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Original Article

## Understanding the study habits of Saudi residents in a psychiatry programme

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### المخلص

**أهداف البحث:** يعد فهم كيفية اختيار الأطباء المقيمين في الطب النفسي لمواردهم التعليمية، واستهلاكها، وتحديد أولوياتها خلال برنامج إقامة الطب النفسي أمراً ضرورياً. تهدف هذه الدراسة إلى تقييم العادات الدراسية للمقيمين السعوديين في الطب النفسي أثناء تدريبهم خلال الإقامة.

**طرق البحث:** في هذه الدراسة المقطعية العرضية، تم دعوة ١٥٠ طبيباً سعودياً مقيماً لتعبئة استبانة بطريقة تضمن السرية، مكونة من ١٨ من الجمل المحددة. وتم تسجيل الردود في ٥ نقاط على مقياس ليكرت. شمل الاستطلاع عناصر عن حجم الدراسة، والعوامل التحفيزية، ومصادر الدراسة، وطرق الدراسة، والرضا العام عن التدريب.

**النتائج:** استلمنا ١٢١ رداً من المقيمين. وكان الذكور (٥٧.٩%) أكثر من الإناث (٤٢.١%). نسبة كبيرة من المقيمين يدرسون بين ساعتين وخمس ساعات يومياً (٣٠.٦%). ولم توافق النسبة الأكبر من المقيمين على أن برنامج إقامة الطب النفسي لديه درجة معينة من الوقت المحمي لهم قبل اختبارات الزمالة (٤٢.٢%). وكان العامل الأكثر تحفيزاً للدراسة هو امتحان الزمالة النهائي. حيث صنف ٢٨.١% و ٣٥.٥% من المقيمين هذا العامل حافظاً عالياً ومرتفعاً جداً على التوالي. وكانت أكثر مصادر الدراسة فائدة هي الكتب مثل كابلان، وأكسفورد، والمواد الشفهية للزمالة.

**الاستنتاجات:** دراستنا هي الأولى من نوعها التي تقدم فكرة عن العادات الدراسية للمقيمين السعوديين في الطب النفسي. ويمكن استخدام المعلومات لتحسين جودة التدريب والتعليم الطبي للمقيمين في الطب النفسي.

**الكلمات المفتاحية:** العادة الدراسية؛ الطب النفسي؛ مقيم؛ التدريب؛ المملكة العربية السعودية

### Abstract

**Objectives:** Understanding the way psychiatry residents select, consume, and prioritise their educational resources during their psychiatry residency programme is essential. The purpose of this study was to evaluate Saudi psychiatry residents' study habits during their residency training.

**Methods:** In this cross-sectional study, 150 Saudi psychiatry residents were invited to complete an anonymous survey with 18 close-ended statements. The responses were recorded on a 5-point Likert scale. The survey included items about study volume, motivational factors, study resources, study methods, and overall satisfaction with training.

**Results:** We received responses from 121 residents. There were more men (57.9%) than women (42.1%). A larger percentage of residents studied between two and five hours per day (30.6%). A larger proportion of residents did not agree that the psychiatry residency programme had some degree of protected time prior to their board exams (42.2%). The most crucial motivating factor for their study was the final board exam; 28.1% and 35.5% of residents ranked this factor as highly and very highly motivating, respectively. The most useful study resources were books such as Kaplan, Oxford, and Oral Board materials.

**Conclusion:** Our study is the first of its kind that provides insight into the study habits of Saudi psychiatry residents. The information can be used to improve the quality of training and medical education of psychiatry residents.

**Keywords:** KSA; Psychiatry; Residents; Study habits; Training

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## Introduction

Understanding how psychiatry residents select, consume, and prioritise their educational resources during their psychiatry residency programme is essential to help them benefit from their residency programme. There is a general consensus that the responsibility of educating a trainee involves all of those associated with a residency programme.<sup>1</sup> In order to complete the residency programme, residents must master a body of knowledge while maintaining full-time high-quality patient care. To make sure the acquisition of knowledge and skills are accomplished, a yearly written and clinical promotion exam takes place every year.

There are more than 150 psychiatry residents in KSA in three training locations (Riyadh, Dammam, and Jeddah). Every year, around 30 trainees finish their training in the psychiatry programme; however, until now, there has been no observed standardised method in how psychiatry residents are educated during their residency training. Resources available for residents include lectures, grand rounds, journal clubs, observed clinical interviews, and others. In recent years, with the advancement of technology, the method of attaining knowledge has changed, and electronic resources have become valuable tools that residents use to gain knowledge and prepare for exams.<sup>2</sup>

Previous studies that were conducted amongst residents correlated resident study habits with their performance in their training examination, and the use of specific materials, such as using a question-based approach, was a positive predictor of higher scores in exams<sup>3–5</sup>; other studies have also shown that resident performance in in-training examination is a predictor of success in the final board exam.<sup>6,7</sup>

To our knowledge, there is no study to date that has examined psychiatry residents' study habits and how they prepare for their final board exam. Thus, we aim to investigate psychiatry residents' study habits during their residency training in KSA.

