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## Assessment of job satisfaction, work commitment, and intention to leave among pharmacists in Saudi Arabia: a cross-sectional study

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7 **among pharmacists in Saudi Arabia: a cross-sectional study**  
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## ABSTRACT

**Objectives:** We assessed job satisfaction, work commitment, and intention to leave among pharmacists working in different health-care settings in Saudi Arabia.

**Design:** This was a cross-sectional study utilizing a previously validated questionnaire.

**Setting:** We surveyed the workforce at different health-care settings in Riyadh, Saudi Arabia.

**Participants:** The participants were pharmacists licensed by the Saudi Commission for Health Specialties.

**Outcome measures:** We examined job satisfaction, work commitment, and intention to leave.

**Results:** In total, 325 out of 515 pharmacists completed the questionnaire, yielding a response rate of 63%. Over half of them were women (57.8%), 78.2% were Saudi-Arabian nationals, and 61.8% were married. The majority (88.1%) worked between 36 and 44 h per week; 96.6% were full-time employees, and 63.4% were government employees working in public hospitals or primary health-care centers. Although most of the pharmacists were satisfied (satisfied and slightly satisfied) with their current job (39.1% and 24.6%, respectively), about two-thirds (61.9%) had the intention to leave. Multiple logistic regression analysis showed that the most important predictors of pharmacists' intentions to leave were related to job satisfaction and work commitment ( $p = 0.00$  and  $0.005$ , respectively), whereas respondents' demographic characteristics had no effect.

**Conclusions:** Although the pharmacists surveyed were satisfied and committed to their current job, they had the intention to leave. Further research is recommended to clarify why pharmacists in Saudi Arabia have the intention to leave their pharmacy practice job.

**STRENGTHS AND LIMITATIONS OF THIS STUDY:**

- Our results were the self-reported perceptions of the participants; therefore, they may be subject to bias and ungeneralizable to all pharmacists in Saudi Arabia.
- This study depended on a valid list of pharmacists working in Riyadh licensed by the Saudi Commission for Health Specialties.
- To the best of our knowledge, this is the first study to be conducted in Saudi Arabia on pharmacists' job satisfaction, work commitment, and intention to leave.

## BACKGROUND

In addition to managerial and administrative roles, pharmacists have become more clinically involved in patient care at many points in health-care system. These emerging roles for pharmacists have increased the need for qualified individuals to occupy the position. The employment of pharmacists is projected to increase by 3% between 2014 and 2024, which is slower than the average for all health-care occupations[1, 2]. However, job turnover among pharmacists is relatively high and the issue of retaining pharmacists is a major concern among institutional managers[3].

One of the most significant factors that affects job turnover is job satisfaction. Job satisfaction has been defined as “the extent to which people like (satisfaction) or dislike (dissatisfaction) their job”[4]. Intrinsic and extrinsic job characteristics are the two main factors that influence the level of job satisfaction. Intrinsic factors include performance, challenge, and autonomy and depend on the characteristics of an employee, and extrinsic factors include workload, job security, promotion opportunities, and relationships with co-workers[5].

Both international and regional studies have identified determinants of professional satisfaction among health-care workers, including pharmacists. Among health-care workers, 69% of turnover intentions are significantly associated with job satisfaction and motivation from managers[6]. Some psychological morbidity is also associated with reduced job satisfaction[7]. A high level of employee stress, which is related to a high workload, has a significant impact on staff performance[8]. Longer working hours also contribute to reduced job satisfaction. Job autonomy is another variable that influences job satisfaction[5]. In addition, sociodemographic characteristics, occupation, educational background, years of service, and income have significant effects on the job satisfaction of health-care staff [9]. More than 68% of pharmacists have experienced job stress[10]. Intrinsic factors such as job security are among the primary determinants of pharmacists’ job satisfaction [11]. Lack of financial support and acceptance by medical staff are also barriers to the professional satisfaction of pharmacists [12]. A high-pressure working environment is another factor that frequently influences pharmacists’ job satisfaction[13].

The turnover intention of pharmacists is growing as a result of factors including job satisfaction, age, sex, and strength of desire to practice pharmacy[14]. Reportedly, the turnover rate among

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3 pharmacists in the United States (US) is 14.4% for several reasons: promotion opportunities; pay  
4 and benefits; working hours; educational development opportunities; and professional  
5 challenges[15]. The annual turnover rates are greater among women than men (15% and 9.7%,  
6 respectively)[16].  
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10 Several studies have addressed pharmacists' job satisfaction globally. In the US, both community  
11 and hospital pharmacists report moderate levels of job satisfaction, which the authors link to  
12 stress levels[17]. Another study found that age, income, and practice site can predict job  
13 satisfaction among practicing pharmacists[18]. A study involving pharmacists working in chain  
14 pharmacies reported that their job satisfaction was lower (53%) than that of pharmacists working  
15 in other settings[19]. In addition, several studies conducted in the United Kingdom (UK) have  
16 demonstrated a link between increasing pharmacist job dissatisfaction and stress related to high  
17 workload and its impact on community pharmacists[20]. Pharmacists' performance can be  
18 affected by many factors related to workload and working environment[21]. Job satisfaction is an  
19 important contributory factor to motivation and productivity among pharmacists [6].  
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28 The indicators of job satisfaction include employee effectiveness, good mental and emotional  
29 status, behavior that improves worker functioning and performance, and good professional  
30 relationships with staff, colleagues, and physicians [22, 23]. Also, quality of work is considered a  
31 measure of job satisfaction by the European Commission[5]. Job satisfaction, turnover intention,  
32 and patient care and safety are important contributors to pharmacists' quality of work life [24].  
33 Studies have shown there are significant associations between burnout and poor patient safety  
34 such as medical errors[25]. Moreover, one of the predictors of burnout among health-care  
35 professionals is job insecurity[26].  
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43 Work commitment is highly related to duration of employment and age. Younger pharmacists  
44 have a lower level of satisfaction and organizational attachment[27]. Other predictors of  
45 organizational commitment include supervisor support, perceptions of the effect of the  
46 pharmaceutical care movement, and practice setting[28]. High job satisfaction will positively  
47 affects work commitment, consequently decreasing turnover intention among pharmacists[29].  
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52 Medication errors lead to increased health-care costs and morbidity and mortality rates[30].  
53 Pharmacists have a specific role in reducing medication errors by performing interventions that  
54 improve medication safety, such as risk assessments in clinical pharmacies and developing  
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3 methods to detect patients at high risk of adverse drug reactions[30]. One of the  
4 recommendations to reduce medication errors is to use the “five rights”: the right dose, right  
5 patient, right drug, right route, and right time[31]. Of dispensing errors, 46% are related to  
6 organizational factors, and 41% are related to individual factors[32]. The number of medication  
7 errors is influenced by pharmacists’ years of practice and recognition of stress. A better  
8 perception of safety culture is an indicator of a decreased number of medication errors[33]. A  
9 high level of pharmacist job satisfaction has direct positive impact on the safety of medication  
10 dispensing, and this in turn has a huge impact on the quality of patient care[34].

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13 Among the Arab countries, low satisfaction among community pharmacists has been reported in  
14 Jordan, and Yemeni pharmacists have expressed dissatisfaction with their working conditions  
15 and opportunities[35, 36]. In 2014, a high rate of job satisfaction was reported among Saudi-  
16 Arabian health-care professionals[8]. However, in a 2015 study, Saudi-Arabian pharmacists,  
17 especially community pharmacists and those working in dispensaries and chain pharmacies,  
18 reported a low level of job satisfaction[37]. This is inconsistent with the findings of a study  
19 conducted in 2005, which indicated that the job satisfaction of Saudi-Arabian community  
20 pharmacists is high[22]. To the best of our knowledge, only two studies have investigated job  
21 satisfaction among Saudi-Arabian pharmacists. Therefore, in this study, we assessed the level of  
22 job satisfaction and work commitment, and their impact on turnover rate and intention to leave,  
23 among pharmacists working in different health-care settings in Saudi Arabia. Our findings will  
24 inform and advise policy makers and health planners in the development of an evidence-based  
25 retention policy for health human resources, both in general and in pharmacists in particular.

## 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 **METHODS**

### 42 43 **Settings and participants:**

44 This study involved Saudi-Arabian pharmacists working at different health-care settings in  
45 Riyadh, Saudi Arabia, including public and private hospitals, community chain pharmacies,  
46 community independent pharmacies, primary care center pharmacies, industrial pharmacies, and  
47 academic pharmacies. The study population comprised pharmacists licensed by the Saudi  
48 Commission for Health Specialties and working in the Riyadh region, regardless of their sex and  
49 workplace.  
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### Methods of measurement:

Based on the data provided by the Saudi Commission for Health Specialties, we calculated the required sample size. Using an online sample calculator (Raosoft, Inc., Seattle, WA, USA; <http://www.raosoft.com/samplesize.html>), with a chosen accepted error margin of 5%, a 95% confidence level, and a 50% response distribution within the pharmacist population in Riyadh, the minimum required sample size was 309 participants. Taking into consideration a non-respondent rate of 20%, the final targeted sample size was 387 participants. We sent a self-administered questionnaire to all 515 pharmacists licensed by the Saudi Commission for Health Specialties in Riyadh; thus, no sampling technique was applied. The self-administered questionnaire was combined with a letter that explained the purpose of the study and assured them of the confidentiality of their responses. Data were collected using an English version of a questionnaire developed and used in a Malaysian study by Chua et al. [38] to assess job satisfaction, organization commitment, and retention in the public workforce among pharmacists. The questionnaire consisted of eight sections: sociodemographic characteristics, current job features, job satisfaction, and work commitment (scored using a six-point Likert scale ranging from strongly disagree to strongly agree and comprising 15 statements); overall satisfaction with their current job; intention to leave their current job; overall patient safety at their workplace; and opinions on how to improve job satisfaction and work commitment among pharmacists working in Saudi Arabia.

### Statistical analysis:

All data were managed and analyzed using SPSS version 22 (IBM Corp., Armonk, NY, USA). Both descriptive and analytic statistics were used as needed; categorical variables were presented as frequencies and percentages, and continuous variables as means and standard deviation. Non-parametric tests, including the Mann–Whitney and Kruskal–Wallis tests, and the chi-squared test were used as appropriate, and multivariate logistic regression analysis was performed to determine the association between demographic variables, job satisfaction, and work commitment and the participants' likelihood to leave their current job. A p-value <0.05 and 95% confidence interval were used to indicate statistical significance.

**Patient and Public Involvement:** Patients were not involved.

## RESULTS

### Sociodemographic characteristics of the participants:

In total, 325 of 1565 pharmacists completed the study questionnaire, yielding a response rate of 63.1%. The majority of the respondents were women ( $n = 188$ , 57.8%) and aged between 25 and 30 years (35.7%). Of them, 78.2% were Saudi-Arabian nationals, 61.8% were married, and 52.6% held a bachelor's degree. The average working hours of more than half of the respondents ( $n = 171$ , 52.6%) were between 36 and 44 h, equating to full-time employment status. Of the respondents, 51.4% worked at public hospital pharmacies and filled the staff pharmacist position ( $n = 182$ , 56.5%). Most participants had 6–15 years of experience (Table 1).

**Table 1:** Demographic characteristics of the respondents

Demographic characteristics	<i>n</i> (%)
<b>Sex</b>	
Male	137 (42.2)
Female	188 (57.8)
<b>Age (years)</b>	
<25	14 (4.3)
25–30	116 (35.7)
31–35	94 (28.9)
36–40	47 (14.5)
>40	54 (16.6)
<b>Marital status</b>	
Single	113 (34.8)
Married	201 (61.8)
Divorced	11 (3.4)
<b>Income/month (SR)</b>	
<5000	16 (4.9)
5000–10000	52 (16)
11000–15000	117 (36)
>15000	140 (43.1)
<b>Nationality</b>	
Saudi-Arabian	254 (78.2)
Non-Saudi-Arabian	71 (21.8)
<b>Highest level of education</b>	
Bachelor's degree	171 (52.6)
Master's degree	94 (28.9)
Pharm D	36 (11.1)
PhD	13 (4)
Other	11 (3.4)
<b>Average hours worked per week</b>	

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≤35	33 (10.2)
36–44	171 (52.6)
>44	121 (37.2)
<b>Employment status</b>	
Full-time	314 (96.6)
Part-time	11 (3.4)
<b>Place of practice</b>	
Public hospital pharmacy	167 (51.4)
Private hospital pharmacy	15 (4.6)
Community pharmacy	15 (4.6)
Primary care center	39 (12)
Industrial companies	55 (19.6)
Academic/university	17 (5.2)
Other	17 (5.2)
<b>Years of practice</b>	
≤5	125 (38.5)
6–15	130 (40)
16–20	42 (12.9)
>20	28 (8.6)
<b>Current position</b>	
Pharmacist manager/supervisor	96 (29.8)
Pharmacist staff	182 (56.5)
Pharmacy owner	2 (0.6)
Others	42 (13)
Unknown	3 (0.9)

Abbreviations: PhD, Doctor of Philosophy; Pharm D, Doctor of Pharmacy; SR, Saudi-Arabian Riyals.

### **Job satisfaction and work commitment:**

Table 2 shows the pharmacists' responses across all items of job satisfaction and work commitment. Approximately 60% of the respondents reported that they were satisfied with their job: they were happy going to work every day; they described their job to family and friends as a great job to have; the job provided them with opportunities to use their abilities; they had flexibility to choose any method of doing the job; they had sufficient freedom to use their own judgment in their job; and they got a feeling of accomplishment from their work. However, 62% of the respondents said that they were not satisfied at the end of each working day, and they felt that the day had not been well spent. Forty-seven percent were unsatisfied by the fringe benefits offered by their current job, and 36% felt unlucky to have their job.

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3 Regarding work commitment, 83% of the respondents said that they were willing to put in effort  
4 beyond that normally expected to help the workplace be successful. More than 70% were proud  
5 to tell others that they are a part of their organization and really cared about its fate. More than  
6 60% of respondents were extremely glad that they chose to work at their organization, and  
7 described their workplace to family and friends as a great organization to work for. However,  
8 54% of respondents disagreed, stating that choosing to work for their organization was a definite  
9 mistake. Forty-six percent of the respondents felt very little loyalty to their organizations. More  
10 than 50% said that they could just as well be working for a different organization, that they did  
11 not think there was much to be gained by sticking with their organization, and that they found it  
12 difficult to agree with their organizations' policies on matters related to its employees. In  
13 addition, the respondents agreed that it would take a very little change in their present  
14 circumstances to prompt them to leave their organization.  
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**Table 2:** Job satisfaction and work commitment among the respondents

No.	Statement	Strongly disagree n (%)	Disagree n (%)	Slightly disagree n (%)	Slightly agree n (%)	Agree n (%)	Strongly agree n (%)	Mean score (SD)
<b>Job satisfaction</b>								
1	I look forward to coming to work everyday	29 (8.9)	35 (10.8)	34 (10.5)	70 (21.5)	108 (33.2)	49 (15.1)	4.05 (1.51)
2	I talk about my job with my family and friends because it is a great job	27 (8.3)	53 (16.3)	37 (11.4)	67 (20.6)	99 (30.5)	42 (12.9)	3.87 (1.52)
3	My job provides me with broad opportunities to use my abilities	27 (8.3)	40 (12.3)	47 (14.5)	53 (16.3)	112 (34.5)	46 (14.2)	3.99 (1.52)
4	I have sufficient freedom to use my own judgment in my job	17 (5.2)	42 (12.9)	46 (14.2)	64 (19.7)	112 (34.5)	44 (13.5)	4.06 (1.42)
5	My job provides me with flexibility to choose any method of doing the job	21 (6.5)	44 (13.5)	44 (13.5)	82 (25.2)	103 (31.7)	31 (9.5)	3.91 (1.39)
6	I get a feeling of accomplishment from my job	22 (6.8)	32 (9.8)	39 (12)	86 (26.5)	115 (35.4)	31 (9.5)	4.02 (1.36)
7	At the end of each working day, I feel that the day has been well spent	119 (36)	33 (10.2)	49 (15.1)	86 (26.5)	0 (0)	38 (11.7)	2.78 (1.68)
8	If I were to start my career again, I would choose this job	53 (16.3)	33 (10.2)	42 (12.9)	58 (17.8)	85 (26.2)	54 (16.6)	3.77 (1.7)
9	Other people would be very lucky to get a job like mine	42 (12.9)	29 (10.8)	46 (14.2)	84 (25.8)	82 (25.2)	42 (12.9)	3.8 (1.54)
10	I am satisfied with my job	35 (10.8)	32 (9.8)	37 (11.4)	82 (25.2)	104 (32)	35 (10.8)	3.90 (1.49)
11	I am satisfied with my salary	65 (20)	48 (14.8)	37 (11.4)	70 (21.5)	77 (23.7)	28 (8.6)	3.4 (1.65)
12	I am satisfied with the fringe benefits offered by my job	58 (17.8)	54 (16.6)	48 (14.8)	71 (21.8)	70 (21.5)	24 (7.4)	3.35 (1.58)
13	I am satisfied with the working conditions	44 (13.5)	48 (14.8)	51 (15.7)	76 (23.4)	85 (26.2)	21 (6.5)	3.53 (1.51)
14	I am satisfied with the personnel policies of this organization	41 (12.6)	48 (14.8)	59 (18.2)	72 (22.2)	84 (25.8)	21 (6.5)	3.53 (1.48)
15	I am satisfied with the style and quality of supervision	43 (13.2)	51 (15.7)	53 (16.3)	72 (22.2)	80 (24.6)	26 (8)	3.53 (1.53)
<b>Work commitment</b>								
1	I am willing to put in effort beyond that normally expected to help my workplace to be successful	15 (4.6)	17 (5.2)	22 (6.8)	58 (17.8)	123 (37.8)	90 (27.7)	4.62 (1.34)
2	I talk about my workplace to my friends because it is a great organization to work for	31 (9.5)	41 (12.6)	53 (16.3)	65 (20)	103 (31.7)	32 (9.8)	3.81 (1.49)
3	I feel very little loyalty to my organization	58 (17.8)	70 (21.5)	47 (14.5)	60 (18.5)	69 (21.2)	21 (6.5)	3.23 (1.58)
4	I would accept almost any type of job assignment to keep working at this organization	36 (11.1)	39 (12)	61 (18.8)	76 (23.4)	74 (22.8)	39 (12)	3.71 (1.51)
5	I find that my values and my organization's value are very similar	29 (8.9)	52 (16)	45 (13.8)	64 (19.7)	97 (29.8)	38 (11.7)	3.81 (1.52)

6	I am proud to tell others that I am a part of my organization	27 (8.3)	25 (7.7)	32 (9.8)	68 (20.9)	105 (32.3)	68 (20.9)	4.24 (1.5)
7	I could just as well be working for a different organization	24 (7.4)	33 (10.2)	56 (17.2)	86 (26.5)	96 (29.5)	30 (9.2)	3.88 (1.37)
8	My workplace inspires my best job performance	41 (12.6)	55 (16.9)	56 (17.2)	80 (24.6)	70 (21.5)	23 (7.1)	3.47 (1.48)
9	It would take a very little change in my present circumstances to make me leave this organization	29 (8.9)	51 (15.7)	57 (17.5)	84 (25.8)	81 (24.9)	23 (7.1)	3.63 (1.42)
10	I am extremely glad that I chose this organization to work for	30 (9.2)	36 (11.1)	43 (13.2)	70 (21.5)	99 (30.5)	47 (14.5)	3.96 (1.51)
11	There is not much to be gained by sticking with this organization	35 (10.8)	60 (18.5)	61 (18.8)	84 (25.8)	58 (17.8)	27 (8.3)	3.46 (1.46)
12	Often, I find it difficult to agree with my organization's policies on important matters relating to its employees	44(13.5)	52 (16)	60 (18.5)	80 (24.6)	57 (17.5)	32 (9.8)	3.46 (1.52)
13	I really care about the fate of my organization	20 (6.2)	21 (6.5)	35 (10.8)	65 (20)	115 (35.4)	69 (21.2)	4.36 (1.41)
14	For me, this is the best of all possible organizations to work for	33 (10.2)	49 (15.1)	56 (17.2)	68 (20.9)	85 (26.2)	34 (10.5)	3.69 (1.51)
15	Deciding to work for this organization was a definite mistake	103 (12)	69 (21.2)	67 (20.6)	39 (12)	38 (11.7)	9 (2.8)	2.59 (1.46)

Abbreviations: SD, standard deviation.

### Overall satisfaction, intention to leave, and patient safety perception

Pharmacists' overall job satisfaction was assessed by one global question: "How satisfied are you with your current job?" (Table 3). The results indicated that the majority of pharmacists were satisfied (satisfied and slightly satisfied) with their current job (39.1% and 24.6%, respectively); the proportion of pharmacists who were extremely dissatisfied was only 7.1%. However, most (61.9%) of the pharmacists stated that it was their intention to leave their current job, whereas only 38.7% said that they were unlikely to leave (Table 3). The pharmacists' perceptions of patient safety at their workplace are presented in Table 3. The majority reported that patient safety at their workplace was good or better ( $n = 108$ , 33.2%), but about one-fifth of the respondents (24.3%) had concerns about patient safety issues at their workplace.

**Table 3:** Respondents' overall satisfaction, intention to leave, and patient safety

<b>How satisfied are you with your current job?</b>	<b><i>n</i> (%)</b>
Extremely dissatisfied	23 (7.1)
Dissatisfied	36 (11.1)
Slightly dissatisfied	35 (10.8)
Slightly satisfied	80 (24.6)
Satisfied	127 (39.1)
Extremely satisfied	24 (4.7)
<b>How likely are you to leave your current job for any reason?</b>	<b><i>n</i> (%)</b>
Very unlikely	32 (9.8)
Unlikely	94 (28.9)
Likely	144 (44.3)
Very likely	55 (16.9)
<b>How much you rate patient safety in your working place?</b>	<b><i>n</i>(%)</b>
Poor	28 (8.6)
Fair	51 (15.7)
Good	108 (33.2)
Very good	56 (17.2)
Excellent	59 (18.2)
Not applicable	23 (7.1)

### Factors affecting respondents' likeliness to stay in their current job, job satisfaction, and work commitment:

The associations between respondents' demographic variables and likelihood to stay in their current job are shown in Table 5. A significant association was evident between participants' likelihood to remain in their current job and income ( $p = 0.047$ ), place of practice ( $p = 0.026$ ), and current position ( $p = 0.008$ ). Table 6 shows the association between respondents' demographic characteristics and job satisfaction and work commitment. A significant association was found between age, monthly income, working hours per week, place of practice, current position, and job satisfaction ( $p < 0.05$ ). Likewise Table 5 shows the effect of respondents' demographic characteristics on job satisfaction and work commitment. A significant association existed between age, nationality, and level of education and work commitment ( $p < 0.05$ ).

