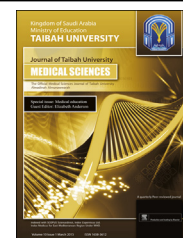




Taibah University
Journal of Taibah University Medical Sciences

www.sciencedirect.com



Educational Article

Family violence among female medical students: Its prevalence and impact on their mental health status – A cross-sectional study



Aljohara S. Almenessier, ABFM^{a,*}, Muslim M. Al Saadi, ABP^b,
Randa M. Nooh, PhD^c and Lubna A. Al Ansary, FRCGP^a

^a Department of Family Medicine, College of Medicine, King Saud University, Riyadh, Kingdom of Saudi Arabia

^b Department of Pediatric, College of Medicine, King Saud University, Riyadh, Kingdom of Saudi Arabia

^c Department of Preventive Medicine, Ministry of Health, Riyadh, Kingdom of Saudi Arabia

Received 4 November 2014; revised 9 January 2015; accepted 12 January 2015; Available online 12 February 2015

المخلص

أهداف البحث: إن العنف ضد المرأة يعتبر من المشاكل الصحية الرئيسية عالمياً. وتُظهر الدراسات أن العنف يؤثر على الحالة العقلية للضحايا. وتهدف هذه الدراسة إلى استكشاف مدى انتشار العنف الأسري بين طالبات الطب السعوديات، ودراسة علاقته مع صحة الطالبات العقلية، وتحديد تأثيره على التحصيل الأكاديمي لهن.

طرق البحث: أجريت هذه الدراسة المقطعية على طالبات الطب، في جامعة الملك سعود، من السنة الأولى إلى السنة الخامسة. واستخدمت الاستبانة الخاصة بدراسة العنف والاستبانة الخاصة بدراسة الصحة العقلية جمعت بيانات الاستبانة وحللت باستخدام برمجيات الحزمة الإحصائية للعلوم الاجتماعية التي شملت التحليل وحيد المتغير البسيط، وتحليلات المتغيرين ونمذجة الانحدار الخطي.

النتائج: شارك في الدراسة 363 (79%) من أصل 460 من طالبات الطب السعوديات. وظهر أن 19 (5.3%) من الطالبات يعانين من العنف الأسري. وحصل ضحايا العنف على 52% (منخفض) من نقاط قائمة الصحة العقلية. وقد لوحظ وجود علاقة سلبية بين العنف الأسري والصحة العقلية. كما لوحظ أيضاً وجود ارتباط بين الصحة العقلية والإنجاز الأكاديمي.

الاستنتاجات: إن نسبة انتشار العنف الأسري في هذه الدراسة أقل من النسب المنشورة في الدراسات الأخرى. ولم نستطع إيجاد علاقة مباشرة بين العنف الأسري والإنجاز الأكاديمي ولكن تأثر الإنجاز الأكاديمي (المعدل التراكمي)

للطالبات بطريقة غير مباشرة بوجود العنف الأسري من خلال التغييرات في الصحة العقلية.

الكلمات المفتاحية: طالبات الطب; العنف الأسري; الصحة العقلية; الأداء الأكاديمي

Abstract

Objectives: Violence against women is recognized worldwide as a major public health problem. Studies show that violence affects the mental well-being of the victims. The study explores the prevalence of family violence among Saudi female medical students and its relationship with students' mental well-being and seeks to identify the effect of violence on students' academic achievements.

Methods: This was a cross-sectional study on 1st- to 5th-year Saudi female medical students, utilizing a validated violence screening questionnaire that asked the respondents about how often they were physically Hurt, Insulted, Threatened with harm, and Screamed at (HITS). Furthermore, the study administered a validated mental well-being questionnaire, the Mental Health Inventory 5 (MHI-5), for the assessment of the mental status of the respondents. The analyses included simple univariate analyses, bivariate analyses and linear regression modelling.

