

Original Research

# What drives pharmacists' turnover intention: A systematic review

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## Abstract

**Background:** Pharmacist turnover can negatively impact not only on work efficiency, organizational performance, work productivity and customer satisfaction, but also on the quality of pharmaceutical services and patient safety. Turnover intention is a core antecedent of turnover. Turnover intention of the pharmacists is affected by many factors related to their organization or job.

**Objective:** To elaborate the factors affecting the pharmacists' turnover intention and their associations. Studies related to any factors affecting pharmacists' turnover intention in all pharmacy settings were included. The QualSyst assessment tool was used for assessing the quality of the included studies.

**Result:** For this systematic review, 3,822 studies were identified. Of these studies, 20 studies were included. Thirty factors were explored and a model for pharmacists' turnover intention was produced. Organizational commitment, job satisfaction, career commitment, job stress, perceived organizational support, and work climate were frequently found as drivers to pharmacist turnover intention. Some of 24 other factors had both direct and indirect effects on pharmacist turnover intention via organizational commitment, job satisfaction, career commitment, job stress, and perceived organizational support. Many studies have reported that organizational commitment and job satisfaction had significant influence on pharmacist turnover intention in all settings. Job stress and work climate had direct and indirect effects on turnover intention of hospital pharmacists. Career commitment and perceived organizational support had direct and indirect effects on community pharmacist turnover intention.

**Conclusion:** The factors driving the turnover intention of the pharmacists in different pharmacy practices were different. It indicated that the further interventions should be different to improve the pharmacists' retention in each pharmacy practice setting. Our systematic review is beneficial to guide human resource management in pharmacy and useful for guiding the conceptual framework of future research studies.

## Keywords

Pharmacist; Employee turnover; Intention; Pharmacy

## INTRODUCTION

Employee turnover is a challenging issue for many organizations. It caused the organizations to lose not only the efficiency of the talented employees, but also the cost related to employee turnover and recruiting new employees.<sup>1</sup> In 2004, a study in New Mexico found that the annual turnover cost of healthcare providers was 17 to 29 million dollars which was 3.4% to 5.8% of the one-year operating budget (500 million dollars) for the whole medical center.<sup>1</sup> Increasing employee turnover in an

organization could also negatively impact on organization performance, work productivity, and ultimately customer satisfaction.<sup>2-4</sup> Turnover intention expressed by employees was the strongest predictor found in many studies for employees' actual turnover.<sup>5,6</sup> Employees' turnover intention or intention to leave a job was defined as the deliberate consideration of employees to leave their working organization or an employer.<sup>6</sup> It was positively related to actual turnover.

In healthcare settings, employees' turnover problem affects patient care and ultimately affects public health services.<sup>2,7-9</sup> Pharmacists are considered as crucial and accessible medical professionals in providing pharmaceutical care services and their broadening roles and responsibilities from pharmaceutical products to patients.<sup>10,11</sup> Pharmacist workforce was in the healthcare professions incurring the high turnover and low retention issues even in developed countries.<sup>12-14</sup> According to the FIP (International Pharmaceutical Federation) Global Pharmacy Workforce Report 2012, reduction of delayed recruitment and turnover of skillful pharmacists were one of the most important concerns in the pharmacy workforce.<sup>15</sup> High turnover of pharmacists could adversely impact on the quality of pharmaceutical care services and patient safety.<sup>2,3</sup> Increasing pharmacist turnover has become an important crisis for pharmacy professions and healthcare system.<sup>15,2,14</sup> It could lead to high workload and job stress which definitely increase job errors and

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decrease job efficiency and performance in pharmacy practices.<sup>7,8,16</sup> Moreover, it could become a barrier for providing the pharmaceutical care service.<sup>3</sup>

In pharmacy profession, there are many practice settings such as hospital, community, industrial, and academic settings. Depending on the practice settings, job characteristics, motivating factors to stay or leave a job, and decision to leave a job were variously different.<sup>17,18</sup> Theoretically, intention can lead to behavior.<sup>19,20</sup> In order to reduce actual turnover in pharmacists, turnover intention is the key factor. Therefore, factors that were driving the turnover intention must be known to control the pharmacist turnover situation. Some driving factors like job satisfaction and organizational commitment were commonly found in many organizations or professions.<sup>20-22</sup> However, some factors were different in various workplaces or professions.<sup>23,22</sup> The objective of this systematic review was to evaluate the factors driving the turnover intention of the pharmacists and the association among these drivers in different pharmacy practice settings. This review also aimed to develop a conceptual model for turnover intention of pharmacists, which would be useful for guiding future studies and interventions to reduce the turnover intention of pharmacists in their working practices.

## METHODOLOGY

### Data sources and searches

According to PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analysis) statements, the

systematic review was conducted through searching six databases which were PubMed, ScienceDirect, Scopus, ProQuest, ERIC-EBSCO and ERIC.<sup>24</sup> There was no starting-time limitation for searching the included articles and the last date to search the articles was December 2020. The bibliographies of retrieved articles were also investigated to find relevant studies that were not indexed in the former six databases. The search string used to search in each database was (turnover intention) OR (intention to leave) OR (intention to quit) OR (intention to turnover) OR (intention to stay) OR (retention) AND (pharmacist).

### Study selection

The titles and abstracts of the articles found were screened for potential studies meeting the inclusion criteria which were 1) written in the English language, 2) able to retrieve full text, 3) studying with quantitative method, 4) included specific results for the pharmacist population, and 5) conducted to evaluate the factors associating with the pharmacist turnover intention. The duplicate studies were deleted. According to the inclusion criteria, screening the title and abstract of the articles was manually performed by one researcher (S.M.T.) and checked by another researcher (T.K.\*).

### Quality assessment of articles

All included studies were entirely read and assessed for methodology quality using the QualSyst tool by Kmet, Lee, and Cook.<sup>25</sup> This tool has 14 criteria to assess all characteristics of study design. The total average score was calculated, resulting in a score between 0 and 1. The quality assessment was independently carried out