## Materials and Methods

This study followed a cross-sectional design to assess psychiatry resident study habits. All 150 Saudi psychiatry residents located in KSA were included. We used an online questionnaire distributed to all residents using WhatsApp groups. Participants were encouraged to further distribute the survey.

We followed an online data collection technique. The survey was conducted online using a common platform, Google survey (Google LLC, Mountain View, California, USA). The study protocol was approved by the Institutional Review Board of Qassim University (No.19-08-03). All participants were informed about the study purposes and

provided informed consent. Data were kept confidential and were not disclosed unless for study purposes. Data were collected over a one-month period (15 Mar to 23 Apr 2020).

The survey included sociodemographic data—participants' sex, age, marital status, and parental status—as well as the location and level of the residency programme. Participants also completed an anonymous survey about study habit that was developed based on previous similar research.<sup>8</sup> It consists of 18 closed-ended questions scored on a 5-point Likert scale. The survey included study volume, motivational factors, study resources, studying methods, and overall satisfaction with training.

## Statistical analysis

Data were collected using the survey questionnaire and entered into a Microsoft Excel spreadsheet where they were cleaned and transferred to IBM SPSS Statistics for Windows, version 22.0 (IBM Corp., Armonk, N.Y., USA) for analysis. Descriptive analysis was conducted, and the results were presented in frequencies and percentages (for categorical variables), and means and standard deviations (for continuous variables). Inferential analyses were carried out to determine the relationship between sociodemographic factors and study habits. This included tests of associations such as chi-square, t-tests, and ANOVA. The results of these tests were presented using relevant statistics and p-values. All tests were carried out at a significance level set at  $p < 0.05$ . Questions in the study habits section of the questionnaire were grouped into five areas: motivational factors for study, study resources, study methods, study habits, and factors negatively affecting exam performance. Every item in each area was scored between 1 and 5, where 1 represented a low score and 5 represented an excellent score for the item. The scores for each item in each area were then added up to determine the average area performance. This resulted in score scales of 5–25, 9 to 45, 5 to 25, 5 to 25, and 4 to 20 for motivational factors for study, study resources, study methods, study habits, and factors negatively affecting exam performance, respectively.

## Results

### *Sociodemographic and educational characteristics*

A total of 121 residents in psychiatry were recruited for this study (Table 1). About two-thirds of them were within the age range of 24 years to 28 years (67.8%), followed by those in the 29–33 years age bracket (31.4%). Only one respondent was older than 33 years. There were more men (57.9%) than women (42.1%), with a male to female ratio of 1.4:1. The majority of the respondents were either single (52.1%) or married (44.6%). Only a few were divorced at the time of the study. About one-quarter of the study population was raising children.

With respect to their educational status, a larger proportion of the residents were in a residency programme in psychiatry in Riyadh (42.1%), followed by those in Jeddah (32.2%) and then Dammam (25.6%). The split across the

**Table 1: Sociodemographic and educational characteristics of the study population (n = 121).**

Variables	Frequency (%)
<b>Age</b>	
24–28 years	82 (67.8%)
29–33 years	38 (31.4%)
34–38 years	1 (0.8%)
<b>Sex</b>	
Male	70 (57.9%)
Female	51 (42.1%)
<b>Marital status</b>	
Single	63 (52.1%)
Married	54 (44.6%)
Divorced	4 (3.3%)
<b>Raising children</b>	
No	92 (76.0%)
Yes	29 (24.0%)
<b>Location of psychiatry residency programme</b>	
Riyadh	51 (42.1%)
Dammam	31 (25.6%)
Jeddah	39 (32.2%)
<b>Current level in residency</b>	
R1	27 (22.3%)
R2	33 (27.3%)
R3	32 (26.4%)
R4	29 (24.0%)
<b>Number of hours spent studying for psychiatry residency programme per week</b>	
<2 hours	25 (20.7%)
2–5 hours	37 (30.6%)
6–10 hours	34 (28.1%)
11–25 hours	20 (16.5%)
26–40 hours	5 (4.1%)
<b>Received mental help in the last two years</b>	
Yes	27 (22.3%)
No	94 (77.7%)
<b>Psychiatry residency programme protected my study time prior to the board exams</b>	
Strongly disagree	14 (11.6%)
Disagree	37 (30.6%)
Neutral	51 (42.1%)
Agree	14 (11.6%)
Strongly agree	5 (4.1%)
<b>Feel training programme prepared me adequately to perform well on the board exam</b>	
No	39 (32.2%)
Yes	28 (23.1%)
Maybe	54 (44.6%)

four years of residency was found to be similar, with second-year residents having the highest proportion (27.3%), followed by those in their third year (26.4%), fourth year (24.0%), and first year (22.3%). A larger percentage of the residents studied between two and five hours daily for their programme (30.6%). The larger proportion of the residents did not agree that the psychiatry residency programme protected their study time prior to their board exams (42.2%). Up to 32.2% of them also feel that the training programme did not prepare them adequately for the board exam, and another 44.6% of the residents were not sure whether it did or not.