Results: Of the total of 460 Saudi female medical students, 363 (79%) students participated in this study. Nineteen (5.3%) students confirmed being the victims of family violence. The victims had a mean MHI-5 score of 52%. A negative correlation was observed between violence and mental well-being scores. Significant

* Corresponding address: Supervisor Academic Affairs and Preparatory Year, College of Medicine Female Section, and Consultant Family Physician Medical Education Department, College of Medicine, Al-Imam Mohammad Ibn Saud Islamic University – IMSIU, PO Box 5701, Riyadh 11432, Kingdom of Saudi Arabia.

E-mail: aljoharas@yahoo.com (A.S. Almenessier)

Peer review under responsibility of Taibah University.



Production and hosting by Elsevier

association between the MHI-5 score and academic achievement was observed.

Conclusion: The prevalence of family violence in this study is less than the reported figures in other studies. We could not demonstrate a direct relationship between family violence and academic achievement. Students' academic achievement was indirectly associated with the presence of family violence through changes in mental well-being.

Keywords: Academic performance; Family violence; Female medical students; Mental health

Abbreviations: CTS, Conflict Tactics Scale; GPA, grade point average; HITS, Hurt, Insulted, Threatened with harm, and Screamed at; IPV, intimate partner violence; MHI-5, Mental Health Inventory 5 Items; KSU, King Saud University

© 2015 The Authors.

Production and hosting by Elsevier Ltd on behalf of Taibah University. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Introduction

Family violence against women and girls refers to violence that occurs within the family and is inflicted by a family member who is trusted by the victim.^{1–3} Alpert cited that 67% of rapes and 49% of assaults were committed by individuals known to victims. The risk factors for family violence differ among cultures and include growing up in a violent home, being unmarried, age in their early twenties, and having a lower level of education.³

Most family violence studies have focused on violence between a woman and her intimate partner (IPV), with a lifetime prevalence range between 1.9% and 70%.⁴ Students are similar to others in the community and might be victimized by different types of family violence. AlQuaiz and Raheel reported that 10% of a sample of 419 female Saudi students (11–21 years old) had experienced sexual violence.⁵ Physical violence is accepted by Saudi society as a form of discipline for children and women.⁶ Research on family violence among university students has revealed that this form of violence exists in both Eastern and Western countries to a similar degree.^{7,8} Up to 52% of Turkish medical students had experienced family violence, and 17.8% of the sample had perpetrated violence against others.^{9,10} Among Lebanese medical students, 22% reported having a history of exposure to physical violence, while 98.8% of the sample reported being exposed to the verbal type of violence.¹¹ Cullinane, Alpert and Freund reported a high rate of family violence. They studied 370 medical students and found that 38% of them had a history of being abused.¹² Victims of family violence suffer physical and mental health problems and utilize health care services more frequently than those who are not victimized.^{13,14} Victims of physical and sexual abuse “in the context of their childhood environment” are at risk of lower academic achievement.¹⁵ Although screening for family violence has not been

supported by some studies,^{16–18} identifying victims of family violence helps minimize the effects of violence.¹⁹

It is important to screen medical students for being affected by family violence because its consequences may be negatively reflected in their future career. In Saudi Arabia, medical students have not been studied for the presence of family violence, and in this study, we aimed to (i) screen Saudi female medical students for the presence of family violence to determine its prevalence, (ii) examine its relationship with the mental well-being of the students, and (iii) examine the effect on their academic achievement. We hypothesized that the presence of family violence among female medical students would affect their mental well-being and negatively reflect on their academic performance.

Materials and Methods

This was a cross-sectional study conducted from March to April 2011 at the College of Medicine of King Saud University (KSU) in the Kingdom of Saudi Arabia. Male and female medical students studied in separate buildings as required by legislation. Hence, involving the male students in this study was not feasible. Ethical approval was obtained from the Medical College Ethics Committee. Participants were recruited via an announcement for a lecture for female medical students aimed at increasing their awareness and understanding of family violence. The lecture defined and explained the types of violence. A previous study found that after an introductory lecture, student awareness of being a current or former victim of violence was increased.²⁰ All of the students who attended the lecture were invited to sign consent and complete a non-anonymous questionnaire about family violence. Refreshments were provided to all of the students, and there was no obligation to participate.