**Table 4:** Association between respondents' demographic characteristics and likelihood to stay in their current job

Demographic characteristics	Unlikely to stay <i>n</i> (%)	Likely to stay <i>n</i> (%)	p-value
<b>Sex</b>			
Male	56 (44.4)	81 (40.7)	0.565
Female	70 (55.6)	118 (59.3)	
<b>Age (years)</b>			
<25	4 (3.2)	10 (5)	0.381
25–30	45 (35.7)	71 (35.7)	
31–35	34 (27)	60 (30.2)	
36–40	16 (12.7)	31 (15.6)	
>40	27 (21.4)	27 (13.6)	
<b>Marital status</b>			
Single	37 (29.4)	76 (38.2)	0.157
Married	86 (68.3)	115 (57.8)	
Divorced	3 (2.4)	8 (4)	
<b>Income/month (SR)</b>			
<5000	3 (2.4)	13 (6.5)	0.047*
5000–10000	16 (12.7)	36 (18.1)	
11000–15000	42 (33.3)	75 (37.7)	
>15000	65 (51.6)	75 (37.7)	
<b>Nationality</b>			
Saudi-Arabian	99 (78.6)	155 (77.9)	1
Non-Saudi-Arabian	27 (21.4)	44 (22.1)	
<b>Highest level of education</b>			
Bachelor's degree	71 (56.3)	100 (50.3)	
Master's degree	38 (30.2)	56 (28.1)	



Pharm D	11 (8.7)	25 (12.6)	0.218
PhD	5 (4)	8 (4)	
Other	1 (0.8)	10 (5)	
<b>Average hours worked per week</b>			
≤35	15 (11.9)	18 (9)	
36–44	73 (57.9)	98 (49.2)	0.106
>44	38 (30.2)	83 (41.7)	
<b>Employment status</b>			
Full-time	121 (96)	193 (97)	
Part-time	5 (4)	6 (3)	0.755
<b>Place of practice</b>			
Public hospital pharmacy	51 (40.5)	116 (58.3)	
Private hospital pharmacy	6 (4.8)	9 (4.5)	
Community pharmacy	4 (3.2)	11 (5.5)	
Primary care center	18 (14.3)	21 (10.6)	
Industrial companies	28 (22.2)	27 (13.6)	0.026*
Academic/university	10 (7.1)	7 (3.5)	
Other	9 (7.1)	8 (4)	
<b>Years of practice</b>			
≤5	44 (34.9)	81 (40.7)	
6–15	49 (38.9)	81 (40.7)	
16–20	17 (13.5)	25 (12.6)	0.19
>20	16 (12.7)	12 (6)	
<b>Current position</b>			
Pharmacist	47 (37.6)	49 (24.9)	
manager/supervisor			
Pharmacist staff	57 (45.6)	125 (63.5)	0.008*
Pharmacy owner	0 (0)	2 (1)	
Other	21 (16.8)	21 (10.7)	

Abbreviations: PhD, Doctor of Philosophy; Pharm D, Doctor of Pharmacy; SR, Saudi-Arabian Riyals.

**Table 5:** Effect of respondents' demographic characteristics on job satisfaction and work commitment

<b>Demographic characteristics</b>	<b>Job satisfaction Median (IQR)</b>	<b>p-value</b>	<b>Work commitment Median (IQR)</b>	<b>p-value</b>
<b>Sex</b>				
Male	61 (71–70)	0.154	58 (49–65)	0.721
Female	55 (44–68)		57 (50–64)	
<b>Age (years)</b>				
<25	60 (34–67)	0.008*	60 (40.5–62.5)	0.038*
25–30	58.5 (46–70.75)		58 (52–65)	
31–35	56 (42.25–65)		56 (49–64)	
36–40	52 (34–68)		53 (45–63)	
>40	65.5 (52.5–71.25)		60 (54–67)	
<b>Marital status</b>				
Single	56.5 (41.75–67)	0.328	58 (49.75–64.2)	0.962
Married	59 (46.5–71)		57 (50–65)	
Divorced	57 (48–65)		59 (46–65)	
<b>Income/month (SR)</b>				
<5000	51.5 (27.5–59.25)	0.006*	56.50 (36–63)	0.091
5000–10000	55 (45.25–70)		58.50 (52–68.5)	
11000–15000	56 (39–68)		56 (46.5–64)	
>15000	60 (50–71)		58 (50–65)	
<b>Nationality</b>				
Saudi-Arabian	58 (44–68)	0.464	57 (49–64)	0.014*
Non-Saudi-Arabian	58.5 (48–70.25)		60 (54–67)	
<b>Highest level of education</b>				
Bachelor's degree	60 (49–70)	0.065	59 (52–66)	0.017*
Master's degree	58 (43–69)		55 (49.25–65.75)	
Pharm D	55 (38–68)		54 (44–6)	
PhD	52 (43–64)		51 (44.5–60.5)	
Other	50 (32–53)		58 (45–67)	
<b>Average hours worked per week</b>				
≤35	59 (38–67)	0.001*	56.5 (39.75–67.75)	0.281
36–44	61 (49–71)		58 (51–66)	
>44	53 (39–65)		57 (49–63)	
<b>Employment status</b>				
Full-time	58 (46–69)	0.962	57 (50–65)	0.695
Part-time	60 (42–64)		54 (48–66)	
<b>Place of practice</b>				
Public hospital pharmacy	54 (39–65)	0.000*	57 (49–64)	0.599
Private hospital pharmacy	55 (38–69)		58 (47–74)	
Community pharmacy	59 (43.25–66.75)		58 (53.5–60.75)	
Primary care center	55 (43–71)		58 (45–69)	
Industrial companies	68 (58–73)		59 (56–64)	

Academic/university	60 (45–71)		57 (50–69)	
Other	60 (48–73.5)		53 (49–67)	
<b>Years of practice</b>				
≤5	57 (43–70)		57 (47–64)	
6–15	58 (42.5–67.5)	0.027*	56 (50–64)	0.123
16–20	56 (46.75–68)		60 (48.75–69)	
>20	65.5 (57–72.75)		61 (54.25–68.5)	
<b>Current position</b>				
Pharmacist	62 (51–73)		59 (52–65.75)	
manager/supervisor				
Pharmacist staff	54 (40–67)	0.001*	57 (47–64.25)	0.438
Pharmacy owner	58.5 (45–72)		60.50 (46–75)	
Other	60 (49–71)		57 (50–64)	

Abbreviations: IQR, interquartile range; PhD, Doctor of Philosophy; Pharm D, Doctor of Pharmacy; SR, Saudi-Arabian Riyals.

### Determinants of respondents' likeliness to leave their current job:

Table 6 shows the results of a multiple logistic regression analysis of the effects of respondents' demographic characteristics, job satisfaction, and work commitment on their likelihood to leave their current job. The most important predictors of intention to leave were job satisfaction and work commitment ( $p = 0.00$  and  $0.005$ , respectively). There were no significant associations between respondents' demographic characteristics and intention to leave. However, older respondents were twice as likely as younger respondents to leave their jobs. Residents and pharmacists with a diploma-level education (other) were six times more likely to leave their job than the pharmacists with bachelor or master degrees, and those with full-time jobs were three times more likely to quit their job than those with part-time jobs, although without statistical significance.

**Table 6:** Multiple logistic regression analysis of the effects of respondents' demographic characteristics, job satisfaction, and work commitment on their likelihood to leave their current job

Variables	Coefficient (SE)	OR (95% CI)	p-value
Job satisfaction	-0.08 (0.014)	0.923 (0.898–949)	<b>0.000</b>
Work commitment	0.045 (0.016)	1.046 (1.014–1.08)	<b>0.005</b>
<b>Sex</b>			
Male	-	-	-
Female	-0.075 (0.307)	0.928 (0.508–1.649)	0.807
<b>Age (years)</b>			

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3	<25	-	-	-
4	25–30	-0.266 (0.749)	0.766 (0.177–3.326)	0.722
5	31–35	0.156 (0.845)	1.169 (0.223–6.123)	0.854
6	36–40	0.545 (0.952)	1.725 (0.267–11.14)	0.567
7	>40	0.754 (1.057)	2.135 (0.268–16.859)	0.476
8				
9	<b>Marital status</b>			
10	Single	-	-	-
11	Married	-0.39 (339)	0.677 (0.348–1.316)	0.25
12	Divorced	0.058 (0.791)	1.06 (0.225–4.992)	0.941
13				
14	<b>Monthly income (SR)</b>			
15	<5000	-	-	-
16	5000–10000	-0.688 (1.024)	0.503 (0.068–3.742)	0.502
17	11000–15000	-1.49 (1.11)	0.225 (0.026–1.986)	0.108
18	>15000	-1.327 (1.156)	0.265 (0.028–2.557)	0.251
19				
20	<b>Nationality</b>			
21	Saudi-Arabian	-	-	-
22	Non-Saudi-Arabian	-0.23 (0.468)	0.795 (0.317–1.989)	0.623
23				
24	<b>Education Level</b>			
25	Bachelor's degree	-	-	-
26	Master's degree	0.148 (0.334)	1.159 (0.603–2.231)	0.658
27	Pharm D	0.328 (0.492)	1.388 (0.53–3.637)	0.505
28	PhD	0.063 (0.787)	1.065 (0.228–4.979)	0.936
29	Other	1.896 (1.157)	6.659 (0.69–64.312)	0.101
30				
31	<b>Average work hours per week</b>			
32	<35	-	-	-
33	36–44	0.546 (0.52)	1.726 (0.623–4.786)	0.294
34	>44	0.521 (.544)	1.684 (0.58–4.892)	0.338
35				
36	<b>Employment status</b>			
37	Part-Time	-	-	-
38	Full-Time	1.077 (1.043)	2.937 (0.38–22.678)	0.302
39				
40	<b>Place of pharmacy practice</b>			
41	Public hospital pharmacy	-	-	-
42	Private hospital pharmacy	-0.977 (0.718)	0.376 (0.092–1.539)	0.174
43	Community pharmacy	0.167 (0.754)	1.182 (0.27–5.175)	0.825
44	Primary care center pharmacy	-0.503 (454)	0.605 (0.248–1.474)	0.268
45	Industrial company	-0.132 (0.482)	0.877 (0.341–2.255)	0.785
46	Academic/university hospital	-0.792 (0.77)	0.453 (0.1–2.049)	0.304
47	Other	-0.65 (0.682)	0.522 (0.137–1.987)	0.341
48				
49	<b>Years of practice</b>			
50	≤5	-	-	-
51	6–15	-0.305 (0.436)	0.737 (0.314–1.733)	0.484
52	16–20	-1.014 (0.774)	0.363 (0.08–1.655)	0.19
53	>20	-1.328 (0.946)	0.265 (0.042–1.693)	0.16
54				
55	<b>Current position</b>			
56	Pharmacy manager/supervisor	-	-	-
57	Pharmacist	0.195 (0.374)	1.215 (0.584–2.527)	0.602
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59				
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Other	0.168 (0.544)	1.182 (0.407–3.434)	0.758
Constant	2.687 (1.317)	14.695	0.041
Pseudo $R^2$		0.323	
–Log likelihood		343.534	

Abbreviations: CI, confidence interval; OR, odds ratio; PhD, Doctor of Philosophy; Pharm D, Doctor of Pharmacy; SE, standard error; SR, Saudi-Arabian Riyals.

## DISCUSSION

In this study, we assessed job satisfaction and work commitment, and their determinant factors and the intention to leave, among pharmacists working at different health-care settings in Riyadh.

### Job satisfaction:

Across all job satisfaction items in this survey, the respondents were moderately varied in their satisfaction. Numerous factors affected respondents' job satisfaction, including salary, workload, continuous education and development, supervision, motivation, and working environment, i.e. work setting. These findings are largely consistent with the results of earlier studies on job satisfaction among pharmacists and other health-care workers[38, 39]. Another study also reported that working environment, motivation, and income are factors that influence job satisfaction[40]. Overall, job satisfaction among the study respondents was high, but their reported likelihood to leave their current job was also high, suggesting that job satisfaction does not necessarily mean that pharmacists are not planning to leave. Lower motivation and job satisfaction, as well as the presence of work-related factors, are significantly associated with the intention to leave among health-care workers[6]. These findings are consistent with a study on job satisfaction, sources of stress, and workload among New Zealand health-care professionals, in which pharmacists were significantly less satisfied as a result of job-related stress[7]. The greatest level of job satisfaction was reported by pharmacists with a higher income[18]. In some studies, job dissatisfaction among pharmacists was found to be related to their place of work, especially among pharmacists working in community chain pharmacies. Conversely, pharmacists working in hospital pharmacies have a better level of satisfaction than those working in other

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3 practice settings[19, 35]. A high degree of job satisfaction may help to lower employee  
4 absenteeism and consequently turnover intentions[23].  
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### 7 **Work commitment:**

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9 In this study, the majority of respondents expressed commitment to their work, showing qualities  
10 such as loyalty, workplace environment, agreement with organization policies, and interest in  
11 organizational procedures and fate. These findings have commonalities with those of a previous  
12 study, which defined three basic components necessary for employees' work commitment:  
13 loyalty; acceptance of an organizations' policies; and good leadership behavior[41]. Another  
14 study demonstrated that the interpersonal environment of a work setting has an effect on nurses'  
15 work commitment[42]. These different findings emphasize that enhancing employee  
16 empowerment has a positive effect on organizational trust and commitment[43]. A previous  
17 study found that job turnover intention was mediated by organizational commitment[29].  
18 Organizational commitment influences the willingness of employees to leave. This is consistent  
19 with the observation that overall job satisfaction and work commitment affects job turnover  
20 rate[44].  
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### 31 **Respondents' likelihood to leave their current job:**

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33 Although the study findings show that the pharmacists were satisfied with and committed to their  
34 current jobs, most stated that they were likely to leave. This is largely consistent with the  
35 findings of a study involving family physicians in the UK, in which high levels of job  
36 satisfaction did not mitigate their intentions to leave the profession[45]. The top three significant  
37 factors affecting our respondents' likelihood to stay in their current jobs were monthly income,  
38 place of practice, and current position. This is partially in agreement with a previous study  
39 assessing health-care workers' intentions to leave, which showed that pay and benefits and place  
40 of practice were significantly predictive of nurses' intentions to leave their current  
41 employment[46]. Pharmacists working in community sectors have a higher tendency to intend to  
42 quit than pharmacists working in other sectors[14]. These findings are similar to those of a study  
43 of Chinese physicians, who had a greater tendency to quit their jobs if they had a low income  
44 than a higher income or a technical position than a managerial position[47]. Several studies have  
45 emphasized that poor salary is one of the primary predictors of intention to leave among  
46 pharmacists and other health-care workers [16, 48, 49]. A pharmacist's position has a significant  
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3 effect on job turnover intention[50]. This is especially true among independent pharmacy  
4 owners, who demonstrate more positive attitudes toward their work than other pharmacists  
5 positions[29]. In contrast, excessive employee workloads and poor relationships with supervisors  
6 play an important role in intentions to leave[48, 51]. In our study, demographic characteristics  
7 such as sex and age had no influence on pharmacists' likelihood to stay in their current job.  
8 These results are similar to those of a study involving physicians, which found that age and sex  
9 have no significant effect on intention to leave[47]. In general, women have a higher annual  
10 intention to leave than men[16]. Our findings differ from those of some other studies, in which  
11 sex and age are primary factors affecting pharmacists' intentions to quit their profession[14].  
12 Other studies have also found that predictors such as relocation and layoffs were common  
13 reasons for the high turnover rate of pharmacists[33].  
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### 23 **Associations and determinate factors:**

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25 The analysis of the study findings showed that respondents' characteristics such as age, income,  
26 workload, practice setting, experience, and current position were significantly predictive of their  
27 level of job satisfaction. Likewise, a previous study found that working in hospitals and  
28 independent settings influences the level of job satisfaction among pharmacists[17]. Similarly,  
29 another study showed that age, income, and place of practice are significant predictors of job  
30 satisfaction. However, work experience is not a significant determinant of job satisfaction[11].  
31 Our results also demonstrated that respondents' sex, marital status, nationality, level of  
32 education, and employment status were not among the factors that influenced job satisfaction.  
33 These results are consistent with those of a study conducted at a Ministry of Health hospital in  
34 Saudi Arabia [52]. Sex was previously identified as a predictor of job satisfaction, especially in  
35 female pharmacists, but this was not the case our study[14]. Suleiman AK ,[37] defined a series  
36 of factors that influence job satisfaction, including working conditions, the nature of the work,  
37 salary, opportunities, and management. In the UK, two studies emphasized that workload and  
38 high-pressure working environments contribute to a decrease in pharmacists' job satisfaction[13,  
39 18]. Consistently, another study performed in Saudi Arabia agreed that workload is an important  
40 source of dissatisfaction among physicians in primary health-care centers[53]. Another factor  
41 affecting job satisfaction identified in a previous study was being of Saudi-Arabian nationality,  
42 but nationality had no influence on job satisfaction in this study [8]. Pharmacists who work in  
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3 administrative offices have higher job satisfaction than those working in health clinics and  
4 hospitals[38]. Indeed, pharmacists' positions were the factor most significantly associated with  
5 high job satisfaction[54].  
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9 Regarding work commitment, our study identified three significant predictors: age, nationality,  
10 and level of education. Age had a high correlation with employee organizational attachment.  
11 Younger pharmacists were less committed to their work, especially those with less than 7 years  
12 of employment[27]. In contrast, a US study emphasized that age has no effect on career or  
13 organizational commitment. Management support has a positive effect on work commitment[28].  
14 Improved work-related attitudes were also found to increase work commitment[28, 29]. In  
15 addition, increased access to knowledge, development, support, and opportunities increase  
16 organizational commitment[55]. Among nurses, higher level of education has a positive effect on  
17 organizational commitment and job satisfaction[56]. Training and professional development are  
18 also considered important aspects of job satisfaction by pharmacists[38]. In our study,  
19 demographic characteristics such as sex, marital status, income, workload, practice setting, and  
20 years of experience had no significant effect on pharmacists' commitment. This opposes a  
21 previous finding that married pharmacists are more committed to their work[15]. Another study  
22 found that workload has a great impact on lowering employees' organizational  
23 commitments[51].  
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35 Our study shows that job satisfaction and work commitment are significantly related to  
36 pharmacists' intentions to leave. In contrast, a previous study reported that high job satisfaction  
37 and work commitment have an inverse association with the intention to leave[51]. Another study  
38 found that high levels of job satisfaction and work commitment decrease the likelihood of job  
39 turnover intention[29]. Opposing outcomes were found in a study conducted in Pakistan on the  
40 determinants of employees' intentions to leave, in which organizational commitment, job  
41 satisfaction, and intention to leave were not significantly associated[51]. Job turnover intentions  
42 among pharmacy faculty staff are influenced by organizational commitment[48]. Among  
43 physicians, previous results have shown that job satisfaction is an important predictor of their  
44 intentions to leave their profession[45]. Furthermore, our results did not show any significant  
45 association between respondents' demographic characteristics and their intentions to leave.  
46 Working hours, marital status, income, and continuation of education influence the rate of job  
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3 turnover among hospital pharmacists[15]. Among nurses, a high level of education and an  
4 equitable workload equate to greater commitment, productivity, and effectiveness in their  
5 organizations, and thus they are less likely to leave their jobs[56]. Another study found that  
6 productive and effective organization is generated by a high level of employee satisfaction and  
7 commitment[56]. Furthermore, an earlier study demonstrated that a high level of job satisfaction  
8 equates to reduced employee absenteeism and intentions to leave[37].  
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### 14 **Limitation and strengths:**

16 This study had some limitations that can be summarized as follows. Because of the study design  
17 used, there is a chance that the associations identified may have been misinterpreted. The limited  
18 duration and timing of data collection prevented us from getting more responses and cooperation  
19 from more pharmaceutical companies, community chain pharmacies, and pharmacies at private  
20 hospitals to cover most practice settings in Riyadh. Therefore, it may not be possible to  
21 generalize our results, which analyzed only pharmacists in Riyadh, to all pharmacists in other  
22 parts of Saudi Arabia. Furthermore, our results were based on the self-reported perceptions of the  
23 study's participants and are therefore subject to bias. Despite these limitations, the study has  
24 provided interesting baseline results, which will help to inform better research in future.  
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27 Regarding the strengths of the study, the Saudi Commission for Health Specialties provided a list  
28 of contact details for all licensed pharmacists in Riyadh. Web-based surveys facilitated data  
29 collection and reduced costs. No other studies have investigated job satisfaction, work  
30 commitment, and intention to leave among pharmacists in Saudi Arabia. Previous studies have  
31 focused on health-care workers other than pharmacists.  
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### 44 **CONCLUSION**

46 Our results reveal differing levels of job satisfaction and work commitment between pharmacists  
47 working in different practice settings in Riyadh. Our findings indicate that a significant  
48 relationship exists between pharmacists' job satisfaction and work commitment and their  
49 intention to leave. In general, the pharmacists surveyed were satisfied with their jobs, but at the  
50 same time, they expressed a desire to leave their current positions. Further research is required to  
51 determine why the intention to leave is increasing among pharmacists in Saudi Arabia.  
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### **Competing interests:**

None.

### **Ethics approval:**

The research ethics committee of the King Abdullah International Medical Research Center (KAIMRC) at the King Abdul-Aziz Medical City approved the study and granted IRB approval (protocol number SP17/116/R). The consent form was attached with each questionnaire to obtain a well-informed decision by participants to take part in this study voluntarily.

### **Provenance and peer review:**

Not commissioned; externally peer reviewed.

### **Data sharing statement:**

No additional data are available.

### **Open access:**

This is an open access article.

