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Research Article

Levels of Workplace-Associated Stress and Depression in Iraqi Community Pharmacists: A Cross-Sectional Observational Study

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Abstract

Background: Community pharmacists endure significantly elevated levels of work-related stress and depression, posing a threat to their overall well-being and possibly affecting the quality of patient care. ***Objectives***: To explore workplace-associated stress and depression in Iraqi community pharmacists. ***Methods***: This observational study was conducted using a cross-sectional design. Information was gathered through the utilization of an internet-based survey. The study involved a community pharmacist with a minimum of one year of experience working at community pharmacies. The survey utilized pre-validated questionnaires. The level of stress experienced was assessed using the Perceived Stress Scale (PSS)-10, while the level of depression was assessed using the Patient's Health Questionnaire (PHQ)-9. ***Results***: The study included a total of 251 community pharmacists, with the majority being female (62.2%). The average score of the Perceived Stress Scale (PSS)-10 is 21±5.86, suggesting that perceived stress levels are generally moderate to low. The Patient Health Questionnaire-9 results showed that the average total scores for the individuals were 10.41±4.801, indicating a moderate state of depression. The only characteristic that is adversely linked to work-related stress in community pharmacy is the age of community pharmacists. In addition, there is a negative association between age, work experience, educational level, and the level of depression. ***Conclusions***: Community pharmacists are experiencing a moderate amount of perceived stress along with moderate depression symptoms. The current study found that age was inversely connected with both stress and depression, meaning that as age increased, levels of stress and despair tended to decrease.

Keywords: Community pharmacists, community pharmacy, perceived stress, depression.

مستويات الإجهاد والاكتئاب المرتبط بمكان العمل لدى صيادلة المجتمع العراقي: دراسة رصدية مقطعية

الخلاصة

الخلفية: يتحمل صيادلة المجتمع مستويات مرتفعة بشكل كبير من الإجهاد والاكتئاب المرتبطين بالعمل، مما يشكل تهديدا لرفاهيتهم العامة وربما يؤثر على جودة رعاية المرضى. **الأهداف**: استكشاف الإجهاد والاكتئاب المرتبطين بمكان العمل لدى صيادلة المجتمع العراقي.**الطرائق**: أجريت هذه الدراسة القائمة على الملاحظة باستخدام تصميم مقطعي. وجمعت المعلومات من خلال استقصاء على شبكة الإنترنت. تضمنت الدراسة صيدليا مجتمعيا يتمتع بخبرة لا تقل عن عام واحد في العمل في صيدليات المجتمع. استخدم الاستطلاع استبيانات تم التحقق من صحتها مسبقا. تم تقييم مستوى الإجهاد الذي عانى منه باستخدام مقياس الإجهاد المدرك 10- (PSS) ، بينما تم تقييم مستوى الاكتئاب باستخدام استبيان صحة المريض 9- (PHQ). **النتائج**: شملت الدراسة ما مجموعه 251 صيدليا مجتمعيا، معظمهم من الإناث (62.2٪). متوسط درجة مقياس الإجهاد المتصور 10- (PSS) هو 21±5.86، مما يشير إلى أن مستويات التوتر المتصورة معتدلة إلى منخفضة بشكل عام. أظهرت نتائج استبيان صحة المريض 9- أن متوسط الدرجات الإجمالية للأفراد كان 10.41±4.801، مما يشير إلى حالة معتدلة من الاكتئاب. السمة الوحيدة التي ترتبط سلبا بالإجهاد المرتبط بالعمل في الصيدلة المجتمعية هي عمر الصيادلة المجتمعيين. بالإضافة إلى ذلك ، هناك ارتباط سلبي بين العمر والخبرة العملية والمستوى التعليمي ومستوى الاكتئاب. **الاستنتاجات**: يعاني صيادلة المجتمع من قدر معتدل من الإجهاد المتصور إلى جانب أعراض الاكتئاب المعتدلة. وجدت الدراسة الحالية أن العمر كان مرتبطا عكسيا بكل من الإجهاد والاكتئاب، مما يعني أنه مع زيادة العمر ، تميل مستويات التوتر واليأس إلى الانخفاض.