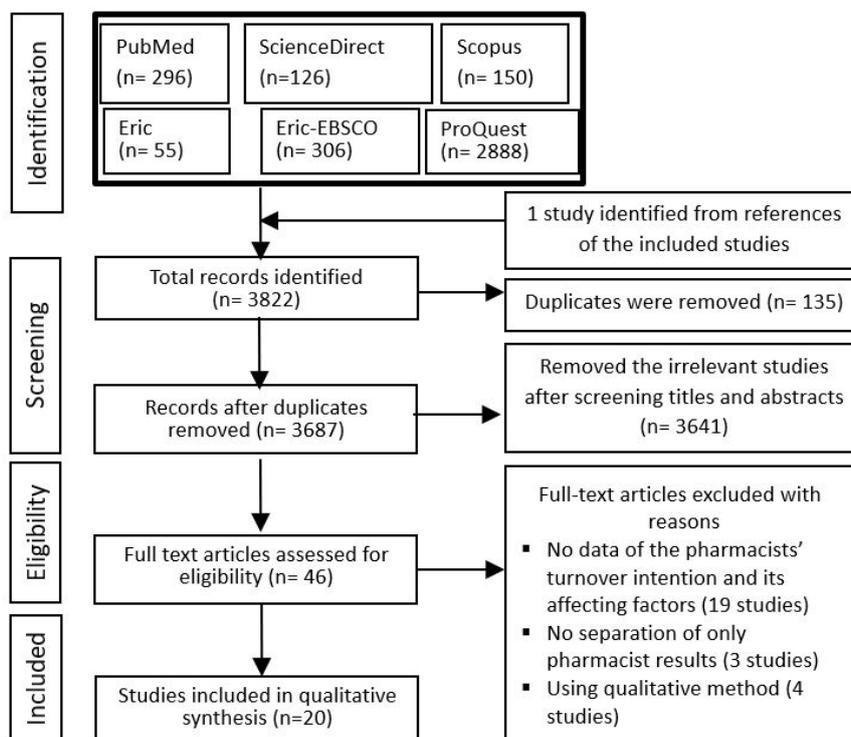


Figure 1. PRISMA Flow Chart of included studies in the review



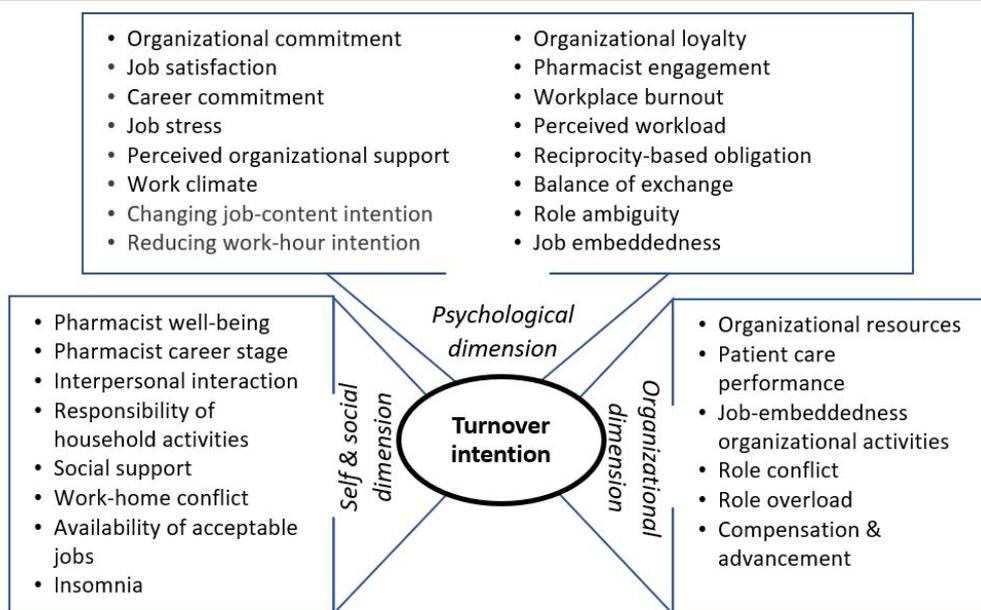


Figure 2. Drivers affecting the pharmacists' turnover intention

by three researchers (S.M.T., S.N., T.N.) to reduce the risk of bias. Later, the average score of each criterion from all reviewers was calculated. A score equal to and above 0.75 indicated the appropriate quality of studies.<sup>26</sup>

### Data extraction and synthesis

Initially, the data about the factors affecting the pharmacist turnover intention, and associations among those factors and the turnover intention were extracted. Other study characteristics like authors names, published year, sample population, sample size, response rate of the study and age of the participants were also extracted. Secondly, similarities of the definitions of factors affecting turnover intention in the results were identified. Content analysis suggested us to come up with three dimensions and face validity guided us to group them into the same dimension. Finally, a model for the pharmacist turnover intention was synthesized. Two researchers performed data extraction with extraction of the results and synthesized the model.

All extracted data showing the relationship with turnover intention (correlation coefficient, beta coefficient or odds ratio) were descriptively summarized. To make the data comparable among included studies, the results showed with odds ratio were recalculated into beta coefficient and the outcomes of intention to stay were changed into that of intention to leave or turnover intention (Table 3, 4 & 5). The data were reported with beta coefficient or correlation coefficient. The data were analyzed by two researchers (S.M.T and T.K.\*) and reviewed by another two researchers (S.N. and T.N.). All the analyses were performed using Microsoft Excel (MS office 365).

### RESULTS

For this systematic review 3,822 studies were identified

(in Figure 1). The duplicated articles were discarded (n= 135). After screening the titles and abstracts of the 3,687 articles, 3,641 were discarded because they were not related to the pharmacy workforce (n= 3,610) or related to job issues in pharmacy but did not mention turnover or turnover intention (n=31). The full texts of the remaining 46 articles were retrieved and assessed for their inclusion criteria and then 26 articles were discarded because those studies had no data of the pharmacists' turnover intention and its affecting factors (n= 19), no separation of pharmacist data from all healthcare professionals (n = 3) or used qualitative method (n= 4). For methodology quality of the remaining 20 articles, quality assessment scoring was assessed. All of the assessments got the quality scores higher than 0.75 in total and they remained for the review.

### Study characteristics

A total of 44,786 participants were found in the 20 reviewed studies. Also, over 70% of those participants came from one study. The range of study participant sizes was from 101 to 32,181 and the range of response rates was from 6.37% to 91.8%. Twelve studies (60%) were conducted in the US, three studies (15%) in Taiwan, and other individual studies in UK, Saudi Arabia, Thailand, Malaysia, and Lithuania. Concerning the pharmacy practice settings, five studies (25%) focused only on hospital setting including the pharmacists in military and teaching hospitals, four studies (20%) focused only on community setting, and eleven studies (55%) focused on all pharmacy settings. Among those 20 articles, one article was conducted only for the pharmacist turnover intention from pharmacy profession.<sup>27</sup> Two articles were conducted for the turnover intention both from jobs and from pharmacy profession.<sup>28,29</sup> The study characteristics were shown in Table 1.

Table 1. Summary of study characteristics							
Author, Year	Study Place	Population	Number of participants	Participant characteristics		Response rate	Variables significantly related to turnover intention
				Age (years) Mean± SD	% Male		
1. Skrupky et al, 2020	US	Registered pharmacists	2231	50% had age between 35-64 years	28.7%	69.30%	•Pharmacist wellbeing
2. Leupold et al, 2013	US	Retail pharmacists	143	50.6± 11.5	59.9%	6.37%	•Job satisfaction •Job embeddedness •Perceived organizational support •Job-embeddedness organizational activities
3. Hardigan et al, 2010	US	Registered pharmacists	533	45	45%	23%	•Job satisfaction
4. Gaither et al, 2008	US	Registered pharmacists	2250	46± 13	57%	46%	•Job satisfaction •Organizational commitment •Career commitment •Job stress •Work-home conflict •Role overload •Role conflict •Role ambiguity •Availability of acceptable job •Compensation & advancement •Environmental aspect •Interpersonal interactions
5. O'Neill et al, 2007	US	Community Pharmacists	252	-	60%	33%	•Organizational identification
6. Gaither et al, 2007	US	Registered pharmacists	1542	49.3± 13.4	52.6%	30%	•Rate workload •Effect of workload
7. Arndt et al, 2006	US	Registered pharmacists	313	Average age was between 40-55 years	52.7%	31.30%	•Job satisfaction •Distributive fairness •Career stage
8. Garber et al, 2005	US	Military Pharmacists	469	37.6± 8.0	63.2%	83%	•Organizational commitment •Reciprocity-based obligation with organization •Patient care performance •Balance of exchange with organization •Responsibility of household activities
9. Kahaleh et al, 2003	US	Registered pharmacists	421	47± 12	56%	40%	•Organizational commitment •Organizational loyalty
10. Gaither, 1999	US	Registered pharmacists	653	-	70.4%	71%	•Job satisfaction •Organizational commitment
11. Gaither, 1998	US	Community pharmacists	653	-	70%	70.90%	•Organizational commitment •Career commitment
12. James, 1990	US	primary practice pharmacists	1510	43.2± 11.8	70.8%	66%	•Organizational commitment •Career commitment
13. Seston et al, 2009	UK	Registered pharmacists	32181	40± 10.75 Range: 21-64	40.3%	76.60%	•Job satisfaction
14. Urbonas et al, 2015	Lithuania	Community pharmacists	324	-	-	77.10%	•Organizational commitment •Perceived organizational support
15. Lan et al, 2020	Taiwan	Teaching hospital pharmacists	101	32.2± 9.8 Range: 21-70	24.8%	91.82%	•Workplace burnout •Organizational climate •Job stress



Table 1. Summary of study characteristics							
Author, Year	Study Place	Population	Number of participants	Participant characteristics		Response rate	Variables significantly related to turnover intention
				Age (years) Mean± SD	% Male		
16. Yeh et al, 2010	Taiwan	Hospital pharmacists	247	37	36%	22.30%	<ul style="list-style-type: none"> <li>• Job satisfaction</li> <li>• Insomnia</li> <li>• Reducing work hours</li> <li>• Changing job-content intention</li> <li>• Stress of dispensing</li> <li>• Stress of work climates</li> <li>• Stress of consultation</li> <li>• Stress of pharmacy management</li> <li>• Stress of hospital rules</li> <li>• Stress of healthcare industry environment</li> </ul>
17. Lin et al, 2008	Taiwan	Hospital pharmacists	182	83.6% had age between 20-49 years	33%	16.40%	<ul style="list-style-type: none"> <li>• Job satisfaction</li> <li>• Job stress</li> <li>• Reducing work-hour intention</li> <li>• Physical environment</li> </ul>
18. Chua et al, 2014	Malaysia	Registered pharmacists (public sector)	247	27 (median)	16.2%	52.9%	<ul style="list-style-type: none"> <li>• Job satisfaction</li> <li>• Organizational commitment</li> </ul>
19. Al-Muallem et al, 2019	Saudi Arabia	Registered pharmacists	325	79.1% had age between 25 – 40 years	42.2%	63.10%	<ul style="list-style-type: none"> <li>• Job satisfaction</li> <li>• Organizational commitment</li> </ul>
20. Nakpun et al, 2020	Thailand	Community pharmacists	209	32.3	25.84%	14.52%	<ul style="list-style-type: none"> <li>• Pharmacist engagement</li> <li>• Organizational resources (Training &amp; development, payment &amp; recognition, and physical working condition)</li> <li>• Job characteristics (Autonomy, job skill variety, task significance, and task identity)</li> <li>• Social support (from supervisor or peer)</li> </ul>

**Factors contributing turnover intention of pharmacists:**

There were 30 factors which have been studied as drivers of turnover intention. In order to make more sense of the drivers, they were sorted into three dimensions such as psychological dimension, self & social dimension, and organizational dimension (figure 2).