## Study habits

Amongst the 121 residents sampled, the most highly motivating factor for study was the final board exam, with 28.1% and 35.5% of them ranking this factor highly and very highly motivating, respectively (Figure 1). The thought of the annual end-of-the-year promotional exam was another factor found to significantly motivate the residents to study hard. The two least motivating factors were programme evaluation and preparation for rounds with 19.9% and 19.8% of the residents indicating that these factors were not highly motivating for them, respectively.

With respect to study materials and resources (Figure 2), the most useful study resources were books such as Kaplan, Oxford, and Oral Board materials. Up to 83.5% of the residents indicated that these books were highly useful. Other useful materials for study include online sources such as Medscape and Wikipedia, which were found highly useful by 54.6% of the residents, teaching rounds and academic activities, which 57.9% of the residents found useful, study notes prepared by other residents, which were found useful by 47.1% of the participants, and old personal study notes, which 38.0% found useful. The least useful resources were review courses (25.6%), psychiatry journals (18.2%), and journal club meetings (9.9%).

The most preferred study methods (Figure 3) by the residents were independent study (76.8%), interactive teaching (57.7%), and dedicated lectures (42.9%). A sizeable proportion of the residents also found other study methods such as group studies and review courses useful. On the other hand, however, while a reasonable proportion found these options useful, a similar sizeable proportion was not in favour of either review courses (33.9%) or group studies (36.4%).

Regarding their general study/exam preparation habits (Figure 4), the majority of the respondents indicated that they often got enough sleep during the process of studying (76.8%). Unsurprisingly, a reasonable proportion disagreed with 'staying up all night' to study or prepare for exams (59.5%). About 54.6% and 48.8% of the residents agreed or strongly agreed with coffee drinking and vacationing for studying, respectively, as part of their study/exam preparation habits. Performing exercises was the study habit least agreed to by the residents (21.5%).

When asked about factors that negatively affected their performance in board or promotional exams (Figure 5), the most common factors were the continuation of call duties while studying (68.6%), continuation of clinic duties while studying (57.0%), and inadequate teaching during residency (56.2%). While inadequate clinical exposure was also another negative exam performance factor tested, not as many respondents agreed that this was an issue for them (32.8%).

## Access to psychiatry journals

The most available options of accessing psychiatry journals as summarised in Figure 6 were articles from consultants and senior colleagues (38.0%), illegal downloads of articles from platforms such as Sci-Hub (37.2%), access via

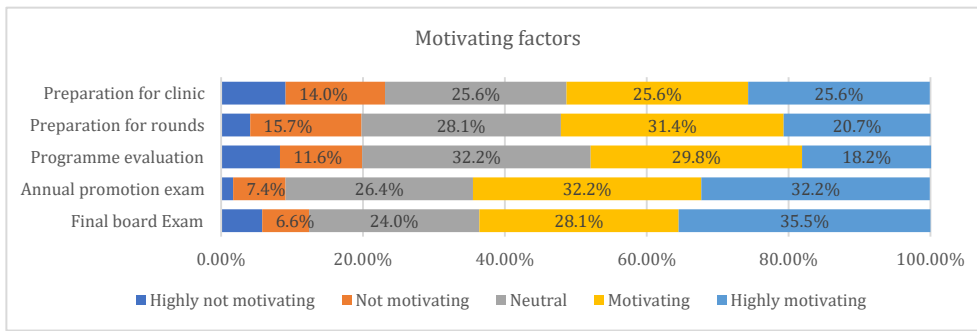


Figure 1: Motivating factors of the residents (n = 121) ].