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INTRODUCTION

Community pharmacists stand at the front line of the healthcare system, bridging the gap between patients and medication access. They dispense medications, provide consultations, and play a crucial role in medication adherence and public health interventions [1]. However, beneath this vital role lies a troubling reality: Community pharmacists experience alarmingly high levels of workplace-associated stress and depression, threatening their well-being and potentially compromising patient care [2]. A growing body of research paints a concerning picture. For example, studies report that nearly half of the community pharmacists experience significant work-related stress, with rates exceeding 70% in countries like France and Lebanon [3-5]. This stress translates into tangible consequences, with the prevalence of depression hovering around 23%, according to a cross-sectional study (Pappa et al., 2020). In addition, the COVID-19 pandemic has further accentuated these trends, exacerbating stress and mental health

concerns among pharmacists facing unprecedented demands and risks [3,4]. Understanding the link between workplace stress, depression, and community pharmacists is crucial [5]. Community pharmacists reported higher stress levels than other healthcare workers, with long working days, pharmacy manager status, and working for large multiples associated with higher stress levels [6]. Work-related stress in community pharmacy is linked to job stress, role overload, and rising prescription numbers [7]. A study of work-related stress in French community pharmacies has shown a significant association with a number of parameters, which are predominantly anxiety, depression, fatigue, sleep disturbances, medical consultations, medication use, alcohol consumption, and psychoactive drug use [8]. Of note, mental well-being directly impacts pharmacists' ability to provide optimal care. Burned-out and depressed pharmacists may experience reduced cognitive function, increased absenteeism, and decreased patient satisfaction [4]. Ultimately, neglecting this issue endangers the pharmacists and the healthcare system they serve [4]. According to the best search, no previous study has measured the degree of stress or depression of community pharmacists in Iraq associated with their work in community pharmacy. Accordingly, this study aims to explore workplace-associated stress and depression in Iraqi community pharmacists.

METHODS

Study design

Data from community pharmacists in a cross-sectional observational study was collected using an online questionnaire. Data was gathered between January and June of 2024.

Inclusion criteria

All pharmacists who have worked at community pharmacies for at least one year.

Exclusion criteria

Pharmacists who do not work in a community pharmacy or have less than one year's experience.

Data collection

An online survey in English was conducted using a Google Form that the authors prepared. The survey was based on pre-validated questionnaires from which the perceived stress was measured using the Perceived Stress Scale (PSS)-10 [9], and the depression was measured using the Patient's Health Questionnaire (PHQ)-9 [10]. This is approved to be used in healthy individuals to identify the degree of depression. In addition, sociodemographic information (gender, work experience, age, type of pharmacy, and educational level) was collected.

Scoring of scale for perceived stress

The scores for each item on the PSS-10 scale range from 0 to 4, with higher scores indicating a greater frequency of experience. As an illustration, a score of 0 signifies "never," while a score of 4 signifies "very often." However, four items need to be scored in reverse (4, 5, 7, 8) because they are expressed positively, such as "felt confident I could handle my problems." Accordingly, to maintain uniformity with the items that were phrased negatively, the authors inverted the score of these items by subtracting the item score from 4. Adding up the scores for each of the ten items and applying reverse scoring to the successful ones produced the overall score. Subsequently, an analysis of the overall score was conducted, and the outcome was categorized on a scale ranging from 0 to 40. The general way to interpret the data was 0-14: Perceived stress level is extremely low; 15-21: Perceived stress levels are relatively low to moderate; 22–26: The level of perceived stress is moderate to high; and 27–40: Perceived stress level is extremely high.

Scoring for patient's health questionnaire

The PHQ-9 has nine items using a 4-point Likert scale (0=not at all, 3=nearly every day). Scoring is based on the summation of scores from each item, where higher scores indicate higher levels of depression. The score is interpreted as 5 = mild depression, 10 = moderate depression, 15 = moderately severe depression, and 20 = severe depression [10].