Study questions and aim

The research questions were as follows: how common is family violence among female KSU medical students? What is the effect of family violence on students' mental well-being? How is this reflected on their academic achievement? We aimed to explore the prevalence of family violence and its relationship with mental well-being among female Saudi medical students and to identify the effects of family violence and mental well-being on students' academic achievement. We hypothesized that the presence of family violence among female medical students would negatively affect their mental well-being and academic achievement (reflected by a lower grade point average; GPA).

Study subjects

This study included all of the first- to fifth-year Saudi female medical students who attended the introductory lecture and consented to complete the questionnaire.

Questionnaire development and validation

The self-administered non-anonymous questionnaire consisted of three sections. The first section concerned the student's demographic data; the second section was a validated screening questionnaire that asked respondents how often they were physically Hurt, Insulted, Threatened with harm, and Screamed at (HITS)²¹; and the third section gauged mental well-being. A validated mental well-being questionnaire, the Mental Health Inventory 5 Items (MHI-5),²² was used to collect data on the student's mental well-being over the previous four weeks. The last question asked students if they support the presence of services to empower students to deal with violence. The paper-and-pencil questionnaire was administered in English, with no modifications to the HITS or MHI-5 tools. The students had spent one obligatory preparatory year extensively studying English, in addition to other subjects, before entering medical school.

HITS screening tool and scoring

After reviewing different tools for screening family violence, the authors chose the HITS screening tool, which was developed by Kevin Sherin and colleagues in 1998, because of its brevity and validity. The HITS tool, which has been used worldwide as a domestic violence screening tool, has good internal consistency (0.8) and concurrent validity with the **Conflict Tactics Scale (CTS)** verbal and physical aggression items. Each item was scored from 1 to 5. The total score ranges from 4 to 20, with a cut-off point of 10.5 for presence of abuse.²¹

The MHI-5 instrument

Due to the students' busy schedules, we chose to use a short instrument, namely the MHI-5, an appropriate screening and case-finding instrument for use in primary care settings with Cronbach's alpha values between 0.74 and 0.83. A score of 65% is the most appropriate cut-off point for assessing mental well-being; scores greater than 65% indicate good mental well-being.^{22,23}

Students' GPA

Students' GPAs were obtained from the students' academic records. Saudi universities use a grade point average scale out of 5. Thus, a GPA of 4.5–5.0 reflects an excellent score and failure is at GPA level of less than 2.

Statistical analysis

In this study, we used SPSS 16.0 (SPSS Inc., Chicago, IL, USA 2007) software for data analysis. The analyses included simple univariate analyses, bivariate analyses and linear regression modelling. First, a linear regression was performed to examine the relationships between the following pairs of variables: HITS score and GPA, HITS score and MHI-5 score, MHI-5 score and GPA, and GPA and age. A second linear regression was performed using GPA as the dependent variable. A third linear regression was performed with the MHI-5 score as the dependent variable and the HITS score as the independent variable; we controlled for age, whether the parents lived together, the fathers' education, the mothers' education, and whether the mothers worked outside the home. A final linear regression was

Table 1: Demographic results of the female Saudi medical student participants.

Study year	Total no. 527	Lecture attendants 460 (87.3%)	Respondents 363 (79% of attendants)
First year	100	79 (79%)	76 (96.2%)
Second year	99	89 (89.9%)	56 (62.9%)
Third year	138	120 (87%)	105 (87.5%)
Fourth year	92	78 (84.8%)	56 (71.8%)
Fifth year	98	94 (96%)	70 (74.5%)
Age in years (n = 363)	17–19	69 (19%)	
	20–22	223 (61.4%)	
	23–25	71 (19.6%)	
Marital status (n = 358)	married	21 (5.9%)	
	Unmarried	337 (94.1%)	
Parents' education	father (n = 335)	mother (n = 334)	Husband's educa. (n = 20)
No formal education	10 (3%)	21 (6.3%)	High school 1 (5%)
Less than university	65 (19.4%)	119 (35.6%)	University 15 (75%)
University and above	260 (77.6%)	194 (58%)	Master's/Doctoral 4 (20%)
Parents living together (n = 341)	Yes	308 (90.3%)	
	No	33 (9.7%)	
Number of brothers (n = 271)		Number of sisters (n = 261)	
≤ 4	250 (92.3%)	≤ 4	222 (85.1%)
≥ 5	21 (7.7%)	≥ 5	39 (14.9%)