## REFERENCES

- 1 Bureau of Labor Statistics. Occupational Outlook Handbook, Pharmacy Technicians (2002-03 edition). Washington DC, USA: US Department of Labor 2003.
- 2 Department of Health & Human Services, Health Resources and Services Administration, Bureau of Health Professions. Report to Congress. The Pharmacist Workforce: A Study of the Supply and Demand for Pharmacists. Washington DC, USA: Department of Health & Human Services 2000.
- 3 Fitz-enz J. It's costly to lose good employees. *Workforce* 1997;76:50-1.
- 4 Spector PE. Job Satisfaction: Application, Assessment, Causes, and Consequences. Thousand Oaks, CA, USA: SAGE Publications Inc. 1997.
- 5 Parent-Thirion A, Fernández Macías E, Hurley J, et al. Fourth European Working Conditions Survey. Dublin, Ireland: European Foundation for the Improvement of Living and Working Conditions 2007.
- 6 Bonenberger M, Aikins M, Akweongo P, et al. The effects of health worker motivation and job satisfaction on turnover intention in Ghana: a cross-sectional study. *Human Resour Health* 2014;12:43. doi: 10.1186/1478-4491-12-43.
- 7 Dowell AC, Westcott T, McLeod DK, et al. A survey of job satisfaction, sources of stress and psychological symptoms among New Zealand health professionals. *N Z Med J* 2001;114:540-3.
- 8 Salam A, Abu-Helalah M, Jorissen SL, et al. Job stress and job satisfaction among health care professionals. *Eur Sci J* 2014;10:156-73.
- 9 Lu Y, Hu XM, Huang XL, et al. Job satisfaction and associated factors among healthcare staff: a cross-sectional study in Guangdong Province, China. *BMJ Open* 2016;6:e011388. doi: 10.1136/bmjopen-2016-011388.
- 10 Mott DA, Doucette WR, Gaither CA, et al. Pharmacists' attitudes toward worklife: results from a national survey of pharmacists. *J Am Pharm Assoc* 2004;44:326-36.
- 11 Liu CS, White L. Key determinants of hospital pharmacy staff's job satisfaction. *Res Social Adm Pharm* 2011;7:51-63. doi: 10.1016/j.sapharm.2010.02.003.
- 12 Bourne RS, Baqir W, Onatade R. Pharmacist independent prescribing in secondary care: opportunities and challenges. *Int J Clin Pharm* 2016;38:1-6. doi: 10.1007/s11096-015-0226-9.
- 13 Gidman WK, Hassell K, Day J, et al. The impact of increasing workloads and role expansion on female community pharmacists in the United Kingdom. *Res Social Adm Pharm* 2007;3:285-302.
- 14 Seston E, Hassell K, Ferguson J, et al. Exploring the relationship between pharmacists' job satisfaction, intention to quit the profession, and actual quitting. *Res Social Adm Pharm* 2009;5:121-32. doi: 10.1016/j.sapharm.2008.08.002.
- 15 Smith SN, Stewart JE, Grussing PG. Factors influencing the rate of job turnover among hospital pharmacists. *Am J Hosp Pharm* 1986;43:1936-41.
- 16 Mott DA. Pharmacist job turnover, length of service, and reasons for leaving, 1983-1997. *Am J Health Syst Pharm* 2000;57:975-84.
- 17 McCann L, Hughes CM, Adair CG, et al. Assessing job satisfaction and stress among pharmacists in Northern Ireland. *Pharm World Sci* 2009;31:188-94. doi: 10.1007/s11096-008-9277-5.
- 18 Hardigan P, Carvajal M. Job satisfaction among practicing pharmacists: a Rasch analysis. *The Internet Journal of Allied Health Sciences and Practice* 2007;5:11-9.

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2  
3 [https://nsuworks.nova.edu/cgi/viewcontent.cgi?referer=https://www.google.co.uk/&httpsredir=1](https://nsuworks.nova.edu/cgi/viewcontent.cgi?referer=https://www.google.co.uk/&httpsredir=1&article=1172&context=ijahsp)  
4 &article=1172&context=ijahsp (accessed 10 Jan 2007).
- 5 19 Maio V, Goldfarb NI, Hartmann CW. Pharmacists' job satisfaction: variation by practice  
6 setting. *Pharm Ther* 2004;29:184–90.
- 7 20 Lea VM, Corlett SA, Rodgers RM. Workload and its impact on community pharmacists' job  
8 satisfaction and stress: a review of the literature. *Int J Pharm Pract* 2012;20:259–71. doi:  
9 10.1111/j.2042-7174.2012.00192.x.
- 10 21 Schafheutle EI, Seston EM, Hassell K. Factors influencing pharmacist performance: a review  
11 of the peer-reviewed literature. *Health Policy* 2011;102:178–92. doi:  
12 10.1016/j.healthpol.2011.06.004.
- 13 22 Bawazir SA. Job satisfaction in Saudi community pharmacists-letter. *J Pharm Pract Res*  
14 2005;35:334.
- 15 23 Aziri B. Job satisfaction: a literature review. *Management Research and Practice* 2011;3:77–  
16 86.
- 17 24 McHugh PP. Pharmacists' attitudes regarding quality of worklife. *J Am Pharm Assoc (Wash)*  
18 1999;39:667–76.
- 19 25 Hall LH, Johnson J, Watt I, et al. Healthcare staff wellbeing, burnout, and patient safety: a  
20 systematic review. *PLoS One* 2016;11:e0159015. doi: 10.1371/journal.pone.0159015.
- 21 26 Biksegn A, Kenfe T, Mاتيوس S, et al. Burnout status at work among health care professionals  
22 in a tertiary hospital. *Ethiop J Health Sci* 2016;26:101–8.
- 23 27 Stewart JE, Smith SN. Work expectations and organizational attachment of hospital  
24 pharmacists. *Am J Hosp Pharm* 1987;44:1105–10.
- 25 28 Kong SX. Predictors of organizational and career commitment among Illinois pharmacists.  
26 *Am Journal Health Syst Pharm* 1995;52:2005–11.
- 27 29 Gaither CA. Career commitment: a mediator of the effects of job stress on pharmacists' work-  
28 related attitudes. *J Am Pharm Assoc (Wash)* 1999;39:353–61.
- 29 30 Guchelaar HJ, Colen HB, Kalmeijer MD, et al. Medication errors: hospital pharmacist  
30 perspective. *Drugs* 2005;65:1735–46.
- 31 31 Benjamin DM. Reducing medication errors and increasing patient safety: case studies in  
32 clinical pharmacology. *J Clin Pharmacol* 2003;43:768–83.
- 33 32 Teinilä T, Grönroos V, Airaksinen M. A system approach to dispensing errors: a national  
34 study on perceptions of the Finnish community pharmacists. *Pharm World Sci* 2008;30:823–33.  
35 doi: 10.1007/s11096-008-9233-4.
- 36 33 Samsuri SE, Pei Lin L, Fahrni ML. Safety culture perceptions of pharmacists in Malaysian  
37 hospitals and health clinics: a multicentre assessment using the Safety Attitudes Questionnaire.  
38 *BMJ Open* 2015;5:e008889. doi: 10.1136/bmjopen-2015-008889.
- 39 34 Chui MA, Look KA, Mott DA. The association of subjective workload dimensions on quality  
40 of care and pharmacist quality of work life. *Res Social Adm Pharm* 2014;10:328–40. doi:  
41 10.1016/j.sapharm.2013.05.007.
- 42 35 Al Khalidi D, Wazaify M. Assessment of pharmacists' job satisfaction and job related stress  
43 in Amman. *Int J Clin Pharm* 2013;35:821–8. doi: 10.1007/s11096-013-9815-7.
- 44 36 Al-Worafi YM. Pharmacy practice and its challenges in Yemen. *Australas Med J* 2014;7:17–  
45 23. doi: 10.4066/AMJ.2014.1890.
- 46 37 Suleiman AK. Stress and job satisfaction among pharmacists in Riyadh, Saudi Arabia. *Saudi*  
47 *Journal of Medicine and Medical Sciences* 2015;3:213–219. doi: 10.4103/1658-631X.162025.
- 48  
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3 38 Chua GN, Yee LJ, Sim BA, et al. Job satisfaction, organisation commitment and retention in  
4 the public workforce: a survey among pharmacists in Malaysia. *Int J Pharm Pract* 2014;22:265–  
5 74.  
6  
7 39 Salahuddin E, Ronis KA. Assessment of job satisfaction among registered pharmacists  
8 working in public and private hospitals of Multan. *Pakistan Journal of Public Health* 2016;6:14–  
9 18.  
10 40 Peters DH, Chakraborty S, Mahapatra P, et al. Job satisfaction and motivation of health  
11 workers in public and private sectors: cross-sectional analysis from two Indian states. *Human*  
12 *Res Health* 2010;8:27. doi: 10.1186/1478-4491-8-27.  
13 41 Yousef DA. Organizational commitment: a mediator of the relationships of leadership  
14 behavior with job satisfaction and performance in a non-western country. *Journal of Managerial*  
15 *Psychology* 2000;15:6–24.  
16 42 Leiter MP, Maslach C. The impact of interpersonal environment on burnout and  
17 organizational commitment. *Journal of Organizational Behavior* 1988;9:297–308.  
18 43 Spence Laschinger HK, Finegan J, Shamian J. The impact of workplace empowerment,  
19 organizational trust on staff nurses' work satisfaction and organizational commitment. *Advances*  
20 *in Health Care Management* 2002;3:59–85.  
21 44 Camp SD. Assessing the effects of organizational commitment and job satisfaction on  
22 turnover: an event history approach. *The Prison Journal* 1994;74:279–305.  
23 45 Hann M, Reeves D, Sibbald B. Relationships between job satisfaction, intentions to leave  
24 family practice and actually leaving among family physicians in England. *Eur J Public Health*  
25 2011;21:499–503. doi: 10.1093/eurpub/ckq005.  
26 46 Chan MF, Luk AL, Leong SM, et al. Factors influencing Macao nurses' intention to leave  
27 current employment. *J Clin Nurs* 2009;18:893–901. doi: 10.1111/j.1365-2702.2008.02463.x.  
28 47 Zhang Y, Feng X. The relationship between job satisfaction, burnout, and turnover intention  
29 among physicians from urban state-owned medical institutions in Hubei, China: a cross-sectional  
30 study. *BMC Health Serv Res* 2011;11:235. doi: 10.1186/1472-6963-11-235.  
31 48 Conklin MH, Desselle SP. Job turnover intentions among pharmacy faculty. *Am J Pharm*  
32 *Educ* 2007;71:62.  
33 49 Chan EY, Morrison P. Factors influencing the retention and turnover intentions of registered  
34 nurses in a Singapore hospital. *Nursing & Health Sciences* 2000;2:113–21.  
35 50 O'Neill JL, Gaither CA. Investigating the relationship between the practice of pharmaceutical  
36 care, construed external image, organizational identification, and job turnover intention of  
37 community pharmacists. *Research in Social and Administrative Pharmacy* 2007;3:438–63.  
38 51 Rizwan M, Arshad MQ, Munir HMA, et al. Determinants of Employees intention to leave: A  
39 Study from Pakistan. *International Journal of Human Resource Studies* 2014;4:1.  
40 52 Al-Omar BA. Sources of work-stress among hospital-staff at the Saudi MOH. *JKAU:*  
41 *Economics and Administration* 2003;17:3–16.  
42 53 Kalantan KA, Al-Taweel AA, Abdul Ghani H. Factors influencing job satisfaction among  
43 primary health care (PHC) physicians in Riyadh, Saudi Arabia. *Ann Saudi Med* 1999;19:424–6.  
44 54 Exploring facets of job satisfaction among U.S. hospital pharmacists. *Am J Health Syst*  
45 *Pharm* 301–657.  
46 55 Kahaleh A, Gaither C. The effects of work setting on pharmacists' empowerment and  
47 organizational behaviors. *Res Social Adm Pharm* 2007;3:199–222.  
48  
49  
50  
51  
52  
53  
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56  
57  
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59  
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1  
2  
3 56 Al-Hussami M. A study of nurses' job satisfaction: the relationship to organizational  
4 commitment, perceived organizational support, transactional leadership, transformational  
5 leadership, and level of education. *European Journal of Scientific Research* 2008;22:286–95.  
6  
7  
8  
9  
10  
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12  
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For peer review only

## STROBE Statement—checklist of items that should be included in reports of observational studies

	Item No	Recommendation	Page
<b>Title and abstract</b>	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	1
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	2
<b>Introduction</b>			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	4-6
Objectives	3	State specific objectives, including any prespecified hypotheses	6
<b>Methods</b>			
Study design	4	Present key elements of study design early in the paper	
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	6
Participants	6	(a) <i>Cohort study</i> —Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up	6
		<i>Case-control study</i> —Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls	
		<i>Cross-sectional study</i> —Give the eligibility criteria, and the sources and methods of selection of participants	
		(b) <i>Cohort study</i> —For matched studies, give matching criteria and number of exposed and unexposed	
		<i>Case-control study</i> —For matched studies, give matching criteria and the number of controls per case	
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	7
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	7
Bias	9	Describe any efforts to address potential sources of bias	7
Study size	10	Explain how the study size was arrived at	7
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	7
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	7
		(b) Describe any methods used to examine subgroups and interactions	
		(c) Explain how missing data were addressed	
		(d) <i>Cohort study</i> —If applicable, explain how loss to follow-up was addressed	
		<i>Case-control study</i> —If applicable, explain how matching of cases and controls was addressed	
		<i>Cross-sectional study</i> —If applicable, describe analytical methods taking account of sampling strategy	
		(e) Describe any sensitivity analyses	

Continued on next page

**Results**

Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed (b) Give reasons for non-participation at each stage (c) Consider use of a flow diagram	
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders (b) Indicate number of participants with missing data for each variable of interest (c) <i>Cohort study</i> —Summarise follow-up time (eg, average and total amount)	
Outcome data	15*	<i>Cohort study</i> —Report numbers of outcome events or summary measures over time <i>Case-control study</i> —Report numbers in each exposure category, or summary measures of exposure <i>Cross-sectional study</i> —Report numbers of outcome events or summary measures	
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included (b) Report category boundaries when continuous variables were categorized (c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	<b>8-18</b>
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	

**Discussion**

Key results	18	Summarise key results with reference to study objectives	<b>19-22</b>
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	<b>23</b>
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	<b>19-22</b>
Generalisability	21	Discuss the generalisability (external validity) of the study results	<b>23</b>

**Other information**

Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	<b>NA</b>
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\*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

**Note:** An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at [www.strobe-statement.org](http://www.strobe-statement.org).



# BMJ Open

## Job satisfaction, work commitment, and intention to leave among pharmacists: a cross-sectional study

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<b>Primary Subject Heading</b>:	Public health
Secondary Subject Heading:	Public health, Health services research
Keywords:	Job satisfaction, Pharmacists, Work commitment, Intention to leave, Turnover rate, Saudi Arabia

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5 **Job satisfaction, work commitment, and intention to leave among**  
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7 **pharmacists: a cross-sectional study**  
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12 Nedaa Al-Muallem<sup>1</sup>, Khaled Al-Surimi <sup>1,2,3</sup>  
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## ABSTRACT

**Objectives:** We assessed job satisfaction, work commitment, and intention to leave among pharmacists working in different health-care settings in Saudi Arabia.

**Design:** This was a cross-sectional study utilizing a previously validated questionnaire.

**Setting:** We surveyed the workforce at different health-care settings in Riyadh, Saudi Arabia.

**Participants:** The participants were pharmacists licensed by the Saudi Commission for Health Specialties.

**Outcome measures:** We examined job satisfaction, work commitment, and intention to leave.

**Results:** In total, 325 out of 515 pharmacists completed the questionnaire, yielding a response rate of 63%. Over half of them were women (57.8%), 78.2% were Saudi-Arabian nationals, and 61.8% were married. The majority (88.1%) worked between 36 and 44 h per week; 96.6% were full-time employees, and 63.4% were government employees working in public hospitals or primary health-care centers. Although most of the pharmacists were satisfied (satisfied and slightly satisfied) with their current job (39.1% and 24.6%, respectively), about two-thirds (61.9%) had the intention to leave. Multiple logistic regression analysis showed that the most important predictors of pharmacists' intentions to leave were related to job satisfaction and work commitment ( $p < 0.001$  and  $0.005$ , respectively), whereas respondents' demographic characteristics had no effect.

**Conclusions:** Although the pharmacists surveyed were satisfied and committed to their current job, they had the intention to leave. Further research is recommended to clarify why pharmacists in Saudi Arabia have the intention to leave their pharmacy practice job.

**STRENGTHS AND LIMITATIONS OF THIS STUDY:**

- This study depended on a valid list of licensed pharmacists by the Saudi Commission for Health Specialties, who are working in different healthcare settings in capital city, Riyadh.
- This is the first study, to the best of our knowledge, being conducted in Saudi Arabia studying together the pharmacists' job satisfaction, work commitment, and intention to leave.
- This study provides local empirical evidence for devising health polices to improving staff retention, satisfaction and work comments.
- Our results were the self-reported perceptions of the participants; therefore, they may be subject to bias and ungeneralizable to all pharmacists in Saudi Arabia.

## BACKGROUND

In addition to managerial and administrative roles, pharmacists have become more clinically involved in patient care at many points in health-care system. These emerging roles for pharmacists have increased the need for qualified individuals to occupy the position. The employment of pharmacists is projected to increase by 3% between 2014 and 2024, which is slower than the average for all health-care occupations[1, 2]. The traditional role of the pharmacists in Saudi Arabia was limited in dispensing medications; however this role has changed recently to include other related medications issues, for example counseling patients in the hospital and community pharmacies, and getting involved in advising physicians about the appropriate therapeutic dose and drug-related problems such as drug-drug interactions[3] in different clinical settings ambulatory care, oncology and hematology, cardiology, among others [4]. However, job turnover among pharmacists is relatively high and the issue of retaining pharmacists is a major concern among institutional managers[5]. One of the most significant factors that affects job turnover is job satisfaction. Job satisfaction has been defined as “the extent to which people like (satisfaction) or dislike (dissatisfaction) their job”[6]. Intrinsic and extrinsic job characteristics are the two main factors that influence the level of job satisfaction. Intrinsic factors include performance, challenge, and autonomy and depend on the characteristics of an employee, and extrinsic factors include workload, job security, promotion opportunities, and relationships with co-workers[7].

As far as the satisfaction of health professional is concerned, previous studies indicated that 40 % of primary health care (PHC) female nurses in Saudi Arabia were dissatisfied and had turnover intentions to leave[8]. The most common influencing factors that contribute to Saudi's female nurses are the negative public attitudes and perception towards the nursing profession and the nature of their work that needed mixing with men[8]. Likewise, it has been reported about 25.2% of physicians working in Saudi primary health care centers are burnout and might among the potential factor of intention to leave [9]. Worldwide, intentions to leave among health worker professionals are an increasing problem that affects the functioning of any health care system, especially in developing countries[10].

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3 Both international and regional studies have identified determinants of professional satisfaction  
4 among health-care workers, including pharmacists. Among health-care workers, 69% of turnover  
5 intentions are significantly associated with job satisfaction and motivation from managers[11].  
6 Some psychological morbidity is also associated with reduced job satisfaction[12]. A high level  
7 of employee stress, which is related to a high workload, has a significant impact on staff  
8 performance[13]. Longer working hours also contribute to reduced job satisfaction. Job  
9 autonomy is another variable that influences job satisfaction[7]. In addition, sociodemographic  
10 characteristics, occupation, educational background, years of service, and income have  
11 significant effects on the job satisfaction of health-care staff [14]. More than 68% of pharmacists  
12 have experienced job stress[15]. Intrinsic factors such as job security are among the primary  
13 determinants of pharmacists' job satisfaction [16]. Lack of financial support and acceptance by  
14 medical staff are also barriers to the professional satisfaction of pharmacists [17]. A high-  
15 pressure working environment is another factor that frequently influences pharmacists' job  
16 satisfaction[18].

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19 The turnover intention of pharmacists is growing as a result of factors including job satisfaction,  
20 age, sex, and strength of desire to practice pharmacy[19]. Reportedly, the turnover rate among  
21 pharmacists in the United States (US) is 14.4% for several reasons: promotion opportunities; pay  
22 and benefits; working hours; educational development opportunities; and professional  
23 challenges[20]. The annual turnover rates are greater among women than men (15% and 9.7%,  
24 respectively)[21].

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27 Several studies have addressed pharmacists' job satisfaction globally. In the US, both community  
28 and hospital pharmacists report moderate levels of job satisfaction, which the authors link to  
29 stress levels[22]. Another study found that age, income, and practice site can predict job  
30 satisfaction among practicing pharmacists[23]. A study involving pharmacists working in chain  
31 pharmacies reported that their job satisfaction was lower (53%) than that of pharmacists working  
32 in other settings[24]. In addition, several studies conducted in the United Kingdom (UK) have  
33 demonstrated a link between increasing pharmacist job dissatisfaction and stress related to high  
34 workload and its impact on community pharmacists[25]. Pharmacists' performance can be  
35 affected by many factors related to workload and working environment[26]. Job satisfaction is an  
36 important contributory factor to motivation and productivity among pharmacists [11].

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3 The indicators of job satisfaction include employee effectiveness, good mental and emotional  
4 status, behavior that improves worker functioning and performance, and good professional  
5 relationships with staff, colleagues, and physicians [27, 28]. Also, quality of work is considered a  
6 measure of job satisfaction by the European Commission[7]. Job satisfaction, turnover intention,  
7 and patient care and safety are important contributors to pharmacists' quality of work life [29].  
8 Studies have shown there are significant associations between burnout and poor patient safety  
9 such as medical errors[30]. Moreover, one of the predictors of burnout among health-care  
10 professionals is job insecurity[31].

11  
12 Work commitment is highly related to duration of employment and age. Younger pharmacists  
13 have a lower level of satisfaction and organizational attachment[32]. Other predictors of  
14 organizational commitment include supervisor support, perceptions of the effect of the  
15 pharmaceutical care movement, and practice setting[33]. High job satisfaction will positively  
16 affects work commitment, consequently decreasing turnover intention among pharmacists[34].

