FACTORS CONTRIBUTING TO PHARMACISTS' TURNOVER INTENTION: A SYSTEMATIC REVIEW

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ปัจจัยที่ส่งผลต่อความตั้งใจในการเปลี่ยนงานของเภสัชกร:การทบทวนวรรณกรรมอย่างเป็นระบบ

น.ส.ซู มิยา ธิน

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ซู มิยา ธิน : ปัจจัยที่ส่งผลต่อความตั้งใจในการเปลี่ยนงานของเภสัชกร:การทบทวนวรรณกรรมอย่างเป็นระบบ. (FACTORS CONTRIBUTING TO PHARMACISTS' TURNOVER INTENTION: A SYSTEMATIC REVIEW) อ.ที่ปรึกษาหลัก : รศ. ภญ. ร.ต.อ.หญิง ดร.ฐณัฏฐา กิตติโสภี

การเปลี่ยนงานของเภสัชกรส่งผลกระทบในทางลบต่อประสิทธิภาพการทำงาน ผลประกอบการขององค์กร ประสิทธิผลของงานรวมทั้งความพึงพอใจของลูกค้า และยังมีผลกระทบต่อการให้บริการทางเภสัชกรรม รวมถึงความปลอดภัยของผู้ป่วย การศึกษานี้เป็นการทบทวนอย่างเป็นระบบ เพื่อที่จะศึกษาปัจจัยที่มีผลกระทบต่อสำคัญเกี่ยวกับการเปลี่ยนงานของเภสัชกร และหาความสัมพันธ์ระหว่างการเปลี่ยนงานของเภสัชกร และความตั้งใจในการเปลี่ยนงาน ในการศึกษานี้ได้ศึกษาครอบคลุมเกี่ยวกับปัจจัยต่างๆที่มีผลกระทบกับการเปลี่ยนงานของเภสัชกรในหน่วยงานที่หลากหลาย เครื่องมือที่ใช้การประเมินคุณภาพของงานวิจัยที่รวบรวมมาคือ QualSyst assessment โดยรวบรวมการศึกษาวิจัยทั้งหมด 28 ฉบับ เป็นการศึกษาในประเทศสหรัฐอเมริกา 15 ฉบับ (53.36%) ไต้หวัน 3 ฉบับ (10.7%) สหราชอาณาจักร 2 ฉบับ (7.1%) และการศึกษาในประเทศลิธัวเนีย ออสเตรเลีย นิวซีแลนด์ ซาอุดิอารเบีย และ จาไมกา จากการทบทวนอย่างเป็นระบบพบว่าการเปลี่ยนงานของเภสัชกรนั้นอยู่ระหว่าง 8.6% – 17% และการเปลี่ยนงานของเภสัชกรไปทำงานอาชีพอื่นอยู่ระหว่าง 6%-9% ส่วนความตั้งใจในการเปลี่ยนงานของเภสัชกรนั้นอยู่ระหว่าง 13%-61.2% และความตั้งใจในการเปลี่ยนงานของเภสัชกรไปทำงานอาชีพอื่นอยู่ระหว่าง 6.5%- 18.8% โดยที่เภสัชกรโรงพยาบาลมีความตั้งใจในการเปลี่ยนงานสูงกว่าเภสัชกรชุมชนอย่างมีนัยสำคัญ ความตั้งใจในการเปลี่ยนงานของเภสัชกรโรงพยาบาล และเภสัชกรชุมชนได้เพิ่มขึ้นอย่างต่อเนื่องในยุโรป และเอเชีย จากการศึกษาครั้งนี้พบปัจจัยที่เกี่ยวข้องถึง 30 ปัจจัย จากการทบทวนวรรณกรรมทั้งหมด 20 ฉบับ ปัจจัยหลักที่มีการอ้างถึงได้แก่ความผูกพันต่อองค์กร ความพึงพอใจในงาน ความผูกพันในอาชีพ ความเครียดจากการทำงาน และการรับรู้การสนับสนุนขององค์กร งานวิจัยหลายฉบับได้แสดงให้เห็นว่าความผูกพันต่อองค์กร และความพึงพอใจในงานมีอิทธิพลต่อความตั้งใจในการเปลี่ยนงานของเภสัชกรอย่างมีนัยสำคัญ ความเครียดจากการทำงานและบรรยากาศในการทำงานส่งผลกระทบโดยตรง และโดยอ้อมกับความตั้งใจในการเปลี่ยนงานของเภสัชกรโรงพยาบาล ความผูกพันต่ออาชีพ และการรับรู้การสนับสนุนขององค์กร ส่งผลกระทบโดยตรง และโดยอ้อมกับความตั้งใจในการเปลี่ยนงานของเภสัชกรชุมขน การศึกษาทบทวนวรรณกรรมในครั้งนี้สามารถใช้เป็นแนวทางในการจัดการด้านทรัพยากรมนุษย์สำหรับวิชาชีพเภสัชกรรม และยังสามารถใช้เป็นแนวทางสำหรับการศึกษาต่อยอดในการสร้างกรอบแนวคิดและงานวิจัยเกี่ยวเนื่องกับความตั้งใจในการเปลี่ยนงานของเภสัชกรในอนาคต

สาขาวิชา เภสัชศาสตร์สังคมและบริหาร ลายมือชื่อนิสิต .....

