental problems, n (%)	Yes	96 (19.9)

TABLE 1: Sociodemographic and health-related characteristics of the participants (N = 482)

SD, standard deviation; IQR, interquartile range

Perceived barriers and negative experiences

In terms of perceived barriers to seeking help, lack of time was the most frequently reported barrier (n=337, 70.1%), substantially exceeding all other barriers, followed by cost (n=172, 35.8%), uncertainty about where to seek help (n=160, 33.3%), fear of academic impact (n=140, 29.1%), and stigma (n=138, 28.7%); confidentiality (n=108, 22.5%) and fear of side effects (n=96, 20.0%) were the least frequently selected barriers (Table 2). Students reported a mean of 2.66 (SD 1.58) of the eight barriers, while 29 (6.0%) described an additional barrier in the free-text field.

Response		Value
Perceived barriers to seeking care, n (%)	Lack of time	337 (70.1)
	High cost of healthcare services	172 (35.8)
	Unsure where to seek help	160 (33.3)
	Fear of negative impact on academic performance	140 (29.1)
	Stigma or fear of being judged	138 (28.7)
	Fear of unwanted intervention	128 (26.6)
	Lack of confidentiality	108 (22.5)
	Fear of side effects from treatment	96 (20.0)
	Other barrier described in free text	29 (6.0)
Number of listed barriers selected	mean ±SD	2.66 ±1.58
	Median (range)	2 (0–8)
Negative experience when seeking care, n (%)	Never	227 (47.1)
	Long waiting time in the clinic	81 (16.8)
	Poor attitude from healthcare workers (nurse/physician)	69 (14.3)
	Difficulty scheduling appointments	62 (12.9)
	Poor attitude from administrative staff (receptionist)	17 (3.5)
	Never sought / never needed healthcare (not applicable)	12 (2.5)
	All of the above	8 (1.7)
	Other negative experience (specified)	5 (1.0)
	Two or more of the above (specified)	1 (0.2)
Never sought/never needed healthcare, n (%)		12 (2.5)

TABLE 2: Perceived barriers to seeking healthcare and negative experiences when seeking care

Barriers were a multiple-response item answered by 481 students; percentages for that item are of 481. One student left it blank. Negative experience was a single-response item answered by all 482 students; percentages are of 482. Responses indicating that the student had never used the service are reported separately from 'Never', because the two are not equivalent.

Negative experiences of seeking help were common. Although 227 (47.1%) students reported none, 81 (16.8%) mentioned long wait times, 69 (14.3%) poor attitudes from clinical staff, 62 (12.9%) difficulty scheduling appointments, and 17 (3.5%) poor attitudes from administrative staff. A further 12 (2.5%) had never used healthcare services and were therefore reported separately, as non-use is not equivalent to experiencing no negative experience.

Magnitude of healthcare barriers on the scale

Across a possible range of 28-140, the mean total score was 72.09 (SD 13.33), with observed scores ranging from 32 to 116 (Table *3*). The full 28-item scale showed good internal consistency (Cronbach's alpha = 0.828), while both subscales showed acceptable internal consistency (mental health care barriers: 0.720; physical health care barriers: 0.719). Item-level statistics for all 28 items are listed in Appendix A.

Scale	k	Mean	SD	95% CI	Median	IQR	Observed range	Possible range	alpha
Mental health care barriers	14	38.10	7.53	37.43–38.77	38	33–43	16–58	14–70	0.720
Physical health care barriers	14	33.99	7.14	33.35–34.62	34	29–39	16–58	14–70	0.719
Total barriers	28	72.09	13.33	70.89–73.28	73	64–81	32–116	28–140	0.828

TABLE 3: Barrier scale and subscale scores, distribution and internal consistency (n = 482)

A higher score indicates a greater barrier. Skewness and kurtosis are within ±1 for all three scores, supporting the use of means and standard deviations alongside the rank-based tests

k, number of items; CI, confidence interval; IQR, interquartile range; alpha, Cronbach's alpha

Mental vs. physical health care barriers

Perceived barriers for seeking mental health care were consistently greater than those for seeking physical health care. The mental health care barriers subscale score was 38.10 (7.53), compared with 33.99 (7.14) for the physical health care barriers subscale, with a mean within-student difference of 4.11 points (95% CI, 3.56 to 4.66). This difference was significant according to both the paired t test (t(481) = 14.680, p = 1.40 × 10−40) and the Wilcoxon signed-rank test (W = 9913, p = 2.63 × 10−40), with a medium effect size (dz = 0.669). Among the 482 students, 319 (66.2%) scored higher on the mental health care barriers subscale, 87 scored higher on the physical subscale, and 76 scored identical on both subscales. No established threshold for a meaningful difference on this scale exists, and the original validation paper [14] does not give one; the practical importance of the difference was therefore judged from the effect size and the proportion of students scoring higher on each subscale. The subscales were moderately correlated (Spearman rho 0.621, p = 1.17 × 10−52), capturing related but distinct constructs. Figure *1* shows the two distributions and the distribution of the within-student difference.