17  
18 Medication errors lead to increased health-care costs and morbidity and mortality rates[35].  
19 Pharmacists have a specific role in reducing medication errors by performing interventions that  
20 improve medication safety, such as risk assessments in clinical pharmacies and developing  
21 methods to detect patients at high risk of adverse drug reactions[35]. One of the  
22 recommendations to reduce medication errors is to use the "five rights": the right dose, right  
23 patient, right drug, right route, and right time[36]. Of dispensing errors, 46% are related to  
24 organizational factors, and 41% are related to individual factors[37]. The number of medication  
25 errors is influenced by pharmacists' years of practice and recognition of stress. A better  
26 perception of safety culture is an indicator of a decreased number of medication errors[38]. A  
27 high level of pharmacist job satisfaction has direct positive impact on the safety of medication  
28 dispensing, and this in turn has a huge impact on the quality of patient care[39].

29  
30 Among the Arab countries, low satisfaction among community pharmacists has been reported in  
31 Jordan, and Yemeni pharmacists have expressed dissatisfaction with their working conditions  
32 and opportunities[40, 41]. In 2014, a high rate of job satisfaction was reported among Saudi-  
33 Arabian health-care professionals[13]. However, in a 2015 study, Saudi-Arabian pharmacists,  
34 especially community pharmacists and those working in dispensaries and chain pharmacies,  
35 reported a low level of job satisfaction[42]. This is inconsistent with the findings of a study  
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3 conducted in 2005, which indicated that the job satisfaction of Saudi-Arabian community  
4 pharmacists is high[27]. To the best of our knowledge, only two studies have investigated job  
5 satisfaction among Saudi-Arabian pharmacists. Therefore, in this study, we assessed the level of  
6 job satisfaction and work commitment, and their impact on turnover rate and intention to leave,  
7 among pharmacists working in different health-care settings in Saudi Arabia. Our findings will  
8 inform and advise policy makers and health planners in the development of an evidence-based  
9 retention policy for health human resources, both in general and in pharmacists in particular.  
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## 15 16 **METHODS**

### 17 18 **Settings and participants:**

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20 This study involved pharmacists working at different health-care settings in Riyadh, Saudi  
21 Arabia, including public and private hospitals, community chain pharmacies, community  
22 independent pharmacies, primary care center pharmacies, industrial pharmacies, and academic  
23 pharmacies. The study population comprised pharmacists licensed by the Saudi Commission for  
24 Health Specialties and working in the Riyadh region, regardless of their sex and workplace.  
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### 29 30 **Methods of measurement:**

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32 Based on the data provided by the Saudi Commission for Health Specialties, we calculated the  
33 required sample size. Using an online sample calculator (Raosoft, Inc., Seattle, WA, USA;  
34 <http://www.raosoft.com/samplesize.html>), with a chosen accepted error margin of 5%, a 95%  
35 confidence level, and a 50% response distribution within the pharmacist population in Riyadh,  
36 the minimum required sample size was 309 participants. Taking into consideration a non-  
37 respondent rate of 20%, the final targeted sample size was 387 participants. We sent a self-  
38 administered questionnaire to all 515 pharmacists licensed by the Saudi Commission for Health  
39 Specialties in Riyadh; thus, no sampling technique was applied. The self-administered  
40 questionnaire was combined with a letter that explained the purpose of the study and assured  
41 them of the confidentiality of their responses. Data were collected using an English version of a  
42 questionnaire developed and used in a Malaysian study by Chua et al. [38] to assess job  
43 satisfaction, organization commitment, and retention in the public workforce among pharmacists.  
44 Although the validity and reliability of the study tool has been reported in Malaysian study by  
45 Chua et al [38], we have conducted a pilot study to test the reliability of the study tool in the  
46 Saudi context, and the Cronbach's alpha for the job satisfaction and work commitment scale  
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3 were .94 and .77 respectively. The questionnaire consisted of eight sections: sociodemographic  
4 characteristics, current job features, job satisfaction, and work commitment (scored using a six-  
5 point Likert scale ranging from strongly disagree to strongly agree and comprising 15  
6 statements); overall satisfaction with their current job; intention to leave their current job; overall  
7 patient safety at their workplace; and opinions on how to improve job satisfaction and work  
8 commitment among pharmacists working in Saudi Arabia. The questionnaires were sent to  
9 respondents as online survey Money via the validated emails list provided by Saudi Commission  
10 for Health Specialties in Riyadh, and at end of survey, this was a link to submit and send back  
11 the completed survey.  
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### 19 **Statistical analysis:**

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21 All data were managed and analyzed using SPSS version 22 (IBM Corp., Armonk, NY, USA).  
22 Both descriptive and analytic statistics were used as needed; categorical variables were presented  
23 as frequencies and percentages, and continuous variables as means and standard deviation. Non-  
24 parametric tests, including the Mann–Whitney and Kruskal–Wallis tests, and the chi-squared test  
25 were used as appropriate, and multivariate logistic regression analysis was performed to  
26 determine the association between demographic variables, job satisfaction, and work  
27 commitment and the participants' likelihood to leave their current job. A p-value <0.05 and 95%  
28 confidence interval were used to indicate statistical significance.  
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36 **Patient and Public Involvement:** Patients were not involved.  
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## 38 **RESULTS**

### 39 **Sociodemographic characteristics of the participants:**

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41 In total, 325 of 515 pharmacists completed the study questionnaire, yielding a response rate of  
42 63.1%. The majority of the respondents were women ( $n = 188$ , 57.8%) and aged between 25 and  
43 30 years (35.7%). Of them, 78.2% were Saudi-Arabian nationals, 61.8% were married, and  
44 52.6% held a bachelor's degree. The average working hours of more than half of the respondents  
45 ( $n = 171$ , 52.6%) were between 36 and 44 h, equating to full-time employment status. Of the  
46 respondents, 51.4% worked at public hospital pharmacies and filled the staff pharmacist position  
47 ( $n = 182$ , 56.5%). Most participants had 6–15 years of experience (Table 1).  
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**Table 1:** Demographic characteristics of the respondents

<b>Demographic characteristics</b>	<b><i>n</i> (%)</b>
<b>Sex</b>	
Male	137 (42.2)
Female	188 (57.8)
<b>Age (years)</b>	
<25	14 (4.3)
25–30	116 (35.7)
31–35	94 (28.9)
36–40	47 (14.5)
>40	54 (16.6)
<b>Marital status</b>	
Single	113 (34.8)
Married	201 (61.8)
Divorced	11 (3.4)
<b>Income/month (SR)</b>	
<5000	16 (4.9)
5000–10000	52 (16.0)
11000–15000	117 (36.0)
>15000	140 (43.1)
<b>Nationality</b>	
Saudi-Arabian	254 (78.2)
Non-Saudi-Arabian	71 (21.8)
<b>Highest level of education</b>	
Bachelor's degree	171 (52.6)
Master's degree	94 (28.9)
Pharm D	36 (11.1)
PhD	13 (4.0)
Other	11 (3.4)
<b>Average hours worked per week</b>	
≤35	33 (10.2)
36–44	171 (52.6)
>44	121 (37.2)
<b>Employment status</b>	
Full-time	314 (96.6)
Part-time	11 (3.4)
<b>Place of practice</b>	
Public hospital pharmacy	167 (51.4)
Private hospital pharmacy	15 (4.6)
Community pharmacy	15 (4.6)
Primary care center	39 (12)
Industrial companies	55 (19.6)
Academic/university	17 (5.2)
Other	17 (5.2)
<b>Years of practice</b>	

≤5	125 (38.5)
6–15	130 (40.0)
16–20	42 (12.9)
>20	28 (8.6)
<b>Current position</b>	
Pharmacist manager/supervisor	96 ( 29.8)
Pharmacist staff	182 (56.5)
Pharmacy owner	2 (0.6)
Others	42 (13)
Unknown	3 (0.9)

Abbreviations: PhD, Doctor of Philosophy; Pharm D, Doctor of Pharmacy; SR, Saudi-Arabian Riyals.

### **Job satisfaction and work commitment:**

Table 2 shows the pharmacists' responses across all items of job satisfaction and work commitment. Approximately 60% of the respondents reported that they were satisfied with their job: they were happy going to work every day; they described their job to family and friends as a great job to have; the job provided them with opportunities to use their abilities; they had flexibility to choose any method of doing the job; they had sufficient freedom to use their own judgment in their job; and they got a feeling of accomplishment from their work. However, 62% of the respondents said that they were not satisfied at the end of each working day, and they felt that the day had not been well spent. Forty-seven percent were unsatisfied by the fringe benefits offered by their current job, and 36% felt unlucky to have their job.

Regarding work commitment, 83% of the respondents said that they were willing to put in effort beyond that normally expected to help the workplace be successful. More than 70% were proud to tell others that they are a part of their organization and really cared about its fate. More than 60% of respondents were extremely glad that they chose to work at their organization, and described their workplace to family and friends as a great organization to work for. However, 54% of respondents disagreed, stating that choosing to work for their organization was a definite mistake. Forty-six percent of the respondents felt very little loyalty to their organizations. More than 50% said that they could just as well be working for a different organization, that they did not think there was much to be gained by sticking with their organization, and that they found it difficult to agree with their organizations' policies on matters related to its employees. In

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addition, the respondents agreed that it would take a very little change in their present circumstances to prompt them to leave their organization.

For peer review only

**Table 2:** Job satisfaction and work commitment among the respondents

No.	Statement	Strongly disagree <i>n</i> (%)	Disagree <i>n</i> (%)	Slightly disagree <i>n</i> (%)	Slightly agree <i>n</i> (%)	Agree <i>n</i> (%)	Strongly agree <i>n</i> (%)	Mean score (SD)
<b>Job satisfaction</b>								
1	I look forward to coming to work everyday	29 (8.9)	35 (10.8)	34 (10.5)	70 (21.5)	108 (33.2)	49 (15.1)	4.05 (1.51)
2	I talk about my job with my family and friends because it is a great job	27 (8.3)	53 (16.3)	37 (11.4)	67 (20.6)	99 (30.5)	42 (12.9)	3.87 (1.52)
3	My job provides me with broad opportunities to use my abilities	27 (8.3)	40 (12.3)	47 (14.5)	53 (16.3)	112 (34.5)	46 (14.2)	3.99 (1.52)
4	I have sufficient freedom to use my own judgment in my job	17 (5.2)	42 (12.9)	46 (14.2)	64 (19.7)	112 (34.5)	44 (13.5)	4.06 (1.42)
5	My job provides me with flexibility to choose any method of doing the job	21 (6.5)	44 (13.5)	44 (13.5)	82 (25.2)	103 (31.7)	31 (9.5)	3.91 (1.39)
6	I get a feeling of accomplishment from my job	22 (6.8)	32 (9.8)	39 (12)	86 (26.5)	115 (35.4)	31 (9.5)	4.02 (1.36)
7	At the end of each working day, I feel that the day has been well spent	119 (36.0)	33 (10.2)	49 (15.1)	86 (26.5)	0 (0)	38 (11.7)	2.78 (1.68)
8	If I were to start my career again, I would choose this job	53 (16.3)	33 (10.2)	42 (12.9)	58 (17.8)	85 (26.2)	54 (16.6)	3.77 (1.7)
9	Other people would be very lucky to get a job like mine	42 (12.9)	29 (10.8)	46 (14.2)	84 (25.8)	82 (25.2)	42 (12.9)	3.8 (1.54)
10	I am satisfied with my job	35 (10.8)	32 (9.8)	37 (11.4)	82 (25.2)	104 (32)	35 (10.8)	3.90 (1.49)
11	I am satisfied with my salary	65 (20)	48 (14.8)	37 (11.4)	70 (21.5)	77 (23.7)	28 (8.6)	3.4 (1.65)
12	I am satisfied with the fringe benefits offered by my job	58 (17.8)	54 (16.6)	48 (14.8)	71 (21.8)	70 (21.5)	24 (7.4)	3.35 (1.58)
13	I am satisfied with the working conditions	44 (13.5)	48 (14.8)	51 (15.7)	76 (23.4)	85 (26.2)	21 (6.5)	3.53 (1.51)
14	I am satisfied with the personnel policies of this organization	41 (12.6)	48 (14.8)	59 (18.2)	72 (22.2)	84 (25.8)	21 (6.5)	3.53 (1.48)
15	I am satisfied with the style and quality of supervision	43 (13.2)	51 (15.7)	53 (16.3)	72 (22.2)	80 (24.6)	26 (8)	3.53 (1.53)
<b>Work commitment</b>								
1	I am willing to put in effort beyond that normally expected to help my workplace to be successful	15 (4.6)	17 (5.2)	22 (6.8)	58 (17.8)	123 (37.8)	90 (27.7)	4.62 (1.34)
2	I talk about my workplace to my friends because it is a great organization to work for	31 (9.5)	41 (12.6)	53 (16.3)	65 (20)	103 (31.7)	32 (9.8)	3.81 (1.49)
3	I feel very little loyalty to my organization	58 (17.8)	70 (21.5)	47 (14.5)	60 (18.5)	69 (21.2)	21 (6.5)	3.23 (1.58)
4	I would accept almost any type of job assignment to keep working at this organization	36 (11.1)	39 (12.0)	61 (18.8)	76 (23.4)	74 (22.8)	39 (12.0)	3.71 (1.51)

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5	I find that my values and my organization’s value are very similar	29 (8.9)	52 (16)	45 (13.8)	64 (19.7)	97 (29.8)	38 (11.7)	3.81 (1.52)
6	I am proud to tell others that I am a part of my organization	27 (8.3)	25 (7.7)	32 (9.8)	68 (20.9)	105 (32.3)	68 (20.9)	4.24 (1.5)
7	I could just as well be working for a different organization	24 (7.4)	33 (10.2)	56 (17.2)	86 (26.5)	96 (29.5)	30 (9.2)	3.88 (1.37)
8	My workplace inspires my best job performance	41 (12.6)	55 (16.9)	56 (17.2)	80 (24.6)	70 (21.5)	23 (7.1)	3.47 (1.48)
9	It would take a very little change in my present circumstances to make me leave this organization	29 (8.9)	51 (15.7)	57 (17.5)	84 (25.8)	81 (24.9)	23 (7.1)	3.63 (1.42)
10	I am extremely glad that I chose this organization to work for	30 (9.2)	36 (11.1)	43 (13.2)	70 (21.5)	99 (30.5)	47 (14.5)	3.96 (1.51)
11	There is not much to be gained by sticking with this organization	35 (10.8)	60 (18.5)	61 (18.8)	84 (25.8)	58 (17.8)	27 (8.3)	3.46 (1.46)
12	Often, I find it difficult to agree with my organization’s polices on important matters relating to its employees	44(13.5)	52 (16)	60 (18.5)	80 (24.6)	57 (17.5)	32 (9.8)	3.46 (1.52)
13	I really care about the fate of my organization	20 (6.2)	21 (6.5)	35 (10.8)	65 (20)	115 (35.4)	69 (21.2)	4.36 (1.41)
14	For me, this is the best of all possible organizations to work for	33 (10.2)	49 (15.1)	56 (17.2)	68 (20.9)	85 (26.2)	34 (10.5)	3.69 (1.51)
15	Deciding to work for this organization was a definite mistake	103 (12.0)	69 (21.2)	67 (20.6)	39 (12)	38 (11.7)	9 (2.8)	2.59 (1.46)

Abbreviations: SD, standard deviation.

### Overall satisfaction, intention to leave, and patient safety perception

Pharmacists' overall job satisfaction was assessed by one global question: "How satisfied are you with your current job?" (Table 3). The results indicated that the majority of pharmacists were satisfied (satisfied and slightly satisfied) with their current job (39.1% and 24.6%, respectively); the proportion of pharmacists who were extremely dissatisfied was only 7.1%. However, most (61.2%) of the pharmacists stated that it was their intention to leave their current job, whereas only 38.7% said that they were unlikely to leave (Table 3). The pharmacists' perceptions of patient safety at their workplace are presented in Table 3. The majority reported that patient safety at their workplace was good or better ( $n = 223$ , 68.6%), but about one-fifth of the respondents (24.3%) had concerns about patient safety issues at their workplace.

**Table 3:** Respondents' overall satisfaction, intention to leave, and patient safety

<b>How satisfied are you with your current job?</b>	<b><i>n</i> (%)</b>
Extremely dissatisfied	23 (7.1)
Dissatisfied	36 (11.1)
Slightly dissatisfied	35 (10.8)
Slightly satisfied	80 (24.6)
Satisfied	127 (39.1)
Extremely satisfied	24 (4.7)
<b>How likely are you to leave your current job for any reason?</b>	<b><i>n</i> (%)</b>
Very unlikely	32 (9.8)
Unlikely	94 (28.9)
Likely	144 (44.3)
Very likely	55 (16.9)
<b>How much you rate patient safety in your working place?</b>	<b><i>n</i>(%)</b>
Poor	28 (8.6)
Fair	51 (15.7)
Good	108 (33.2)
Very good	56 (17.2)
Excellent	59 (18.2)
Not applicable	23 (7.1)

### Factors affecting respondents' likeliness to stay in their current job, job satisfaction, and work commitment:

The associations between respondents' demographic variables and likelihood to stay in their current job are shown in Table 4. A significant association was evident between participants' likelihood to remain in their current job and income ( $p = 0.047$ ), place of practice ( $p = 0.026$ ), and current position ( $p = 0.008$ ). Table 5 shows the association between respondents' demographic characteristics and job satisfaction and work commitment. A significant association was found between age, monthly income, working hours per week, place of practice, current position, and job satisfaction ( $p < 0.05$ ). Likewise, there was a significant association existed between age, nationality, and level of education and work commitment ( $p < 0.05$ ).

**Table 4:** Association between respondents' demographic characteristics and likelihood to stay in their current job

Demographic characteristics	Unlikely to stay <i>n</i> (%)	Likely to stay <i>n</i> (%)	p-value
<b>Sex</b>			
Male	56 (44.4)	81 (40.7)	0.565
Female	70 (55.6)	118 (59.3)	
<b>Age (years)</b>			
<25	4 (3.2)	10 (5)	0.381
25–30	45 (35.7)	71 (35.7)	
31–35	34 (27)	60 (30.2)	
36–40	16 (12.7)	31 (15.6)	
>40	27 (21.4)	27 (13.6)	
<b>Marital status</b>			
Single	37 (29.4)	76 (38.2)	0.157
Married	86 (68.3)	115 (57.8)	
Divorced	3 (2.4)	8 (4)	
<b>Income/month (SR)</b>			
<5000	3 (2.4)	13 (6.5)	0.047
5000–10000	16 (12.7)	36 (18.1)	
11000–15000	42 (33.3)	75 (37.7)	
>15000	65 (51.6)	75 (37.7)	
<b>Nationality</b>			
Saudi-Arabian	99 (78.6)	155 (77.9)	1
Non-Saudi-Arabian	27 (21.4)	44 (22.1)	
<b>Highest level of education</b>			
Bachelor's degree	71 (56.3)	100 (50.3)	0.218
Master's degree	38 (30.2)	56 (28.1)	
Pharm D	11 (8.7)	25 (12.6)	



PhD	5 (4)	8 (4.0)	
Other	1 (0.8)	10 (5.0)	
<b>Average hours worked per week</b>			
≤35	15 (11.9)	18 (9)	
36–44	73 (57.9)	98 (49.2)	0.106
>44	38 (30.2)	83 (41.7)	
<b>Employment status</b>			
Full-time	121 (96.0)	193 (97.0)	
Part-time	5 (4.0)	6 (3.0)	0.755
<b>Place of practice</b>			
Public hospital pharmacy	51 (40.5)	116 (58.3)	
Private hospital pharmacy	6 (4.8)	9 (4.5)	
Community pharmacy	4 (3.2)	11 (5.5)	
Primary care center	18 (14.3)	21 (10.6)	
Industrial companies	28 (22.2)	27 (13.6)	0.026
Academic/university	10 (7.1)	7 (3.5)	
Other	9 (7.1)	8 (4)	
<b>Years of practice</b>			
≤5	44 (34.9)	81 (40.7)	
6–15	49 (38.9)	81 (40.7)	
16–20	17 (13.5)	25 (12.6)	0.19
>20	16 (12.7)	12 (6)	
<b>Current position</b>			
Pharmacist manager/supervisor	47 (37.6)	49 (24.9)	
Pharmacist staff	57 (45.6)	125 (63.5)	0.001
Other	21 (16.8)	23 (11.7)	

Abbreviations: PhD, Doctor of Philosophy; Pharm D, Doctor of Pharmacy; SR, Saudi-Arabian Riyals.

**Table 5:** Effect of respondents' demographic characteristics on job satisfaction and work commitment

Demographic characteristics	Job satisfaction Median (IQR)	p-value	Work commitment Median (IQR)	p-value
<b>Sex</b>				
Male	61 (71–70)	0.154	58 (49–65)	0.721
Female	55 (44–68)		57 (50–64)	
<b>Age (years)</b>				
<25	60 (34–67)	<b>0.008</b>	60(40.5–63)	<b>0.038</b>
25–30	59 (46–71)		58 (52–65)	
31–35	56 (42–65)		56 (49–64)	
36–40	52 (34–68)		53 (45–63)	
>40	66(53–71)		60 (54–67)	
<b>Marital status</b>				
Single	57 (42–67)	0.328	58 (50–64)	0.962
Married	59 (47–71)		57 (50–65)	
Divorced	57 (48–65)		59 (46–65)	
<b>Income/month (SR)</b>				
<5000	52 (28–59)	<b>0.006</b>	57 (36–63)	0.091
5000–10000	55 (45–70)		59 (52–69)	
11000–15000	56 (39–68)		56 (46.5–64)	
>15000	60 (50–71)		58 (50–65)	
<b>Nationality</b>				
Saudi-Arabian	58 (44–68)	0.464	57 (49–64)	<b>0.014</b>
Non-Saudi-Arabian	59(48–70)		60 (54–67)	
<b>Highest level of education</b>				
Bachelor's degree	60 (49–70)	0.065	59 (52–66)	<b>0.017</b>
Master's degree	58 (43–69)		55 (49–66)	
Pharm D	55 (38–68)		54 (44–6)	
PhD	52 (43–64)		51(45–61)	
Other	50 (32–53)		58 (45–67)	
<b>Average hours worked per week</b>				
≤35	59 (38–67)	<b>0.001</b>	56.5 (40–68)	0.281
36–44	61 (49–71)		58 (51–66)	
>44	53 (39–65)		57 (49–63)	
<b>Employment status</b>				
Full-time	58 (46–69)	0.962	57 (50–65)	0.695
Part-time	60 (42–64)		54 (48–66)	
<b>Place of practice</b>				
Public hospital pharmacy	54 (39–65)	<b>&lt;0.001</b>	57 (49–64)	0.599
Private hospital pharmacy	55 (38–69)		58 (47–74)	
Community pharmacy	59 (43–67)		58 (54–61)	
Primary care center	55 (43–71)		58 (45–69)	
Industrial companies	68 (58–73)		59 (56–64)	

Academic/university	60 (45–71)		57 (50–69)	
Other	60 (48–74)		53 (49–67)	
<b>Years of practice</b>				
≤5	57 (43–70)		57 (47–64)	
6–15	58 (43–68)	0.027	56 (50–64)	0.123
16–20	56 (47–68)		60 (49–69)	
>20	66 (57–73)		61 (54–69)	
<b>Current position</b>				
Pharmacist	62 (51–73)		59 (52–66)	
manager/supervisor				
Pharmacist staff	54 (40–67)	<b>0.001</b>	57 (47–64)	0.438
Pharmacy owner	59 (45–72)		61 (46–75)	
Other	60 (49–71)		57 (50–64)	

Abbreviations: IQR, interquartile range; PhD, Doctor of Philosophy; Pharm D, Doctor of Pharmacy; SR, Saudi-Arabian Riyals.