ปีการศึกษา 2563 ลายมือชื่อ อ.ที่ปรึกษาหลัก .....

6278001133 : MAJOR SOCIAL AND ADMINISTRATIVE PHARMACY

KEYWORD: Pharmacist, Turnover intention, Intention to leave, Intention to quit, Antecedent

Su Myat Thin : FACTORS CONTRIBUTING TO PHARMACISTS' TURNOVER INTENTION: A SYSTEMATIC REVIEW. Advisor: Assoc. Prof. Pol.Capt. TANATTHA KITTISOPEE, Ph.D.

Pharmacist turnover could negatively impact not only work efficiency, organizational performance, work productivity, and customer satisfaction but also the quality of pharmaceutical services and patient safety. The turnover intention was a core antecedent of turnover, therefore, this study aimed to systematically review the extent of pharmacists' actual turnover and their intention to leave their jobs or the pharmacy profession, and to elaborate on 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. Twenty-eight studies were contained in this systematic review. Fifteen studies (53.6%) were conducted from the US, 3 studies (10.7%) from Taiwan, 2 studies (7.1%) from the UK, and the remaining studies from Lithuania, Australia, New Zealand, Malaysia, Saudi Arabia, and Jamaica. The actual turnover of the pharmacists from their jobs was ranged in 8.6-17% and the actual turnover from the pharmacy profession was in the range of 6-9%. The turnover intention of the pharmacists in their jobs was ranged from 13% to 61.2% and the turnover intention in the pharmacy profession was 6.5% to 18.8%. Hospital pharmacists had significantly higher turnover intentions than community ones. The turnover intention rates of both hospital and community pharmacists were gradually increased over time in both European countries and Asian countries. From 20 included studies, 30 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 the other 24 factors had

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CHAPTER I

INTRODUCTION

Background and rationale

Employee turnover is one of the salient issues concerned by every organization in all businesses including healthcare settings.[1] High employee turnover in an organization can produce negative impacts on work efficiency, work productivity, organization performance and customer satisfaction. [2-4] It made the organizations lose not only the efficiency of the talented employees but also the cost related to employee turnover and recruiting new employees. [5] Employee turnover in healthcare settings will not only affect the organizations but also affect public health services. [6, 2, 7] In all over the world, many countries have been planning to solve the problems of high turnover and low retention in healthcare professions. [8] Pharmacist workforce was included in the healthcare professions occurring the issues of high turnover and low retention even in the developed countries. [9-11]

Pharmacists are important healthcare professionals because their roles and responsibilities have been broad to carry out from the pharmaceutical products to the patients. [12, 13] The practices and responsibilities of pharmacists are varied depending on the practice settings in healthcare system. Nowadays, advanced professional practice, public health prevention and promotion practices, primary healthcare services and consumer protection are commonly provided by pharmacists. Increasing the pharmacists' responsibilities made higher pharmacist demand. Despite increasing the pharmacist production annually, the demand of the pharmacists in community and hospital pharmacies was still occurring. [14] According to the FIP (International Pharmaceutical Federation) Global Pharmacy Workforce Report 2012, reduction of delayed recruitment and turnover of skillful pharmacists were ones of the most important concerns in the pharmacy workforce. [15] High turnover of pharmacists could negatively affect not only the cost loss but also the quality of pharmaceutical care services and patient safety. [2, 3] Increasing pharmacist turnover became an important crisis for pharmacy professions and healthcare system. [15, 2, 11] It could negatively impact workload and job stress which could increase job errors and decrease job efficiency and performance in pharmacy practices. [6, 7, 16] It could become a barrier of providing the pharmaceutical care service. [3]

The actual turnover of the pharmacists from profession means that the pharmacists left from the pharmacy profession to other professions, or they no longer practiced pharmacy. [17, 18]

Actual turnover of pharmacists from jobs means that the pharmacists changed their employers or left their working organizations to change into another pharmacy job. [17, 18] The turnover intention from profession referred to the pharmacists intending to leave from the pharmacy profession to other profession or they no longer intended to practice pharmacy. [19] The turnover intention of the pharmacists from jobs was defined as the pharmacists intended to change their employers or leave their working organizations to change into another pharmacy job. [20, 19] Turnover intention stated by employees was the strongest predictor found in many research studies for actual turnover of the employees and it was positively related to actual turnover. [21, 22] Some studies defined job turnover intention as the probability that employees would change or leave the job within a certain period. [23] It reflects an employee's attitude towards the job or organization. [24, 25] According to the withdrawal cognition process, the employees firstly think of leaving their jobs before they will decide to leave their jobs. then, they intend to search another job and intention to quit their jobs will follow. Actual employee turnover will follow after the turnover intention. [26, 27]

There was no previous review for the turnover or turnover intention extent of the pharmacists. Thus, this paper aimed to elaborate the extents of pharmacists' actual turnover and turnover intention from the pharmacy profession or from jobs in different pharmacy practice settings among countries and to find out the factors affecting the turnover intention of pharmacists and the associations among these factors and turnover intention. This review was conducted with a qualitative systematic review approach.