Ethical considerations

The Central Scientific and Ethical Committee at the College of Pharmacy, University of Baghdad, approved the research proposal. Consent was obtained from each participant via a consent section in the questionnaire, in which they affirmed their willingness to participate in the study. The survey was anonymous, and participation in this study was voluntary.

Statistical analysis

The results were derived from the electronic responses to the internet-based questionnaires. Afterwards, the data were entered into Microsoft Excel 2016 and Statistical Package for the Social Sciences (SPSS) software, version 26. The mean values were used to express continuous variables, while the categorical variables were displayed as proportions and counts. A probability below 0.05 was deemed significant. The normality of the results was assessed using a Shapiro-Wilk test. Due to the non-normal distribution of the continuous variables in the study, Kendall's tau-b (Kendall's rank correlation coefficient) was employed to examine the correlation between the level of stress and depression with sociodemographic variables in the present study.

RESULTS

The study comprised a total of 251 community pharmacists, with the majority being female (62.2%). The majority of the participants in the study possess a Bachelor of Science (BSc) degree and have an average age of 28.66±5.42, as indicated in Table 1. More than half of the pharmacies included (61%) were primarily dependent on non-prescription (over the counter) dispensing. The Shapiro-Wilk test was employed to assess the normality of the age, work experience, and the sum of points for both questionnaires. The results indicated that these variables were not normally distributed, with a *p*-value below 0.001. Hence, nonparametric tests were employed to assess correlation.

Table 1: Sociodemographic Data

Sociodemographic data	Value
Sex	
Female	156(62.2)
Male	95(37.8)
Age (years)	28.66±5.42
Work experience (year)	4.67±4.21
Type of pharmacy	
OTC mainly pharmacy	153(61)
Prescription mainly pharmacy	98(39)
Education level	
BSc Pharm	204(81.3)
Pharmacy Diploma	3(1.2)
Board in Clinical Pharmacy	3(1.2)
MSc	31(12.4)
PhD	10(4)

Data are presented as frequency, percentage, and mean±SD. Number of participants: 251. OTC: Over the counter.

The findings from the Perceived Stress Scale (PSS)-10 assessment are displayed in Tables 2 and 3.

Table 2: Perceived Stress Scale (PSS)-10 response distribution

Category	Never	Almost Never	Sometimes	Fairly Often	Very often
In the last month, how often have you been upset because of something that happened unexpectedly?	30(12)	43(17.1)	15(6)	133(53)	30(12)
In the last month, how often have you felt that you were unable to control the important things in your life?	30(12)	72(28.7)	26 (10.4)	89(35.5)	34(13.5)
In the last month, how often have you felt nervous and “stressed”?	24(9.6)	65(25.9)	7(2.8)	79(31.5)	76(30.3)
In the last month, how often have you felt confident about your ability to handle your personal problems?	30(12)	84(33.5)	3(1.2)	86(34.3)	48(19.1)
In the last month, how often have you felt that things were going your way?	51(20.3)	45(17.9)	14(5.6)	118(47)	23(9.2)
In the last month, how often have you found that you could not cope with all the things that you had to do?	37(14.7)	54(21.5)	14(5.6)	120(47.8)	26(10.4)
In the last month, how often have you been able to control irritations in your life?	33(13.1)	75(29.9)	14(5.6)	108(43)	21(8.4)
In the last month, how often have you felt that you were on top of things?	47(18.7)	59(23.5)	19(7.6)	106(42.2)	20(8)
In the last month, how often have you been angered because of things that were outside of your control?	34(13.5)	66(26.3)	7(2.8)	93(37.1)	51(20.3)
In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	48(19.1)	52(20.7)	22(8.8)	104(41.4)	25(10)

Data were represented as frequency and percentage.