**Psychological Dimension:** Psychological dimension included any factors related to pharmacist' perception, feeling, and thoughts. The factors extracted into this dimension were organizational commitment, job satisfaction, job stress, career commitment, perceived organizational support, work climate, perceived workload, organizational loyalty, reciprocity-based obligation, balance of exchange, pharmacist engagement, workplace burnout, changing job-content intention, reducing work-hour intention, role ambiguity, and job embeddedness.

From the finding, 10 studies (50%) had evaluated the relationship between organizational commitment and pharmacists' turnover intention from their jobs.<sup>17,19,28-31,33-35</sup> Among these ten studies, two studies reported about the relationship between organizational commitment and pharmacist turnover intention from the pharmacy profession.<sup>28,29</sup> Organizational commitment was a commitment or loyalty of a person to the working or employing organization or job.<sup>31,29</sup> It was defined as a

person's perception in which he or she perceived him or herself as a symbol of that working organization and felt that the successes and failures of that organization as his or her own.<sup>34,19</sup> The specific definitions from included studies were showed in Table 6. Nine from ten studies presented that organizational commitment had a significantly negative association with turnover intention of the pharmacists from jobs.<sup>19,28-31,33-35</sup> Only one study in Saudi Arabia reported a significantly positive association.<sup>17</sup> In two studies of the 10, organizational commitment also had a negative association with pharmacist intention to leave the pharmacy profession, but its magnitude associated with professional turnover intention ( $\beta = -0.08$ ,  $r = -0.34$  to  $-0.41$ ) was less than that associated with pharmacists' job turnover intention ( $\beta = -0.61$  to  $-0.70$ ,  $r = -0.63$  to  $-0.70$ ).<sup>28, 29</sup>

There were 10 articles (50%) which studied about the relationship between job satisfaction and pharmacists' turnover intention.<sup>17,27,30-32,36-40</sup> Among them, 9 articles reported about the relationship between job satisfaction and pharmacist turnover intention from their jobs.<sup>17,30-32,36-40</sup> One reported about job satisfaction related with pharmacist turnover intention from pharmacy profession.<sup>27</sup> Job satisfaction was the extent of a person's liking or disliking of their jobs.<sup>17</sup> the degree to which a person had a positive attitude or emotional state in



Table 2. Antecedents affecting the five drivers of pharmacist turnover intention

Career commitment	Job stress	Organizational commitment	Job satisfaction	Perceived organizational support
<ul style="list-style-type: none"> <li>Professional involvement</li> <li>Consultation time</li> </ul>	<ul style="list-style-type: none"> <li><b>Workplace burnout</b></li> </ul>	<ul style="list-style-type: none"> <li><b>Job satisfaction</b></li> <li><b>Responsibility of household activities</b></li> <li><b>Reciprocity-based obligation</b></li> <li><b>Balance of exchange</b></li> <li>Pharmaceutical care practice</li> <li>Structural empowerment</li> <li>Out-service training</li> <li>Family support</li> <li>Tenure</li> <li>Lack of skill transferability</li> <li>Construed external image</li> <li>Career prospects</li> </ul>	<ul style="list-style-type: none"> <li><b>Insomnia</b></li> <li>Career goals</li> <li>Desire to practice pharmacy</li> </ul>	
<ul style="list-style-type: none"> <li><b>Job stress</b></li> </ul>		<ul style="list-style-type: none"> <li><b>Job stress</b></li> <li><b>Career commitment</b></li> </ul>	<ul style="list-style-type: none"> <li><b>Perceived organizational support</b></li> <li>Met expectations</li> </ul>	
	<ul style="list-style-type: none"> <li><b>Compensation &amp; advancement</b></li> <li><b>Availability of acceptable jobs</b></li> </ul>			
<ul style="list-style-type: none"> <li><b>Work climate</b></li> <li><b>Role ambiguity</b></li> </ul>		<ul style="list-style-type: none"> <li><b>Interpersonal interactions</b></li> <li><b>Work-home conflict</b></li> </ul>	<ul style="list-style-type: none"> <li><b>Role conflict</b></li> <li><b>Role overload</b></li> </ul>	

Note: bold letters represent the antecedents that had direct effects on turnover intention.

regard to the appraisal of the situation of the current job.<sup>38</sup> It was also defined as the match between a person's expectations and the perceived reality of his or her job as a whole.<sup>31</sup> Job satisfaction was negatively associated with pharmacist turnover intention from both their jobs ( $\beta = -0.04$  to  $-3.23$ ) and the pharmacy profession ( $\beta = -0.53$ ).<sup>17,27,31,32,36-40</sup> Pharmacists in chain community pharmacies were less satisfied with their jobs and had more intention to leave their jobs than in hospital and independent community pharmacy settings.<sup>37</sup>

Career commitment was also mentioned in association with the connection with pharmacist turnover intention. Four articles (20%) studied the relationship between career commitment and pharmacists' turnover intention from their jobs.<sup>28,31,32,29</sup> Among them, two articles also reported the pharmacists' career commitment related to their turnover intention from the pharmacy profession.<sup>28,29</sup> Career commitment was the attitude towards his or her profession or vocation and as the strength of a person's motivation to work in a selected career role.<sup>28,31,29</sup> Three out of four studies found that career commitment was significantly negatively associated with pharmacist turnover intention from their jobs and was also significantly negatively associated with turnover intention from the pharmacy profession.<sup>28,32,29</sup> The effect of career commitment on turnover intention from pharmacy profession ( $\beta = -0.65$  to  $-0.81$ ,  $r = -0.71$  to  $-0.75$ ) was higher than the effect on turnover intention from a job ( $\beta = -0.06$ ,  $r = -0.26$  to  $-0.32$ ).<sup>28,29</sup>

Job stress was found in correlation with pharmacist turnover intention. There were 4 studies (20%) which evaluated this relationship. Job stress was a psychological stress response of a person in his or her job.<sup>41</sup> Job stress

of pharmacists was significantly positively correlated to pharmacists' turnover intention from their jobs in all practice settings. In some studies, the effect of job stress on pharmacists' turnover intention was not significant.<sup>32,41</sup>

Perceived organizational support was also observed in playing an important role for pharmacists' turnover intention. Three studies (15%) evaluated the relationship between perceived organizational support and turnover intention of the pharmacists.<sup>36,38,35</sup> Perceived organizational support was the extent to which a person believed that his or her working organization valued his or her contributions, and cared about that person's well-being, or as the extent of assessment of an employee to which an employer links his or her contribution to important rewards in a fair manner, relating to the benefits obtained by the organization, because of the employee's role.<sup>36,38</sup> It was also a perception of a person how an organization cared about his or her needs or expectations.<sup>35</sup> Perceived organizational support was significantly negatively correlated to turnover intention.<sup>36,38,35</sup> In one study, perceived organizational support had a significantly negative relationship.<sup>36</sup> However, two other studies showed it had no significant relationships with pharmacist turnover intention if there were other factors in the model.<sup>38,35</sup>

Work climate was included in various literature for pharmacists' turnover intention. The relationship between work climate and pharmacists' turnover intention were observed in 3 studies (15%).<sup>32,41,39</sup> Work climate reflected the employee's perceptions of working environment, which could aid an organization in identifying and improving the workplace deficiencies, thus enhancing the employee's intention to stay in the organization.<sup>41</sup> It was