Research objectives

- To reveal the extents of actual turnover and turnover intention of pharmacists in different pharmacy practice settings and in different countries
- To explore the factors affecting turnover intention of pharmacists and the associations among these factors and turnover intention

Concept framework of the research

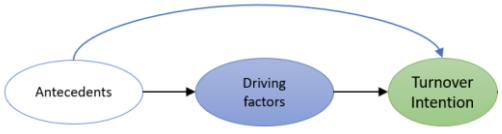


Figure 1: Conceptual Framework for the study

Significance of the study

This review can help to progress a model for turnover intention of pharmacists, and it will be useful for the projects to reduce the turnover intention of pharmacists in their working practices. It can help pharmacist workforce management to increase the pharmacists' retention rate in the pharmacy practices, and it can save not only the cost related to turnover and job errors but also work efficiency and productivity of the talented pharmacists. It can be used in further studies of recruitment and retention of pharmacist workforce. The study results can also be used for assisting some interventions to reduce the risk factors affecting turnover intention of pharmacists. In addition, the results can help public and private health managing stakeholders to increase the pharmacists' retention in their pharmacy practices. Consequently, high retention and low turnover of pharmacists will turn to be a big profit for pharmacy profession improvement and benefits for the quality of patientcare.

CHAPTER II

LITERATURE REVIEWS

This review aimed to reveal the extents of pharmacists' actual turnover and turnover intention from their jobs and pharmacy profession, and to explore the factors affecting the pharmacists' turnover intention from their jobs. In this chapter, the main concept about actual turnover, turnover intention and the impact of pharmacist turnover were presented.

Actual turnover

Employee turnover was a hot issue for many organizations and many researchers were interested in this issue and did many research studies to find out the turnover of employees in different professions or different workplaces. Employee turnover is defined as the percentage or number of employees left from an organization and replaced by new employees. In general, there are two types of employee turnover such as involuntary and voluntary turnovers.[28] Involuntary turnover means the termination of employees for poor working performance, violation of working policies, retirement, health problems or death. Voluntary turnover is called that an employee leaves current working organization by his or her own will. In other aspect, Voluntary turnover has two aspects which are functional and dysfunctional. [28] Functional turnover is one voluntary turnover that could improve the organization's functioning. This turnover will not impact on the work performance in the organization, and it may have more benefit because employees with poor performance will be replaced with new employees with better performance. Dysfunctional turnover is another voluntary turnover which could damage the work functioning because the organization lost talented employees with new skills or valuable resources.

High employee turnover (especially dysfunctional voluntary turnover) in an organization produces negative impact on the organization. High turnover rate can affect work efficiency and productivity in the organization and consequently can affect the organization performance and customer satisfaction. Work efficiency had a mediating effect on the relationship of employee turnover and organization performance. [4] Voluntary turnover made the organizations lose not only the efficiency of the talented employees but also the cost related to hiring or recruiting new employees. It would lose both direct and indirect costs. Direct costs are replacement costs, transition costs and training costs. Indirect costs are productivity loss, unnecessary overtime, and reduction of performance level or morale of remaining employees. 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. [5]

In the healthcare organizations, turnover of talented healthcare professionals caused not only workforce inefficiency and loss of costs but also bad impact on well-beings of patients or customers and remaining employees. Customers' well-being means the health safety of customers or patients. Employees' well-being means the safety and quality of employee's health in their work life. High turnover rate specially the turnover of employees with high performance or skills can increase heavier workload and burnout in the workforce. It can make the remaining workforce be more likely to be unsatisfied with their current jobs due to over-workload and burnout in the work. Burnout is a vital exhaustion state in a work resulting chronic work stress and exhaustion feeling related to the work. [2] Work stress and burnout of healthcare professionals were significantly associated to the patient safety.

1) Studies of actual turnover in different employments

A systematic review from 46 studies conducted in 16 countries showed the relationship among wellbeing and burnout of healthcare professionals and patient safety. [2] Two out of 46 studies have been explored in pharmacists. About 82% of studies in this systematic review have showed that poor employee's wellbeing such as work stress, depression, distress, or mental health could have affected poorer safety of the patients or customers. In addition, 70% of these studies have showed that the more burnout of healthcare professionals, the more work error, and the less patient safety or less wellbeing of customers.

A study evaluated the causes of employee turnover and its consequences in New Zealand. [21] This study was conducted with 549 employees from 7 urban centers in New Zealand by using telephone interview method. This study examined the working history of these employees, their turnover intention, reasons of employee leaving or staying in the work, and perception of earnings and losses of employee leaving or staying with the organization in the last five years. Among the participants, the movers were 48.8% (268) and the stayers were 51.2% (281). Among the stayers, 55.4% reported the longest staying time in one organization to work more than ten years. The movers with the age of less than 40 years were 55.5% of the participants and the stayers with this age were 37.5%. For the question of frequently thinking of leaving the job, the stayers who had not changed their jobs in the last 5 years was not significantly resulted to the

responses of leavers. For the question of being likely to leave the current job within a year, the responses of leavers were significantly different from the responses of stayers. The results showed that 30.9% of leavers agreed to be likely to leave their current jobs within a year and 22.9% of stayers agreed. For the question of leaving current job if having the chance to get a better job, the results of stayers and leavers were significantly different. In the results, 59.7% of leavers agreed to leave current jobs if they have a chance to get a better job and 44.8% of stayers agreed. The most common reasons why leaving their jobs were to work a more interesting job (67%), training opportunities (54%), to get a better work-life balance (52%) and to be unrecognized by management (51%). The main reasons of the stayers working in their jobs were co-worker relationship, interesting work, relationship with supervisors, job security and personal reason. In the results of payment, job security, and improving skills and knowledge, the stayers were significantly more likely to obtain these benefits by still working in current jobs. The leavers were significantly more likely to search the benefits of promotion, interesting works, and career development by leaving the current jobs. This study resulted that the demographic factors like age and tenure were significantly related to the turnover intention and behavior.