performed with GPA as the dependent variable and the MHI-5 score as the independent variable; we controlled for age, whether the parents lived together, the fathers' education, the mothers' education, and whether the mothers worked outside the home.

Results

Students' demographic data

A total of 460 out of 527 (87.3%) female students attended the introductory lecture, and 363 out of 460 (79%) female students participated in this study. The students' demographic data and participation are shown in [Table 1](#).

HITS analysis

There were 19 (5.3%) students who had experienced family violence. Four students (1.1%) had suffered severe violence, as shown in [Table 2](#). Fourteen of the 19 (73.7%) violence victims were 20–22 years of age. Age as a risk factor was not statistically significant with a P-value of 0.477. None of the married students reported spousal abuse. An analysis of the students' other demographic characteristics revealed that none were significant risk factors for violence.

MHI-5 score

The MHI-5 questionnaire was completed by 348 students, and 270 (77.6%) had scores higher than the cut-off of 65%. The mean MHI-5 score for those with no history of violence was 78%. The victims of family violence had a mean MHI-5 score of 52% (95% CI = 0.189, 0.337).

Student GPA

Students with GPAs of 4 or higher constituted 66% of the sample. Those who had experienced no family violence had a mean GPA of 4.24. Those who had been victimized by family violence had a mean GPA of 4.13 (95% CI = -0.169, 0.390). GPA was statistically significantly affected by age (P-value < 0.0001) and marital status (P-value < 0.004) but not by any other demographic factors. GPA was negatively associated with age ($r = -0.402$, P-value < 0.0001).

Table 3: Association between GPA, HITS score and MHI-5 score (N = 345).

Correlations		GPA	MHI-5 score	HITS score
Pearson correlation	GPA	1.000	.162	-.070
	MHI-5 score	.162	1.000	-.496
	HITS score	-.070	-.496	1.000
Sig. (1-tailed)	GPA		.001	.099
	MHI-5 score	.001		.0001
	HITS score	.099	.0001	

GPA, MHI-5 score and HITS score

A correlation analysis was performed for the 345 students who had complete data regarding GPAs, MHI-5 scores and HITS scores. [Table 3](#) shows that the association between the HITS score and GPA is not significant ($r = -0.070$, P-value of 0.99), as observed in [Figure 1](#). A negative correlation was observed between the HITS and MHI-5 scores ($r = -0.496$, P-value < 0.0001), as shown in [Figure 2](#). After controlling for other variables (age, parents together and education, and number of siblings), the R-squared value became 0.210. There was a significant positive association between the MHI-5 score and GPA ($r = 0.162$, P-value < 0.001), as observed in [Figure 3](#). The bivariate correlation between GPA and the MHI-5 score showed an R-squared value of 0.031 (P-value < 0.002); however, after controlling for other variables, the strength of the association increased to an R-squared of 0.198 (p-value < 0.001).

A majority of the students (84.9%) endorsed the creation of special services to support victims of family violence.

Discussion

It is important to screen for the presence of family violence among medical students to help minimize its adverse effects on their future career. The result of this study (5.3%) is lower than what we expected, and there is no local study on similar populations to compare our result with. Our study result is similar to the rate (2–22%) reported by Haj-Yahia and De Zoysa among Sri Lankan university students but is less than the rate reported among Turkish medical students (52%)^{7,9,10} and

Table 2: Frequency of violent episodes, HITS score and categorization.