Study in non-specific pharmacy setting

Driving factors of pharmacists' turnover intention	Study in non-specific pharmacy setting												
	1. Skrupky et al, 2020	3. Hardigan et al, 2010	4. Gaither et al, 2008	6. Gaither et al, 2007	7. Arndt et al, 2006	9. Kahaleh et al, 2003	10. Gaither, 1999	12. James, 1990		13. Seston et al, 2009 (Turnover intention from profession)	18. Chua et al, 2014	19. Al-Mulleh et al, 2019	
Organizational commitment			$r = -0.54^*$ $\beta = -0.20^*$			$\beta = -0.74^*$	$\beta = -0.64^*$	$r = -0.63^*$ $\beta = -0.61^*$	Turnover intention from profession $r = -0.34^*$ $\beta = -0.08^*$		$\beta = 0.043^*$	$\beta = -0.083^*$	
Job satisfaction		$\beta = -3.26^*$	$r = -0.60^*$ $\beta = -0.38$		$r = -0.28^*$ $\beta = -0.27^*$		$\beta = -0.39^*$			$\beta = -0.53^*$	$\beta = -0.043^*$	$\beta = -0.08^*$	
Career commitment			$r = -0.26^*$ $\beta = 0.03$				$\beta = -0.02$	$r = -0.28^*$ $\beta = -0.06^*$	$r = -0.67^*$ $\beta = -0.65^*$				
Job Stress			$r = 0.41^*$ $\beta = -0.01$										
Perceived organizational support					$r = -0.23^*$ $\beta = -0.21^*$								
Work climate			$r = -0.21^*$ $\beta = 0.00$										
Role ambiguity			$r = 0.28^*$ $\beta = -0.09^*$										
Organizational Loyalty						$\beta = -0.24^*$							
Perceived workload				<b>Rate workload:</b> $\beta = -0.286$ Mean $\pm$ SD 3.49 $\pm$ 0.75* (stayers) 3.71 $\pm$ 0.87* (leavers) <b>Effect of workload:</b> $\beta = -1.017^*$ Mean $\pm$ SD 3.24 $\pm$ 0.80* (stayers) 2.67 $\pm$ 0.83* (leavers)									
Career stage					$r = -0.11^*$								



Study in non-specific pharmacy setting

Table 3. The extents of relationship among driving factors and turnover intention in non-specified pharmacy practice settings	
Driving factors of pharmacists' turnover intention	1.Skrupky et al, 2020 3. Hardigan et al, 2010 4. Gaither et al, 2008 6. Gaither et al, 2007 7. Arndt et al, 2006 9. Kahaleh et al, 2003 10. Gaither, 1999 12. James, 1990 Turnover intention from job Turnover intention from profession 13. Seston et al, 2009 (Turnover intention from profession) 18. Chua et al, 2014 19. Al-Muallem et al, 2019
Availability of acceptable jobs	r =0.14* β =0.05
Work-Home conflict	r =0.33* β =0.11*
Interpersonal interactions	r =0.50* β =0.13
Pharmacist's well-being	- Likelihood ratio 0.21 - 10.23 (lowest to highest) -Posttest probability% 16% to 90.5% (lowest to highest)
Compensation & advancement	r =0.25* β =0.03
Role overload	r =0.33* β =0.05
Role conflict	r =0.44* β =0.10 *



Table 4. The extents of relationship among driving factors and turnover intention in hospital pharmacy practice settings					
Study in-hospital pharmacy setting					
Driving factors	8. Garber et al, 2005	9. Kahaleh et al, 2003	15. Lan et al, 2020	17. Lin et al, 2008	16. Yeh et al, 2010
Organizational commitment	Affective commitment: $r = -0.504^*$ , $\beta = -0.205^*$ Normative commitment $r = -0.595^*$ , $\beta = -0.446^*$ Continuance commitment $r = -0.205^*$ , $\beta = -0.062$	$\beta = -0.44^*$			
Job satisfaction				$r = -0.41^*$	$r = -0.35^*$
Job Stress			$r = 0.47^*$ , $\beta = 0.190$	$r = 0.36^*$	$r = 0.24^*$ (Stress in dispensing) $r = 0.30^*$ (Stress in work climate) $r = 0.13^*$ (Stress in consultation) $r = 0.30^*$ (Stress in Pharmacy management) $r = 0.22^*$ (Stress in hospital rule) $r = 0.12$ (Stress in healthcare industry environment) $\beta = 0.22^*$ (Overall job stress)
Work climate			$r = -0.62^*$ , $\beta = 0.012$	$\beta = -0.29^*$	
Balance of exchange	Owing organization $\beta = -0.250^*$ Owed by organization $\beta = 0.313^*$				
Reciprocity-based obligation	$r = -0.261^*$				
Organizational Loyalty		$\beta = -0.19$			
Reducing work-hour intention				$r = 0.62^*$	$r = 0.43^*$
Changing job-content intention					$r = 0.59^*$
Workplace burnout			$r = 0.31^*$ , $\beta = -0.401^*$		
Responsibility of household activities	$\beta = 0.136^*$				
Insomnia					$r = 0.15^*$
Social support					$\beta = -0.27^*$ (overall) $r = -0.18^*$ (high-level) $r = -0.29^*$ (leader) $r = -0.24^*$ (peer) $r = -0.09$ (subordinate) $r = -0.09$ (patient) $r = -0.17^*$ (family support)
Patient care performance	$r = -0.22^*$				

Note: \* = significant, r = correlation,  $\beta$  = beta coefficient, SD = standard deviation, Odds ratio reported in some studies were recalculated to beta coefficient.

also a characteristic of the organizational environment representing less workload, better work schedule and less stress.<sup>32,39</sup> The more beneficial feelings about work climate, the less was pharmacists' intention to leave their jobs. Interestingly, work climate was not significantly related to pharmacists' turnover intention when other factors were included in the model.<sup>32,41</sup>

The psychological feeling factors have been considered from the search. Ten other factors related to pharmacist's feeling; role ambiguity, balance of exchange with the organization, reciprocity-based obligation with the organization, workplace burnout, reducing work-hour intention, changing job-content intention, perceived workload, pharmacist engagement, job embeddedness,

and organizational loyalty were also studied in each (5%) of 9 studies.<sup>32-34,38-43</sup> Their definitions in the included studies were shown in Table 6.

Role ambiguity and work place burnout were moderately and positively correlated with the pharmacists' turnover intention but reciprocity-based obligation with the organization was negatively correlated with their turnover intention.<sup>33,32,41</sup> Reducing work-hour intention had a positively moderate to strong correlation with the turnover intention of the pharmacists.<sup>39,40</sup> Changing job-content intention had a strong positive correlation with pharmacists' turnover intention.<sup>40</sup> Job embeddedness comprises perceived link, fit, and sacrifice to organization and community. It had a strong negative correlation



Table 5. The extents of relationship among driving factors and turnover intention in community pharmacy practice settings

Study in community pharmacy setting							
Driving factors	2. Leupold et al, 2013	5. O'Neill et al, 2007	9. Kahaleh et al, 2003	11. Gaither, 1998		14. Urbonas et al, 2015	20. Nakpun et al, 2020
				From Job	From Profession		
Organizational commitment		$r = -0.35^*$ , $\beta = -0.24^*$	$\beta = -0.34^*$ (for chain) $\beta = -0.35^*$ (for independent)	<u>In 1 year</u> $r = -0.70^*$ , $\beta = -0.70^*$ <u>In 3 years</u> $r = -0.55^*$ , $\beta = -0.65^*$	<u>In 1 year</u> $r = -0.41^*$ <u>In 3 years</u> $r = -0.35^*$	$r = -0.66^*$	
Job satisfaction	<u>In 1 year</u> $r = -0.59^*$ , $\beta = -0.54^*$ <u>In 3 years</u> $r = -0.41^*$ , $\beta = -0.34^*$						
Career commitment				<u>In 1 year</u> $r = -0.32^*$ <u>In 3 years</u> $r = -0.26^*$	<u>In 1 year</u> $r = -0.75^*$ , $\beta = -0.75^*$ <u>In 3 years</u> $r = -0.71^*$ , $\beta = -0.81^*$		
Perceived organizational support	<u>In 1 year</u> $r = -0.43^*$ , $\beta = 0.15$ <u>In 3 years</u> $r = -0.41^*$ , $\beta = 0.08$					$r = -0.54^*$	
Organizational Loyalty			$\beta = -0.46^*$ (for independent) $\beta = -0.17$ (for chain)				
Pharmacist engagement							$\beta = -0.24^*$
Job Embeddedness	$r = -0.52^*$ , $\beta = -0.48^*$						
Job-embeddedness organizational activities	$r = -0.36^*$						
Organizational resources							$\beta = -0.45^*$