An African study was conducted to evaluate the assessment of employee turnover impacts in ILRI (International Livestock Research Institute). [29] This cross-sectional study included 42 employees working in ILRI by using stratified sampling method. Among the participants, 88% reported that their organization experienced the employee turnover cases and they responded that lack of rewards and bonus caused to decrease the motivation of employees which could lead to induce the turnover rate. In the question of employee turnover level in the organization, 59% of the participants reported this level being high, 10% reported being very high and 17% reported being average. Their explanation for this question was mainly the insufficient remuneration and lack of employee benefits like housing and transport allowance. In the reasons of turnover in this organization, lack of strategies for employee retention was a main reason with the mean score of 4.33 which was the highest level in the scores out of 5 points. The score of lack of development in career opportunities was the second highest with 4.12 in 5 points. Many of the respondents (82%) perceived that high turnover impacted work productivity of the organization. Although 76% of the respondents reported that their organization had the measures managing the employee turnover, 47% of total respondents answered that the effectiveness of this management measures for turnover was low and 14% answered that it was very low. This study concluded that majority of the respondents reported high employee turnover affecting

organizational efficiency and lack of turnover strategies was the largest perceived cause of high turnover.

2) Studies of actual turnover in pharmacy profession

A US study [17] was conducted with 541 registered pharmacists to measure the extent of job turnover and the reasons for leaving their jobs. The annual job turnover of the pharmacists was averagely 11% across 15 years of 1983 to 1997. About 4% of the pharmacists were working in other professions and about 5% were not practicing pharmacy temporarily.

Another US study [30] was conducted with 217 hospital pharmacists to examine the job turnover rate and future plans of the pharmacists. About 14.4% of the pharmacists left their jobs. The reasons for leaving their jobs were payment & benefits, promotion & advancement opportunity, relocation from area, better job opportunity and unmet expectations or unsatisfaction with their job.

A UK study [18] was conducted to explore actual turnover among the pharmacists. Among the 1680 pharmacists who intended to leave the profession, 119 (7.1%) pharmacists were no longer on the Royal Pharmaceutical Society of Great Britain Register, and 131 (7.8%) pharmacists were on the non-practicing part of the Register. The pharmacists quitted were more likely to be white and working part-time than those did not quit.

A US longitudinal study [20] was conducted with 653 community pharmacists to investigate the pharmacist job attitudes (career commitment and organizational commitment) and turnover intention as predictors of actual turnover behavior over three-year time period. Seventeen percentages of the respondents changed their employers. The most common reasons for changing the employers were better working hours and unprofessional treatment by the management. Job withdrawal intention (β=0.30) was the stronger predictor actual turnover from the employers in next three years. The pharmacists working a second job and having major life events were more likely to have left the jobs over the three-year time. Six percentages of the participants revealed that they had left the pharmacy profession. Years in active practice (β=0.23), career withdrawal intention (β=0.21), the number of working hours per week (β=-0.19) and the number of dependent children (β=-0.11) were significant factors to predict their actual turnover from the profession.

3) Impact of the pharmacists' turnover

In all over the world, many countries have been planning to solve the problems of high turnover and low retention in healthcare professions. Pharmacy workforce was one of the healthcare professions occurring high turnover issue. Pharmacists are important healthcare professionals because their roles and responsibilities have been broad to carry out from the products to the patients. The practices and responsibilities of pharmacists are varied depending on the practice settings in healthcare system. In providing pharmaceutical care in community pharmacy and hospital pharmacy, pharmacists need to take whole responsibilities to ensure the drug safety, efficacy and rational uses of the drugs in patients. [13] In industrial pharmacy practices, there are three main parts such as commercial, technical support and technical areas. [12] In pharmaceutical or medica device companies, there are only two parts such as technical support and commercial areas. In commercial area, pharmacists are practicing in the role of drug distribution, marketing, and sale representation. The practices of technical support area for the pharmacists are product registration, regulatory affairs, and medical information. The pharmacist activities in technical practice part are in research and development, production, and quality control.

As addressed above, pharmacists are the critical health care professionals in the drug system. Pharmacist's turnover could negatively affect quality of pharmaceutical care and patients' safety. Increasing pharmacist turnover was become an important crisis for pharmacy professions and healthcare system. [2] [11] [15] According to the FIP (International Pharmaceutical Federation) Global Pharmacy Workforce Report 2012, reduction of delayed recruitment and turnover of skillful pharmacists were ones of the most important concerns in the pharmacy workforce. [15]

High rate of pharmacist turnover impact to increase workload and job stress which can impact higher job errors. [6] [7] It can reduce the job efficiency and performance in pharmacy practices because of increasing job stress and burnout of pharmacists. [16] It can become a barrier of providing the pharmaceutical care services because of heavy workload and less performance. [3] In 2010, a UAE (United Arab Emirates) study suggested that high pharmacist turnover could impact on providing the good healthcare services in pharmacy practices.[3] Impacting on pharmaceutical care service can affect the patient safety. [2] Workload and lack of time to provide the pharmaceutical care service can lessen pharmacists' satisfaction in their work and their

commitment of working professions. [31] [7] Finally, pharmacists will decide to withdraw their career or goals in the pharmacy profession. [32] [33] [34, 35]