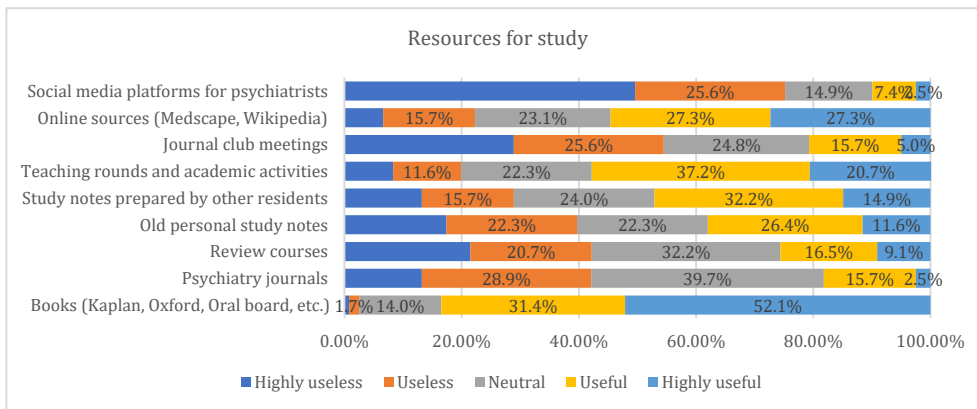


Figure 2: Resources for study used by the residents (n = 121).

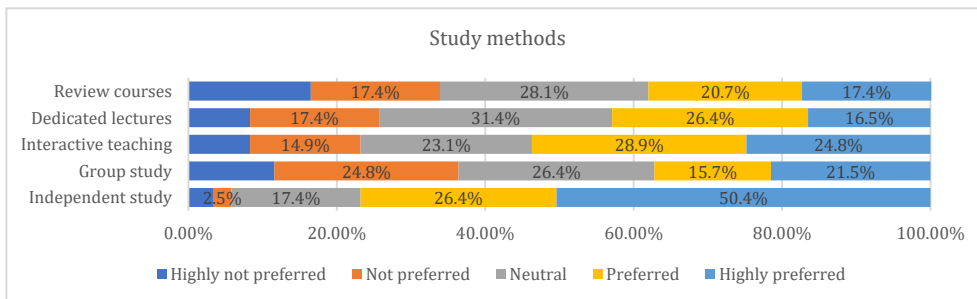


Figure 3: Study methods in use by the residents (n = 121).

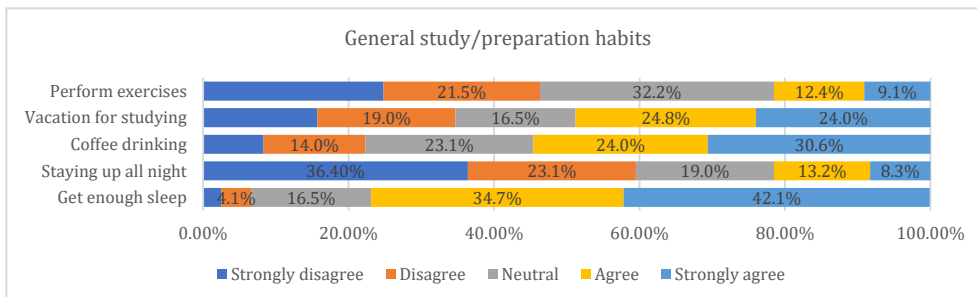
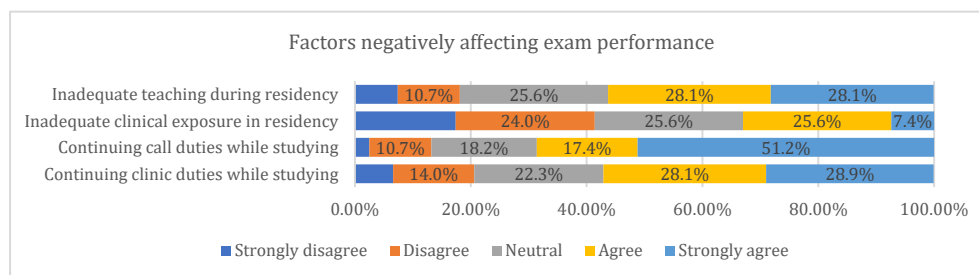


Figure 4: General study/preparation habits of the residents (n = 121).



**Figure 5:** Factors negatively affecting exam performance amongst the residents (n = 121).

hospital/institute (31.4%), paid access via journals (24.8%), and access from the Saudi Digital Library (16.5%). About 10% of the residents indicated that they get access to psychiatry journals via social media. Other options such as contacting authors of research papers directly, up-to-date articles, or friends with access to journals were not commonly used by the residents.