Frequency events	Never	Rarely	Sometimes	Fairly often	Frequently	Total no
Physical harm	318 87.8%	35 9.7%	8 2.2%	0 0%	1 0.3%	362 100%
Insult or talk down to you	257 71.4%	56 15.6%	31 8.6%	10 2.8%	6 1.7%	360 100%
Threaten you with harm	317 88.1%	30 8.3%	6 1.7%	3 0.8%	4 1.1%	360 100%
Scream or curse	205 57.1%	86 24%	48 13.4%	13 3.6%	7 1.9%	359 100%
No violence: HITS score ≤ 10 340 (94.7%)		Mild to moderate V HITS score 11–15 15 (4.2%)		Severe violence: HITS score 16–20 4 (1.1%)		Total 359

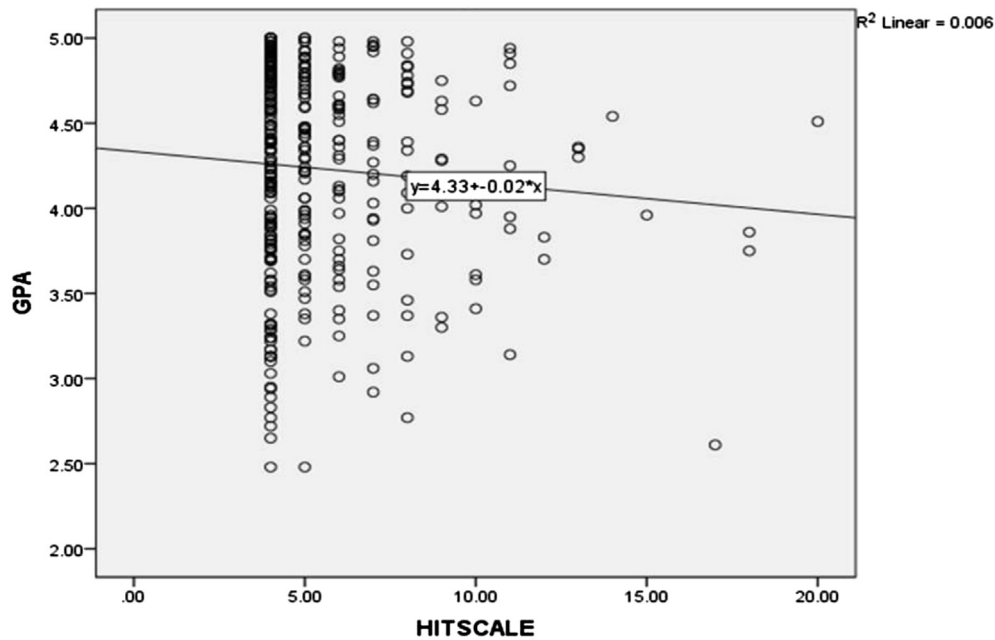


Figure 1: This graph shows a slight negative linear relationship between HITS and GPA. The Pearson correlation r was calculated as -0.07 , P-value is not significant.

what was reported by Usta (22% physical violence) and (98.8% verbal violence) among Lebanese medical students exposed to violence.¹¹ It is clear that our result is lower than the expected rate (20–50%) of victimized girls and women reported by Kapoor.²⁴ The low result in our study may be related to the nature of the sample, who were selectively admitted to the medical school, or due to self-reported bias. Another reason for the low result in this study is that almost one-third of the KSU female medical students did not participate in this study (164/527 students). All of the respondents

who reported family violence were unmarried, which was a risk factor as mentioned before.³ Other potential risk factors, such as student's age, parents' educational level and mother's employment status, were not significantly correlated with a history of violence. Two-thirds of the sample reported good mental health, in contrast with what was reported by Yusff et al.; the medical students' mental well-being declined with advancement of study years.²⁵ An analysis of the MHI-5 scores revealed a negative effect of violence on student mental health; this is consistent with what was reported by Haj-Yahia and de