Note: \* = significant, r= correlation,  $\beta$  = beta coefficient, SD = standard deviation, Odds ratio reported in some studies were recalculated to beta coefficient.

with pharmacists' turnover intention.<sup>38</sup> Balance of exchange which was a feeling of owing an organization by a pharmacist explained 18.4% of the variation in the turnover intention of pharmacists and that factor significantly and negatively affected the pharmacist's turnover intention.<sup>33</sup> The balance of exchange with the feeling of pharmacists being owed by the organization had a significant positive relationship with turnover intention ( $\beta = 0.313$ ). Conversely, the feeling of the pharmacists owed the organization had a significant negative relationship with turnover intention ( $\beta = -0.250$ ).<sup>33</sup> Pharmacists who intended to stay perceived a lower level of workload but higher effects of workload than those who intended to leave. Perception of workload effect only had a significant relationship with turnover intention. The more pharmacists had the positive perceived effect, the lower likelihood of leaving the jobs ( $\beta = -1.0$ ). There was no relationship between perceived level of workload and pharmacist turnover intention.<sup>42</sup> Pharmacist loyalty to organization had negative relationships with turnover

intention in overall pharmacy ( $\beta = -0.24$ ) and independent community setting ( $\beta = -0.46$ ), but it was not significant in the hospital and chain community pharmacy settings.<sup>34</sup> Pharmacist engagement which was a continuous state of overall positive mental satisfaction with the pharmacists' job also had a negative relationship with the pharmacist turnover intention in community pharmacy setting ( $\beta = -0.24$ ).<sup>43</sup>

**Self & social dimension:** Eight factors related to pharmacists themselves and their significant persons in 5 included studies were grouped into self & social dimension.<sup>36,32,33,44,40</sup> They were pharmacist well-being, insomnia, pharmacist career stage, responsibility of household activities, work-home conflict, interpersonal interactions, social support, and availability of acceptable jobs. The definitions of these factors were described in Table 6. The greater extent of distress or lower well-being, the more the pharmacists were likely to leave their jobs. Pharmacists who had the highest level of distress were 10 times more likely to leave their current



Table 6. Definitions of constructs in the included studies	
Construct	Definition
Organizational commitment	<ul style="list-style-type: none"> <li>• "An employer's emotional attachment to, identification with and involvement in the organization".<sup>32</sup></li> <li>• The construct consisted of 3 aspects. 1) "Affective commitment was psychological or emotional attachment to organizations." 2) "Normative commitment was feeling obliged to remain with the organizations." 3) "Continuance commitment was compliances or conformity as a result of rewards and punishments."<sup>33</sup></li> <li>• "Devotion and loyalty to one's employing firm."<sup>29</sup></li> <li>• "Accepting the organization's goals and values, putting forth effort and wanting to remain a member."<sup>34</sup></li> <li>• "Perception of oneness with or belongingness to a group/organization in which the individual perceives him or herself as a symbol of the organization and feels that the organization's successes and failures are his/her own."<sup>19</sup></li> <li>• "Emotional involvement and congruence with his/her organization."<sup>28, 35</sup></li> <li>• "One's loyalty to the employing organization."<sup>31</sup></li> <li>• "The degree to which an individual is psychologically attached to an employing organization through feelings such as loyalty, affection, belongingness, etc."<sup>30</sup></li> </ul>
Job satisfaction	<ul style="list-style-type: none"> <li>• "The extent to which people like (satisfaction) or dislike (dissatisfaction) their jobs."<sup>17</sup></li> <li>• "The overall sense of affection an employee has for the job situation."<sup>36</sup></li> <li>• "The match between an individual's expectations and the perceived reality of the job as a whole."<sup>31, 32</sup></li> <li>• "A positive attitude and emotional state regarding the appraisal of the current job situation."<sup>38</sup></li> <li>• "The feelings that an individual has about his/her job and the extent to which these feelings are satisfied in the workplace."<sup>30</sup></li> </ul>
Career commitment	<ul style="list-style-type: none"> <li>• "One's attitude towards one's profession or vocation and as the strength of one's motivation to work in a chosen career role."<sup>28, 31, 32, 29</sup></li> </ul>
Job stress	<ul style="list-style-type: none"> <li>• "The nonspecific negative response of the body to demands in the workplace."<sup>32</sup></li> <li>• "Any characteristics of the job environment which pose a threat to the individual."<sup>41</sup></li> </ul>
Perceived organizational support	<ul style="list-style-type: none"> <li>• "The extent to which pharmacists perceived that the organization values their contributions and cares about their well-being."<sup>38</sup></li> <li>• "A perception of how the organization cares about employees' needs and expectations."<sup>35</sup></li> <li>• "An employee's assessment of the extent to which his/her employer links contribution to important rewards in a fair manner, all relative to the benefits received by the organization as a consequence of an employee's role."<sup>36</sup></li> </ul>
Work climate	<ul style="list-style-type: none"> <li>• "A characteristic of the organizational environment which is represented by a better work schedule, less workload and less stress."<sup>32</sup></li> <li>• "The perceptions of the work environment which are valuable information to an organization and aiding it in identifying and improving workplace deficiencies."<sup>41</sup></li> <li>• Working environment in the workplace.<sup>39</sup></li> </ul>
Role ambiguity <sup>32</sup>	<ul style="list-style-type: none"> <li>• "The extent to which an individual is unclear about the expectations of others as well as the degree of uncertainty associated with one's performance."</li> </ul>
Balance of exchange <sup>33</sup>	<ul style="list-style-type: none"> <li>• "The weighing of the benefits received by (organization owes), and the benefits given by the individual (I owe)."</li> </ul>
Reciprocity-based obligation <sup>33</sup>	<ul style="list-style-type: none"> <li>• "The feeling that the individual owes the organization and the respondent's feeling of obligation to the organization due to the exchange of benefits assessed this."</li> </ul>
Workplace burnout <sup>41</sup>	<ul style="list-style-type: none"> <li>• "Feeling of emotional exhaustion, depersonalization, and a reduced sense of personal accomplishment."</li> </ul>
Reducing work-hour intention <sup>39, 40</sup>	<ul style="list-style-type: none"> <li>• Pharmacists' intention to reduce the working hours.</li> </ul>
Changing job-content intention <sup>40</sup>	<ul style="list-style-type: none"> <li>• Pharmacists' intention to change the job content.</li> </ul>
Perceived workload <sup>42</sup>	<ul style="list-style-type: none"> <li>• There were 2 dimensions of perceived workload which were 1) rate workload means "perceived workload level" and 2) effect of workload means "perception of effect of workload".</li> </ul>
Organizational loyalty <sup>34</sup>	<ul style="list-style-type: none"> <li>• "The state or quality of being faithful to the working organization."</li> </ul>
Pharmacist engagement <sup>43</sup>	<ul style="list-style-type: none"> <li>• Continuous state of overall positive mental satisfaction with the job.</li> </ul>
Job embeddedness <sup>38</sup>	<ul style="list-style-type: none"> <li>• "The combined forces that keep a person from leaving his or her job."</li> </ul>
Construed external image <sup>19</sup>	<ul style="list-style-type: none"> <li>○ "The evaluation from those inside the organization (i.e., employees) based on their assessment of the reputation of the organization plus the additional information about the organization that insiders have."</li> </ul>
Met expectation <sup>31</sup>	<ul style="list-style-type: none"> <li>○ "How closely the actual job meets the individual's expectations."</li> </ul>
Desire to practice pharmacy <sup>27</sup>	<ul style="list-style-type: none"> <li>○ "The strength of desire to practice in the pharmacy."</li> </ul>
Polychronic-orientation <sup>36</sup>	<ul style="list-style-type: none"> <li>○ "The extent to which people prefer to switch among multiple tasks in the same time-block."</li> </ul>
Career prospects <sup>33</sup>	<ul style="list-style-type: none"> <li>○ "The employee's perception of the opportunity for the advancement and being promoted in their career."</li> </ul>
Pharmacist well-being <sup>44</sup>	<ul style="list-style-type: none"> <li>• It comprised of reverse multi-dimensions of distress, including anxiety, depression, stress, fatigue, and burnout.</li> </ul>
Insomnia <sup>40</sup>	<ul style="list-style-type: none"> <li>• The insomnia status of the pharmacists.</li> </ul>