#### *Relationships between sociodemographic/educational factors and study habits*

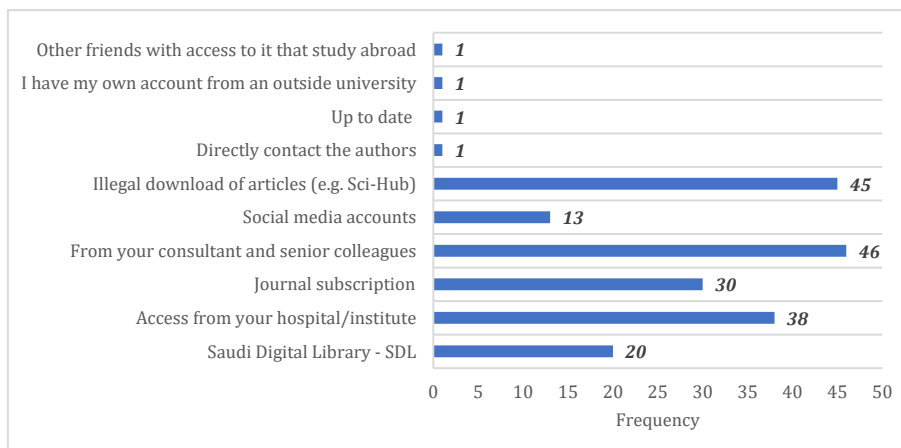
Comparing differences in study habits by various socio-demographic and educational factors, current residency level, location of residency, and number of hours spent studying had statistically significant influences on study resources and general study habits (Table 2). Respondents who were in senior residency were more likely to find a wider variety of study resources very useful, with a significantly higher score on the study resources subtheme ( $p = 0.005$ ). There was also a statistically significant difference in scores on the study resources subtheme across residency locations, with residents in Jeddah having the highest scores ( $28.6 \pm 5.7$ ), followed by those in Riyadh with  $27.1 \pm 5.2$  and Dammam ( $25.4 \pm 4.7$ ), with a  $p$ -value of 0.046. This means that those in Jeddah were significantly more likely to find a wider variety of study resources very useful. With regard to the number of hours spent studying, residents who studied for six hours or more had a significantly higher score on the study resources subtheme, implying that they found a wider variety of study resources very

useful compared to their counterparts who spent five hours or less studying on a daily basis ( $p = 0.045$ ). Location of residency was the only factor that had a statistically significant relationship with study habits ( $p = 0.007$ ). Residents in Jeddah had the highest score, followed by those in Riyadh and Dammam, implying that those in Jeddah were more likely to have a larger combination of useful study habits.

#### *Relationships between selected participant factors and study habits*

Comparing the four levels of training in psychiatry residency, there were no significant differences across the training levels in terms of the number of hours spent studying and general study habits (Table 3) except in the use of study resources by participants in senior levels (R3 and R4), who found substantially more of the available study resources highly useful to them as compared to their colleagues in the junior levels ( $p = 0.042$ ). There were no significant differences in the study habits of men and women or of those who were training in Riyadh, Dammam, or Jeddah ( $p > 0.05$ ).

With regard to mental help, it appeared that women were significantly more likely to have received mental help within the previous two years, as 59.3% of women were found to have accessed mental help compared to 40.7% of men who did ( $p = 0.041$ ). There were no major differences across the levels of training and location of training in terms of whether or not the residency programme protected participant study time prior to board exams or the perception that the training