Turnover intention

According to the withdrawal cognition process, the employees firstly think of leaving their jobs before they will decide to leave their jobs. Then, they intend to search another job and intention to quit their jobs will follow [22]. Actual employee turnover will follow after the turnover intention [27]. Turnover intention is the strongest predictor of employee turnover. [27] The turnover intention or intention to quit a job is positively related to actual turnover. [11, 27] Turnover intention or intention to quit the job has been defined as the deliberate consideration to leave the organization or employer where the employees work. [22] Some studies defined it as the probability that employees would change or leave the job within a certain period. [23] It reflected an employee's attitude towards the job or organization. There were many studies reported about the different results of employee turnover intention in different employments.

1) Studies of turnover intention in different employments

A systematic review showed that the prevalence rate of general practitioners was 47% indicating approximately half of the general practitioners had intention to leave their current jobs worldwide. [36] The general practitioners with higher professional titles had more intention to leave their jobs. The pharmacists with lower salary or lower job satisfaction level were 1.4 times more likely to leave their jobs than those with higher salary or job satisfaction level. The pharmacists having limited opportunities for personal development (OR=1.6, 95% CI: 0.4-1.8) or lower morale level (OR=2.7, 95% CI: 1.6-3.8) had higher intention to leave their jobs.

An Australian study was conducted to examine the employee turnover intention in a retail sale department. [37] Totally, 173 sales staff in this retail store involved in this study and the Tate's workplace scale was used to evaluate stressors (role ambiguity, role conflict, over-workload, and work-family conflict), job stress, self-esteem, locus of control, job satisfaction, supervisors' support, organizational commitment, and intention to quit. The structural equational model was used to analyze the data. Turnover intention was totally affected by stressors (β=0.16), self-esteem (β=-0.19), support of supervisors (β=-0.25), stress (β= 0.36), job satisfaction (β= -0.41) and organizational commitment (β=-0.49). The highest factors impacting on turnover intention were organizational commitment and job satisfaction. This study suggested that high reciprocity degree was between these two factors. The individuals with more satisfaction with

their jobs were more likely to commit their organizations. This study concluded that turnover intention was highly affected by job satisfaction, organizational commitment and feeling of job stress.

A U.S study was conducted to examine the factors affecting turnover intention of the employees working as the assistants in the extension program of Ohio State University. [38] This study included 149 participants working in this program. The expected factors influencing turnover intention in this study were job satisfaction, organizational commitment, and satisfaction with the supervisors. It included seven demographic factors such as age, gender, education level, marital status, having children, program areas and service years. The younger employees had higher intention to leave their current jobs than the older ones. The employees with more service years were less intending to leave current jobs. The results of correlation coefficient showed that job satisfaction (r=-.60), organizational commitment (r=-.58) and supervisor satisfaction (r=-.48) were moderately and negatively associated with turnover intention and the largest correlated factor of turnover intention was job satisfaction. The study showed that organizational commitment was a mediator of job satisfaction affecting turnover intention and job satisfaction was significantly and positively associated with organizational commitment (r=.67). This study concluded that the employees with high job satisfaction were more committed to their organizations and were less likely to leave their jobs.

A Norwegian study was conducted to evaluate turnover intention by using the factors of job insecurity, job attitudes and psychological wellbeing. [39] In this study, 260 citizens were included by excluding unemployed and self-employed. Job insecurity was measured for the appraisal of workers' job future. In job attitudes, the factors such as job satisfaction, job motivation and organizational commitment were measured. As an outcome of these factors, turnover intention was measured. The result showed that younger workers had higher intention to leave their current jobs. Job satisfaction, job motivation and organizational commitment had high and negative relationships with turnover intention, and psychological wellbeing was moderately and negatively relationship with turnover intention. This study concluded that turnover intention was not significantly related to any job security variable in the regression model, but it was significantly and negatively affected by organizational commitment and job motivation. So, the resulted predictors were age, organizational commitment, and job motivation.

2) Studies of turnover intention of the pharmacists

A study in Jamaica [40] was conducted with 517 hospital employees including 22 pharmacists to explore their turnover intention. In the 7-point agreement Likert scale, the pharmacists slightly disagreed for the turnover intention from their jobs.

A study in New Zealand [41] was conducted with rural primary healthcare employees including 248 pharmacists to explore planning to leave their jobs in 2 years, 5 years, and total in overall. In overall, 47% of the pharmacists planned to leave their jobs. Eighteen and 29% of the pharmacists planned to leave their jobs in 2 years and 5 years, respectively.

A Malaysian study [42] was conducted with 10457 healthcare employees including pharmacists to examine the intention to resign their jobs. Approximately 39% of the pharmacists intended to leave their jobs prior to reaching the pensionable age.

A US study [43] was conducted with 313 pharmacists to demonstrate the polychronic-orientation affecting on distribution fairness, career stage, job satisfaction and turnover intention of the pharmacists. Polychronic-orientation had a significantly positive associations with job satisfaction (β=0.18) and distributive fairness (β=0.17). Job satisfaction (β=-0.27) and distributive fairness (β=-0.21) were significantly negative related to pharmacists' turnover intention. The exploration, establishment and maintenance career stages had a significantly negative correlation with the turnover intention.