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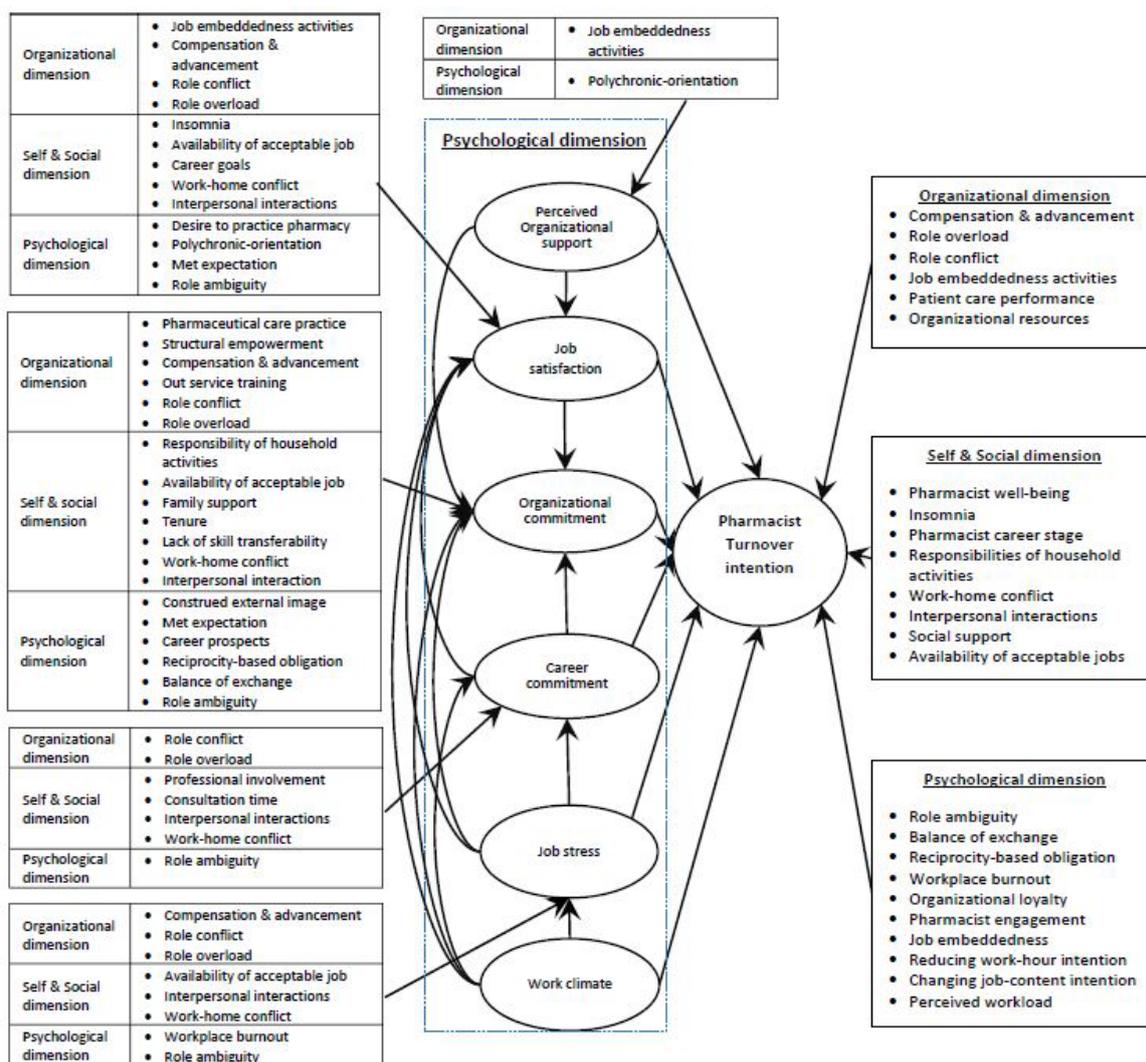
Table 6. Definitions of constructs in the included studies	
Construct	Definition
Pharmacist career stage <sup>36</sup>	<ul style="list-style-type: none"> <li>It was identified into four primary career stages to progress through the pharmacist's career: 1) exploration stage is "concerned with finding a good job fit and learning the basics of the career", 2) establishment stage is "where the employee tries to master job skills and advance through the hierarchy of ranks existing within the career", 3) maintenance stage is "characterized by plateaus in which the individual no longer actively strives to attain higher rank or skill in the career", and 4) disengagement stage is "where individuals are preparing to retire from the industry".</li> </ul>
Responsibility of household activities <sup>33</sup>	<ul style="list-style-type: none"> <li>The percentage of household activities pharmacists performed, such as grocery shopping, childcare or housekeeping.</li> </ul>
Work-home conflict <sup>32</sup>	<ul style="list-style-type: none"> <li>"Conflict in which the role pressures from work and family are mutually incompatible."</li> </ul>
Interpersonal interactions <sup>32</sup>	<ul style="list-style-type: none"> <li>"Interactions that pharmacists have are examined in the context of pharmacist-patient, pharmacist-management and pharmacist-coworker interactions."</li> </ul>
Social support <sup>40</sup>	<ul style="list-style-type: none"> <li>Job support from high-level person, leader, peer, subordinate, patient, and family support</li> </ul>
Availability of acceptable jobs <sup>32</sup>	<ul style="list-style-type: none"> <li>"Ease of finding an acceptable job alternative."</li> </ul>
Professional involvement <sup>29</sup>	<ul style="list-style-type: none"> <li>There were three items: 1) memberships in professional organizations; 2) frequency of reading of professional journals; and 3) attendance at professional meetings and continuing education programs.</li> </ul>
Tenure <sup>33</sup>	<ul style="list-style-type: none"> <li>The number of years on active duty.</li> </ul>
Family support <sup>33</sup>	<ul style="list-style-type: none"> <li>The extent and level of support from the family members to be in the working organization, or to accommodate the demands of their career.</li> </ul>
Pharmaceutical care practice <sup>19</sup>	<ul style="list-style-type: none"> <li>"The extent to which pharmacists provided the pharmaceutical care activities such as patient recognition, medication counseling, profile screening, patient education, documentation, communication, and participation in continuing education programs."</li> </ul>
Lack of skill transferability <sup>33</sup>	<ul style="list-style-type: none"> <li>"The individual could see a nontransferable skill he/she has acquired as an investment of their time and effort in the organization that could only be regained by remaining with the organization."</li> </ul>
Consultation time <sup>29</sup>	<ul style="list-style-type: none"> <li>The frequency of being consulted by other healthcare professionals in a week.</li> </ul>
Compensation & advancement <sup>32</sup>	<ul style="list-style-type: none"> <li>"An organizational environment which included better pay, benefits and advancement opportunities."</li> </ul>
Role overload <sup>32</sup>	<ul style="list-style-type: none"> <li>"The conflict between time and organizational demands concerning the amount of work to be done."</li> </ul>
Role conflict <sup>32</sup>	<ul style="list-style-type: none"> <li>"Reflecting the simultaneous occurrence of 2 or more sets of pressures such that compliance with one would make compliance with the other more difficult."</li> </ul>
Job-embeddedness organizational activities <sup>38</sup>	<ul style="list-style-type: none"> <li>Engaging activities to keep employees from leaving their jobs.</li> </ul>
Organizational resources <sup>43</sup>	<ul style="list-style-type: none"> <li>Provision of physical aspects of the organization, and characterizing by training &amp; development, payment &amp; recognition, and physical working condition.</li> </ul>
Patient care performance <sup>33</sup>	<ul style="list-style-type: none"> <li>"The overall evaluation of how well the individual is meeting the organization's expectations in terms of job performance."</li> </ul>
Structural empowerment <sup>34</sup>	<ul style="list-style-type: none"> <li>Having access to structural determinants such as knowledge about the working organizations, opportunity to advance in the pharmacists' careers, supervisor supports, and resources that are available to them to get the job done.</li> </ul>
Out service training <sup>33</sup>	<ul style="list-style-type: none"> <li>The educational trainings</li> </ul>

jobs within 2 years.<sup>44</sup> There was a strong correlation between interpersonal interaction and pharmacists' turnover intention. However, the effect of interpersonal interaction was not significant if there were other factors in the model such as organizational commitment, job satisfaction, career commitment, and job stress.<sup>32</sup> Pharmacist career stage, insomnia, and availability of acceptable jobs had small correlations with turnover intention.<sup>36,32,40</sup> The higher the career stage, the lower the pharmacist turnover intention. Insomnia and availability of acceptable jobs were positively correlated with pharmacist turnover intention. The more the pharmacists got social support from high-level persons in the job, leaders, peers, and family; the less the pharmacists

intended to leave their jobs.<sup>40</sup> However, the supports from subordinates and patients were not significantly correlated with their turnover intention.<sup>40</sup> Interestingly, increasing 1% of the responsibility of household activity significantly raised the pharmacists' turnover intention by 13.6%.<sup>33</sup> The higher the work-home conflict, the more the pharmacists were likely to leave their jobs.<sup>32</sup>