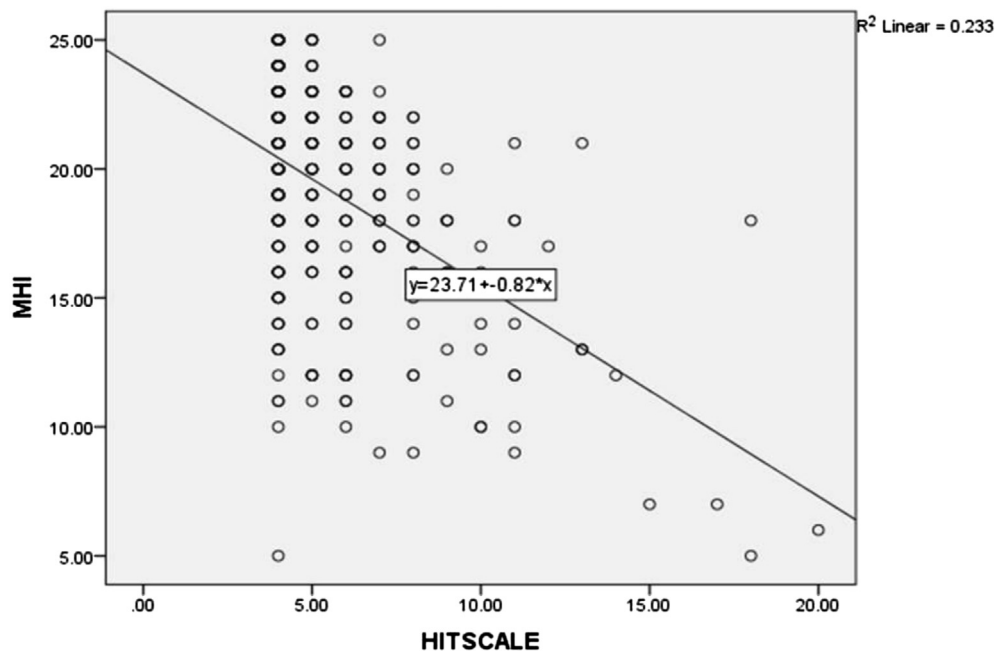


Figure 2: This graph shows a negative linear relationship between MHI score and HITS scale. The Pearson correlation r was calculated as -0.496 , P-value < 0.0001 .