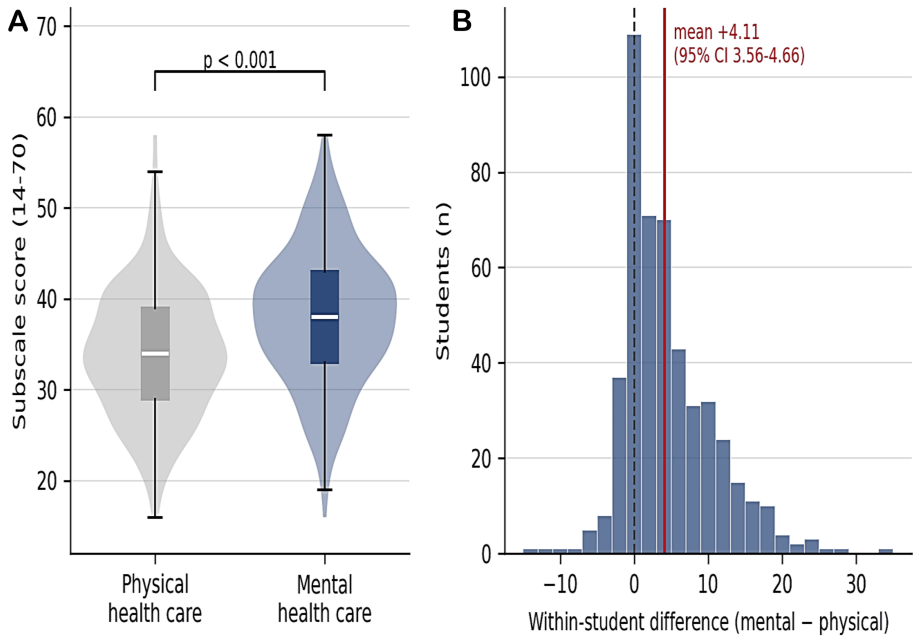

FIGURE 1: Distribution of the mental and physical health care barrier subscale scores (A) and of the within-student difference between them (B).

(A) The shaded shapes are kernel density estimates; the inset boxes show the median and interquartile range, and the whiskers extend to 1.5 times the IQR; outlying observations are not plotted individually. (B) The dashed line indicates no difference, and the solid line indicates the mean difference with its 95% confidence interval.

No single item drove the gap (Table *4* and Figure *2*). After the Holm correction was applied, 11 of the 14

matched pairs differed significantly, each favoring a greater barrier to seeking mental health care. The widest gaps concerned fear of harm to grades, educational opportunities, or career (+0.59); confidentiality (+0.57); and, with equal gaps, the belief that consultation would not be beneficial and concern about knowing or later meeting the treating clinician (both +0.52). Three pairs, however, did not differ: the belief that a peer could need professional care, the preference for informal consultation, and the ability to arrange a private appointment outside the institution. Absolute barrier levels were substantial, particularly for mental health care: 56.0% of the students were concerned about confidentiality within the psychiatry department versus 36.5% within the medicine department, and 51.5% worried about knowing or later meeting the treating clinician.

Barrier	Mental health care		Physical health care		Diff	dz	W	p	p (Holm)
	Mean (SD)	Agree %	Mean (SD)	Agree %					
Does not believe a student could have a problem needing professional care	1.54 (0.97)	6.0	1.51 (0.90)	3.9	+0.03	+0.046	1522	0.495	1.000
Problem would be viewed as a sign of weakness by teachers and peers	2.81 (1.24)	36.1	2.33 (1.23)	21.6	+0.49	+0.432	3447.5	1.31×10^{-18}	1.58×10^{-17}
Does not know how to arrange an appointment within the institution	2.27 (1.01)	10.0	2.10 (1.02)	8.5	+0.17	+0.187	3227	3.61×10^{-5}	2.37×10^{-4}
Does not know how to arrange a private appointment outside the institution	2.21 (1.04)	10.0	2.22 (1.01)	10.0	−0.01	−0.017	4119.5	0.739	1.000
Would not have time to make and attend an appointment	2.67 (1.12)	23.2	2.31 (1.00)	11.6	+0.36	+0.388	2036	6.31×10^{-16}	5.68×10^{-15}
Believes the consultation would not be beneficial	2.61 (1.24)	24.9	2.10 (1.07)	10.6	+0.52	+0.423	4211.5	9.55×10^{-18}	1.05×10^{-16}
Would attribute symptoms to over-identification with course material	3.22 (1.11)	44.4	3.00 (1.10)	35.7	+0.22	+0.192	5924	3.38×10^{-5}	2.37×10^{-4}
Fears harm to grades, educational opportunities or career	2.80 (1.29)	32.2	2.21 (1.06)	13.1	+0.59	+0.493	2852.5	4.31×10^{-22}	6.04×10^{-21}
Concerned about knowing or later meeting the treating clinician	3.37 (1.19)	51.5	2.85 (1.22)	33.6	+0.52	+0.415	4034	3.05×10^{-17}	3.05×10^{-16}
Prefers informal consultation to a documented one	2.87 (1.26)	33.2	2.84 (1.18)	29.3	+0.03	+0.020	10014.5	0.681	1.000
Comfortable self-diagnosing the problem	2.94 (1.20)	31.7	2.77 (1.13)	26.6	+0.17	+0.145	8056	0.003	0.010
Concerned about confidentiality (classmates or teachers finding out)	3.56 (1.26)	56.0	2.99 (1.28)	36.5	+0.57	+0.469	2799	1.47×10^{-19}	1.92×10^{-18}
Fears social isolation by peers	2.41 (1.08)	14.5	2.13 (1.06)	9.8	+0.29	+0.342	1325.5	1.06×10^{-12}	8.45×10^{-12}
Prefers alternative or complementary medicine	2.81 (1.14)	25.9	2.63 (1.10)	19.5	+0.18	+0.186	4278.5	6.17×10^{-5}	3.09×10^{-4}

TABLE 4: Comparison of the 14 matched mental and physical health care barrier items (N = 482)

Values are mean (SD) item scores after reverse scoring, with agreement defined as a score of 4 or 5 on the barrier-directed scale. A positive difference indicates a greater barrier for mental health care.

Diff, mean within-student difference (mental minus physical); dz, standardised paired effect size; W, Wilcoxon signed-rank statistic, reported to one decimal where ties make it a half-integer; p (Holm), p value adjusted for the 14 comparisons by the Holm procedure.