### Determinants of respondents' likeliness to leave their current job:

Table 6 shows the results of a multiple logistic regression analysis of the effects of respondents' demographic characteristics, job satisfaction, and work commitment on their likelihood to leave their current job. The most important predictors of intention to leave were job satisfaction and work commitment ( $p < 0.001$  and  $0.005$ , respectively). There were no significant associations between respondents' demographic characteristics and intention to leave. However, older respondents were twice as likely as younger respondents to leave their jobs. Residents and pharmacists with a diploma-level education (other) were six times more likely to leave their job than the pharmacists with bachelor or master degrees, and those with full-time jobs were three times more likely to quit their job than those with part-time jobs, although without statistical significance.

**Table 6:** Multiple logistic regression analysis of the effects of respondents' demographic characteristics, job satisfaction, and work commitment on their likelihood to leave their current job

Variables	Coefficient (SE)	OR (95% CI)	p-value
Job satisfaction	−0.08 (0.013)	0.923 (0.899–947)	<0.001
Work commitment	0.043 (0.016)	1.044 (1.014–1.08)	<b>0.004</b>
<b>Monthly income (SR)</b>			
<5000	-	-	-
5000–10000	0.171 (.786)	1.187 (0.255–5.535)	0.827
11000–15000	−.427 (.759)	0.653 (0.147–2.889)	0.574
>15000	−.328(.783)	0.721 (0.155–3.245)	0.676
<b>Place of pharmacy practice</b>			.

Public hospital pharmacy	-	-	-
Private hospital pharmacy	-0.865 (0.670)	0.421 (0.113–1.567)	0.197
Community pharmacy	0.097 (0.706)	1.101 (0.276–4.397)	0.891
Primary care center pharmacy	-0.587 (416)	0.556 (0.246–1.256)	0.158
Industrial company	-0.254 (0.421)	0.776(0.340–1.771)	0.546
Academic/university hospital	-1.203 (0.708)	0.300 (0.075–1.203)	0.089
Other	-0.846 (0.644)	0.429 (0.122–1.516)	0.189
<b>Years of practice</b>			
≤5	-	-	-
6–15	-0.053 (0.329)	0.948(0.498–1.807)	0.872
16–20	-0.280 (0.483)	.756 (0.293–1.948)	0.562
>20	-0.283 (0.946)	0.753 (0.257-2.212)	0.606
<b>Current position</b>			
Pharmacy manager/supervisor	-	-	-
Pharmacist	0.249(0.344)	1.283 (0.653–2.520)	0.470
Other	0.319 (0.500)	1.376 (0.516–3.666)	0.523
Constant	3.089 (1.25)	21.959	0.041
Pseudo $R^2$		0.212	
-Log likelihood		354.488	

Abbreviations: CI, confidence interval; OR, odds ratio; PhD, Doctor of Philosophy; Pharm D, Doctor of Pharmacy; SE, standard error; SR, Saudi-Arabian Riyals.

## DISCUSSION

In this study, we assessed job satisfaction and work commitment, and their determinant factors and the intention to leave, among pharmacists working at different health-care settings in Riyadh.

### Job satisfaction:

Across all job satisfaction items in this survey, the respondents were moderately varied in their satisfaction. Numerous factors affected respondents' job satisfaction, including salary, workload, continuous education and development, supervision, motivation, and working environment, i.e. work setting. These findings are largely consistent with the results of earlier studies on job satisfaction among pharmacists and other health-care workers[43, 44]]. Another study also reported that working environment, motivation, and income are factors that influence job satisfaction[45]. Overall, job satisfaction among the study respondents was high, but their reported likelihood to leave their current job was also high, suggesting that job satisfaction does

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3 not necessarily mean that pharmacists are not planning to leave. Lower motivation and job  
4 satisfaction, as well as the presence of work-related factors, are significantly associated with the  
5 intention to leave among health-care workers[11]. These findings are consistent with a study on  
6 job satisfaction, sources of stress, and workload among New Zealand health-care professionals,  
7 in which pharmacists were significantly less satisfied as a result of job-related stress[12]. The  
8 greatest level of job satisfaction was reported by pharmacists with a higher income[23]. In some  
9 studies, job dissatisfaction among pharmacists was found to be related to their place of work,  
10 especially among pharmacists working in community chain pharmacies. Conversely, pharmacists  
11 working in hospital pharmacies have a better level of satisfaction than those working in other  
12 practice settings[24, 40]. A high degree of job satisfaction may help to lower employee  
13 absenteeism and consequently turnover intentions[28].

### 22 **Work commitment:**

23  
24 In this study, the majority of respondents expressed commitment to their work, showing qualities  
25 such as loyalty, workplace environment, agreement with organization policies, and interest in  
26 organizational procedures and fate. These findings have commonalities with those of a previous  
27 study, which defined three basic components necessary for employees' work commitment:  
28 loyalty; acceptance of an organizations' policies; and good leadership behavior[46]. Another  
29 study demonstrated that the interpersonal environment of a work setting has an effect on nurses'  
30 work commitment[47]. These different findings emphasize that enhancing employee  
31 empowerment has a positive effect on organizational trust and commitment[48]. A previous  
32 study found that job turnover intention was mediated by organizational commitment[34].  
33 Organizational commitment influences the willingness of employees to leave. This is consistent  
34 with the observation that overall job satisfaction and work commitment affects job turnover  
35 rate[49].

### 46 **Respondents' likelihood to leave their current job:**

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48 Although the study findings show that the pharmacists were satisfied with and committed to their  
49 current jobs, most stated that they were likely to leave. This is largely consistent with the  
50 findings of a study involving family physicians in the UK, in which high levels of job  
51 satisfaction did not mitigate their intentions to leave the profession[50]. The top three significant  
52 factors affecting our respondents' likelihood to stay in their current jobs were monthly income,  
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3 place of practice, and current position. This is partially in agreement with a previous study  
4 assessing health-care workers' intentions to leave, which showed that pay and benefits and place  
5 of practice were significantly predictive of nurses' intentions to leave their current  
6 employment[51]. Pharmacists working in community sectors have a higher tendency to intend to  
7 quit than pharmacists working in other sectors[19]. These findings are similar to those of a study  
8 of Chinese physicians, who had a greater tendency to quit their jobs if they had a low income  
9 than a higher income or a technical position than a managerial position[52]. Several studies have  
10 emphasized that poor salary is one of the primary predictors of intention to leave among  
11 pharmacists and other health-care workers [21, 53, 54]. A pharmacist's position has a significant  
12 effect on job turnover intention[55]. This is especially true among independent pharmacy  
13 owners, who demonstrate more positive attitudes toward their work than other pharmacists  
14 positions[34]. In contrast, excessive employee workloads and poor relationships with supervisors  
15 play an important role in intentions to leave[53, 56]. In our study, demographic characteristics  
16 such as sex and age had no influence on pharmacists' likelihood to stay in their current job.  
17 These results are similar to those of a study involving physicians, which found that age and sex  
18 have no significant effect on intention to leave[52]. In general, women have a higher annual  
19 intention to leave than men[21]. Our findings differ from those of some other studies, in which  
20 sex and age are primary factors affecting pharmacists' intentions to quit their profession[19].  
21 Other studies have also found that predictors such as relocation and layoffs were common  
22 reasons for the high turnover rate of pharmacists[38].  
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### 38 **Associations and determinate factors:**

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41 The analysis of the study findings showed that respondents' characteristics such as age, income,  
42 workload, practice setting, experience, and current position were significantly predictive of their  
43 level of job satisfaction. Likewise, a previous study found that working in hospitals and  
44 independent settings influences the level of job satisfaction among pharmacists[22]. Similarly,  
45 another study showed that age, income, and place of practice are significant predictors of job  
46 satisfaction. However, work experience is not a significant determinant of job satisfaction[16].  
47 Our results also demonstrated that respondents' sex, marital status, nationality, level of  
48 education, and employment status were not among the factors that influenced job satisfaction.  
49 These results are consistent with those of a study conducted at a Ministry of Health hospital in  
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3 Saudi Arabia [57]. Sex was previously identified as a predictor of job satisfaction, especially in  
4 female pharmacists, but this was not the case our study[19]. Suleiman AK ,[42] defined a series  
5 of factors that influence job satisfaction, including working conditions, the nature of the work,  
6 salary, opportunities, and management. In the UK, two studies emphasized that workload and  
7 high-pressure working environments contribute to a decrease in pharmacists' job satisfaction[18,  
8 23]. Consistently, another study performed in Saudi Arabia agreed that workload is an important  
9 source of dissatisfaction among physicians in primary health-care centers[58]. Another factor  
10 affecting job satisfaction identified in a previous study was being of Saudi-Arabian nationality,  
11 but nationality had no influence on job satisfaction in this study [13]. Pharmacists who work in  
12 administrative offices have higher job satisfaction than those working in health clinics and  
13 hospitals[43]. Indeed, pharmacists' positions were the factor most significantly associated with  
14 high job satisfaction[59].

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17 Regarding work commitment, our study identified three significant predictors: age, nationality,  
18 and level of education. Age had a high correlation with employee organizational attachment.  
19 Younger pharmacists were less committed to their work, especially those with less than 7 years  
20 of employment[32]. In contrast, a US study emphasized that age has no effect on career or  
21 organizational commitment. Management support has a positive effect on work commitment[33].  
22 Improved work-related attitudes were also found to increase work commitment[33, 34]. In  
23 addition, increased access to knowledge, development, support, and opportunities increase  
24 organizational commitment[60]. Among nurses, higher level of education has a positive effect on  
25 organizational commitment and job satisfaction[61]. Training and professional development are  
26 also considered important aspects of job satisfaction by pharmacists[43]. In our study,  
27 demographic characteristics such as sex, marital status, income, workload, practice setting, and  
28 years of experience had no significant effect on pharmacists' commitment. This opposes a  
29 previous finding that married pharmacists are more committed to their work[20]. Another study  
30 found that workload has a great impact on lowering employees' organizational  
31 commitments[56].

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34 Our study shows that job satisfaction and work commitment are significantly related to  
35 pharmacists' intentions to leave. In contrast, a previous study reported that high job satisfaction  
36 and work commitment have an inverse association with the intention to leave[56]. Another study

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3 found that high levels of job satisfaction and work commitment decrease the likelihood of job  
4 turnover intention[34]. Oposing outcomes were found in a study conducted in Pakistan on the  
5 determinants of employees' intentions to leave, in which organizational commitment, job  
6 satisfaction, and intention to leave were not significantly associated[56]. Job turnover intentions  
7 among pharmacy faculty staff are influenced by organizational commitment[53]. Among  
8 physicians, previous results have shown that job satisfaction is an important predictor of their  
9 intentions to leave their profession[50]. Furthermore, our results did not show any significant  
10 association between respondents' demographic characteristics and their intentions to leave.  
11 Working hours, marital status, income, and continuation of education influence the rate of job  
12 turnover among hospital pharmacists[20]. Among nurses, a high level of education and an  
13 equitable workload equate to greater commitment, productivity, and effectiveness in their  
14 organizations, and thus they are less likely to leave their jobs[61]. Another study found that  
15 productive and effective organization is generated by a high level of employee satisfaction and  
16 commitment[61]. Furthermore, an earlier study demonstrated that a high level of job satisfaction  
17 equates to reduced employee absenteeism and intentions to leave[42].

### 30 **Limitation and strengths:**

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32 This study had some limitations that can be summarized as follows. Because of the study design  
33 used, there is a chance that the associations identified may have been misinterpreted. The limited  
34 duration and timing of data collection prevented us from getting more responses and cooperation  
35 from more pharmaceutical companies, community chain pharmacies, and pharmacies at private  
36 hospitals to cover most practice settings in Riyadh. Therefore, it may not be possible to  
37 generalize our results, which analyzed only pharmacists in Riyadh, to all pharmacists in other  
38 parts of Saudi Arabia. Furthermore, our results were based on the self-reported perceptions of the  
39 study's participants and are therefore subject to bias. Despite these limitations, the study has  
40 provided interesting baseline results, which will help to inform better research in future.

41  
42 Regarding the strengths of the study, the Saudi Commission for Health Specialties provided a list  
43 of contact details for all licensed pharmacists in Riyadh. Web-based surveys facilitated data  
44 collection and reduced costs. No other studies have investigated job satisfaction, work  
45 commitment, and intention to leave among pharmacists in Saudi Arabia. Previous studies have  
46 focused on health-care workers other than pharmacists.



## CONCLUSION

Our results reveal differing levels of job satisfaction and work commitment between pharmacists working in different practice settings in Riyadh. Our findings indicate that a significant relationship exists between pharmacists' job satisfaction and work commitment and their intention to leave. In general, the pharmacists surveyed were satisfied with their jobs, but at the same time, they expressed a desire to leave their current positions. Further research is required to determine why the intention to leave is increasing among pharmacists in Saudi Arabia.

### Contributorship Statement

NA: designed the study protocol, developed study tool, reviewed results, and drafted the manuscript. KA: proposed the study idea, supervised the whole study, analyzed the data, and revised the drafted manuscript. Both authors have read and approved the final manuscript.

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#### Competing interests:

None.

#### Ethics approval:

The research ethics committee of the King Abdullah International Medical Research Center (KAIMRC) at the King Abdul-Aziz Medical City approved the study and granted IRB approval (protocol number SP17/116/R). The consent form was attached with each questionnaire to obtain a well-informed decision by participants to take part in this study voluntarily.

#### Provenance and peer review:

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#### Data sharing statement:

No additional data are available.

#### Open access:

This is an open access article.

## REFERENCES

1. Statistics BoL. Occupational Outlook Handbook, Pharmacy Technicians. 2002-03 ed: U.S. Department of Labor; 2003 13 June.
2. Health UDo, Services H, editors. The pharmacist workforce: A study of the supply and demand for pharmacists. Report to Congress; 2000.
3. Haseeb A, Elrggal M. Recommendations for the role of the pharmacist in Saudi Arabia. *Arch Pharm Pract.* 2013;4:138.
4. Al-jedai A, Qaisi S, Al-meman A. Pharmacy practice and the health care system in Saudi Arabia. *The Canadian Journal of Hospital Pharmacy.* 2016;69(3):231.
5. Fitzenz J. It's costly to lose good employees. *Workforce.* 1997;76(8):50-1.
6. Spector PE. *Job satisfaction: Application, assessment, causes, and consequences:* Sage publications; 1997.
7. Parent-Thirion A. *Fourth European working conditions survey: European Foundation for the Improvement of Living and Working Conditions;* 2007.
8. Almutairi D, Moradi E, Idrus D. Factors influencing turnover among Saudi nurses. A literature review. 2010:1-13.
9. Bawakid K, Abdulrashid O, Mandoura N, Shah HBU, Ibrahim A, Akkad NM, et al. Burnout of physicians working in primary health care centers under ministry of health Jeddah, Saudi Arabia. *Cureus.* 2017;9(11).
10. Abera E, Yitayal M, Gebreslassie M. Turnover intention and associated factors among health professionals in University of Gondar Referral Hospital, Northwest Ethiopia. *Int J Econ Manag Sci.* 2014;3(4):1-4.
11. Bonenberger M, Aikins M, Akweongo P, Wyss K. The effects of health worker motivation and job satisfaction on turnover intention in Ghana: a cross-sectional study. *Human resources for health.* 2014;12(1):43.
12. Dowell AC, Westcott T, McLeod DK, Hamilton S. A survey of job satisfaction, sources of stress and psychological symptoms among New Zealand health professionals. *The New Zealand Medical Journal.* 2001;114(1145):540-3.
13. al. A-HAe. Job stress and job satisfaction among health care professionals. *European Scientific Journal.* 2014;10(No. 32).
14. Lu Y, Hu X-M, Huang X-L, Zhuang X-D, Guo P, Feng L-F, et al. Job satisfaction and associated factors among healthcare staff: a cross-sectional study in Guangdong Province, China. *BMJ open.* 2016;6(7):e011388.
15. Mott DA, Doucette WR, Gaither CA, Pedersen CA, Schommer JC. Pharmacists' attitudes toward worklife: results from a national survey of pharmacists. *Journal of the American Pharmacists Association.* 2004;44(3):326-36.
16. Liu CS, White L. Key determinants of hospital pharmacy staff's job satisfaction. *Research in Social and Administrative Pharmacy.* 2011;7(1):51-63.
17. Bourne RS, Baqir W, Onatade R. Pharmacist independent prescribing in secondary care: opportunities and challenges. *Int J Clin Pharm.* 2016;38(1):1-6.
18. Gidman WK, Hassell K, Day J, Payne K. The impact of increasing workloads and role expansion on female community pharmacists in the United Kingdom. *Research in Social and Administrative Pharmacy.* 2007;3(3):285-302.
19. Seston E, Hassell K, Ferguson J, Hann M. Exploring the relationship between pharmacists' job satisfaction, intention to quit the profession, and actual quitting. *Research in Social and Administrative pharmacy.* 2009;5(2):121-32.

- 1
- 2
- 3
- 4 20. Smith S, Stewart J, Grussing P. Factors influencing the rate of job turnover among hospital
- 5 pharmacists. *American Journal of Health-System Pharmacy*. 1986;43(8):1936-41.
- 6 21. Mott DA. Pharmacist job turnover, length of service, and reasons for leaving, 1983-1997. *Am J*
- 7 *Health Syst Pharm*. 2000;57(10):975-84.
- 8 22. McCann L, Hughes CM, Adair CG, Cardwell C. Assessing job satisfaction and stress among
- 9 pharmacists in Northern Ireland. *Pharmacy world & science*. 2009;31(2):188.
- 10 23. Hardigan P, Carvajal M. Job satisfaction among practicing pharmacists: a Rasch analysis. *Internet*
- 11 *Journal of Allied Health Sciences and Practice*. 2007;5(4):11.
- 12 24. Maio V, Goldfarb NI, Hartmann CW. Pharmacists' job satisfaction: variation by practice setting.
- 13 2004.
- 14 25. Lea VM, Corlett SA, Rodgers RM. Workload and its impact on community pharmacists' job
- 15 satisfaction and stress: a review of the literature. *International Journal of Pharmacy Practice*.
- 16 2012;20(4):259-71.
- 17 26. Schafheutle EI, Seston EM, Hassell K. Factors influencing pharmacist performance: A review of
- 18 the peer-reviewed literature. *Health Policy*. 2011;102(2):178-92.
- 19 27. Bawazir S. Job satisfaction in Saudi community pharmacists.-letter. *Journal of Pharmacy Practice*
- 20 *and Research*. 2005;35(4):334.
- 21 28. Aziri B. JOB SATISFACTION: A LITERATURE REVIEW. *Management Research & Practice*. 2011;3(4).
- 22 29. McHugh PP. Pharmacists' attitudes regarding quality of worklife. *Journal of the American*
- 23 *Pharmaceutical Association* (1996). 1999;39(5):667-76.
- 24 30. Hall LH, Johnson J, Watt I, Tsipa A, O'Connor DB. Healthcare staff wellbeing, burnout, and
- 25 patient safety: a systematic review. *PloS one*. 2016;11(7):e0159015.
- 26 31. Biksegn A, Kenfe T, Matiwos S, Eshetu G. Burnout Status at Work among Health Care
- 27 Professionals in aTertiary Hospital. *Ethiopian journal of health sciences*. 2016;26(2):101-8.
- 28 32. Stewart J, Smith S. Work expectations and organizational attachment of hospital pharmacists.
- 29 *American Journal of Health-System Pharmacy*. 1987;44(5):1105-10.
- 30 33. Kong SX. Predictors of organizational and career commitment among Illinois pharmacists.
- 31 *American journal of health-system pharmacy*. 1995;52(18):2005-11.
- 32 34. Gaither CA. Career commitment: a mediator of the effects of job stress on pharmacists' work-
- 33 related attitudes. *Journal of the American Pharmaceutical Association* (1996). 1999;39(3):353-61.
- 34 35. Guchelaar HJ, Colen HB, Kalmeijer MD, Hudson PT, Teepe-Twiss IM. Medication errors: hospital
- 35 pharmacist perspective. *Drugs*. 2005;65(13):1735-46.
- 36 36. Benjamin DM. Reducing medication errors and increasing patient safety: case studies in clinical
- 37 pharmacology. *J Clin Pharmacol*. 2003;43(7):768-83.
- 38 37. Teinila T, Gronroos V, Airaksinen M. A system approach to dispensing errors: a national study on
- 39 perceptions of the Finnish community pharmacists. *Pharm World Sci*. 2008;30(6):823-33.
- 40 38. Samsuri SE, Lin LP, Fahrni ML. Safety culture perceptions of pharmacists in Malaysian hospitals
- 41 and health clinics: a multicentre assessment using the Safety Attitudes Questionnaire. *BMJ open*.
- 42 2015;5(11):e008889.
- 43 39. Chui MA, Look KA, Mott DA. The association of subjective workload dimensions on quality of
- 44 care and pharmacist quality of work life. *Research in Social and Administrative Pharmacy*.
- 45 2014;10(2):328-40.
- 46 40. Al Khalidi D, Wazaify M. Assessment of pharmacists' job satisfaction and job related stress in
- 47 Amman. *International journal of clinical pharmacy*. 2013;35(5):821-8.
- 48 41. Al-Worafi YM. Pharmacy practice and its challenges in Yemen. *The Australasian medical journal*.
- 49 2014;7(1):17.
- 50 42. Suleiman AK. Stress and job satisfaction among pharmacists in Riyadh, Saudi Arabia. *Saudi*
- 51 *Journal of Medicine and Medical Sciences*. 2015;3(3):213.
- 52
- 53
- 54
- 55
- 56
- 57
- 58
- 59
- 60