A study [44] was conducted with 2250 US licensed pharmacists to examine job stress, career commitment, work-home conflict, organizational environment (interpersonal interactions, role ambiguity, role conflict, role overload, environmental aspects, compensation & advancement, and availability of acceptable jobs), and work-related psychological outcomes (organizational commitment, job satisfaction and turnover intention from jobs). According to the average score in the 7-point agreement Likert scale, the pharmacists were slightly unlike to leave their jobs. Role conflict (β=0.10), work-home conflict (β=0.11), and availability of acceptable jobs (β=0.05) had significantly positive associations with pharmacist turnover intention from their jobs, and role ambiguity (β=-0.09), job satisfaction (β=-0.38), and organizational commitment (β=-0.20) had significantly negative associations with pharmacist turnover intention. Organizational commitment and job satisfaction were strongly negative correlated with pharmacist turnover intention. Career commitment was moderately negative correlated with the turnover intention. Interpersonal interactions had a strongly positive correlation, and job stress, work-home conflict, role ambiguity,

role overload and role conflict had moderately positive correlations with pharmacist turnover intention.

A US study [45] was conducted with 386 military pharmacists to determine organizational commitment affecting the pharmacist turnover intention from the organization. In this study, 27.5% of the participants intended to leave their working organization at the next opportunity. Reciprocity-based obligation (β=-0.26) had a significantly negative relationship with the pharmacist intention to quit. The balance of exchange with the feeling of the pharmacists being owed by the organization (β=0.31) was positively related to the pharmacist turnover intention. Among the three types of organizational commitment, normative commitment (β=-0.45) was the strongest predictor of the pharmacist intention to quit and Affective commitment (β=-0.21) was significantly negative related with pharmacist intention to quit. Continuance commitment (β=-0.07) was not significant in the relationship with pharmacist turnover intention. The military pharmacists with greater tenure (β=0.15) had more organization commitment in their working organization. Career prospects, family support, and the balance of exchange with the pharmacist feeling of owing the organization were significantly positive related with the pharmacist intention to leave their job but the balance of exchange with the feeling of the pharmacists being owed by the organization was significantly negative related.

A study [46] was conducted with 533 US licensed pharmacists to determine the turnover probability among the pharmacists using LCA (Latent Class Analysis). Among the participants, 33% were in the group of unsatisfied with their job, and 44% were in the group being satisfied with all facets of their jobs. In the odds ratio results, the pharmacists in the unsatisfied group were 26 times more likely to leave their jobs in next year than the pharmacists in the satisfied group. The chain community pharmacists were less likely to be satisfied with their jobs and more intended to leave their jobs than hospital and independent community pharmacists.

A study [19] was conducted with 1510 US pharmacists to investigate the relationships among organizational commitment, career commitment, job withdrawal intention and career withdrawal intention. About 11% of the pharmacists were thinking about leaving the pharmacy profession and 6.5% were planning to leave the pharmacy profession within the next year. In job withdrawal intention, about 23% of the pharmacists were likely to search for a new job within the next year, and about 13% were planning to leave their current jobs within the next year. In the agreement Likert scale, the pharmacists slightly disagreed for the job withdrawal intention, and disagreed for

the career withdrawal intention. Ages, incomes, and number of dependent children were significantly different on the career withdrawal intention. The pharmacists with 11-15 practice years had higher likelihood of career withdrawal intention. The pharmacists who did not attend the professional meetings had greater career withdrawal intention than those attending two or more times per a year. Working another job in survey year were more likely to leave their jobs. Hospital pharmacists had significantly higher career withdrawal intention than chain and independent community pharmacists. Career commitment had a strongly negative correlation and organizational commitment had a moderately negative correlation with pharmacist turnover intention from the pharmacy profession. Career commitment was the strongest predictor for the career withdrawal intention of the pharmacists (β=-0.65). In the job withdrawal intention, female pharmacists were significantly more likely to leave their jobs than male pharmacists. Younger pharmacists aged 25-35 years old were significantly more likely to leave their jobs than the pharmacists with other ages. Single pharmacists had higher job turnover intention score than married pharmacists. The pharmacists with higher salaries were less likely to leave their jobs than those with lower salaries. The pharmacists with 1-5 practice years were more likely to leave their jobs than those with higher practice years. Hospital pharmacists had higher job turnover intention level than the chain and independent community pharmacists. The pharmacists working less hours per week were more likely to leave their jobs than those working more hours per week (more than 45 hours per week). The pharmacists working less hours in patient contact had more intention to leave their jobs. The pharmacists working more than 1 job were more likely to leave their jobs. Organizational commitment had a strongly negative correlation and career commitment had a moderately negative correlation with pharmacist job turnover intention. Organizational commitment was the strongest predictor for the pharmacist job withdrawal intention (β=-0.61).