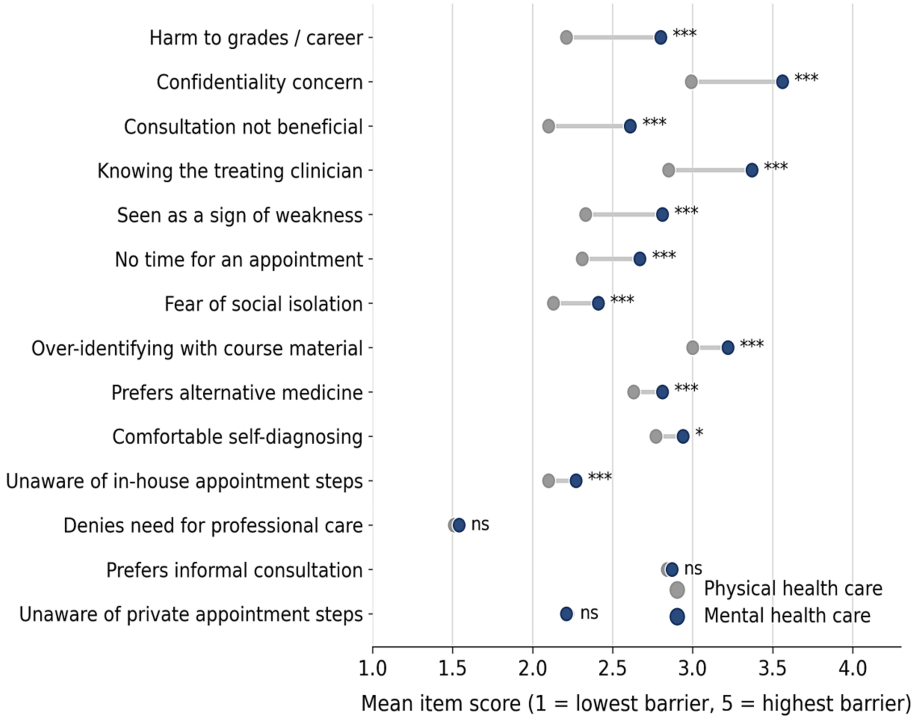

FIGURE 2: Mean item scores for the 14 matched barrier pairs, ordered by the size of the mental-physical gap.

Items are scored from 1 to 5 after reverse scoring, with higher scores indicating greater barriers. Each label names the barrier rather than the attitude, so a low score denotes a low barrier. Significance of the within-student Wilcoxon signed-rank comparison after Holm correction: *** p < 0.001, ** p < 0.01, * p < 0.05, ns not significant.

Comparison across the three colleges (disciplines)

In unadjusted comparisons, physical health care barriers differed significantly across colleges (Table 5 and Figure 3), as did the total score, but mental health care barriers did not. Effect sizes were small throughout (eta squared (η^2) 0.0036 to 0.0389). These comparisons do not account for covariates, and the colleges differed considerably in size (medicine = 351, dentistry = 70, pharmacy = 61).

Scale	Medicine (n = 351), mean (SD)	Dentistry (n = 70), mean (SD)	Pharmacy (n = 61), mean (SD)	Levene p	Welch F	p (Welch)	H	p (K-W)	η^2
Mental health care barriers	37.75 (7.84)	39.64 (6.16)	38.36 (7.00)	0.032	2.509	0.085	3.736	0.154	0.0036
Physical health care barriers	33.07 (7.03)	36.47 (6.00)	36.38 (7.86)	0.048	11.694	2.38×10^{-5}	20.646	3.29×10^{-5}	0.0389
Total barriers	70.82 (13.41)	76.11 (10.93)	74.74 (14.19)	0.102	7.256	0.001	10.837	0.004	0.0184

TABLE 5: Barrier scores by college of study

Levene, p-value of Levene's test of equality of variances; Welch, Welch's analysis of variance, used in place of the classic F test because variances and group sizes are unequal; H, Kruskal-Wallis statistic; η^2, Kruskal-Wallis effect size.

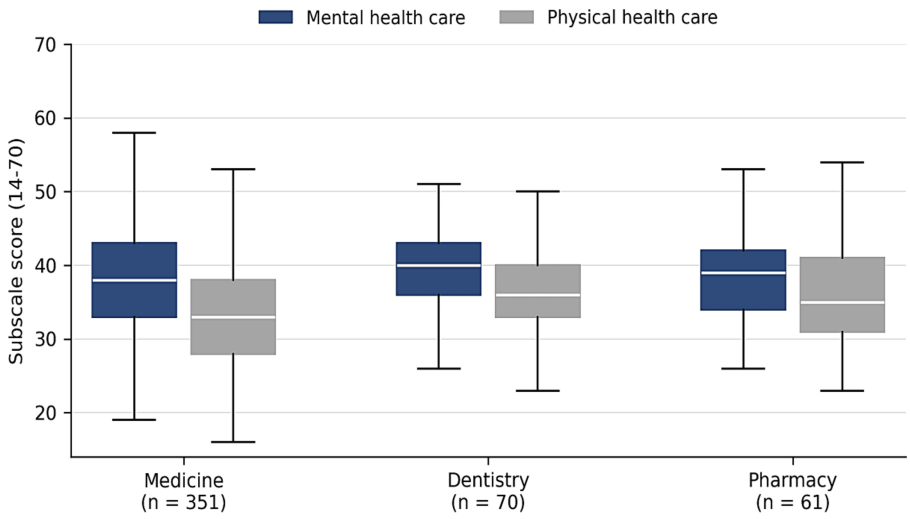

FIGURE 3: Mental and physical health care barrier subscale scores by college of study.

Boxes show the median and IQR, and whiskers extend to 1.5 times the IQR; outlying observations are not plotted individually, so the whiskers do not show the full observed range given in Table 3. Physical health care barriers differed significantly across the three colleges (Kruskal-Wallis p = 3.29 × 10−5), whereas mental health care barriers did not (p = 0.154).

IQR, interquartile range

Compared with both dentistry students (−3.40 points) and pharmacy students (−3.30 points), medical students reported significantly lower physical health care barriers (Table *6*); the difference between dentistry and pharmacy students was not significant. In terms of the total score, only the difference between medicine and dentistry students remained significant after correction for multiple comparisons; no pairwise contrast was significant for the mental health care barriers subscale. Individual barriers by college are shown in Table *7*; compared with the students of other colleges, medical students reported a greater fear of academic impact and stigma, but neither difference survived correction.