**Figure 6:** Residents' options for accessing psychiatry journals (n = 121).

**Table 2: Relationship between sociodemographic factors and study habits.**

Variables	Values	Motivating factors	Study resources	Study methods	Study habits	Factors negatively affecting exam performance
Age	24–28 years	18.0 ± 3.5	27.0 ± 5.3	17.1 ± 3.7	15.9 ± 3.0	13.7 ± 3.2
	≥29 years	17.9 ± 4.1	27.5 ± 5.4	17.1 ± 3.3	15.6 ± 3.2	14.8 ± 3.4
		t = 0.123, p = 0.902	t = -0.527, p = 0.599	t = -0.023, p = 0.982	t = 0.456, p = 0.649	t = -1.721, p = 0.088
Sex	Male	17.9 ± 3.5	27.3 ± 5.0	16.5 ± 3.2	15.6 ± 2.9	13.8 ± 3.1
	Female	18.1 ± 4.0	26.9 ± 5.8	17.8 ± 3.8	16.1 ± 3.4	14.4 ± 3.5
		t = -0.240, p = 0.811	t = 0.349, p = 0.728	t = -1.925, p = 0.057	t = -0.841, p = 0.402	t = -1.031, p = 0.305
Marital status	Single/ divorced	17.6 ± 3.8	27.2 ± 5.7	16.9 ± 3.5	15.6 ± 3.0	13.9 ± 3.3
	Married	18.4 ± 3.5	27.0 ± 4.9	17.3 ± 3.7	16.0 ± 3.2	14.2 ± 3.2
		t = -1.183, p = 0.239	t = 0.190, p = 0.849	t = -0.744, p = 0.459	t = -0.752, p = 0.454	t = -0.625, p = 0.533
Raising children	Yes	18.3 ± 3.6	27.0 ± 5.2	17.1 ± 3.4	15.1 ± 3.3	14.6 ± 3.4
	No	17.9 ± 3.7	27.2 ± 5.4	17.1 ± 3.6	16.0 ± 3.0	13.8 ± 3.2
		t = 0.544, p = 0.587	t = -0.201, p = 0.841	t = 0.065, p = 0.948	t = -1.332, p = 0.185	t = 1.111, p = 0.269
Current level in residency	Junior (R1&R2)	18.0 ± 3.7	25.8 ± 5.6	17.1 ± 3.7	16.1 ± 2.9	13.6 ± 3.1
	Senior (R3&R4)	18.0 ± 3.8	28.5 ± 4.8	17.1 ± 3.5	15.5 ± 3.3	14.5 ± 3.3
		t = -0.049, p = 0.961	t = -2.850, p = <b>0.005</b>	t = 0.002, p = 0.999	t = 1.055, p = 0.294	t = -1.622, p = 0.107
Location of residency	Riyadh	17.9 ± 3.8	27.1 ± 5.2	17.4 ± 3.1	15.8 ± 3.1	14.3 ± 3.4
	Dammam	17.0 ± 3.8	25.4 ± 4.7	16.3 ± 4.0	14.5 ± 2.9	14.3 ± 3.3
	Jeddah	18.9 ± 3.3	28.6 ± 5.7	17.3 ± 3.6	16.8 ± 2.9	13.4 ± 3.1
		F = 2.280, p = 0.107	F = 3.159, p = <b>0.046</b>	F = 1.007, p = 0.368	F = 5.146, p = <b>0.007</b>	F = 0.958, p = 0.386
Hours spent studying	0–5 hours	17.4 ± 3.6	26.2 ± 5.7	16.5 ± 4.0	15.7 ± 3.4	14.2 ± 3.7
	6 hours or more	18.6 ± 3.7	28.1 ± 4.8	17.7 ± 2.9	15.9 ± 2.7	13.8 ± 2.7
		t = -1.734, p = 0.086	t = -2.023, p = <b>0.045</b>	t = -1.873, p = 0.064	t = -0.394, p = 0.695	t = 0.607, p = 0.545

Bolded **p-values** are significant at  $p < 0.05$ .

**Table 3: Relationship between training level/training location/sex and study habits.**

Variables		Hours spent studying (Mean ± SD)	Motivating factors (Mean ± SD)	Study resources (Mean ± SD)	Study methods (Mean ± SD)	Study habits (Mean ± SD)	Factors negatively affecting exam performance (Mean ± SD)
Training level in residency	R1	2.9 ± 1.2	18.4 ± 3.9	26.1 ± 5.7	17.0 ± 3.5	15.3 ± 2.4	14.2 ± 2.7
	R2	2.5 ± 1.2	17.6 ± 3.5	25.5 ± 5.5	17.1 ± 3.8	16.7 ± 3.1	13.0 ± 3.4
	R3	2.1 ± 0.9	17.9 ± 4.0	28.2 ± 4.7	16.2 ± 4.0	15.4 ± 3.3	14.3 ± 3.2
	R4	2.7 ± 1.1	18.1 ± 3.5	28.8 ± 5.0	18.0 ± 2.5	15.6 ± 3.4	14.8 ± 3.6
	F-test	2.547	0.254	2.820	1.293	1.419	1.693
	p-value	0.059	0.858	<b>0.042</b>	0.280	0.241	0.172
Training location	Riyadh	2.4 ± 1.1	17.9 ± 3.8	27.1 ± 5.2	17.4 ± 3.1	15.8 ± 3.1	14.3 ± 3.4
	Dammam	2.4 ± 1.1	17.0 ± 3.8	25.4 ± 4.7	16.3 ± 4.0	14.5 ± 2.9	14.3 ± 3.3
	Jeddah	2.8 ± 1.2	18.9 ± 3.3	28.6 ± 5.7	17.3 ± 3.6	16.8 ± 2.9	13.4 ± 3.1
	F-test	1.351	2.28	3.159	1.007	5.146	0.958
	p-value	0.263	0.107	<b>0.046</b>	0.368	<b>0.007</b>	0.386
Sex	Male	2.6 ± 1.1	17.9 ± 3.5	27.3 ± 5.0	16.5 ± 3.2	15.6 ± 2.9	13.8 ± 3.1
	Female	2.4 ± 1.1	18.1 ± 4.0	26.9 ± 5.8	17.8 ± 3.8	16.1 ± 3.4	14.4 ± 3.5
	T-test	0.967	0.058	0.122	3.706	0.707	1.063
	p-value	0.327	0.811	0.728	0.057	0.402	0.305

Bolded **p-values** are significant at  $p < 0.05$ .