Table 3: Perceived Stress Scale (PSS)-10 mean values for each question

Category	Result
In the last month, how often have you been upset because of something that happened unexpectedly?	2.17±0.99
In the last month, how often have you felt that you were unable to control the important things in your life?	2.23±1.16
In the last month, how often have you felt nervous and “stressed”?	2.71±1.083
In the last month, how often have you felt confident about your ability to handle your personal problems?	1.43±0.97
In the last month, how often have you felt that things were going your way?	1.95±0.98
In the last month, how often have you found that you could not cope with all the things that you had to do?	2.16±0.98
In the last month, how often have you been able to control irritations in your life?	1.78±0.97
In the last month, how often have you felt that you were on top of things?	1.09±1.02
In the last month, how often have you been angered because of things that were outside of your control?	2.48±1.048
In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	2.04±1.073
Mean of total points scores for all patients	20.9±5.86

Values were expressed as mean±SD.

Most community pharmacists frequently choose "fairly often" as their response to all questions in the questionnaire. The average mean score for all questions ranged from 1.09 to 2.71. The total mean score is 21±5.86, indicating that perceived stress levels are relatively low to moderate. This is also shown in Figure 1. The results of the Patient Health Questionnaire-9 indicated that the majority of participants have experienced the problems mentioned for only a few days in their last two weeks. However, there was an exception for the last two conditions, where most participants did not experience them (Table 4).

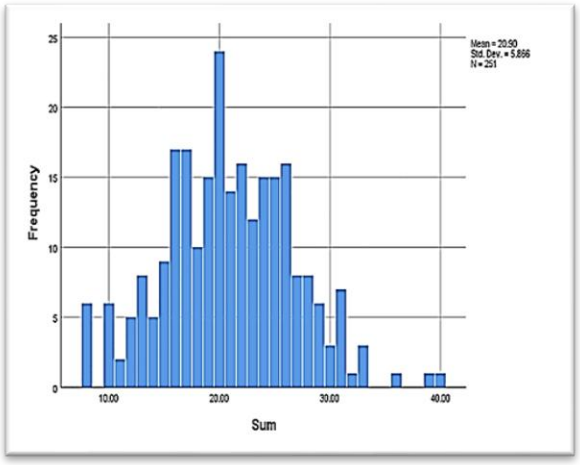

Figure 1: The distribution of total points of Perceived Stress Scale -10 across the participants.

The participants' choices were analyzed, and the mean values were presented in Table 4. The table indicated that most participants had mean values for their choices ranging from 0.75 to 1.69. The average of the total scores for the participants is 10.41±4.801, which suggests a moderate level of depression (Table 5 and Figure 2). The following question was posed to all participants as part of the Patient Health Questionnaire-9. The question was, if you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people? The results showed that over half of the participants encountered challenges in resolving any given issue. Only 4% of respondents found the process of solving problems to be exceedingly easy, while 19.5% found it to be entirely straightforward.

Table 4: Patient Health Questionnaire-9

Category	Not at all	Several days	> half of the days	Nearly every day
Little interest or pleasure in doing things	35(13.9)	105(41.8)	75 (29.9)	36 (14.3)
Feeling down, depressed, or hopeless	44(17.5)	129(51.4)	48 (19.1)	30 (12)
Trouble falling or staying asleep or sleeping too much	55(21.9)	88(35.1)	62 (24.7)	46 (18.3)
Feeling tired or having little energy	24(9.6)	90(35.9)	77 (30.7)	60 (23.9)
Poor appetite or overeating	71(28.3)	81 (32.3)	69 (27.5)	30 (12)
Feeling bad about yourself - or that you are a failure or have let yourself or your family down	88(35.1)	89(35.5)	46 (18.3)	28 (11.2)
Trouble concentrating on things, such as reading the newspaper or watching television	83(33.1)	100(39.8)	43 (17.1)	25 (10)
Moving or speaking so slowly that other people could have noticed? Or the opposite - being so fidgety or restless that you have been moving around a lot more than usual	120(47.8)	87(34.7)	32 (12.7)	12 (4.8)
Thoughts that you would be better off dead or hurting yourself in some way	161(64.1)	52(20.7)	28 (11.2)	10 (4)

Values were expressed as frequency and percentage.