**Organizational dimension:** Organizational dimension was an aspect related to working conditions or organizational environment and affected pharmacists' turnover intention. The review found 6 factors were related to organizational dimension. This dimension included compensation & advancement, role overload, role conflict, patient care





Note: POS = Perceived organizational support, JS = Job satisfaction, OC = Organizational commitment, CC = Career commitment

Figure 3. Driving factors of all pharmacists' turnover intention

performance, job-embeddedness organizational activities, and organizational resources. Definitions of these factors in the 4 included studies were shown in table 6.<sup>32,33,38,43</sup> The less engagement in job-embeddedness organizational activity, the more the pharmacists' turnover intention increased.<sup>38</sup> The more the pharmacists had role overload and conflict, the more they intended to leave from their jobs.<sup>32</sup> These three relationships were moderate. Compensation & advancement had a negatively low correlation with pharmacist turnover intention.<sup>32</sup> However, patient care performance was positively correlated with the pharmacist intention to leave, but this relationship was low.<sup>33</sup> Organizational resource, characterized training & development, payment & recognition, and physical working conditions, had significantly negative relationships with pharmacists' turnover intention ( $\beta = -0.45$ ).<sup>43</sup>

Table 3 showed about the magnitudes and directions

of the relationships of the factors affecting turnover intention of the pharmacists in non-specified pharmacy practice settings. Table 4 and table 5 showed the relationships of the factors driving turnover intention of hospital pharmacists and community pharmacists, respectively.

**Antecedents affecting the five drivers of turnover intention:** Out of 30 factors driving turnover intention, 5 factors were frequently studied and showed their antecedents (Table 2). These 5 factors were organizational commitment, job satisfaction, career commitment, job stress, and perceived organizational support.

The antecedents of career commitment were professional involvement and consultation time.<sup>29</sup> Workplace burnout could lead to job stress.<sup>41</sup> Job satisfaction, responsibility of household activities, reciprocity-based obligation, balance of exchange, pharmaceutical care practice,

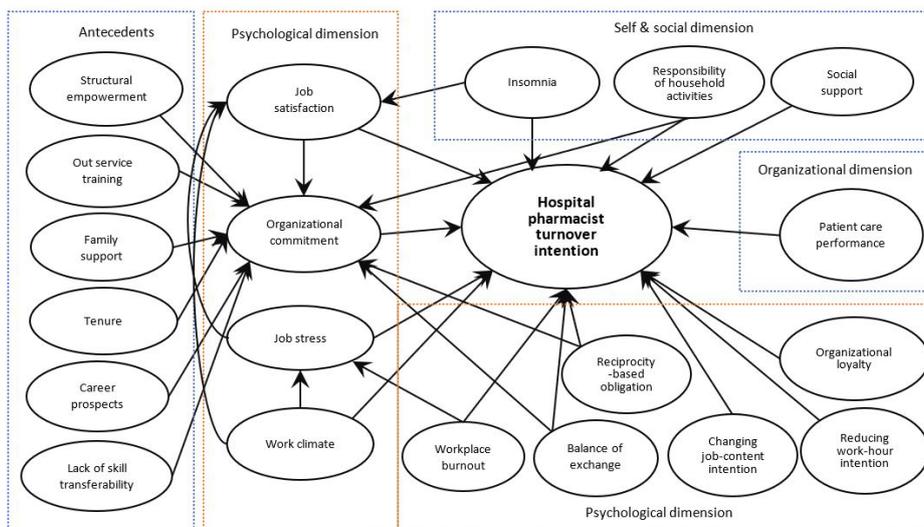


Figure 4. Driving factors of hospital pharmacist turnover intention

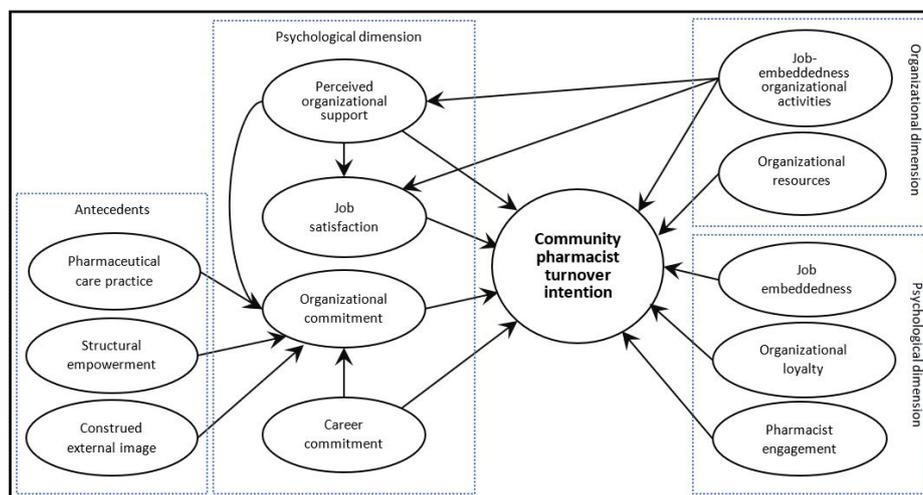


Figure 5. Driving factors of community pharmacist turnover intention

structural empowerment, out-service training, family support, tenure, lack of skill transferability, construed external image, and career prospects were the antecedents of organizational commitment.<sup>32,34,19</sup> The antecedents of job satisfaction were Insomnia, career goals and desire to practice.<sup>37,27,40</sup>

Some antecedents affected more than one of these five drivers of pharmacist turnover intention. Job-embeddedness organizational activities and polychronic-orientation were antecedents directly affecting both job satisfaction and perceived organizational support.<sup>36,38</sup> From the findings, job stress resulted in job satisfaction, career commitment, and organizational commitment.<sup>32,39,40</sup> Moreover, career commitment, perceived organizational support, and met expectations were precursors of both organizational commitment and job satisfaction. Compensation & advancement, and availability of acceptable jobs were antecedents affecting

organizational commitment, job satisfaction and job stress. Work climate, role ambiguity, interpersonal interactions, work-home conflict, role conflict, and role overload were antecedents of most of the five drivers except perceived organizational support. However, some antecedents also had direct effects on the pharmacist turnover intention, showing in Table 2 and Figure 3.

**Pharmacist turnover intention in hospital pharmacy settings:** All included studies were sub-grouped to explore the specific turnover intention model for hospital and community pharmacists. From the systematic review of a group of studies about pharmacist turnover intention in hospital setting, 14 driving factors were studied and showed significant association with hospital pharmacist turnover intention. These included organizational commitment, job satisfaction, job stress, work climate, balance of exchange, reciprocity-based obligation, workplace burnout, organizational loyalty, reducing work

hour intention, changing job-content intention, insomnia, responsibility of household activities, social support, and patient care performances. Structural empowerment, out service training, family support, tenure, lack of skill transferability and career prospects had only effects to organizational commitment. Some relationships among some drivers of turnover intention were observed. For example, job satisfaction, responsibility of household activities, reciprocity-based obligation and balance of exchange had both direct and indirect effects on turnover intention of hospital pharmacists through organizational commitment. The current review presented all significant relationships among the drivers with turnover intention of hospital pharmacists that were studied (figure 4).

#### **Pharmacist turnover intention in community pharmacy settings:**

The studies about pharmacist turnover intention in community pharmacy setting found that organizational commitment, job satisfaction, career commitment, perceived organizational support, organizational loyalty, and pharmacist engagement, job embeddedness, job-embeddedness organizational activities, and organizational resources were directly associated with turnover intention of community pharmacists. The turnover intention model for community pharmacists was presented in figure 5, which showed all significant relationships among the drivers with community pharmacist turnover intention. Job-embeddedness organizational activities had both direct and indirect effects on turnover intention of community pharmacists through job satisfaction and perceived organizational support. However, pharmaceutical care practice, structural empowerment and construed external image had only indirect effects on this turnover intention through organizational commitment. The relationships among organizational commitment, job satisfaction and organizational loyalty with pharmacist turnover intention were commonly studied in both hospital and community pharmacy settings. Some factors driving hospital pharmacist turnover intention had not been studied with turnover intention in community pharmacists, such as insomnia, patient care performance, and workplace burnout etcetera. (Figures 4 and 5).