- 1
- 2
- 3
- 4 43. Chua GN, Yee LJ, Sim BA, Tan KH, Sin NK, Hassali MA, et al. Job satisfaction, organisation
- 5 commitment and retention in the public workforce: a survey among pharmacists in Malaysia.
- 6 *International Journal of Pharmacy Practice*. 2014;22(4):265-74.
- 7 44. Salahuddin E, Ronis KA. Assessment of Job Satisfaction among Registered Pharmacists Working
- 8 in Public and Private Hospitals of Multan. *Pakistan Journal of Public Health*. 2016;6(1):5.
- 9 45. Peters DH, Steinhardt L, Mahapatra P, Chakraborty S. Job satisfaction and motivation of health
- 10 workers in public and private sectors: cross-sectional analysis from two Indian states. *Human resources*
- 11 *for health*. 2010;8(1):27.
- 12 46. Yousef DA. Organizational commitment: A mediator of the relationships of leadership behavior
- 13 with job satisfaction and performance in a non-western country. *Journal of Managerial Psychology*.
- 14 2000;15(1):6-24.
- 15 47. Leiter MP, Maslach C. The impact of interpersonal environment on burnout and organizational
- 16 commitment. *Journal of organizational behavior*. 1988;9(4):297-308.
- 17 48. Finegan J, Shamian J, Spence Laschinger HK. The impact of workplace empowerment,
- 18 organizational trust on staff nurses' work satisfaction and organizational commitment. *Advances in*
- 19 *Health Care Management*. p. 59-85.
- 20 49. Camp SD. Assessing the effects of organizational commitment and job satisfaction on turnover:
- 21 An event history approach. *The Prison Journal*. 1994;74(3):279-305.
- 22 50. Hann M, Reeves D, Sibbald B. Relationships between job satisfaction, intentions to leave family
- 23 practice and actually leaving among family physicians in England. *The European Journal of Public Health*.
- 24 2010;21(4):499-503.
- 25 51. Chan MF, Luk AL, Leong SM, Yeung SM, Van IK. Factors influencing Macao nurses' intention to
- 26 leave current employment. *Journal of clinical nursing*. 2009;18(6):893-901.
- 27 52. Zhang Y, Feng X. The relationship between job satisfaction, burnout, and turnover intention
- 28 among physicians from urban state-owned medical institutions in Hubei, China: a cross-sectional study.
- 29 *BMC Health Services Research*. 2011;11(1):235.
- 30 53. Conklin MH, Desselle SP. Job turnover intentions among pharmacy faculty. *American journal of*
- 31 *pharmaceutical education*. 2007;71(4):62.
- 32 54. Chan EY, Morrison P. Factors influencing the retention and turnover intentions of registered
- 33 nurses in a Singapore hospital. *Nursing & Health Sciences*. 2000;2(2):113-21.
- 34 55. O'Neill JL, Gaither CA. Investigating the relationship between the practice of pharmaceutical
- 35 care, construed external image, organizational identification, and job turnover intention of community
- 36 pharmacists. *Research in Social and Administrative Pharmacy*. 2007;3(4):438-63.
- 37 56. Rizwan M, Arshad MQ, Munir HMA, Iqbal F, Hussain A. Determinants of Employees intention to
- 38 leave: A Study from Pakistan. *International Journal of Human Resource Studies*. 2014;4(3):1.
- 39 57. Al-Omar BA. Sources of work-stress among hospital-staff at the Saudi MOH. *Economics and*
- 40 *Administration*. 2003;17(1).
- 41 58. Kalantan KA, Al-Taweel AA, Abdul GH. Factors influencing job satisfaction among primary health
- 42 care (PHC) physicians in Riyadh, Saudi Arabia. *Annals of Saudi medicine*. 1998;19(5):424-6.
- 43 59. Exploring Facets of Job Satisfaction Among U.S. Hospita; Pharmacists. *Am J Health Syst*
- 44 *Pharm*.301-657.
- 45 60. Kahaleh A, Gaither C. The effects of work setting on pharmacists' empowerment and
- 46 organizational behaviors. *Research in Social and Administrative Pharmacy*. 2007;3(2):199-222.
- 47 61. Mahmoud A. A study of nurses' job satisfaction: the relationship to organizational commitment,
- 48 perceived organizational support, transactional leadership, transformational leadership, and level of
- 49 education. *European journal of scientific research*. 2008;22(2):286-95.
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## STROBE Statement—checklist of items that should be included in reports of observational studies

	Item No	Recommendation	Page
<b>Title and abstract</b>	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	1
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	2
<b>Introduction</b>			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	4-6
Objectives	3	State specific objectives, including any prespecified hypotheses	6
<b>Methods</b>			
Study design	4	Present key elements of study design early in the paper	
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	6
Participants	6	(a) <i>Cohort study</i> —Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up	6
		<i>Case-control study</i> —Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls	
		<i>Cross-sectional study</i> —Give the eligibility criteria, and the sources and methods of selection of participants	
		(b) <i>Cohort study</i> —For matched studies, give matching criteria and number of exposed and unexposed	
		<i>Case-control study</i> —For matched studies, give matching criteria and the number of controls per case	
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	7
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	7
Bias	9	Describe any efforts to address potential sources of bias	7
Study size	10	Explain how the study size was arrived at	7
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	7
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	7
		(b) Describe any methods used to examine subgroups and interactions	
		(c) Explain how missing data were addressed	
		(d) <i>Cohort study</i> —If applicable, explain how loss to follow-up was addressed	
		<i>Case-control study</i> —If applicable, explain how matching of cases and controls was addressed	
		<i>Cross-sectional study</i> —If applicable, describe analytical methods taking account of sampling strategy	
		(e) Describe any sensitivity analyses	

Continued on next page

**Results**

Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed (b) Give reasons for non-participation at each stage (c) Consider use of a flow diagram	
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders (b) Indicate number of participants with missing data for each variable of interest (c) <i>Cohort study</i> —Summarise follow-up time (eg, average and total amount)	
Outcome data	15*	<i>Cohort study</i> —Report numbers of outcome events or summary measures over time <i>Case-control study</i> —Report numbers in each exposure category, or summary measures of exposure <i>Cross-sectional study</i> —Report numbers of outcome events or summary measures	
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included (b) Report category boundaries when continuous variables were categorized (c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	<b>8-18</b>
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	

**Discussion**

Key results	18	Summarise key results with reference to study objectives	<b>19-22</b>
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	<b>23</b>
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	<b>19-22</b>
Generalisability	21	Discuss the generalisability (external validity) of the study results	<b>23</b>

**Other information**

Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	<b>NA</b>
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\*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

**Note:** An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at [www.strobe-statement.org](http://www.strobe-statement.org).

# BMJ Open

## Job satisfaction, work commitment, and intention to leave among pharmacists: a cross-sectional study

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5 **Job satisfaction, work commitment, and intention to leave among**  
6 **pharmacists: a cross-sectional study**  
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## ABSTRACT

**Objectives:** We assessed job satisfaction, work commitment, and intention to leave among pharmacists working in different health-care settings in Saudi Arabia.

**Design:** This was a cross-sectional study utilizing a previously validated questionnaire.

**Setting:** We surveyed the workforce at different health-care settings in Riyadh, Saudi Arabia.

**Participants:** The participants were pharmacists licensed by the Saudi Commission for Health Specialties.

**Outcome measures:** We examined job satisfaction, work commitment, and intention to leave.

**Results:** In total, 325 out of 515 pharmacists completed the questionnaire, yielding a response rate of 63%. Over half of them were women (57.8%), 78.2% were Saudi-Arabian nationals, and 61.8% were married. The majority (88.1%) worked between 36 and 44 h per week; 96.6% were full-time employees, and 63.4% were government employees working in public hospitals or primary health-care centers. Although most of the pharmacists were satisfied (satisfied and slightly satisfied) with their current job (39.1% and 24.6%, respectively), about two-thirds (61.9%) had the intention to leave. Multiple logistic regression analysis showed that the most important predictors of pharmacists' intentions to leave were related to job satisfaction and work commitment (OR=0.923; 95% CI= (0.899–947);  $p < 0.001$  and OR=1.044; 95% CI= (1.014–1.08);  $p=0.004$ , respectively), whereas respondents' demographic characteristics had no effect.

**Conclusions:** Although the pharmacists surveyed were satisfied and committed to their current job, they had the intention to leave. Further research is recommended to clarify why pharmacists in Saudi Arabia have the intention to leave their pharmacy practice job.

**STRENGTHS AND LIMITATIONS OF THIS STUDY:**

- This study depended on a valid list of licensed pharmacists by the Saudi Commission for Health Specialties, who are working in different healthcare settings in capital city, Riyadh.
- This is the first study, to the best of our knowledge, being conducted in Saudi Arabia studying together the pharmacists' job satisfaction, work commitment, and intention to leave.
- This study provides local empirical evidence for devising health polices to improving staff retention, satisfaction and work commitment.
- Our results were the self-reported perceptions of the participants; therefore, they may be subject to bias and ungeneralizable to all pharmacists in Saudi Arabia.

## BACKGROUND

In addition to managerial and administrative roles, pharmacists have become more clinically involved in patient care at many points in health-care system. These emerging roles for pharmacists have increased the need for qualified individuals to occupy the position. The employment of pharmacists is projected to increase by 3% between 2014 and 2024, which is slower than the average for all health-care occupations[1, 2]. The traditional role of the pharmacists in Saudi Arabia was limited in dispensing medications; however this role has changed recently to include other related medications issues, for example counseling patients in the hospital and community pharmacies, and getting involved in advising physicians about the appropriate therapeutic dose and drug-related problems such as drug-drug interactions[3] in different clinical settings ambulatory care, oncology and hematology, cardiology, among others [4]. However, job turnover among pharmacists is relatively high and the issue of retaining pharmacists is a major concern among institutional managers[5]. One of the most significant factors that affects job turnover is job satisfaction. Job satisfaction has been defined as “the extent to which people like (satisfaction) or dislike (dissatisfaction) their job”[6]. Intrinsic and extrinsic job characteristics are the two main factors that influence the level of job satisfaction. Intrinsic factors include performance, challenge, and autonomy and depend on the characteristics of an employee, and extrinsic factors include workload, job security, promotion opportunities, and relationships with co-workers[7].

As far as the satisfaction of health professional is concerned, previous studies indicated that 40 % of primary health care (PHC) female nurses in Saudi Arabia were dissatisfied and had turnover intentions to leave[8]. The most common influencing factors that contribute to Saudi's female nurses are the negative public attitudes and perception towards the nursing profession and the nature of their work that needed mixing with men[8]. Likewise, it has been reported about 25.2% of physicians working in Saudi primary health care centers are burnout and might among the potential factor of intention to leave [9]. Worldwide, intentions to leave among health worker professionals are an increasing problem that affects the functioning of any health care system, especially in developing countries[10].

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3 Both international and regional studies have identified determinants of professional satisfaction  
4 among health-care workers, including pharmacists. Among health-care workers, 69% of turnover  
5 intentions are significantly associated with job satisfaction and motivation from managers[11].  
6 Some psychological morbidity is also associated with reduced job satisfaction[12]. A high level  
7 of employee stress, which is related to a high workload, has a significant impact on staff  
8 performance[13]. Longer working hours also contribute to reduced job satisfaction. Job  
9 autonomy is another variable that influences job satisfaction[7]. In addition, sociodemographic  
10 characteristics, occupation, educational background, years of service, and income have  
11 significant effects on the job satisfaction of health-care staff [14]. More than 68% of pharmacists  
12 have experienced job stress[15]. Intrinsic factors such as job security are among the primary  
13 determinants of pharmacists' job satisfaction [16]. Lack of financial support and acceptance by  
14 medical staff are also barriers to the professional satisfaction of pharmacists [17]. A high-  
15 pressure working environment is another factor that frequently influences pharmacists' job  
16 satisfaction[18].

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19 The turnover intention of pharmacists is growing as a result of factors including job satisfaction,  
20 age, sex, and strength of desire to practice pharmacy[19]. Reportedly, the turnover rate among  
21 pharmacists in the United States (US) is 14.4% for several reasons: promotion opportunities; pay  
22 and benefits; working hours; educational development opportunities; and professional  
23 challenges[20]. The annual turnover rates are greater among women than men (15% and 9.7%,  
24 respectively)[21].

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27 Several studies have addressed pharmacists' job satisfaction globally. In the US, both community  
28 and hospital pharmacists report moderate levels of job satisfaction, which the authors link to  
29 stress levels[22]. Another study found that age, income, and practice site can predict job  
30 satisfaction among practicing pharmacists[23]. A study involving pharmacists working in chain  
31 pharmacies reported that their job satisfaction was lower (53%) than that of pharmacists working  
32 in other settings[24]. In addition, several studies conducted in the United Kingdom (UK) have  
33 demonstrated a link between increasing pharmacist job dissatisfaction and stress related to high  
34 workload and its impact on community pharmacists[25]. Pharmacists' performance can be  
35 affected by many factors related to workload and working environment[26]. Job satisfaction is an  
36 important contributory factor to motivation and productivity among pharmacists [11].

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3 The indicators of job satisfaction include employee effectiveness, good mental and emotional  
4 status, behavior that improves worker functioning and performance, and good professional  
5 relationships with staff, colleagues, and physicians [27, 28]. Also, quality of work is considered a  
6 measure of job satisfaction by the European Commission[7]. Job satisfaction, turnover intention,  
7 and patient care and safety are important contributors to pharmacists' quality of work life [29].  
8 Studies have shown there are significant associations between burnout and poor patient safety  
9 such as medical errors[30]. Moreover, one of the predictors of burnout among health-care  
10 professionals is job insecurity[31].

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12 Work commitment is highly related to duration of employment and age. Younger pharmacists  
13 have a lower level of satisfaction and organizational attachment[32]. Other predictors of  
14 organizational commitment include supervisor support, perceptions of the effect of the  
15 pharmaceutical care movement, and practice setting[33]. High job satisfaction will positively  
16 affects work commitment, consequently decreasing turnover intention among pharmacists[34].

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18 Medication errors lead to increased health-care costs and morbidity and mortality rates[35].  
19 Pharmacists have a specific role in reducing medication errors by performing interventions that  
20 improve medication safety, such as risk assessments in clinical pharmacies and developing  
21 methods to detect patients at high risk of adverse drug reactions[35]. One of the  
22 recommendations to reduce medication errors is to use the "five rights": the right dose, right  
23 patient, right drug, right route, and right time[36]. Of dispensing errors, 46% are related to  
24 organizational factors, and 41% are related to individual factors[37]. The number of medication  
25 errors is influenced by pharmacists' years of practice and recognition of stress. A better  
26 perception of safety culture is an indicator of a decreased number of medication errors[38]. A  
27 high level of pharmacist job satisfaction has direct positive impact on the safety of medication  
28 dispensing, and this in turn has a huge impact on the quality of patient care[39].

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30 Among the Arab countries, low satisfaction among community pharmacists has been reported in  
31 Jordan, and Yemeni pharmacists have expressed dissatisfaction with their working conditions  
32 and opportunities[40, 41]. In 2014, a high rate of job satisfaction was reported among Saudi-  
33 Arabian health-care professionals[13]. However, in a 2015 study, Saudi-Arabian pharmacists,  
34 especially community pharmacists and those working in dispensaries and chain pharmacies,  
35 reported a low level of job satisfaction[42]. This is inconsistent with the findings of a study  
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3 conducted in 2005, which indicated that the job satisfaction of Saudi-Arabian community  
4 pharmacists is high[27]. To the best of our knowledge, only two studies have investigated job  
5 satisfaction among Saudi-Arabian pharmacists. Therefore, in this study, we assessed the level of  
6 job satisfaction and work commitment, and their impact on turnover rate and intention to leave,  
7 among pharmacists working in different health-care settings in Saudi Arabia. Our findings will  
8 inform and advise policy makers and health planners in the development of an evidence-based  
9 retention policy for health human resources, both in general and in pharmacists in particular.  
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## 15 16 **METHODS**

### 17 18 **Settings and participants:**

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20 This study involved pharmacists working at different health-care settings in Riyadh, Saudi  
21 Arabia, including public and private hospitals, community chain pharmacies, community  
22 independent pharmacies, primary care center pharmacies, industrial pharmacies, and academic  
23 pharmacies. The study population comprised pharmacists licensed by the Saudi Commission for  
24 Health Specialties and working in the Riyadh region, regardless of their sex and workplace.  
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### 29 30 **Methods of measurement:**

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32 Based on the data provided by the Saudi Commission for Health Specialties, we calculated the  
33 required sample size. Using an online sample calculator (Raosoft, Inc., Seattle, WA, USA;  
34 <http://www.raosoft.com/samplesize.html>), with a chosen accepted error margin of 5%, a 95%  
35 confidence level, and a 50% response distribution within the pharmacist population in Riyadh,  
36 the minimum required sample size was 309 participants. Taking into consideration a non-  
37 respondent rate of 20%, the final targeted sample size was 387 participants. We sent a self-  
38 administered questionnaire to all 515 pharmacists licensed by the Saudi Commission for Health  
39 Specialties in Riyadh; thus, no sampling technique was applied. The self-administered  
40 questionnaire was combined with a letter that explained the purpose of the study and assured  
41 them of the confidentiality of their responses. Data were collected using an English version of a  
42 questionnaire developed and used in a Malaysian study by Chua et al. [38] to assess job  
43 satisfaction, organization commitment, and retention in the public workforce among pharmacists.  
44 Although the validity and reliability of the study tool has been reported in Malaysian study by  
45 Chua et al [38], we have conducted a pilot study to test the reliability of the study tool in the  
46 Saudi context, and the Cronbach's alpha for the job satisfaction and work commitment scale  
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3 were .94 and .77 respectively. The questionnaire consisted of eight sections: sociodemographic  
4 characteristics, current job features, job satisfaction, and work commitment (scored using a six-  
5 point Likert scale ranging from strongly disagree to strongly agree and comprising 15  
6 statements); overall satisfaction with their current job; intention to leave their current job; overall  
7 patient safety at their workplace; and opinions on how to improve job satisfaction and work  
8 commitment among pharmacists working in Saudi Arabia. The questionnaires were sent to  
9 respondents as online survey Money via the validated emails list provided by Saudi Commission  
10 for Health Specialties in Riyadh, and at end of survey, this was a link to submit and send back  
11 the completed survey.  
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### 19 **Statistical analysis:**

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21 All data were managed and analyzed using SPSS version 22 (IBM Corp., Armonk, NY, USA).  
22 Both descriptive and analytic statistics were used as needed; categorical variables were presented  
23 as frequencies and percentages, and continuous variables as means and standard deviation. Non-  
24 parametric tests, including the Mann–Whitney and Kruskal–Wallis tests, and the chi-squared test  
25 were used as appropriate, and multivariate logistic regression analysis was performed to  
26 determine the association between demographic variables, job satisfaction, and work  
27 commitment and the participants' likelihood to leave their current job. A p-value <0.05 and 95%  
28 confidence interval were used to indicate statistical significance.  
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36 **Patient and Public Involvement:** Patients were not involved.  
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## 38 **RESULTS**

### 39 **Sociodemographic characteristics of the participants:**

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41 In total, 325 of 515 pharmacists completed the study questionnaire, yielding a response rate of  
42 63.1%. The majority of the respondents were women ( $n = 188$ , 57.8%) and aged between 25 and  
43 30 years (35.7%). Of them, 78.2% were Saudi-Arabian nationals, 61.8% were married, and  
44 52.6% held a bachelor's degree. The average working hours of more than half of the respondents  
45 ( $n = 171$ , 52.6%) were between 36 and 44 h, equating to full-time employment status. Of the  
46 respondents, 51.4% worked at public hospital pharmacies and filled the staff pharmacist position  
47 ( $n = 182$ , 56.5%). Most participants had 6–15 years of experience (Table 1).  
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**Table 1:** Demographic characteristics of the respondents

<b>Demographic characteristics</b>	<b><i>n</i> (%)</b>
<b>Sex</b>	
Male	137 (42.2)
Female	188 (57.8)
<b>Age (years)</b>	
<25	14 (4.3)
25–30	116 (35.7)
31–35	94 (28.9)
36–40	47 (14.5)
>40	54 (16.6)
<b>Marital status</b>	
Single	113 (34.8)
Married	201 (61.8)
Divorced	11 (3.4)
<b>Income/month (SR)</b>	
<5000	16 (4.9)
5000–10000	52 (16.0)
11000–15000	117 (36.0)
>15000	140 (43.1)
<b>Nationality</b>	
Saudi-Arabian	254 (78.2)
Non-Saudi-Arabian	71 (21.8)
<b>Highest level of education</b>	
Bachelor's degree	171 (52.6)
Master's degree	94 (28.9)
Pharm D	36 (11.1)
PhD	13 (4.0)
Other	11 (3.4)
<b>Average hours worked per week</b>	
≤35	33 (10.2)
36–44	171 (52.6)
>44	121 (37.2)
<b>Employment status</b>	
Full-time	314 (96.6)
Part-time	11 (3.4)
<b>Place of practice</b>	
Public hospital pharmacy	167 (51.4)
Private hospital pharmacy	15 (4.6)
Community pharmacy	15 (4.6)
Primary care center	39 (12)
Industrial companies	55 (19.6)
Academic/university	17 (5.2)
Other	17 (5.2)
<b>Years of practice</b>	



≤5	125 (38.5)
6–15	130 (40.0)
16–20	42 (12.9)
>20	28 (8.6)
<b>Current position</b>	
Pharmacist manager/supervisor	96 ( 29.8)
Pharmacist staff	182 (56.5)
Pharmacy owner	2 (0.6)
Others	42 (13)
Unknown	3 (0.9)

Abbreviations: PhD, Doctor of Philosophy; Pharm D, Doctor of Pharmacy; SR, Saudi-Arabian Riyals.