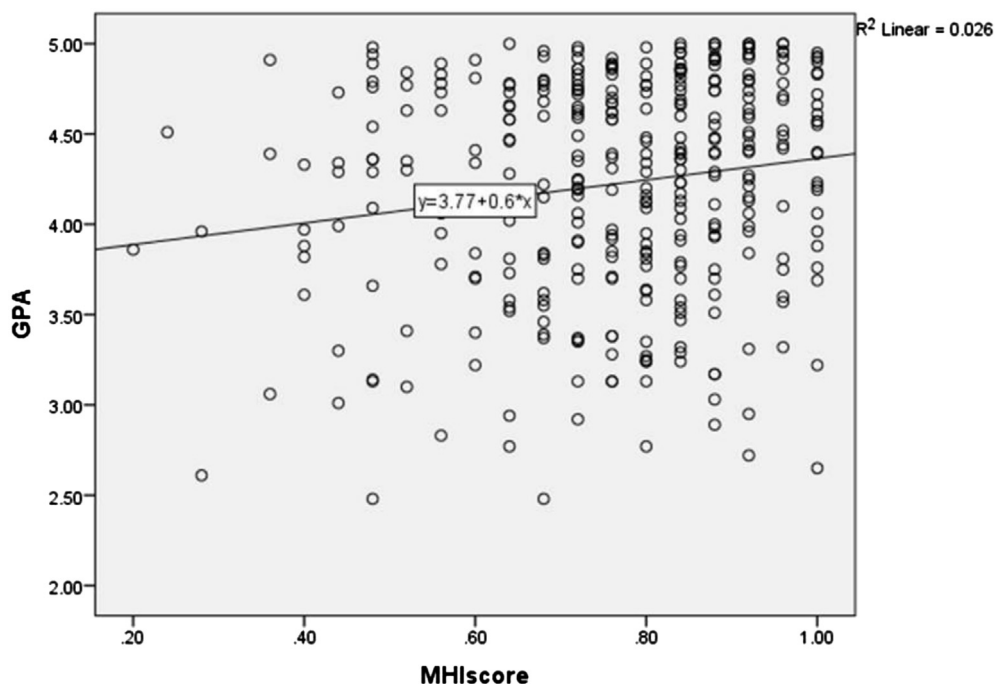


Figure 3: This graph shows a positive linear relationship between MHI and GPA. The Pearson correlation r was calculated as 0.162, P -value < 0.001 .

Zoyas, and other numerous studies.^{7,13,23} There was no significant difference in GPA between the victimized and non-victimized groups, in contrast with studies that have reported that family violence adversely affects academic achievement.^{26,27} This result could be due to the small sample of victimized students and the cumulative nature of GPA over the course of a student's studies. In our study, we did not demonstrate a direct relationship between violence and academic achievement; however, it appears that violence is indirectly associated with lower academic achievement through its effects on mental well-being. A one-point increase in violence led to a 20% reduction in mental health, and any positive or negative changes in students' mental health led to an approximate 20% change (in the same direction) in their GPA. The creation of special supportive services for students who have been victimized by family violence was supported by a majority of the students. Therefore, it may be helpful to encourage medical educators to ask about family violence and recognize its signs. Supporting victims of family violence may help them avoid its negative health consequences and preserve their academic standing. This study has some limitations. Because of the cross-sectional design of our study, we could not definitively establish a causal relationship between family violence and adverse outcomes. Other shortcomings of this study were the lack of a clinical assessment of the mental health status of the students, especially the victimized students.

Recommendations

A future large-scale study with clinical assessment is recommended to demonstrate the effect of family violence on mental well-being and academic performance. The major

recommendations of this study include increasing student awareness through incorporating family violence into the medical school curriculum, increasing the awareness of medical educators so that they can recognize signs and symptoms of student victimization, and establishing family violence counselling services in schools and universities to empower students against family violence.

Conclusion

This study showed association relationships between family violence, mental well-being and academic achievement. Because the study commenced with a lecture about family violence, the possibility of reporting bias cannot be excluded. It revealed an unexpectedly low prevalence of family violence among female KSU medical students. The students' academic achievement was indirectly associated with the presence of family violence through changes in mental health. This result demonstrates an association relationship but does not show strong support for our hypothesis.

Authors' contributions

Aljohara S. Almeneessier made contributions to Study idea, plan and design, introductory lecture, literature retrieval and review, writing the manuscript. **Muslim M. Al Saadi** made contributions to Literature retrieval and critical review. **Randa M. Nooh** made contributions to Data analysis and interpretation. **Lubna A. Al Ansary** made contributions to Study design. Literature retrieval and critical review, provision of other needed documents (students' GPAs) and catering.

Conflict of interests

The authors declare that they have no competing interests or financial conflict.

Acknowledgement

The authors would like to thank Dr Yaser A. Adi for his support and critical review of the manuscript.