## **DISCUSSION**

This systematic review evaluated the 30 significant factors affecting pharmacists' turnover intention from 20 articles. The majority (60%) of included studies in this systematic review were conducted from US and the remaining studies were from Taiwan, UK, Lithuania, Thailand, Malaysia, and Saudi Arabia. The current study found that organizational commitment, job satisfaction, career commitment, job stress, and perceived organizational support were commonly studied as the drivers of pharmacist turnover intention. Among those studies, organizational commitment and job satisfaction had strong negative associations with pharmacists' turnover intention similar to other occupational turnover

intentions in two systematic reviews.<sup>21,22</sup> One systematic review showed that turnover intention of the US workers were negatively strongly correlated with organizational commitment ( $r = -0.55$ ) and job satisfaction ( $r = -0.55$ ).<sup>22</sup> Another systematic review also revealed that nursing turnover intention had a strong negative correlation with job satisfaction ( $r = -0.52$ ).<sup>21</sup> Similarly, the current systematic review also showed that pharmacist turnover intention had strongly negative correlations with organizational commitment and job satisfaction.<sup>32,29,34,38</sup> Making pharmacists psychologically attached or belonging to and satisfied with the organization would decrease their intention to leave their organization or job. Another finding was that job stress had a direct effect on pharmacists' turnover intention as well as had an indirect effect on turnover intention through job satisfaction.<sup>32,39,40</sup> Also, the systematic review of nurses' turnover intention showed that job stress had moderately negative correlation with nurses' job satisfaction.<sup>21</sup> Alternatively, job satisfaction was strongly correlated with nurses' turnover intention. Their path analysis also showed that job stress had indirect effect on turnover intention via job satisfaction.

Availability of acceptable jobs was another driver of turnover intention.<sup>32</sup> However, our systematic review found only one article that presented its relationship with pharmacist turnover intention while other systematic review in informational technology personnel reported the same result in 4 out of 31 included articles.<sup>45</sup> Role conflicts and role ambiguity were stressors that could negatively impact on the job-related psychological outcome like job satisfaction and organizational commitment and induce turnover intention. Role conflicts and role ambiguity were often studied as the drivers of turnover intention in information technology personnel, but there was only one article in our systematic review that studied their relationship with turnover intention in pharmacists.<sup>23</sup> Pharmacist is professional personnel who based on their specialty education and training imparted pharmaceutical services while information technology is a career. Profession might make the role less likely to conflict and ambiguity, so these 2 drivers were rarely found in the studies about pharmacist turnover intention.

When comparing the studies in US with the studies in other countries, we found that career commitment had been mostly discussed as a driver of pharmacists' turnover intention in the U.S studies, but rarely in the studies of other countries. Some role issues like role conflict, role ambiguity and role overload were described as the driving factors of pharmacists' turnover intention in a study from U.S., but not in studies from other countries. Work climate and stress issues like job stress were mostly discussed in the studies from other countries. Job satisfaction and organizational commitment were commonly studied as turnover intention drivers in both U.S and other countries' studies. Furthermore, the majority of the US studies were conducted in the general pharmacist practice settings, whereas some studies from



other countries were conducted in hospital or community pharmacy settings, only.

Some antecedents of the five drivers of turnover intention were also studied as drivers of pharmacist turnover intention (Table 2). They had both direct and indirect effects on turnover intention of pharmacists. Those factors could be recommended for some interventions to keep pharmacists' intention to stay in their jobs or organizations. Since job-embeddedness organizational activities were the antecedents of job satisfaction and perceived organizational support and had a direct effect on pharmacist turnover intention, the employers should provide some engaging activities such as training and development opportunities, career planning, and socialization opportunities to decrease the pharmacists' turnover intention. Role ambiguity and role conflict were another set of antecedents of career commitment, job stress, job satisfaction and organizational commitment which also had direct effects on pharmacist turnover intention. Therefore, if pharmacists had clearer expectations of others, more certainty with their performance and less pressure of the difficult compliance with another role, it would make them stay in their jobs. This review found that workplace burnout was an antecedent of job stress, and work climate and role overload were antecedents of career commitment, job stress, job satisfaction and organizational commitment. Therefore, organizations should reduce the feelings of pharmacists about emotional exhaustion, and depersonalization, and the conflict between time and organizational demands. Improving the work environment for pharmacists to identify and cope with workplace deficiencies would make pharmacists stay in their jobs. Concern about pharmacists' interaction with coworkers and patients was important because it could increase career commitment, organizational commitment and job satisfaction and reduce job stress. Providing better pay, more benefits and advancement opportunities to the pharmacists would make pharmacists stay in their jobs since they were the antecedents of organizational commitment, job satisfaction and job stress.

Out of 20 articles about pharmacist turnover intention, 5 articles and 6 articles had been studied in hospital pharmacy and community pharmacy settings, respectively. Therefore, this systematic review could be used to propose two models for hospital and community pharmacists' turnover intentions (Figures 4 and 5). Those models could benefit for future research. They can also be used as guidance for human resource strategic planning to prevent pharmacists leaving jobs.

In the hospital pharmacy settings, the patient care performance was studied and found to be an important factor to reduce turnover intention of hospital pharmacists. Reducing workplace burnout would decrease job stress, while helping to eliminate the causes of insomnia would promote job satisfaction to consequently prevent hospital pharmacists from leaving their jobs. Balance of exchange

and reciprocity was another important issue that had been studied and showed significant relationship. Therefore, Increasing the pharmacists' feeling of owing the organization would help to increase organizational commitment and thus decrease turnover intention of hospital pharmacists. Improving work climate and/or physical environment and reducing job stress would also decrease turnover intention in hospital pharmacists.

In the community pharmacy settings, perceived organizational support and job embeddedness was important. Organizations should value their contribution and care for their well-being; and have activities with combined forces to keep a person from leaving the job. Organizational resources; the provision of physical aspects like training and development, payment and recognition, and physical working conditions; would also decrease community pharmacist turnover intention. As mentioned above, organizational commitment was found to be a driver of turnover intention. Enhancing empowerment of structural determinant accesses like organizational knowledge, pharmacists' career opportunity or supervisor support; the practice of the pharmaceutical care activities; and the construed external image of organizational reputation were recommended. That is the reason why there were significant antecedents of organizational commitment in the community pharmacist turnover intention model. Career commitment or pharmacists' attitude towards their pharmacy profession or vocation; pharmacist engagement with job; and loyalty to their organizations were other psychological manipulations to augment community pharmacists to stay in their jobs. The hospital pharmacist model (Figure 4) and community pharmacist model (figures 5) need to be confirmed by future research. They could also direct research inquiry and drive interventions for solving turnover problems.

There were some limitations in the current systematic review like other studies. Firstly, only quantitative studies with English-language were included. There might be non-English studies which have evaluated the factors affecting the pharmacists' turnover intention. Secondly, this systematic review included only the published studies from formal databases so it might not cover for all pharmacists in every country. Thirdly, the included articles in this review had been conducted mostly in the U.S. Pharmacist practice which varies by geopolitical location and there might be some differences in personal characteristics and working cultures. Therefore, the assumption that concepts from all countries are equally weighted may need to be tested to be more applicable to an individual country. Fourthly, in order to be able to synthesize the extracted data, "intention to stay" was transformed to "intention to leave". Some might argue that the opposite of one is not the other. Finally, the sample size variation and response rates in included studies were largely varied. At first glance, the response rate might be an indicator of study quality. A study with low response rate (6.3%) was still included in the systematic review since it passed other quality assessment criteria



of QualSyst tool, and their sample size was sufficient for regression analyses.

## CONCLUSION

This study aimed to systematically summarize the factors of pharmacists' turnover and to form a model for the pharmacist turnover intention. There were 6 factors frequently studied as the drivers of pharmacist turnover intention in all pharmacy practice settings, which were organizational commitment, job satisfaction, career commitment, job stress, perceived organizational support and work climate. Antecedents of these drivers except work climate were studied. Some of these antecedents were also observed as the direct factors driving pharmacist turnover intention. There were some differences of drivers of pharmacist turnover intention in hospital and community settings. Career commitment and perceived organizational support significantly affected the turnover intention of the community pharmacists. Job stress and work climate significantly drove the hospital pharmacists' turnover intention.

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