Scale	Comparison	Diff	95% CI	p (G-H)	z	p (Dunn)	r	p (Holm)
Mental	Medicine vs Dentistry	−1.90	−3.91 to +0.11	0.069	−1.925	0.054	0.094	0.326
Mental	Medicine vs Pharmacy	−0.61	−2.97 to +1.74	0.809	−0.477	0.634	0.023	1.000
Mental	Dentistry vs Pharmacy	+1.28	−1.47 to +4.03	0.512	+1.061	0.289	0.093	1.000
Physical	Medicine vs Dentistry	−3.40	−5.32 to −1.47	1.61×10^{-4}	−3.856	1.15×10^{-4}	0.188	0.001
Physical	Medicine vs Pharmacy	−3.30	−5.87 to −0.74	0.008	−2.978	0.003	0.147	0.023
Physical	Dentistry vs Pharmacy	+0.09	−2.84 to +3.03	0.997	+0.523	0.601	0.046	1.000
Total	Medicine vs Dentistry	−5.29	−8.83 to −1.76	0.002	−2.978	0.003	0.145	0.023
Total	Medicine vs Pharmacy	−3.92	−8.58 to +0.75	0.117	−1.854	0.064	0.091	0.326
Total	Dentistry vs Pharmacy	+1.38	−3.94 to +6.69	0.812	+0.757	0.449	0.066	1.000

TABLE 6: Pairwise post-hoc comparisons of barrier scores between colleges

A positive difference favours the first college named.

Diff, difference in means; CI, Games-Howell simultaneous 95% confidence interval; p (G-H), Games-Howell p-value; z and p (Dunn), Dunn's rank-based test; r, effect size; p (Holm), Dunn p-value adjusted for the nine comparisons.

Barrier	Medicine (n = 350), n (%)	Dentistry (n = 70), n (%)	Pharmacy (n = 61), n (%)	chi2	p	p (Holm)
Lack of time	238 (68.0)	55 (78.6)	44 (72.1)	3.251	0.197	0.984
High cost of healthcare services	124 (35.4)	24 (34.3)	24 (39.3)	0.424	0.809	1.000
Unsure where to seek help	116 (33.1)	23 (32.9)	21 (34.4)	0.045	0.978	1.000
Fear of negative impact on academic performance	113 (32.3)	15 (21.4)	12 (19.7)	6.346	0.042	0.335
Stigma or fear of being judged	110 (31.4)	18 (25.7)	10 (16.4)	6.094	0.047	0.335
Fear of unwanted intervention	97 (27.7)	12 (17.1)	19 (31.1)	4.074	0.130	0.782
Lack of confidentiality	80 (22.9)	14 (20.0)	14 (23.0)	0.283	0.868	1.000
Fear of side effects from treatment	73 (20.9)	12 (17.1)	11 (18.0)	0.666	0.717	1.000

TABLE 7: Self-reported barriers to seeking care by college of study

One medicine student left the item blank. Chi-squared test of independence on a 3 × 2 table, 2 degrees of freedom; p (Holm) adjusted for the eight comparisons. No barrier differed between colleges after adjustment.

Variables associated with the barrier scores

College of study was the only variable independently associated with physical health care barriers (Table *8* and Figure *4*). After adjusting for age, sex, university, year of study, smoking status, and self-reported illness, dentistry students and pharmacy students scored 3.16 points and 2.78 points higher than medicine students, respectively. No variable was independently associated with mental health care barriers; however, self-reported psychological illness showed a consistent negative but nonsignificant association with both subscales.

Variable	Mental health care barriers			Physical health care barriers			VIF
	B	95% CI	p	B	95% CI	p	
Female (vs male)	+0.19	−1.22 to +1.60	0.792	−0.76	−2.07 to +0.56	0.257	1.07
Dentistry (vs medicine)	+1.52	−0.46 to +3.50	0.132	+3.16	+1.32 to +5.01	8.01×10^{-4}	1.08
Pharmacy (vs medicine)	+0.55	−1.66 to +2.75	0.627	+2.78	+0.73 to +4.84	0.008	1.19
KSAU-HS (vs KSU)	−0.41	−1.92 to +1.10	0.593	−0.89	−2.30 to +0.51	0.211	1.20
Current smoker (vs non-smoker)	+1.18	−1.55 to +3.91	0.396	−0.16	−2.69 to +2.38	0.903	1.05
Medical illness (vs none)	−0.33	−2.23 to +1.57	0.736	−0.21	−1.97 to +1.56	0.819	1.03
Psychological illness (vs none)	−1.63	−3.91 to +0.65	0.161	−2.01	−4.13 to +0.11	0.063	1.08
Age, per year	+0.08	−0.43 to +0.58	0.766	+0.13	−0.34 to +0.60	0.590	1.81
Year of study, per year	−0.43	−1.12 to +0.27	0.228	−0.10	−0.75 to +0.54	0.757	1.85

TABLE 8: Multivariable linear regression of the mental and physical health care barrier subscale scores on the study variables

Reference categories: male, medicine, King Saud University, non-smoker, no illness. Marital status and residential background were not entered because only seven students were married and because every participant was resident in Riyadh, leaving residence with no variance. Mental health care model: R2 = 0.020, F(9, 472) = 1.07, p = 0.382. Physical health care model: R2 = 0.059, F(9, 472) = 3.30, p = 6.43 × 10−4

B, unstandardized coefficient in scale points; CI, confidence interval; VIF, variance inflation factor (maximum 1.85, indicating no problematic collinearity).