**Table 4: Relationship between training level/training location/sex and participant perceptions.**

Received mental help in the last two years							
Variable		No	Yes	–	–	–	Statistics
Training level	R1	21 (22.3%)	6 (22.2%)	–	–	–	$\chi^2 = 0.361, p = 0.948$
	R2	25 (26.6%)	8 (29.6%)	–	–	–	
	R3	26 (27.7%)	6 (22.2%)	–	–	–	
	R4	22 (23.4%)	7 (25.9%)	–	–	–	
Training location	Riyadh	41 (43.6%)	10 (37.0%)	–	–	–	$\chi^2 = 1.096, p = 0.578$
	Dammam	22 (23.4%)	9 (33.3%)	–	–	–	
	Jeddah	31 (33.0%)	8 (29.6%)	–	–	–	
Sex	Male	59 (62.8%)	11 (40.7%)	–	–	–	$\chi^2 = 4.173, p = \mathbf{0.041}$
	Female	35 (37.2%)	16 (59.3%)	–	–	–	
Psychiatry residency programme protected my study time prior to the board exams							
Variable		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Statistics
Training level	R1	1 (7.1%)	7 (18.9%)	16 (31.4%)	3 (21.4%)	0 (0.0%)	$\chi^2 = 18.606, p = 0.098$
	R2	6 (42.9%)	8 (21.6%)	11 (21.6%)	7 (50.0%)	1 (20.0%)	
	R3	2 (14.3%)	9 (24.3%)	17 (33.3%)	2 (14.3%)	2 (40.0%)	
	R4	5 (35.7%)	13 (35.1%)	7 (13.7%)	2 (14.3%)	2 (40.0%)	
Training location	Riyadh	7 (50.0%)	13 (35.1%)	21 (41.2%)	7 (50.0%)	3 (60.0%)	$\chi^2 = 3.194, p = 0.922$
	Dammam	4 (28.6%)	11 (29.7%)	13 (25.5%)	2 (14.3%)	1 (20.0%)	
	Jeddah	3 (21.4%)	13 (35.1%)	17 (33.3%)	5 (35.7%)	1 (20.0%)	
Sex	Male	5 (35.7%)	20 (54.1%)	33 (64.7%)	10 (71.4%)	2 (40.0%)	$\chi^2 = 5.727, p = 0.220$
	Female	9 (64.3%)	17 (45.9%)	18 (35.3%)	4 (28.6%)	3 (60.0%)	
Feel training programme prepared me adequately to perform well on the board exam							
Variable		No	Yes	Maybe	–	–	Statistic
Training level	R1	9 (23.1%)	4 (14.3%)	14 (25.9%)	–	–	$\chi^2 = 8.072, p = 0.233$
	R2	7 (17.9%)	9 (32.1%)	17 (31.5%)	–	–	
	R3	10 (25.6%)	11 (39.3%)	11 (20.4%)	–	–	
	R4	13 (33.3%)	4 (14.3%)	12 (22.2%)	–	–	
Training location	Riyadh	14 (35.9%)	15 (53.6%)	22 (40.7%)	–	–	$\chi^2 = 6.388, p = 0.172$
	Dammam	15 (38.5%)	5 (17.9%)	11 (20.4%)	–	–	
	Jeddah	10 (25.6%)	8 (28.6%)	21 (38.9%)	–	–	
Sex	Male	19 (48.7%)	20 (71.4%)	31 (57.4%)	–	–	$\chi^2 = 3.455, p = 0.178$
	Female	20 (51.3%)	8 (28.6%)	23 (42.6%)	–	–	

Bolded **p-values** are significant at  $p < 0.05$ .

programme prepared participants adequately to perform well on the board exams ( $p > 0.05$ ; Table 4).

## Discussion

We aimed to evaluate the study habits and factors affecting these habits amongst Saudi psychiatry residents. The results highlighted several important points that could be used to improve the standards of learning amongst Saudi psychiatry residents.

Board exams seem to be the most important driving factor for the residents to study. This is consistent with the current literature, which shows that residents were most motivated to study due to their board/certification exams.<sup>8</sup> Moreover, our study cohort appreciated a mix of learning from traditional sources, such as standard medical textbooks, to electronic resources, such as Medscape and Wikipedia. This fact has been validated in previous studies where residents tended to use a mixture of standard textbooks and electronic resources.<sup>9</sup>

Further exploring the studying habits, our research highlighted an interesting feature, noting that the study habits of the residents did not affect their sleep duration.

Most of the residents reported getting enough sleep while studying. However, our findings are in contrast to other studies that showed that residents consistently reported poor duration of sleep while studying.<sup>10,11</sup> This apparent discrepancy may be due to the fact that most of the current literature looks into the effects of study on the quantity of sleep. We did not account for the number of hours the participants slept every night. Instead, we only asked a subjective question to see if the residents got 'enough sleep' at night while studying.