Table 5: Patient Health Questionnaire-9 scores

Category	Results
Little interest or pleasure in doing things	1.45±0.9
Feeling down, depressed, or hopeless	1.25±0.89
Trouble falling or staying asleep, or sleeping too much	1.39±1.024
Feeling tired or having little energy	1.69±0.942
Poor appetite or overeating	1.23±0.993
Feeling bad about yourself - or that you are a failure or have let yourself or your family down	1.06±0.99
Trouble concentrating on things, such as reading the newspaper or watching television	1.04±0.95
Moving or speaking so slowly that other people could have noticed? Or the opposite - being so fidgety or restless that you have been moving around a lot more than usual	0.75±0.85
Thoughts that you would be better off dead or of hurting yourself in some way	0.55±0.84
Mean of total points for all patients	10.41±4.801

Values were expressed as mean±SD.

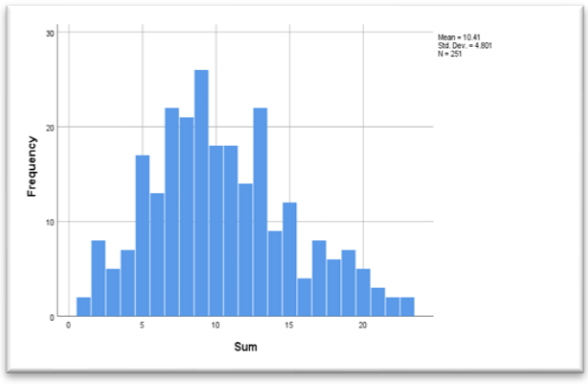

Figure 2: The distribution of total points of Patient Health Questionnaire-9 across the participants.

Nevertheless, 18.7% of the respondents reported that resolving issues was exceedingly challenging. The findings of the present study indicate that the age of community pharmacists is the only factor that is inversely associated with the level of stress experienced during work in community pharmacies. The degree of stress was not found to be correlated with other factors such as sex, work experience, type of pharmacy, or education level (Table 6). However, the current study findings indicate that age, work experience, and educational level are negatively correlated with the degree of depression. That implies that females experience a reduced level of depression when working in community pharmacies. Furthermore, it was observed that an increase in the number of years of experience in a community

pharmacy or a higher educational level of the community pharmacist resulted in a decrease in the level of depression (Table 6).

Table 6: Correlation between the degree of stress and depression with sociodemographic parameters

Parameter	Degree of stress		Degree of depression	
	τ	*p*-value	τ	*p*-value
Age	-0.11	0.015	-0.114	0.012
Sex	0.38	0.477	0.051	0.335
Work experience	-0.088	0.055	-0.097	0.036
Type of pharmacy	-0.075	0.158	-.094	0.78
Education level	-0.058	0.26	-0.11	0.032

τ: Kendall's tau-b (Kendall's rank correlation coefficient).