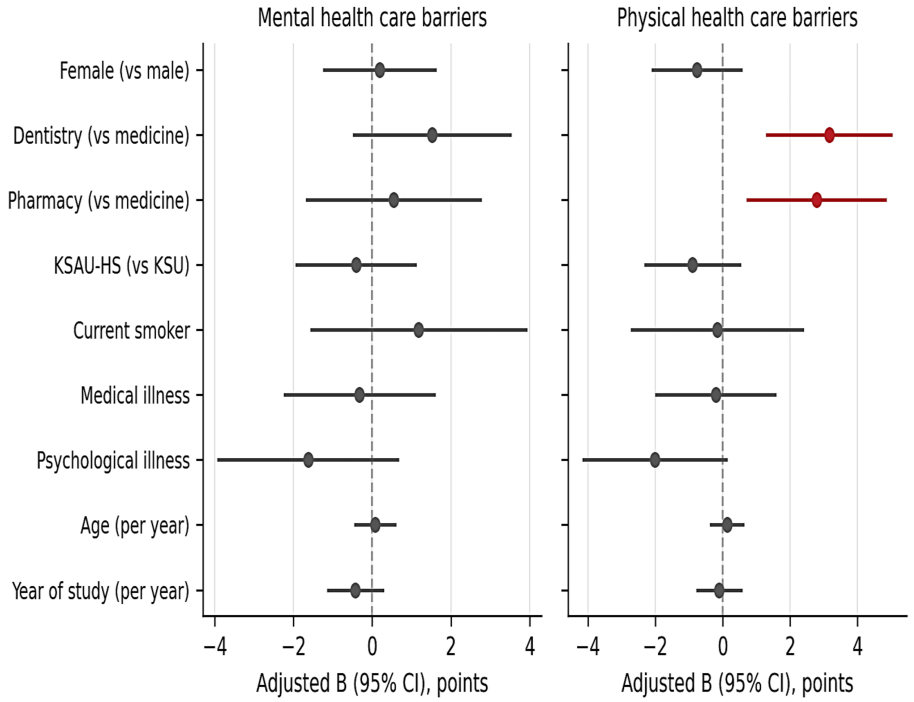

FIGURE 4: Adjusted associations between the study variables and the mental (left) and physical (right) health care barrier subscale scores.

Points are unstandardized regression coefficients in subscale score points (possible range 14-70), with 95% confidence intervals, estimated from models that include all listed variables simultaneously. Estimates whose confidence interval excludes zero are highlighted.

The models explained little of the variance in either outcome (Mental $R^2 = 0.020$; physical R^2 0.059), and the mental model was not significant overall. Sociodemographic characteristics therefore accounted for only a small part of the differences among students, and barriers appeared to be experienced broadly across the population rather than concentrated in identifiable subgroups. Most of the variation in perceived barriers is not explained by the characteristics we measured. Other factors that were not measured may account for it, such as previous experiences with health services, but this was not tested. All variance inflation factors were at or below 1.85, and residual diagnostics were satisfactory. Unadjusted bivariate associations and exploratory factor scores are shown in Appendices B and C.

Discussion

Among 482 medical, dental, and pharmacy students in Riyadh, barriers to seeking care were greater for mental health problems than for physical health problems. The mental health barriers subscale score exceeded the physical health barriers subscale score by 4.11 points (95% CI 3.56 to 4.66; dz = 0.669). Two-thirds of the students scored higher on the mental health barriers subscale, and 11 of the 14 matched pairs differed after correction, all in the same direction. The largest gaps concerned harm to grades and career prospects, confidentiality, the perceived lack of benefit of consultation, and the prospect of knowing or later meeting the treating clinician. Practical obstacles were also common, with 70.1% citing lack of time. Physical health barriers differed modestly across colleges; mental health barriers did not, and sociodemographic characteristics explained almost none of the variance.

A previous study using the same instrument reported similar results. Menon and colleagues administered the 28-item scale to 461 of 509 medical students at a government medical college in Puducherry, India, and concluded that barriers to seeking care differed between mental and physical health problems; stigma, confidentiality concerns, and poor awareness of service locations were among the barriers reported [12,14]. Brimstone and colleagues examined how students at an Australian medical school seek care for physical and mental health problems by comparing medical students with psychology students and investigating deterrents to conventional help-seeking routes [16]. In the current study, a within-person comparison across three professions and two universities in a Gulf setting yielded results consistent with the general pattern reported in both previous studies, suggesting that care-seeking barriers are not confined to a single curriculum or culture. This reflects agreement in the overall pattern rather than direct replication, given the modified five-point response format, differences in study populations and instruments, and the observational design. Measuring the difference within each student reduces the influence of stable

individual characteristics. It does not eliminate measurement-related biases or other sources of confounding.

These barriers sit against a high background burden. The pooled prevalence of depression or depressive symptoms among medical students is 27.2%, and among those screening positive, only 15.7% sought psychiatric treatment [17]. Saudi estimates run higher: a review of 18 studies from 2010-2019 reported a range of 30.9-77.6%, with a mean of 51.5% [18]. Among 480 medical students in the Eastern Province, 42.5% perceived a need for mental health services, while only 16.2% had used them in the previous year, and attitudinal barriers scored highest, followed by stigma-related barriers [10]. A survey of 434 students at King Saud bin Abdulaziz University for Health Sciences in Riyadh, one of the two universities sampled here, found the three most frequently reported care-seeking barriers to be the feeling that one's problems are not important, the concern that no one would understand, and difficulty accessing care [19]. That sample was predominantly male, while in our study sample, women predominated. The present data offer insights into the mechanisms underlying the difference between the need and use of healthcare services: students accept that peers may need professional care in both domains, yet perceive more obstacles to formal care for mental health problems.

No difference was detected for three pairs. Students were no more likely to deny that a peer could have a mental health problem needing professional care than a physical one, were no more inclined to prefer informal consultation in one domain than the other, and were no less aware of how to arrange a private appointment outside the institution. What differs is the anticipated consequence of using the institution's own services, which may shift the explanatory weight from mental health literacy to the structural and process features of care settings within a training environment.

Perceived harm to grades, educational opportunities, and career prospects produced the largest single gap (+0.59). Anticipated professional penalty recurs throughout this literature. Across six medical schools, compared with 44.3% of the overall population and 38.8% of age-matched individuals, only 26.9% of the respondents said they would definitely seek professional help for serious emotional problems. Approximately one-third of those with burnout had sought help in the previous year and were twice as likely to report that supervisors had judged them negatively, which was attributed in part to perceived stigma and the hidden curriculum [20].

Confidentiality produced the second-largest gap (+0.57). Among the students in our study, 56.0% reported worrying about classmates or teachers finding out whether they visited the institution's psychiatry department, whereas 36.5% reported a similar concern for visiting the medicine department. Concern about knowing or later meeting the treating clinician was the next frequently reported barrier (+0.52), endorsed by 51.5%. Both these barriers reflect the dual-role problem described in the older literature on medical students as patients. Of 2,868 students surveyed at three medical schools in the United States, many reported a perceived need for care but did not seek it, most commonly because of lack of time, difficulty accessing services, and stigma [21]; a broader scoping review similarly revealed that students avoided their home institution's services for fear that a future preceptor might be their treating clinician-the same dual-role concern [4]. A recent qualitative synthesis of physician and trainee narratives confirms that confidentiality and timely access remain central barriers, alongside stigma and fear of losing one's license [22].