A significant proportion of our study cohort strongly agreed that clinical duties (28.9%) and on-calls (51.2%) while studying negatively affected their performance during exams. Exhaustive clinical engagement is a known risk factor for burnout, poor clinical performance, lower academic engagement, and inferior exam performance and results.<sup>12,13</sup> Smeds et al. studied the effects of clinical commitments amongst residents and the effects of these commitments on study habits, burnout, and performance on the results of board examination. They used the American Board of Surgery In-Training Examination (ABSITE) scores and linked these scores to burnout rates and academic performance amongst the residents. Results showed that residents

who scored less than 75% had higher burnout rates due to greater clinical commitments.<sup>13</sup>

Our research also looked into the ease of access to scientific information from medical journals amongst psychiatry residents. Our results showed that the Saudi psychiatry residents relied on the journal material gathered from their seniors/consultants and illegal means such as Sci-hub. In research done amongst Latin medical students, only 19.2% of the participants had heard of Sci-hub as a forum to download free publications.<sup>14</sup> To the best of our knowledge, the prevalence of the use of Sci-hub amongst psychiatry residents has not been reported in the literature before. Our study showed that a significant proportion of our residents (37.2%) relied on journals they downloaded from Sci-hub. Almost three-quarters of published literature is restricted for public use by paywalls. Sci-hub provides unrestricted access to more than 68.9% and 85.1% articles registered with Crossref and toll-access journals, respectively.<sup>15</sup> The high prevalence of Sci-hub use amongst Saudi psychiatry residents could indicate the difficulty accessing information from medical journals through legal means. It could also be due to the ease of using Sci-hub and downloading the desired journal articles, as everyone can access Sci-hub through their laptop or personal computer.

Our study respondents demonstrated that the study habits amongst psychiatry residents changed with seniority. As residents progress through their training programmes, they tend to study while assimilating different resources to get through the training.<sup>16</sup> Residents also tend to approach their studies differently based on their geographical location. Our data suggest that geographical location has a statistically significant correlation between access to online resources and study habits. Two out of the top three medical universities in KSA are present in Riyadh.<sup>17</sup> Moreover, other research has shown that most related research contributions come from Riyadh.<sup>18</sup> However, our research produced unexpected results and showed that residents from Jeddah were more likely to access online information and have positive study habits compared to those from Riyadh and Dammam. In addition, comparing the four levels of training in psychiatry residency, there were no significant differences in terms of the number of hours spent studying; this was in line with a study conducted amongst orthopaedic residents but in contrast to a study conducted amongst urology residents where they the average volume of reported studying increased 10-fold from juniors to chief residents.<sup>8,16</sup>

There were no significant differences in the study habits of men and women based on their marital status or having children, and this is consistent with a previous study conducted amongst residents.<sup>13</sup>

It has been continuously reported in the literature that female residents are more likely to suffer from burnout, anxiety, and depression.<sup>19</sup> However, women are better at mitigating their mental health issues and are more proactive at seeking help compared to male residents.<sup>20</sup> Our findings are consistent with the current literature, which show that female residents are more likely to seek mental help compared to men.

With our survey-style study, response bias due to the use of a survey instrument is always a possibility. One limitation

of our study is that we only used an electronic version of the questionnaire instead of a mix of paper-based and online questionnaires. This could be a source of bias, as such a survey might be preferentially completed by respondents who are more adept using electronic/online resources. This could further lead to other biases, as such respondents might rank the use of electronic resources higher compared to other available resources. Moreover, the limitations of our study design might have affected our study results. For instance, the survey nature of our study was only able to give a snapshot of the residents' study habits. Furthermore, we only asked the respondents if they sought help with mental health without exploring the reason for seeking such services. Future research could explore the link between mental health and seeking assistance for mental issues and their impact on the study habits amongst residents.

## Conclusions

Our study is the first of its kind that provides insight into the study habits of Saudi psychiatry residents. The information from our research can be used to improve the quality of training and medical education of psychiatry residents. We conclude that current psychiatry residents are making use of a mix of traditional and modern learning methods. However, residents are struggling to manage their education alongside their clinical duties, which could have significant impacts on the mental well-being of the residents.

## Recommendations

In light of the results, we propose that measures such as implementing effective curricula that are ingrained in clinical practice, allocating clinical duty-free time for study, and simplifying access to mental health for residents could improve the quality of education and training of psychiatry residents.

## Availability of data and materials

The dataset supporting the conclusions of this article is available by request from the corresponding author.

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## Conflict of interest

The author has no conflict of interest to declare.

## Ethical approval

The study protocol was approved by the Institutional Review Board of Qassim University (No.19-08-03 – Apr. 2, 2020). Written informed consent was obtained from all participants.



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