DISCUSSION

Pharmacists reported significantly higher levels of workplace stressors than the general working population but did not report worse health than the general working population [11]. Indeed, community pharmacists reported higher stress levels than hospital pharmacists, with interruptions, excessive workload, and inadequate staffing being the most stressful aspects of their employment, as reported in one study in Northern Ireland [12]. Healthcare systems can improve the quality of care provided to patients and the overall well-being of this essential workforce by addressing the mental health challenges presented by community pharmacists [13]. The current study showed that most community pharmacists perceive stress levels as relatively low to moderate. These findings could be attributed to various variables, including the fact that many community pharmacists in Iraq own or manage their pharmacies, giving them a sense of autonomy and control over their work environment. Furthermore, pharmacists frequently have the authority to make decisions about patient care, prescription administration, and business operations, which can lead to a sense of empowerment. Community pharmacy operations typically follow a predictable pattern, with peaks and dips in consumer flow. This routine can promote stability and lessen perceived stress. Furthermore, patient interactions can be satisfying and fulfilling, giving workers a sense of purpose and job satisfaction. Finally, developing relationships with patients can help generate a supportive network to reduce stress. In comparison, Munger *et al*. [14], in their study of community pharmacists' occupational satisfaction and stress, reported that approximately 20% of community pharmacists have high to moderate stress levels. This might indicate a negative trajectory in maintaining the practice environment. According to Jacobs *et al*. [6], community pharmacists experienced considerably higher stress levels than other healthcare workers regarding seven work-related stressors. Of note, the results of the Patient Health Questionnaire-9 in the current study indicated that most community pharmacists experienced a moderate level of depression. The high level could be attributed to various factors, including financial dissatisfaction, job insecurity, anxiety from managerial pressure, and a paucity of pharmacy staff, according to a study conducted among Iraqi community pharmacists [15]. In accordance with the findings of the present study, Condinho *et al*. concluded in their research that community pharmacy work is linked to a moderate level of depression among community pharmacists. Additionally, they found that work-related stress in French community pharmacies is significantly associated with anxiety, depression, and other coexisting health conditions. Factors such as workload and working atmosphere were identified as contributors to stress levels [16]. It is worth mentioning that the age of community pharmacists in the current study is the sole factor that negatively correlated with the amount of work-related stress in community pharmacy. The results of the reviewed studies indicate that age is a notable determinant of stress levels among community pharmacists. However, it is not the sole determinant. For example, a study found a negative correlation between age and burnout levels, suggesting that senior pharmacists may have lower burnout and stress levels than younger pharmacists [17]. However, other studies have shown that factors such as job satisfaction, perceived workload, and working conditions also play critical roles in influencing stress levels. For example, community pharmacists reported higher burnout when working longer hours or under high workload conditions [17,18]. Furthermore, the present study results suggest that age, work experience, and educational level have a negative correlation with the level of depression. That suggests that women experienced a lower level of depression while employed in community pharmacies. Moreover, it was noted that a rise in the duration of experience in a community pharmacy and/or a higher degree of education of the community pharmacist has led to a reduction in the level of depression. On the other hand, the degree of stress was not correlated with other factors such as sex, work experience, type of pharmacy, or education level. The issue of whether female pharmacists encounter a diminished amount of depression in community pharmacies is intricate. Studies suggest that female chemists may have elevated levels of stress and depression in comparison to their male colleagues. A study revealed that women working in community pharmacies experienced notably elevated levels of stress during the COVID-19 pandemic. Specifically, 34.5% of women refrained from engaging in conversations regarding public health hazards due to feelings of anxiety, stress, or sadness, in contrast to 29.4% of men [19]. Furthermore, women in a community pharmacy context exhibited a higher prevalence of moderate to severe symptoms of depression [16]. According to the result of the Stephanie et al. study, female pharmacists in chain community pharmacies tend to report higher stress levels and avoidance of discussing public health risks, indicating potential challenges with depression in community pharmacy settings [19]. On the other hand, according to a study by Khalil *et al*. [20], female pharmacists have less confidence in their ability to perform their jobs effectively but feel more secure regarding their psychological well-being. These factors have differing effects on the mental health of

community pharmacists during times of crisis, as indicated by the study's findings.

Study limitations

The main limitation of the study was the limited number of participants.

Conclusion

Community pharmacists are experiencing a moderate amount of perceived stress, along with moderate depression symptoms. The study found that age was inversely connected with both stress and depression, meaning that as age increased, levels of stress and despair tended to decrease. However, the study also showed that criteria such as work experience and educational level favorably impacted mental health. Significantly, female pharmacists had reduced levels of depression in comparison to their male colleagues. The findings emphasize the intricate interaction among several demographic, occupational, and psychological aspects in influencing the mental well-being of community pharmacists.

Conflict of interests

The authors declared no conflict of interest.

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Data sharing statement

Supplementary data can be shared with the corresponding author upon reasonable request.

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