A study [47] was conducted with 421 US registered pharmacists to investigate the effects of structural empowerment, psychological empowerment on organizational commitment, loyalty, identity, and pharmacist job turnover intention. About 25% of the pharmacists had job turnover intention. In the mean score of 7-point Likert scale, the pharmacists slightly disagreed for job turnover intention. For the pharmacists in any pharmacy practice settings, organizational commitment (β=-0.74) and organizational loyalty (β=-0.24) had significantly negative relationships with pharmacist intention to leave their jobs. Organizational identity (β=0.35) had a significantly positive relationship with the pharmacist intention to leave. Only structural

empowerment was significantly positive related to organizational commitment (β=0.92), loyalty (β=0.69) and identity (β=0.78), but psychological empowerment was not significantly related to these organizational factors. For hospital and chain community pharmacy settings, only organizational commitment (β=-0.44, β=-0.34) had a significant relationship with pharmacist job turnover intention, but organizational loyalty and identity were not significantly related to their turnover intention. For independent community pharmacists, organizational commitment (β=-0.35) and organizational loyalty (β=-0.46) had significant relationships with their job turnover intention, but organizational identity was not significantly related.

A study [48] was conducted with 143 retail pharmacists to explore the antecedents such as job embeddedness, perceived organizational support, job satisfaction, and organizational job embeddedness activities to pharmacist turnover intention. Female pharmacists reported significantly lower perceived organizational support level and higher turnover intention level in next year than male pharmacists. Perceived organizational support, job embeddedness, job satisfaction, and job-embeddedness organizational activities had significantly negative correlations with pharmacist turnover intention within both one year and three years.

A study [49] was conducted with 303 US community pharmacists to measure job satisfaction, job stress and intention to quit their jobs. More than half (57%) of the participants intended to quit their jobs. Among the pharmacists who intended to quit their jobs, only 45% reported to consider looking for a job in the pharmacy career and other pharmacists reported to look for a job outside of the pharmacy career. The pharmacists with PharmD were less likely to be satisfied with management policies, overall workload, expectations from supervisors, payment & benefits, perceived social status and interactions with co-workers and patients than the pharmacists with a bachelor's degree. The adverse effects (emotional health or well-being, physical health, quality of work and relationships with friends and family) of job stress were significantly higher for the pharmacists with PharmD. The pharmacists who were more likely to seek a job, working in chain community pharmacies, had high levels of adverse effects of job stress had significant higher score of job turnover intention than other pharmacists.

A study [50] was conducted with 252 US community pharmacists to evaluate the effects of construed external image and organizational identification on pharmacist turnover intention. Although 23% of the participants intended to leave their jobs in the next year, the mean score for leaving their jobs was 2.4± 1.7 on the 7-point Likert scale. Construed external image (β=-0.25)

and organizational identification (β=-0.24) had significantly negative relationships with pharmacist intention to leave their jobs in the next year. Organizational identification had a positive relationship with construed external image (β=0.41). The pharmacists working fewer years in the current job had higher score of job turnover intention.

A study [51] was conducted with 2231 US pharmacists to evaluate the ability of the Well-Being Index to stratify the likelihood of pharmacists' intention to leave. About 48% of the pharmacists intended to leave their jobs within 2 years. The greater extent of distress or lower well-being, the more the pharmacists were likely to leave their jobs. Pharmacists who had greatest distress extent had 10 times more likely to leave their current jobs within 2 years.

A US longitudinal study [20] was conducted with 653 community pharmacists to investigate the pharmacist job attitudes (career commitment and organizational commitment) and turnover intention as predictors of actual turnover behavior over three-year time period. The mean score of career withdrawal intention in the second survey time (1992) was significantly lower than that in the first survey time (1989). The mean score of job withdrawal intention in the second survey time was not significantly lower than that in the first survey time. Within both survey times, career commitment was negatively related with career withdrawal intention (β=-0.75, β=-0.81), and organizational commitment was negatively related with job withdrawal intention (β=-0.70, β=-0.65). Organizational commitment in 1989 was positively related to the pharmacist job withdrawal intention in 1992 (β=0.26). Career commitment in 1989 was positively related to the pharmacist career withdrawal intention in 1992 (β=0.59). Both career commitment and organizational commitment in 1989 were positively related to each other in 1992 (β=0.18, β=0.10)

A US study [52] was conducted with 1199 licensed pharmacists to examine job satisfaction, organizational commitment, and turnover intention from their jobs. In work-related attitudes, 74% of the pharmacists reported higher overall job satisfaction level. More than 90% of the pharmacists responded higher organizational commitment level and 33% reported that they had intention to leave their current jobs. The pharmacists who were the owners of the pharmacies had higher levels of job satisfaction and organizational commitment, lower level of turnover intention than the staff pharmacists. Independent community pharmacists had higher levels of overall job satisfaction and satisfaction with rewards than the pharmacists in hospital and chain community settings. The satisfaction with workload was not significantly different in the

pharmacists in different practice settings. Male pharmacists had lower job satisfaction than female pharmacists. Chain community pharmacists had higher turnover intention level than independent community pharmacists.

A US study [53] was conducted with 1542 licensed pharmacists to examine the reasons why the pharmacists intended to leave their current jobs in the next year. about 15% of the participants were likely to leave their current jobs in the next year. The pharmacists intending to leave their jobs had significantly difference between time desired and actual time spent in drug-use management and in medication dispensing than those who intended to stay in their jobs. The pharmacists who intended to leave reported higher perceived workload and lower perceived effect of workload than those who intended to stay. The most common reasons to intend to leave the jobs were desire for a change, work burnout, high stress level, excessive workload and poor salary. Single pharmacists were 1.6 times more likely to leave their jobs than married pharmacists. Nonwhites were 2 times more likely to leave than whites. The more the effect of perceived workload for the pharmacists, the more the likelihood of leaving their jobs.