A caution is due here. It may be tempting to interpret these results as evidence of stigma causing nonutilization, but the evidence does not support direct inference. Among 457 university students, self-stigma was more strongly and negatively associated with help-seeking attitudes ($r = -0.23$) than with perceived social/public stigma ($r = -0.15$), although both were statistically significant, an asymmetry consistent with earlier large-sample findings that personal stigma, not public stigma, is the more proximal barrier to care [23]. Our instrument measured perceived barriers, not realized behavior, and the items on classmates and teachers may have arguably captured perceived public attitudes rather than the students' personal attitudes toward seeking care. The findings identify students' anticipated care-seeking barriers as a legitimate area for improvement; however, they do not offer evidence that eliminating these barriers would increase the rate of seeking consultation.

Lack of time was the most frequently reported barrier at 70.1%, substantially higher than cost (35.8%) and uncertainty about where to seek help (33.3%). On the domain-specific scale item, agreement was lower (23.2% mental, 11.6% physical), although the gap favored mental health care (+0.36). Unlike attitudes, timetabling is directly modifiable. The study also revealed a marked shift toward self-directed and informal care: 49.0% of the students had self-medicated for a physical problem, 23.0% had used psychiatric or sleep medication without a prescription, and 34.0% and 19.9% had sought help from peers or seniors for physical and mental problems, respectively. Self-medication of comparable magnitude has been reported elsewhere in Saudi Arabia: 49.3% among medical and 19.6% among pharmacy students in Dammam [24], 55.9% among health-professional students in Jeddah [25], and comparable practices at Najran University [26]. Informal care-seeking is neither new nor local: how medical students access health services and use routes other than formal consultation has been examined in the United Kingdom quantitatively [27] and qualitatively [28]. The unprescribed use of psychiatric and sleep medication by almost one in four students is the more troubling finding, since it is pharmacologically active self-treatment of exactly the domain where formal care is most avoided.

Barriers to physical health care differed across the three colleges of study. Medical students reported the lowest scores and remained lowest after adjustment (dentistry +3.16 points, pharmacy +2.78 points relative to medicine), while mental health care barriers did not differ. One plausible explanation is that medical students have privileged informal access to physicians and diagnostic reasoning for self-management, as they usually obtain informal or "curbside" consultation from their colleagues rather than formal care [29], making formal physical health services feel less necessary. This advantage does not extend to psychiatric care: even when informal medical consultation is common, students report far lower rates of having an established mental health provider than a primary care provider [30]. Needs are unlikely to explain this difference: depression, anxiety, and stress have been documented at substantial levels among dental students in Riyadh [31], and among pharmacy students compared with medical students [32]. This finding remains hypothesis-generating: effect sizes were small (η^2 0.004 to 0.039), unequal group sizes limit precision for dentistry and pharmacy, and the questionnaire did not ask about access to informal professional networks, so the mechanism itself went unmeasured. More importantly, mental health barriers did not differ significantly across colleges, which may suggest a shared feature of health profession training; however, this study was not designed to test equivalence.

The multivariable models accounted for 2.0% and 5.9% of the variance in the mental and physical subscales, respectively, and the mental model was not significant overall. No variable was independently associated with mental health care barriers in this sample, although the model may have been underpowered to detect small associations. Barriers were not concentrated in subgroups defined by the characteristics measured here. This may suggest that screening based on these demographic subgroups alone would miss many students, and that universal approaches may be worth evaluating; however, this study did not evaluate screening strategies or compare interventions.

Four implications follow. First, the largest gaps involved concerns about the institution's own provision, alongside perceived benefit and stigma, while acceptance that a peer could need care did not differ; thus, student health services should be structurally separated from academic assessment. The Association of American Medical Colleges recommends that schools provide access to confidential counseling by mental health professionals, establish institutional policies on the confidentiality of mental health service records, and give students the choice of medical care from physicians who are not directly involved in their evaluation or promotion decisions [33]. Joint guidance from the General Medical Council and Medical Schools Council in the United Kingdom addresses how schools should work with occupational health services to support students with mental health conditions [34]. Second, confidentiality guarantees need to be explicit, publicized, and visibly enforced, since it is the anticipation of exposure, not any documented breach, that deters students. Third, the dominance of lack-of-time argues for protected, timetabled access rather than provision competing with teaching. Fourth, a systematic review of 44 randomized controlled trials of anti-stigma interventions reported significant improvement in stigma in 19 of 25 trials and in help-seeking in eight of 11 [35]. A peer-support program revealed higher empathy and self-efficacy among students delivering the support; however, their stigma-related attitudes were unchanged [36]. Both are reasonable adjuncts, but neither substitutes for structural change, and the reported effects are generally modest and short-lived. Such measures would sit within a national context in which the Saudi National Mental Health Survey has documented the population burden of mental disorders [37] and the barriers to treatment [38].

The matched-pair design is the principal strength of this study. It compares the two domains within the same student, using items identical except for the referenced domain; thus, between-person confounding and differential recall do not arise. The sample was large, exceeded the minimum calculated for estimating proportions, was adequately powered for the primary paired comparison, and was drawn from three professions and two universities. It was also complete: every participant answered all 28 scale items, so no case was lost to listwise deletion. Internal consistency was good for the full scale and acceptable for both subscales, and every comparison used both parametric and rank-based tests, with correction applied within each family.