### **Job satisfaction and work commitment:**

Table 2 shows the pharmacists' responses across all items of job satisfaction and work commitment. Approximately 60% of the respondents reported that they were satisfied with their job: they were happy going to work every day; they described their job to family and friends as a great job to have; the job provided them with opportunities to use their abilities; they had flexibility to choose any method of doing the job; they had sufficient freedom to use their own judgment in their job; and they got a feeling of accomplishment from their work. However, 62% of the respondents said that they were not satisfied at the end of each working day, and they felt that the day had not been well spent. Forty-seven percent were unsatisfied by the fringe benefits offered by their current job, and 36% felt unlucky to have their job.

Regarding work commitment, 83% of the respondents said that they were willing to put in effort beyond that normally expected to help the workplace be successful. More than 70% were proud to tell others that they are a part of their organization and really cared about its fate. More than 60% of respondents were extremely glad that they chose to work at their organization, and described their workplace to family and friends as a great organization to work for. However, 54% of respondents disagreed, stating that choosing to work for their organization was a definite mistake. Forty-six percent of the respondents felt very little loyalty to their organizations. More than 50% said that they could just as well be working for a different organization, that they did not think there was much to be gained by sticking with their organization, and that they found it difficult to agree with their organizations' policies on matters related to its employees. In

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addition, the respondents agreed that it would take a very little change in their present circumstances to prompt them to leave their organization.

For peer review only

**Table 2:** Job satisfaction and work commitment among the respondents

No.	Statement	Strongly disagree <i>n</i> (%)	Disagree <i>n</i> (%)	Slightly disagree <i>n</i> (%)	Slightly agree <i>n</i> (%)	Agree <i>n</i> (%)	Strongly agree <i>n</i> (%)	Mean score (SD)
<b>Job satisfaction</b>								
1	I look forward to coming to work everyday	29 (8.9)	35 (10.8)	34 (10.5)	70 (21.5)	108 (33.2)	49 (15.1)	4.05 (1.51)
2	I talk about my job with my family and friends because it is a great job	27 (8.3)	53 (16.3)	37 (11.4)	67 (20.6)	99 (30.5)	42 (12.9)	3.87 (1.52)
3	My job provides me with broad opportunities to use my abilities	27 (8.3)	40 (12.3)	47 (14.5)	53 (16.3)	112 (34.5)	46 (14.2)	3.99 (1.52)
4	I have sufficient freedom to use my own judgment in my job	17 (5.2)	42 (12.9)	46 (14.2)	64 (19.7)	112 (34.5)	44 (13.5)	4.06 (1.42)
5	My job provides me with flexibility to choose any method of doing the job	21 (6.5)	44 (13.5)	44 (13.5)	82 (25.2)	103 (31.7)	31 (9.5)	3.91 (1.39)
6	I get a feeling of accomplishment from my job	22 (6.8)	32 (9.8)	39 (12)	86 (26.5)	115 (35.4)	31 (9.5)	4.02 (1.36)
7	At the end of each working day, I feel that the day has been well spent	119 (36.0)	33 (10.2)	49 (15.1)	86 (26.5)	0 (0)	38 (11.7)	2.78 (1.68)
8	If I were to start my career again, I would choose this job	53 (16.3)	33 (10.2)	42 (12.9)	58 (17.8)	85 (26.2)	54 (16.6)	3.77 (1.7)
9	Other people would be very lucky to get a job like mine	42 (12.9)	29 (10.8)	46 (14.2)	84 (25.8)	82 (25.2)	42 (12.9)	3.8 (1.54)
10	I am satisfied with my job	35 (10.8)	32 (9.8)	37 (11.4)	82 (25.2)	104 (32)	35 (10.8)	3.90 (1.49)
11	I am satisfied with my salary	65 (20)	48 (14.8)	37 (11.4)	70 (21.5)	77 (23.7)	28 (8.6)	3.4 (1.65)
12	I am satisfied with the fringe benefits offered by my job	58 (17.8)	54 (16.6)	48 (14.8)	71 (21.8)	70 (21.5)	24 (7.4)	3.35 (1.58)
13	I am satisfied with the working conditions	44 (13.5)	48 (14.8)	51 (15.7)	76 (23.4)	85 (26.2)	21 (6.5)	3.53 (1.51)
14	I am satisfied with the personnel policies of this organization	41 (12.6)	48 (14.8)	59 (18.2)	72 (22.2)	84 (25.8)	21 (6.5)	3.53 (1.48)
15	I am satisfied with the style and quality of supervision	43 (13.2)	51 (15.7)	53 (16.3)	72 (22.2)	80 (24.6)	26 (8)	3.53 (1.53)
<b>Work commitment</b>								
1	I am willing to put in effort beyond that normally expected to help my workplace to be successful	15 (4.6)	17 (5.2)	22 (6.8)	58 (17.8)	123 (37.8)	90 (27.7)	4.62 (1.34)
2	I talk about my workplace to my friends because it is a great organization to work for	31 (9.5)	41 (12.6)	53 (16.3)	65 (20)	103 (31.7)	32 (9.8)	3.81 (1.49)
3	I feel very little loyalty to my organization	58 (17.8)	70 (21.5)	47 (14.5)	60 (18.5)	69 (21.2)	21 (6.5)	3.23 (1.58)
4	I would accept almost any type of job assignment to keep working at this organization	36 (11.1)	39 (12.0)	61 (18.8)	76 (23.4)	74 (22.8)	39 (12.0)	3.71 (1.51)

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5	I find that my values and my organization’s value are very similar	29 (8.9)	52 (16)	45 (13.8)	64 (19.7)	97 (29.8)	38 (11.7)	3.81 (1.52)
6	I am proud to tell others that I am a part of my organization	27 (8.3)	25 (7.7)	32 (9.8)	68 (20.9)	105 (32.3)	68 (20.9)	4.24 (1.5)
7	I could just as well be working for a different organization	24 (7.4)	33 (10.2)	56 (17.2)	86 (26.5)	96 (29.5)	30 (9.2)	3.88 (1.37)
8	My workplace inspires my best job performance	41 (12.6)	55 (16.9)	56 (17.2)	80 (24.6)	70 (21.5)	23 (7.1)	3.47 (1.48)
9	It would take a very little change in my present circumstances to make me leave this organization	29 (8.9)	51 (15.7)	57 (17.5)	84 (25.8)	81 (24.9)	23 (7.1)	3.63 (1.42)
10	I am extremely glad that I chose this organization to work for	30 (9.2)	36 (11.1)	43 (13.2)	70 (21.5)	99 (30.5)	47 (14.5)	3.96 (1.51)
11	There is not much to be gained by sticking with this organization	35 (10.8)	60 (18.5)	61 (18.8)	84 (25.8)	58 (17.8)	27 (8.3)	3.46 (1.46)
12	Often, I find it difficult to agree with my organization’s polices on important matters relating to its employees	44(13.5)	52 (16)	60 (18.5)	80 (24.6)	57 (17.5)	32 (9.8)	3.46 (1.52)
13	I really care about the fate of my organization	20 (6.2)	21 (6.5)	35 (10.8)	65 (20)	115 (35.4)	69 (21.2)	4.36 (1.41)
14	For me, this is the best of all possible organizations to work for	33 (10.2)	49 (15.1)	56 (17.2)	68 (20.9)	85 (26.2)	34 (10.5)	3.69 (1.51)
15	Deciding to work for this organization was a definite mistake	103 (12.0)	69 (21.2)	67 (20.6)	39 (12)	38 (11.7)	9 (2.8)	2.59 (1.46)

Abbreviations: SD, standard deviation.

### Overall satisfaction, intention to leave, and patient safety perception

Pharmacists' overall job satisfaction was assessed by one global question: "How satisfied are you with your current job?" (Table 3). The results indicated that the majority of pharmacists were satisfied (satisfied and slightly satisfied) with their current job (39.1% and 24.6%, respectively); the proportion of pharmacists who were extremely dissatisfied was only 7.1%. However, most (61.2%) of the pharmacists stated that it was their intention to leave their current job, whereas only 38.7% said that they were unlikely to leave (Table 3). The pharmacists' perceptions of patient safety at their workplace are presented in Table 3. The majority reported that patient safety at their workplace was good or better ( $n = 223$ , 68.6%), but about one-fifth of the respondents (24.3%) had concerns about patient safety issues at their workplace.

**Table 3:** Respondents' overall satisfaction, intention to leave, and patient safety

<b>How satisfied are you with your current job?</b>	<b><i>n</i> (%)</b>
Extremely dissatisfied	23 (7.1)
Dissatisfied	36 (11.1)
Slightly dissatisfied	35 (10.8)
Slightly satisfied	80 (24.6)
Satisfied	127 (39.1)
Extremely satisfied	24 (4.7)
<b>How likely are you to leave your current job for any reason?</b>	<b><i>n</i> (%)</b>
Very unlikely	32 (9.8)
Unlikely	94 (28.9)
Likely	144 (44.3)
Very likely	55 (16.9)
<b>How much you rate patient safety in your working place?</b>	<b><i>n</i>(%)</b>
Poor	28 (8.6)
Fair	51 (15.7)
Good	108 (33.2)
Very good	56 (17.2)
Excellent	59 (18.2)
Not applicable	23 (7.1)

### Factors affecting respondents' likeliness to stay in their current job, job satisfaction, and work commitment:

The associations between respondents' demographic variables and likelihood to stay in their current job are shown in Table 4. A significant association was evident between participants' likelihood to remain in their current job and income ( $p = 0.047$ ), place of practice ( $p = 0.026$ ), and current position ( $p = 0.008$ ). Table 5 shows the association between respondents' demographic characteristics and job satisfaction and work commitment. A significant association was found between age, monthly income, working hours per week, place of practice, current position, and job satisfaction ( $p < 0.05$ ). Likewise, there was a significant association existed between age, nationality, and level of education and work commitment ( $p < 0.05$ ).

**Table 4:** Association between respondents' demographic characteristics and likelihood to stay in their current job

Demographic characteristics	Unlikely to stay <i>n</i> (%)	Likely to stay <i>n</i> (%)	p-value
<b>Sex</b>			
Male	56 (44.4)	81 (40.7)	0.565
Female	70 (55.6)	118 (59.3)	
<b>Age (years)</b>			
<25	4 (3.2)	10 (5)	0.381
25–30	45 (35.7)	71 (35.7)	
31–35	34 (27)	60 (30.2)	
36–40	16 (12.7)	31 (15.6)	
>40	27 (21.4)	27 (13.6)	
<b>Marital status</b>			
Single	37 (29.4)	76 (38.2)	0.157
Married	86 (68.3)	115 (57.8)	
Divorced	3 (2.4)	8 (4)	
<b>Income/month (SR)</b>			
<5000	3 (2.4)	13 (6.5)	0.047
5000–10000	16 (12.7)	36 (18.1)	
11000–15000	42 (33.3)	75 (37.7)	
>15000	65 (51.6)	75 (37.7)	
<b>Nationality</b>			
Saudi-Arabian	99 (78.6)	155 (77.9)	1
Non-Saudi-Arabian	27 (21.4)	44 (22.1)	
<b>Highest level of education</b>			
Bachelor's degree	71 (56.3)	100 (50.3)	0.218
Master's degree	38 (30.2)	56 (28.1)	
Pharm D	11 (8.7)	25 (12.6)	

PhD	5 (4)	8 (4.0)	
Other	1 (0.8)	10 (5.0)	
<b>Average hours worked per week</b>			
≤35	15 (11.9)	18 (9)	
36–44	73 (57.9)	98 (49.2)	0.106
>44	38 (30.2)	83 (41.7)	
<b>Employment status</b>			
Full-time	121 (96.0)	193 (97.0)	
Part-time	5 (4.0)	6 (3.0)	0.755
<b>Place of practice</b>			
Public hospital pharmacy	51 (40.5)	116 (58.3)	
Private hospital pharmacy	6 (4.8)	9 (4.5)	
Community pharmacy	4 (3.2)	11 (5.5)	
Primary care center	18 (14.3)	21 (10.6)	
Industrial companies	28 (22.2)	27 (13.6)	0.026
Academic/university	10 (7.1)	7 (3.5)	
Other	9 (7.1)	8 (4)	
<b>Years of practice</b>			
≤5	44 (34.9)	81 (40.7)	
6–15	49 (38.9)	81 (40.7)	
16–20	17 (13.5)	25 (12.6)	0.19
>20	16 (12.7)	12 (6)	
<b>Current position</b>			
Pharmacist manager/supervisor	47 (37.3)	49 (25.0)	
Pharmacist staff	58 (46.0)	124 (63.3)	0.010
Other	21 (16.7)	23 (11.7)	

Abbreviations: PhD, Doctor of Philosophy; Pharm D, Doctor of Pharmacy; SR, Saudi-Arabian Riyals.

**Table 5:** Effect of respondents' demographic characteristics on job satisfaction and work commitment

Demographic characteristics	Job satisfaction Median (IQR)	p-value	Work commitment Median (IQR)	p-value
<b>Sex</b>				
Male	61 (47–70)	0.154	58 (49–65)	0.721
Female	55 (44–68)		57 (50–64)	
<b>Age (years)</b>				
<25	60 (34–67)	<b>0.008</b>	60 (41–63)	<b>0.038</b>
25–30	59 (46–71)		58 (52–65)	
31–35	56 (42–65)		56 (49–64)	
36–40	52 (34–68)		53 (45–63)	
>40	66(53–71)		60 (54–67)	
<b>Marital status</b>				
Single	57 (42–67)	0.328	58 (50–64)	0.962
Married	59 (47–71)		57 (50–65)	
Divorced	57 (48–65)		59 (46–65)	
<b>Income/month (SR)</b>				
<5000	52 (28–59)	<b>0.006</b>	57 (36–63)	0.091
5000–10000	55 (45–70)		59 (52–69)	
11000–15000	56 (39–68)		56 (46.5–64)	
>15000	60 (50–71)		58 (50–65)	
<b>Nationality</b>				
Saudi-Arabian	58 (44–68)	0.464	57 (49–64)	<b>0.014</b>
Non-Saudi-Arabian	59(48–70)		60 (54–67)	
<b>Highest level of education</b>				
Bachelor's degree	60 (49–70)	0.065	59 (52–66)	<b>0.017</b>
Master's degree	58 (43–69)		55 (49–66)	
Pharm D	55 (38–68)		54 (44–6)	
PhD	52 (43–64)		51(45–61)	
Other	50 (32–53)		58 (45–67)	
<b>Average hours worked per week</b>				
≤35	59 (38–67)	<b>0.001</b>	56.5 (40–68)	0.281
36–44	61 (49–71)		58 (51–66)	
>44	53 (39–65)		57 (49–63)	
<b>Employment status</b>				
Full-time	58 (46–69)	0.962	57 (50–65)	0.695
Part-time	60 (42–64)		54 (48–66)	
<b>Place of practice</b>				
Public hospital pharmacy	54 (39–65)	<b>&lt;0.001</b>	57 (49–64)	0.599
Private hospital pharmacy	55 (38–69)		58 (47–74)	
Community pharmacy	59 (43–67)		58 (54–61)	
Primary care center	55 (43–71)		58 (45–69)	
Industrial companies	68 (58–73)		59 (56–64)	



Academic/university	60 (45–71)		57 (50–69)	
Other	60 (48–74)		53 (49–67)	
<b>Years of practice</b>				
≤5	57 (43–70)		57 (47–64)	
6–15	58 (43–68)	<b>0.027</b>	56 (50–64)	0.123
16–20	56 (47–68)		60 (49–69)	
>20	66 (57–73)		61 (54–69)	
<b>Current position</b>				
Pharmacist	62 (51–73)		59 (52–66)	
manager/supervisor				
Pharmacist staff	54 (40–67)	<b>0.001</b>	57 (47–64)	0.284
Other	60 (49–71)		57 (50–64)	

Abbreviations: IQR, interquartile range; PhD, Doctor of Philosophy; Pharm D, Doctor of Pharmacy; SR, Saudi-Arabian Riyals.

### Determinants of respondents' likeliness to leave their current job:

Table 6 shows the results of a multiple logistic regression analysis of the effects of respondents' demographic characteristics, job satisfaction, and work commitment on their likelihood to leave their current job. The most important predictors of intention to leave were job satisfaction and work commitment ( $p < 0.001$  and  $0.005$ , respectively). There were no significant associations between respondents' demographic characteristics and intention to leave. However, older respondents were twice as likely as younger respondents to leave their jobs. Residents and pharmacists with a diploma-level education (other) were six times more likely to leave their job than the pharmacists with bachelor or master degrees, and those with full-time jobs were three times more likely to quit their job than those with part-time jobs, although without statistical significance.

**Table 6:** Multiple logistic regression analysis of the effects of respondents' demographic characteristics, job satisfaction, and work commitment on their likelihood to leave their current job

Variables	Coefficient (SE)	OR (95% CI)	p-value
Job satisfaction	-0.08 (0.013)	0.923 (0.899–947)	<0.001
Work commitment	0.043 (0.016)	1.044 (1.014–1.08)	<b>0.004</b>
<b>Monthly income (SR)</b>			
<5000	-	-	-
5000–10000	0.171 (.786)	1.187 (0.255–5.535)	0.827
11000–15000	-.427 (.759)	0.653 (0.147–2.889)	0.574
>15000	-.328(.783)	0.721 (0.155–3.245)	0.676
<b>Place of pharmacy practice</b>			
Public hospital pharmacy	-	-	-

Private hospital pharmacy	-0.865 (0.670)	0.421 (0.113–1.567)	0.197
Community pharmacy	0.097 (0.706)	1.101 (0.276–4.397)	0.891
Primary care center pharmacy	-0.587 (416)	0.556 (0.246–1.256)	0.158
Industrial company	-0.254 (0.421)	0.776(0.340–1.771)	0.546
Academic/university hospital	-1.203 (0.708)	0.300 (0.075–1.203)	0.089
Other	-0.846 (0.644)	0.429 (0.122–1.516)	0.189
<b>Years of practice</b>			
≤5	-	-	-
6–15	-0.053 (0.329)	0.948(0.498–1.807)	0.872
16–20	-0.280 (0.483)	.756 (0.293–1.948)	0.562
>20	-0.283 (0.946)	0.753 (0.257-2.212)	0.606
<b>Current position</b>			
Pharmacy manager/supervisor	-	-	
Pharmacist	0.249(0.344)	1.283 (0.653–2.520)	0.470
Other	0.319 (0.500)	1.376 (0.516–3.666)	0.523
Constant	3.089 (1.25)	21.959	0.041
Pseudo R <sup>2</sup>		0.212	
-Log likelihood		354.488	

Abbreviations: CI, confidence interval; OR, odds ratio; PhD, Doctor of Philosophy; Pharm D, Doctor of Pharmacy; SE, standard error; SR, Saudi-Arabian Riyals.

## DISCUSSION

In this study, we assessed job satisfaction and work commitment, and their determinant factors and the intention to leave, among pharmacists working at different health-care settings in Riyadh.

### Job satisfaction:

Across all job satisfaction items in this survey, the respondents were moderately varied in their satisfaction. Numerous factors affected respondents' job satisfaction, including salary, workload, continuous education and development, supervision, motivation, and working environment, i.e. work setting. These findings are largely consistent with the results of earlier studies on job satisfaction among pharmacists and other health-care workers[43, 44]]. Another study also reported that working environment, motivation, and income are factors that influence job satisfaction[45]. Overall, job satisfaction among the study respondents was high, but their reported likelihood to leave their current job was also high, suggesting that job satisfaction does not necessarily mean that pharmacists are not planning to leave. Lower motivation and job

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3 satisfaction, as well as the presence of work-related factors, are significantly associated with the  
4 intention to leave among health-care workers[11]. These findings are consistent with a study on  
5 job satisfaction, sources of stress, and workload among New Zealand health-care professionals,  
6 in which pharmacists were significantly less satisfied as a result of job-related stress[12]. The  
7 greatest level of job satisfaction was reported by pharmacists with a higher income[23]. In some  
8 studies, job dissatisfaction among pharmacists was found to be related to their place of work,  
9 especially among pharmacists working in community chain pharmacies. Conversely, pharmacists  
10 working in hospital pharmacies have a better level of satisfaction than those working in other  
11 practice settings[24, 40]. A high degree of job satisfaction may help to lower employee  
12 absenteeism and consequently turnover intentions[28].  
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### 21 **Work commitment:**

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23 In this study, the majority of respondents expressed commitment to their work, showing qualities  
24 such as loyalty, workplace environment, agreement with organization policies, and interest in  
25 organizational procedures and fate. These findings have commonalities with those of a previous  
26 study, which defined three basic components necessary for employees' work commitment:  
27 loyalty; acceptance of an organizations' policies; and good leadership behavior[46]. Another  
28 study demonstrated that the interpersonal environment of a work setting has an effect on nurses'  
29 work commitment[47]. These different findings emphasize that enhancing employee  
30 empowerment has a positive effect on organizational trust and commitment[48]. A previous  
31 study found that job turnover intention was mediated by organizational commitment[34].  
32 Organizational commitment influences the willingness of employees to leave. This is consistent  
33 with the observation that overall job satisfaction and work commitment affects job turnover  
34 rate[49].  
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### 45 **Respondents' likelihood to leave their current job:**

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47 Although the study findings show that the pharmacists were satisfied with and committed to their  
48 current jobs, most stated that they were likely to leave. This is largely consistent with the  
49 findings of a study involving family physicians in the UK, in which high levels of job  
50 satisfaction did not mitigate their intentions to leave the profession[50]. The top three significant  
51 factors affecting our respondents' likelihood to stay in their current jobs were monthly income,  
52 place of practice, and current position. This is partially in agreement with a previous study  
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3 assessing health-care workers' intentions to leave, which showed that pay and benefits and place  
4 of practice were significantly predictive of nurses' intentions to leave their current  
5 employment[51]. Pharmacists working in community sectors have a higher tendency to intend to  
6 quit than pharmacists working in other sectors[19]. These findings are similar to those of a study  
7 of Chinese physicians, who had a greater tendency to quit their jobs if they had a low income  
8 than a higher income or a technical position than a managerial position[52]. Several studies have  
9 emphasized that poor salary is one of the primary predictors of intention to leave among  
10 pharmacists and other health-care workers [21, 53, 54]. A pharmacist's position has a significant  
11 effect on job turnover intention[55]. This is especially true among independent pharmacy  
12 owners, who demonstrate more positive attitudes toward their work than other pharmacists  
13 positions[34]. In contrast, excessive employee workloads and poor relationships with supervisors  
14 play an important role in intentions to leave[53, 56]. In our study, demographic characteristics  
15 such as sex and age had no influence on pharmacists' likelihood to stay in their current job.  
16 These results are similar to those of a study involving physicians, which found that age and sex  
17 have no significant effect on intention to leave[52]. In general, women have a higher annual  
18 intention to leave than men[21]. Our findings differ from those of some other studies, in which  
19 sex and age are primary factors affecting pharmacists' intentions to quit their profession[19].  
20 Other studies have also found that predictors such as relocation and layoffs were common  
21 reasons for the high turnover rate of pharmacists[38].