References

- Alpert EJ, Cohen S, Sege RD. Family violence: an overview. *Acad Med* 1997; 72(1): S3–S6.
- Altair MO. *Family violence*. 1st ed. Riyadh, KSA: Prince Naif Academy for Security Sciences; 1997.
- Flury M, Nyberg E, Riecher-Rössler A. Domestic violence against women: definitions, epidemiology, risk factors and consequences. *Swiss Med Wkly* 2 September 2010; 140(w13099): 6.
- Alhabib S, Nur U, Jones J. Domestic violence against women: systematic review of prevalence studies. *J Fam Violence* 2010; 25(4): 369–382.
- Al-Quaiz AM, Raheel HM. Correlations of sexual violence among adolescents females in Riyadh, Saudi Arabia. *Saudi Med J* 2009; 30(6): 829–834.
- Almosaed N. Violence against women: a cross-cultural perspective. *J Muslim Minority Aff* 2004; 24(1): 67–88.
- Haj-Yahia MM, de Zoysa P. Rates and psychological effects of exposure to family violence among Sri Lankan university students. *Child Abuse Negl* 2008; 32(10): 994–1002.
- Shen AC-T. Long-term effects of interparental violence and child physical maltreatment experiences on PTSD and behavior problems: a national survey of Taiwanese college students. *Child Abuse Negl* 2009; 33(3): 148–160.
- Gemalmaz A, Aydin S. Domestic violence experiences of university students. *TJFMPC* 2007; 1(3): 26–28.
- Aydin S. Domestic violence experiences among medical students in 2 universities. *Saudi Med J* 2006; 27(1): 125–127.
- Usta JHS, Farhat HA, Romani M, Bzeih H, Abdo L. Lebanese medical students' exposure to domestic violence: does it affect helping survivors? *Fam Med* 2014; 46(2): 112119.
- Cullinane PM, Alpert EJ, Freund KM. First-year medical students' knowledge of, attitudes toward, and personal histories of family violence. *Acad Med* 1997; 72(1): 48–50.
- Campbell J. Health consequences of intimate partner violence. *Lancet* April 13 2002; 359: 1331–1336.
- Helweg-Larsen K, Kruse M. Violence against women and consequent health problems, a register-based study. *Scand J Public Health* 2003; 31: 51–57.
- Boden JM, Horwood LJ, Fergusson DM. Exposure to childhood sexual and physical abuse and subsequent educational achievement outcomes. *Child Abuse Negl* 2007; 31: 1101–1114.
- Nelson HD, Nygren P, McInerney Y, Klein J. Screening women and elderly adults for family and intimate partner violence: a review of the evidence for the U.S. preventive services task force. *Ann Intern Med* March 2, 2004; 140(5): 387–396.
- Cole TB. Is domestic violence screening helpful? *JAMA: J Am Med Assoc* August 2, 2000; 284(5): 551–553.
- Ramsay J, Richardson J, Carter YH, Davidson LL, G F. Should health professionals screen women for domestic violence? Systematic review. *BMJ* August 10, 2002; 325: 314.
- Nelson HD, Bougatsos C, Blazina I. Screening women for intimate partner violence. *Ann Intern Med* May 7, 2012; 156(11): E-447.
- Ernst AA, Houry D, Nick TG, Weiss SJ. Domestic violence awareness and prevalence in a first-year medical school class. *Acad Emerg Med* 1998; 5(1): 64–68.
- Sherin KM, Sinacore JM, Li XQ, Zitter RE, Shakil A. HITS: A Short Domestic Violence Screening Tool for Use in a Family Practice Setting. *Fam Med* 1998; 30(7): 508–512.
- Rumpf HJ, MC, Hapke U, John U. Screening for mental health: validity of the MHI-5 using DSM-IV Axis I psychiatric disorders as gold standard. *Psychiatry Res* 2001; 105: 10.
- Cuijpers P, Smits N, Donker T, ten Have M, de Graaf R. Screening for mood and anxiety disorders with the five-item, the three-item, and the two-item mental health inventory. *Psychiatry Res* 2009; 168(3): 250–255.
- Kapoor S. *Innocent digest*. Florence, Italy: UNICEF; June, 2000.
- Yusoff MSB, MPMN, Esa AR, Rahim AFA. Mental health of medical students before and during medical education: a prospective study. *J Taibah Univ Med Sci* 2013; 8(2): 86–92.
- Baker-Henninghama H, Meeks-Gardnerb J, Change S, Walkerc S. Experiences of violence and deficits in academic achievement among urban primary school children in Jamaica. *Child Abuse Negl* 2009; 33: 296–306.
- Elliott AN, Alexander AA, Pierce TW, Aspelmeier JE, Richmond JM. Childhood victimization, poly-victimization, and adjustment to college in women. *Child Maltreatment* November 1, 2009; 14(4): 330–343.