Limitations of the study

Our study had some limitations. The design is cross-sectional, so neither causal nor temporal inference is possible, and the outcome is perceived barriers rather than actual service use; the two are related but not equivalent. The measured sociodemographic and health-related characteristics explained only a small proportion of the variability in perceived barriers (R^2 = 0.020 for mental and 0.059 for physical); other factors that were not measured, such as previous experiences with health services, may contribute. All the measures were self-reported and subject to social desirability bias, which here would understate rather than overstate stigma-related barriers. The paired design does not remove measurement-related biases, such as item order, wording differences between the mental and physical items, and social desirability, or confounding by unmeasured factors that affect the two domains differently, such as previous experience with each type of service. Because the mental and physical items were identical except for the domain and were presented in fixed alternating pairs, the contrast between them was apparent to respondents, which may have prompted them to report a difference (demand effect), and the fixed order precluded assessing order effects. Invitees were randomly selected within strata from official student lists, but participation was voluntary, and the response rate was approximately 24%, so the achieved sample is self-selected rather than

a probability sample of the student population; students with stronger views on access to care may have been more likely to respond, the direction of the resulting bias is uncertain, and the findings may not represent the non-responding majority.

The BHSQ was originally developed with a four-point response format; we used a five-point format with a neutral midpoint to avoid forcing a response. The internal consistency we report indicates only that the items covary within our sample; it does not establish the validity of the adapted scale or its equivalence to the original instrument. The five-point format has not been validated against the original four-point version, and its measurement equivalence is unknown. Absolute scores should therefore not be compared with those from studies using the original format, and the subscale scores should be interpreted as relative rather than calibrated measures. The principal analysis compares the mental and physical subscales within the same respondents using an identical format for both, which limits, but does not eliminate, the effect of the format change on the between-domain comparison; a midpoint could still influence responses differently across the two domains. Future studies should validate the adapted scale or use the original four-point format. To our knowledge, no minimal clinically important difference has been established for the BHSQ; the practical importance of the 4.11-point difference was therefore interpreted using the effect size (dz = 0.669) and the proportion of students scoring higher on each subscale. The sample was drawn from a single city, with women overrepresented at 58.9%; thus, caution is warranted when generalizing the results beyond other Saudi regions or these two universities. The questionnaire did not record the study campus. The sample size was calculated for estimating proportions, not for the primary paired comparison or the regression models. Sensitivity analysis indicated adequate power for the primary comparison (observed dz = 0.669 versus a minimum detectable dz ≈ 0.13), but the mental health regression (R^2 = 0.020) was likely underpowered to detect small associations. Null findings for individual predictors and for between-college differences in mental health barriers should therefore be interpreted cautiously. Finally, medical students outnumbered dental students by five to one and pharmacy students by nearly six to one, limiting the precision of between-college comparisons.

Conclusions

Healthcare students in Riyadh perceive greater obstacles to seeking care for mental health problems than for physical health problems, an asymmetry present in the mean scores of all three college: medicine, dentistry, and pharmacy, although it was not tested formally within each. This did not arise from a failure to recognize when professional help is warranted: students were equally accepting of a colleague needing psychiatric care as well as physical care and were equally aware of how to access such services outside their institution. The items that differed most concerned grades and career prospects, confidentiality, the perceived benefit of consultation, and knowing or later meeting the treating clinician. These concerns may contribute to the gap between mental and physical health care barriers, although this study did not test whether they explain it.

The structure and governance of student health services may therefore contribute to these barriers, although this study did not directly evaluate institutional governance or service arrangements, or the relative contribution of students' knowledge and beliefs. Where care is delivered by the same faculty that examines and promotes, students may be skeptical of confidentiality even when it is scrupulously observed, and this perception alone serves as a deterrent. Practical obstacles further compound the problem. Lack of time was cited more often than any other barrier, and a substantial minority managed symptoms through self-medication or informal consultation with peers and seniors, including for psychological complaints, where unsupervised pharmacological self-treatment carried evident risk. Institutions that wish to narrow the gap between access to mental and physical health care should look first at their own arrangements. Care can be separated from academic assessment. Confidentiality can be made explicit, publicized, and demonstrably enforced. Timetabled space can be protected so that students can attend consultations without forfeiting teaching.

Appendices

Appendix A

Item	Domain	Barrier	Reversed	Mean	SD	Agree %	r(i-t)	alpha if deleted
Q17	Mental	Does not believe a student could have a problem needing professional care	No	1.54	0.97	6.0	0.162	0.722
Q18	Physical	Does not believe a student could have a problem needing professional care	No	1.51	0.90	3.9	0.388	0.698
Q19	Mental	Problem would be viewed as a sign of weakness by teachers and peers	No	2.81	1.24	36.1	0.390	0.698
Q20	Physical	Problem would be viewed as a sign of weakness by teachers and peers	No	2.33	1.23	21.6	0.295	0.708

Q21	Mental	Does not know how to arrange an appointment within the institution	Yes	2.27	1.01	10.0	0.255	0.713
Q22	Physical	Does not know how to arrange an appointment within the institution	Yes	2.10	1.02	8.5	0.213	0.716
Q23	Mental	Does not know how to arrange a private appointment outside the institution	Yes	2.21	1.04	10.0	0.173	0.722
Q24	Physical	Does not know how to arrange a private appointment outside the institution	Yes	2.22	1.01	10.0	0.081	0.730
Q25	Mental	Would not have time to make and attend an appointment	Yes	2.67	1.12	23.2	0.234	0.716
Q26	Physical	Would not have time to make and attend an appointment	Yes	2.31	1.00	11.6	0.187	0.719
Q27	Mental	Believes the consultation would not be beneficial	No	2.61	1.24	24.9	0.511	0.682
Q28	Physical	Believes the consultation would not be beneficial	No	2.10	1.07	10.6	0.527	0.680
Q29	Mental	Would attribute symptoms to over-identification with course material	No	3.22	1.11	44.4	0.306	0.708
Q30	Physical	Would attribute symptoms to over-identification with course material	No	3.00	1.10	35.7	0.218	0.716
Q31	Mental	Fears harm to grades, educational opportunities, or career	No	2.80	1.29	32.2	0.521	0.680
Q32	Physical	Fears harm to grades, educational opportunities, or career	No	2.21	1.06	13.1	0.545	0.678
Q33	Mental	Concerned about knowing or later meeting the treating clinician	No	3.37	1.19	51.5	0.363	0.701
Q34	Physical	Concerned about knowing or later meeting the treating clinician	No	2.85	1.22	33.6	0.387	0.696
Q35	Mental	Prefers informal consultation to a documented one	No	2.87	1.26	33.2	0.193	0.722
Q36	Physical	Prefers informal consultation to a documented one	No	2.84	1.18	29.3	0.234	0.716
Q37	Mental	Comfortable self-diagnosing the problem	No	2.94	1.20	31.7	0.371	0.700
Q38	Physical	Comfortable self-diagnosing the problem	No	2.77	1.13	26.6	0.339	0.702
Q39	Mental	Concerned about confidentiality (classmates or teachers finding out)	No	3.56	1.26	56.0	0.305	0.709
Q40	Physical	Concerned about confidentiality (classmates or teachers finding out)	No	2.99	1.28	36.5	0.324	0.705
Q41	Mental	Fears social isolation by peers	No	2.41	1.08	14.5	0.464	0.690
Q42	Physical	Fears social isolation by peers	No	2.13	1.06	9.8	0.538	0.679
Q43	Mental	Prefers alternative or complementary medicine	No	2.81	1.14	25.9	0.368	0.701
Q44	Physical	Prefers alternative or complementary medicine	No	2.63	1.10	19.5	0.392	0.696