### 22 **Associations and determinate factors:**

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24 The analysis of the study findings showed that respondents' characteristics such as age, income,  
25 workload, practice setting, experience, and current position were significantly predictive of their  
26 level of job satisfaction. Likewise, a previous study found that working in hospitals and  
27 independent settings influences the level of job satisfaction among pharmacists[22]. Similarly,  
28 another study showed that age, income, and place of practice are significant predictors of job  
29 satisfaction. However, work experience is not a significant determinant of job satisfaction[16].  
30 Our results also demonstrated that respondents' sex, marital status, nationality, level of  
31 education, and employment status were not among the factors that influenced job satisfaction.  
32 These results are consistent with those of a study conducted at a Ministry of Health hospital in  
33 Saudi Arabia [57]. Sex was previously identified as a predictor of job satisfaction, especially in  
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3 female pharmacists, but this was not the case our study[19]. Suleiman AK ,[42] defined a series  
4 of factors that influence job satisfaction, including working conditions, the nature of the work,  
5 salary, opportunities, and management. In the UK, two studies emphasized that workload and  
6 high-pressure working environments contribute to a decrease in pharmacists' job satisfaction[18,  
7 23]. Consistently, another study performed in Saudi Arabia agreed that workload is an important  
8 source of dissatisfaction among physicians in primary health-care centers[58]. Another factor  
9 affecting job satisfaction identified in a previous study was being of Saudi-Arabian nationality,  
10 but nationality had no influence on job satisfaction in this study [13]. Pharmacists who work in  
11 administrative offices have higher job satisfaction than those working in health clinics and  
12 hospitals[43]. Indeed, pharmacists' positions were the factor most significantly associated with  
13 high job satisfaction[59].

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23 Regarding work commitment, our study identified three significant predictors: age, nationality,  
24 and level of education. Age had a high correlation with employee organizational attachment.  
25 Younger pharmacists were less committed to their work, especially those with less than 7 years  
26 of employment[32]. In contrast, a US study emphasized that age has no effect on career or  
27 organizational commitment. Management support has a positive effect on work commitment[33].  
28 Improved work-related attitudes were also found to increase work commitment[33, 34]. In  
29 addition, increased access to knowledge, development, support, and opportunities increase  
30 organizational commitment[60]. Among nurses, higher level of education has a positive effect on  
31 organizational commitment and job satisfaction[61]. Training and professional development are  
32 also considered important aspects of job satisfaction by pharmacists[43]. In our study,  
33 demographic characteristics such as sex, marital status, income, workload, practice setting, and  
34 years of experience had no significant effect on pharmacists' commitment. This opposes a  
35 previous finding that married pharmacists are more committed to their work[20]. Another study  
36 found that workload has a great impact on lowering employees' organizational  
37 commitments[56].

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Our study shows that job satisfaction and work commitment are significantly related to  
pharmacists' intentions to leave. In contrast, a previous study reported that high job satisfaction  
and work commitment have an inverse association with the intention to leave[56]. Another study  
found that high levels of job satisfaction and work commitment decrease the likelihood of job

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3 turnover intention[34]. Opposing outcomes were found in a study conducted in Pakistan on the  
4 determinants of employees' intentions to leave, in which organizational commitment, job  
5 satisfaction, and intention to leave were not significantly associated[56]. Job turnover intentions  
6 among pharmacy faculty staff are influenced by organizational commitment[53]. Among  
7 physicians, previous results have shown that job satisfaction is an important predictor of their  
8 intentions to leave their profession[50]. Furthermore, our results did not show any significant  
9 association between respondents' demographic characteristics and their intentions to leave.  
10 Working hours, marital status, income, and continuation of education influence the rate of job  
11 turnover among hospital pharmacists[20]. Among nurses, a high level of education and an  
12 equitable workload equate to greater commitment, productivity, and effectiveness in their  
13 organizations, and thus they are less likely to leave their jobs[61]. Another study found that  
14 productive and effective organization is generated by a high level of employee satisfaction and  
15 commitment[61]. Furthermore, an earlier study demonstrated that a high level of job satisfaction  
16 equates to reduced employee absenteeism and intentions to leave[42].  
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### 28 **Limitation and strengths:**

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30 This study had some limitations that can be summarized as follows. Because of the study design  
31 used, there is a chance that the associations identified may have been misinterpreted. The limited  
32 duration and timing of data collection prevented us from getting more responses and cooperation  
33 from more pharmaceutical companies, community chain pharmacies, and pharmacies at private  
34 hospitals to cover most practice settings in Riyadh. Therefore, it may not be possible to  
35 generalize our results, which analyzed only pharmacists in Riyadh, to all pharmacists in other  
36 parts of Saudi Arabia. Furthermore, our results were based on the self-reported perceptions of the  
37 study's participants and are therefore subject to bias. Despite these limitations, the study has  
38 provided interesting baseline results, which will help to inform better research in future.  
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46 Regarding the strengths of the study, the Saudi Commission for Health Specialties provided a list  
47 of contact details for all licensed pharmacists in Riyadh. Web-based surveys facilitated data  
48 collection and reduced costs. No other studies have investigated job satisfaction, work  
49 commitment, and intention to leave among pharmacists in Saudi Arabia. Previous studies have  
50 focused on health-care workers other than pharmacists.  
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## CONCLUSION

Our results reveal differing levels of job satisfaction and work commitment between pharmacists working in different practice settings in Riyadh. Our findings indicate that a significant relationship exists between pharmacists' job satisfaction and work commitment and their intention to leave. In general, the pharmacists surveyed were satisfied with their jobs, but at the same time, they expressed a desire to leave their current positions. Further research is required to determine why the intention to leave is increasing among pharmacists in Saudi Arabia.

## Contributorship Statement

NA: designed the study protocol, developed study tool, reviewed results, and drafted the manuscript.

KA: proposed the study idea, supervised the whole study, analyzed the data, and revised the drafted manuscript. Both authors have read and approved the final manuscript.

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**Competing interests:**

None.

**Ethics approval:**

The research ethics committee of the King Abdullah International Medical Research Center (KAIMRC) at the King Abdul-Aziz Medical City approved the study and granted IRB approval (protocol number SP17/116/R). The consent form was attached with each questionnaire to obtain a well-informed decision by participants to take part in this study voluntarily.

**Provenance and peer review:**

Not commissioned; externally peer reviewed.

**Data availability**

Data related to the study including the statistical data analysis are available upon reasonable request

**Open access:**

This is an open access article.

## REFERENCES

1. Statistics BoL. Occupational Outlook Handbook, Pharmacy Technicians. 2002-03 ed: U.S. Department of Labor; 2003 13 June.
2. Health UDo, Services H, editors. The pharmacist workforce: A study of the supply and demand for pharmacists. Report to Congress; 2000.
3. Haseeb A, Elrggal M. Recommendations for the role of the pharmacist in Saudi Arabia. *Arch Pharm Pract.* 2013;4:138.
4. Al-jedai A, Qaisi S, Al-meman A. Pharmacy practice and the health care system in Saudi Arabia. *The Canadian Journal of Hospital Pharmacy.* 2016;69(3):231.
5. Fitzenz J. It's costly to lose good employees. *Workforce.* 1997;76(8):50-1.
6. Spector PE. *Job satisfaction: Application, assessment, causes, and consequences:* Sage publications; 1997.
7. Parent-Thirion A. *Fourth European working conditions survey: European Foundation for the Improvement of Living and Working Conditions;* 2007.
8. Almutairi D, Moradi E, Idrus D. Factors influencing turnover among Saudi nurses. A literature review. 2010:1-13.
9. Bawakid K, Abdulrashid O, Mandoura N, Shah HBU, Ibrahim A, Akkad NM, et al. Burnout of physicians working in primary health care centers under ministry of health Jeddah, Saudi Arabia. *Cureus.* 2017;9(11).
10. Abera E, Yitayal M, Gebreslassie M. Turnover intention and associated factors among health professionals in University of Gondar Referral Hospital, Northwest Ethiopia. *Int J Econ Manag Sci.* 2014;3(4):1-4.
11. Bonenberger M, Aikins M, Akweongo P, Wyss K. The effects of health worker motivation and job satisfaction on turnover intention in Ghana: a cross-sectional study. *Human resources for health.* 2014;12(1):43.
12. Dowell AC, Westcott T, McLeod DK, Hamilton S. A survey of job satisfaction, sources of stress and psychological symptoms among New Zealand health professionals. *The New Zealand Medical Journal.* 2001;114(1145):540-3.
13. al. A-HAe. Job stress and job satisfaction among health care professionals. *European Scientific Journal.* 2014;10(No. 32).
14. Lu Y, Hu X-M, Huang X-L, Zhuang X-D, Guo P, Feng L-F, et al. Job satisfaction and associated factors among healthcare staff: a cross-sectional study in Guangdong Province, China. *BMJ open.* 2016;6(7):e011388.
15. Mott DA, Doucette WR, Gaither CA, Pedersen CA, Schommer JC. Pharmacists' attitudes toward worklife: results from a national survey of pharmacists. *Journal of the American Pharmacists Association.* 2004;44(3):326-36.
16. Liu CS, White L. Key determinants of hospital pharmacy staff's job satisfaction. *Research in Social and Administrative Pharmacy.* 2011;7(1):51-63.
17. Bourne RS, Baqir W, Onatade R. Pharmacist independent prescribing in secondary care: opportunities and challenges. *Int J Clin Pharm.* 2016;38(1):1-6.
18. Gidman WK, Hassell K, Day J, Payne K. The impact of increasing workloads and role expansion on female community pharmacists in the United Kingdom. *Research in Social and Administrative Pharmacy.* 2007;3(3):285-302.
19. Seston E, Hassell K, Ferguson J, Hann M. Exploring the relationship between pharmacists' job satisfaction, intention to quit the profession, and actual quitting. *Research in Social and Administrative pharmacy.* 2009;5(2):121-32.



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- 3
- 4 20. Smith S, Stewart J, Grussing P. Factors influencing the rate of job turnover among hospital
- 5 pharmacists. *American Journal of Health-System Pharmacy*. 1986;43(8):1936-41.
- 6 21. Mott DA. Pharmacist job turnover, length of service, and reasons for leaving, 1983-1997. *Am J*
- 7 *Health Syst Pharm*. 2000;57(10):975-84.
- 8 22. McCann L, Hughes CM, Adair CG, Cardwell C. Assessing job satisfaction and stress among
- 9 pharmacists in Northern Ireland. *Pharmacy world & science*. 2009;31(2):188.
- 10 23. Hardigan P, Carvajal M. Job satisfaction among practicing pharmacists: a Rasch analysis. *Internet*
- 11 *Journal of Allied Health Sciences and Practice*. 2007;5(4):11.
- 12 24. Maio V, Goldfarb NI, Hartmann CW. Pharmacists' job satisfaction: variation by practice setting.
- 13 2004.
- 14 25. Lea VM, Corlett SA, Rodgers RM. Workload and its impact on community pharmacists' job
- 15 satisfaction and stress: a review of the literature. *International Journal of Pharmacy Practice*.
- 16 2012;20(4):259-71.
- 17 26. Schafheutle EI, Seston EM, Hassell K. Factors influencing pharmacist performance: A review of
- 18 the peer-reviewed literature. *Health Policy*. 2011;102(2):178-92.
- 19 27. Bawazir S. Job satisfaction in Saudi community pharmacists.-letter. *Journal of Pharmacy Practice*
- 20 *and Research*. 2005;35(4):334.
- 21 28. Aziri B. JOB SATISFACTION: A LITERATURE REVIEW. *Management Research & Practice*. 2011;3(4).
- 22 29. McHugh PP. Pharmacists' attitudes regarding quality of worklife. *Journal of the American*
- 23 *Pharmaceutical Association* (1996). 1999;39(5):667-76.
- 24 30. Hall LH, Johnson J, Watt I, Tsipa A, O'Connor DB. Healthcare staff wellbeing, burnout, and
- 25 patient safety: a systematic review. *PloS one*. 2016;11(7):e0159015.
- 26 31. Biksegn A, Kenfe T, Matiwos S, Eshetu G. Burnout Status at Work among Health Care
- 27 Professionals in aTertiary Hospital. *Ethiopian journal of health sciences*. 2016;26(2):101-8.
- 28 32. Stewart J, Smith S. Work expectations and organizational attachment of hospital pharmacists.
- 29 *American Journal of Health-System Pharmacy*. 1987;44(5):1105-10.
- 30 33. Kong SX. Predictors of organizational and career commitment among Illinois pharmacists.
- 31 *American journal of health-system pharmacy*. 1995;52(18):2005-11.
- 32 34. Gaither CA. Career commitment: a mediator of the effects of job stress on pharmacists' work-
- 33 related attitudes. *Journal of the American Pharmaceutical Association* (1996). 1999;39(3):353-61.
- 34 35. Guchelaar HJ, Colen HB, Kalmeijer MD, Hudson PT, Teepe-Twiss IM. Medication errors: hospital
- 35 pharmacist perspective. *Drugs*. 2005;65(13):1735-46.
- 36 36. Benjamin DM. Reducing medication errors and increasing patient safety: case studies in clinical
- 37 pharmacology. *J Clin Pharmacol*. 2003;43(7):768-83.
- 38 37. Teinila T, Gronroos V, Airaksinen M. A system approach to dispensing errors: a national study on
- 39 perceptions of the Finnish community pharmacists. *Pharm World Sci*. 2008;30(6):823-33.
- 40 38. Samsuri SE, Lin LP, Fahrni ML. Safety culture perceptions of pharmacists in Malaysian hospitals
- 41 and health clinics: a multicentre assessment using the Safety Attitudes Questionnaire. *BMJ open*.
- 42 2015;5(11):e008889.
- 43 39. Chui MA, Look KA, Mott DA. The association of subjective workload dimensions on quality of
- 44 care and pharmacist quality of work life. *Research in Social and Administrative Pharmacy*.
- 45 2014;10(2):328-40.
- 46 40. Al Khalidi D, Wazaify M. Assessment of pharmacists' job satisfaction and job related stress in
- 47 Amman. *International journal of clinical pharmacy*. 2013;35(5):821-8.
- 48 41. Al-Worafi YM. Pharmacy practice and its challenges in Yemen. *The Australasian medical journal*.
- 49 2014;7(1):17.
- 50 42. Suleiman AK. Stress and job satisfaction among pharmacists in Riyadh, Saudi Arabia. *Saudi*
- 51 *Journal of Medicine and Medical Sciences*. 2015;3(3):213.
- 52
- 53
- 54
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- 56
- 57
- 58
- 59
- 60

- 1
- 2
- 3
- 4 43. Chua GN, Yee LJ, Sim BA, Tan KH, Sin NK, Hassali MA, et al. Job satisfaction, organisation
- 5 commitment and retention in the public workforce: a survey among pharmacists in Malaysia.
- 6 *International Journal of Pharmacy Practice*. 2014;22(4):265-74.
- 7 44. Salahuddin E, Ronis KA. Assessment of Job Satisfaction among Registered Pharmacists Working
- 8 in Public and Private Hospitals of Multan. *Pakistan Journal of Public Health*. 2016;6(1):5.
- 9 45. Peters DH, Steinhardt L, Mahapatra P, Chakraborty S. Job satisfaction and motivation of health
- 10 workers in public and private sectors: cross-sectional analysis from two Indian states. *Human resources*
- 11 *for health*. 2010;8(1):27.
- 12 46. Yousef DA. Organizational commitment: A mediator of the relationships of leadership behavior
- 13 with job satisfaction and performance in a non-western country. *Journal of Managerial Psychology*.
- 14 2000;15(1):6-24.
- 15 47. Leiter MP, Maslach C. The impact of interpersonal environment on burnout and organizational
- 16 commitment. *Journal of organizational behavior*. 1988;9(4):297-308.
- 17 48. Finegan J, Shamian J, Spence Laschinger HK. The impact of workplace empowerment,
- 18 organizational trust on staff nurses' work satisfaction and organizational commitment. *Advances in*
- 19 *Health Care Management*. p. 59-85.
- 20 49. Camp SD. Assessing the effects of organizational commitment and job satisfaction on turnover:
- 21 An event history approach. *The Prison Journal*. 1994;74(3):279-305.
- 22 50. Hann M, Reeves D, Sibbald B. Relationships between job satisfaction, intentions to leave family
- 23 practice and actually leaving among family physicians in England. *The European Journal of Public Health*.
- 24 2010;21(4):499-503.
- 25 51. Chan MF, Luk AL, Leong SM, Yeung SM, Van IK. Factors influencing Macao nurses' intention to
- 26 leave current employment. *Journal of clinical nursing*. 2009;18(6):893-901.
- 27 52. Zhang Y, Feng X. The relationship between job satisfaction, burnout, and turnover intention
- 28 among physicians from urban state-owned medical institutions in Hubei, China: a cross-sectional study.
- 29 *BMC Health Services Research*. 2011;11(1):235.
- 30 53. Conklin MH, Desselle SP. Job turnover intentions among pharmacy faculty. *American journal of*
- 31 *pharmaceutical education*. 2007;71(4):62.
- 32 54. Chan EY, Morrison P. Factors influencing the retention and turnover intentions of registered
- 33 nurses in a Singapore hospital. *Nursing & Health Sciences*. 2000;2(2):113-21.
- 34 55. O'Neill JL, Gaither CA. Investigating the relationship between the practice of pharmaceutical
- 35 care, construed external image, organizational identification, and job turnover intention of community
- 36 pharmacists. *Research in Social and Administrative Pharmacy*. 2007;3(4):438-63.
- 37 56. Rizwan M, Arshad MQ, Munir HMA, Iqbal F, Hussain A. Determinants of Employees intention to
- 38 leave: A Study from Pakistan. *International Journal of Human Resource Studies*. 2014;4(3):1.
- 39 57. Al-Omar BA. Sources of work-stress among hospital-staff at the Saudi MOH. *Economics and*
- 40 *Administration*. 2003;17(1).
- 41 58. Kalantan KA, Al-Taweel AA, Abdul GH. Factors influencing job satisfaction among primary health
- 42 care (PHC) physicians in Riyadh, Saudi Arabia. *Annals of Saudi medicine*. 1998;19(5):424-6.
- 43 59. Exploring Facets of Job Satisfaction Among U.S. Hospita; Pharmacists. *Am J Health Syst*
- 44 *Pharm*.301-657.
- 45 60. Kahaleh A, Gaither C. The effects of work setting on pharmacists' empowerment and
- 46 organizational behaviors. *Research in Social and Administrative Pharmacy*. 2007;3(2):199-222.
- 47 61. Mahmoud A. A study of nurses' job satisfaction: the relationship to organizational commitment,
- 48 perceived organizational support, transactional leadership, transformational leadership, and level of
- 49 education. *European journal of scientific research*. 2008;22(2):286-95.
- 50
- 51
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## STROBE Statement—checklist of items that should be included in reports of observational studies

	Item No	Recommendation	Page
<b>Title and abstract</b>	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	1
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	2
<b>Introduction</b>			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	4-6
Objectives	3	State specific objectives, including any prespecified hypotheses	6
<b>Methods</b>			
Study design	4	Present key elements of study design early in the paper	
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	6
Participants	6	(a) <i>Cohort study</i> —Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up	6
		<i>Case-control study</i> —Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls	
		<i>Cross-sectional study</i> —Give the eligibility criteria, and the sources and methods of selection of participants	
		(b) <i>Cohort study</i> —For matched studies, give matching criteria and number of exposed and unexposed	
		<i>Case-control study</i> —For matched studies, give matching criteria and the number of controls per case	
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	7
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	7
Bias	9	Describe any efforts to address potential sources of bias	7
Study size	10	Explain how the study size was arrived at	7
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	7
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	7
		(b) Describe any methods used to examine subgroups and interactions	
		(c) Explain how missing data were addressed	
		(d) <i>Cohort study</i> —If applicable, explain how loss to follow-up was addressed	
		<i>Case-control study</i> —If applicable, explain how matching of cases and controls was addressed	
		<i>Cross-sectional study</i> —If applicable, describe analytical methods taking account of sampling strategy	
		(e) Describe any sensitivity analyses	

Continued on next page

**Results**

Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed (b) Give reasons for non-participation at each stage (c) Consider use of a flow diagram	
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders (b) Indicate number of participants with missing data for each variable of interest (c) <i>Cohort study</i> —Summarise follow-up time (eg, average and total amount)	
Outcome data	15*	<i>Cohort study</i> —Report numbers of outcome events or summary measures over time <i>Case-control study</i> —Report numbers in each exposure category, or summary measures of exposure <i>Cross-sectional study</i> —Report numbers of outcome events or summary measures	
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included (b) Report category boundaries when continuous variables were categorized (c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	<b>8-18</b>
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	

**Discussion**

Key results	18	Summarise key results with reference to study objectives	<b>19-22</b>
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	<b>23</b>
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	<b>19-22</b>
Generalisability	21	Discuss the generalisability (external validity) of the study results	<b>23</b>

**Other information**

Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	<b>NA</b>
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\*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

**Note:** An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at [www.strobe-statement.org](http://www.strobe-statement.org).