TABLE 9: Item-level descriptive statistics and item-total correlations for the 28 scale items

Values are for the barrier-directed score, that is after reverse scoring where indicated. Agreement is the proportion scoring 4 or 5 on that directed scale. r(i-t), corrected item-total correlation within the item's own subscale; alpha if deleted, the subscale alpha with that item removed.

Appendix B

Variable	Group 1	Group 2	Mental health care barriers					Physical health care barriers				
			Mean (SD) g1	Mean (SD) g2	p	r	q	Mean (SD) g1	Mean (SD) g2	p	r	q
Gender	Male (n = 198)	Female (n = 284)	38.07 (7.87)	38.12 (7.29)	0.888	0.006	0.930	34.41 (7.67)	33.69 (6.75)	0.261	0.051	0.592
University	King Saud University (n = 189)	King Saud bin Abdulaziz University for Health Sciences (n = 293)	38.62 (7.36)	37.76 (7.63)	0.144	0.067	0.395	35.02 (7.01)	33.32 (7.16)	0.005	0.128	0.069
Current smoker	No (n = 449)	Yes (n = 33)	38.04 (7.55)	38.94 (7.37)	0.483	0.032	0.721	33.99 (7.05)	33.94 (8.43)	0.989	0.001	0.989
Self-reported medical illness	No (n = 408)	Yes (n = 74)	38.18 (7.50)	37.66 (7.71)	0.685	0.018	0.891	34.05 (7.07)	33.62 (7.58)	0.492	0.031	0.721
Self-reported psychological illness	No (n = 431)	Yes (n = 51)	38.31 (7.48)	36.29 (7.80)	0.098	0.075	0.330	34.28 (7.10)	31.51 (7.11)	0.006	0.124	0.069
Self-medication, physical	No (n = 246)	Yes (n = 236)	37.93 (7.31)	38.28 (7.77)	0.875	0.007	0.930	34.15 (7.17)	33.81 (7.13)	0.473	0.033	0.721
Self-medication, psychiatric or sleep	No (n = 371)	Yes (n = 111)	37.80 (7.46)	39.09 (7.71)	0.105	0.074	0.330	33.95 (7.07)	34.09 (7.42)	0.808	0.011	0.930
Peer consultation, physical	No (n = 318)	Yes (n = 164)	38.25 (7.65)	37.82 (7.30)	0.397	0.039	0.721	34.39 (7.29)	33.20 (6.80)	0.061	0.085	0.330
Peer consultation, mental	No (n = 386)	Yes (n = 96)	38.12 (7.48)	38.03 (7.76)	0.729	0.016	0.891	34.20 (6.91)	33.11 (7.98)	0.098	0.075	0.330
Year of study (5 groups)	Kruskal-Wallis		H = 9.44		0.051		0.330	H = 4.92		0.296		0.592
Age (Spearman)	Continuous		rho = −0.049		0.281		0.592	rho = −0.018		0.689		0.891

TABLE 10: Bivariate associations between the study variables and the barrier subscale scores

Two-group comparisons by Mann-Whitney U test with effect size r; year of study by Kruskal-Wallis test; age by Spearman correlation. q, Benjamini-Hochberg false discovery rate across all 22 tests in this table. Marital status is omitted because only seven students were married, and residential background is omitted because every participant was a resident of Riyadh. No association survives correction for multiple testing.

Appendix C

Subscale	k	Mean	SD	95% CI	Possible range	alpha	Interpretation
Stigma and confidentiality	8	22.33	5.98	21.79–22.86	8–40	0.784	acceptable
Awareness of procedures	4	8.79	3.43	8.49–9.10	4–20	0.861	acceptable
Felt need	4	7.76	2.96	7.49–8.02	4–20	0.659	questionable
Avoidance of formalized care	4	11.70	2.90	11.44–11.96	4–20	0.469	unacceptable
Preference for alternative treatment	2	5.44	2.01	5.26–5.62	2–10	0.755	acceptable

TABLE 11: Exploratory factor subscale scores based on the structure reported in the original validation study

These subscales follow the exploratory factor structure reported by Sarkar and Menon [14] in a different population; that structure was not re-tested here, and 2 subscales did not reach acceptable internal consistency. They are presented for comparability only and are not used in any inferential analysis

k, number of items; CI, confidence interval; alpha, Cronbach's alpha.

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

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Disclosures

Human subjects: Informed consent for treatment and open access publication was obtained or waived by all participants in this study. Institutional Review Board, King Abdullah International Medical Research Center issued approval NRR25/020/8. This study was conducted in accordance with the Declaration of Helsinki. All participants reviewed a digital cover letter that explained the objectives of the research, the estimated five-minute duration, and the measures taken to ensure data confidentiality. We informed participants that their participation was entirely voluntary and that they could withdraw at any time. Since the survey was administered electronically, a waiver of written informed consent was granted. By clicking the 'Next' button to begin the survey, participants provided their digital implied consent to take part in the study. **Animal subjects:** All authors have confirmed that this study did not involve animal subjects or tissue. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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