A US study [54] was conducted with 653 pharmacists to examine the effects of job stress, organizational commitment, career commitment, met expectation, and job satisfaction on the pharmacist job turnover intention. About 31% of the pharmacists intended to leave their jobs in the next year. Career commitment, organizational commitment, job satisfaction, and met expectations were mediators of job stress on pharmacist job turnover intention. Organizational commitment (β=-0.64) and job satisfaction (β=-0.39) had directly negative relationships with pharmacist turnover intention. Decreasing job stress and increasing met expectations, career commitment, organizational commitment and job satisfaction decreased the likelihood of job turnover intention.

A study [18] was conducted with 32181 UK pharmacists to explore job satisfaction, and turnover intention from pharmacy profession. Female pharmacists were less satisfied with their jobs than male pharmacists. Pharmacists working in hospital and primary care sectors were significantly more satisfied with their jobs than those in community pharmacies. The weak desire to practice pharmacy was significantly associated with lower job satisfaction. About 9% (n=1680) of the participants had high intention to leave the pharmacy profession within 2 years. Male pharmacists had higher intention to leave the profession than female pharmacists. A weak desire to practice the pharmacy and working the part-time jobs were associated with higher likelihood

of turnover intention from the profession. The pharmacists having higher satisfaction with their jobs were less likely to leave the pharmacy profession.

A UK study [55] was conducted with 1767 pharmacists to identify the changes of pharmacist intention to leave their jobs in next three years. About 37% of the pharmacists intended to reduce their working hours and about 11% planned the career break. The pharmacists aged between 31-40 years had more intention to reduce working hours than those in other ages. Approximately 19% of the pharmacists planned to leave the pharmacy profession to change into another career. About 14% intended to move another sector of pharmacy. The most common reason to leave the pharmacy profession was to reduce working hours.

A study in Lithuania [56] was conducted with 324 community pharmacists to investigate the relationships among perceived organizational support, organizational commitment, and pharmacist turnover intention. In the mean score of 5-point Likert scale, the pharmacists disagreed to the turnover intention from their jobs. Perceived organizational support and organizational commitment had negatively strong correlations with pharmacist turnover intention. In the final model of structural equation model, the effect of perceived organizational support was mediated via organizational commitment to turnover intention, and the organizational commitment (β=-0.66) had a significantly negative direct effect on pharmacist turnover intention from their jobs.

An Australian study [57] was conducted with 81 hospital pharmacists to investigate the factors affecting the pharmacist recruitment and retention. About one fourth of the participants reported having intention to leave their current jobs within two years. Most (67%) of the pharmacists who planned to leave were aged between 25 to 34 years. The main reasons to leave were excessive travel time, lack of career opportunities, not meeting job expectations, and inflexible working hours.

A Saudi Arabian study [58] was conducted with 325 pharmacists to assess job satisfaction, work commitment and pharmacist intention to leave in different healthcare settings. About 61% of the pharmacists had intention to leave their current jobs. Among the participants in hospital pharmacy setting, 68.7% were likely to leave their jobs. Of community pharmacists, 73.3% were likely to leave. Approximately 54% of the pharmacists in primary care pharmacy setting were likely to leave, 49% in industrial setting were likely to leave, and 41% in academic setting were

likely to leave their jobs. Job satisfaction (β=-0.08) and work commitment (β=0.043) of the pharmacists were significantly associated with their intention to leave the current jobs.

A study [59] was conducted with 101 Taiwanese hospital pharmacists to explore the relationship between job stress, organizational climate, workplace burnout and pharmacist retention. In the mean score of 5-point agreement Likert scale, the pharmacists neither agreed nor disagreed for intention to leave in their current jobs. The pharmacists between 21- 40 years old were more likely to leave their jobs than those over 50 years old. The pharmacists with 1-8 tenure years were more likely to leave their jobs than those over 8 tenure years. Organizational climate (r= -0.62) was negatively correlated, and job stress (r= 0.47) and workplace burnout (r=0.31) were positively correlated with pharmacist intention to leave their jobs.

A study [60] was conducted with 298 Taiwanese registered pharmacists to examine the relationship between job characteristics and job outcomes (job satisfaction and job turnover intention). Hospital pharmacists were less satisfied with their jobs and more intended to leave their jobs than clinic and community pharmacists did. Enriching job characteristics was positively related with job satisfaction and negatively related with pharmacist turnover intention from their jobs. The more enriched job characteristics led to increase job satisfaction and to reduce job turnover intention of the pharmacists.

A study [61] was conducted with 182 Taiwanese hospital pharmacists to identify the effect of physical environment of the hospital pharmacies on their work outcomes which were job satisfaction, intention to leave their jobs, intention to reduce their working hours and job stress. Physical environment of the work was moderately negative correlated with pharmacist turnover intention from their jobs. Intention to reduce their working hours was strongly positive correlated with and job stress was moderately positive correlated with pharmacist intention to leave their jobs. Age and working years as a pharmacist had significantly negative correlations with pharmacist job turnover intention.

A study in Taiwan [62] was conducted with 247 hospital pharmacists to explore the pharmacists' job stressors and their effect on insomnia and work-related outcomes of the pharmacists. Pharmacist job stress level was positively related to pharmacist insomnia (β=0.22), stronger intention to reduce working hours (β=0.35), stronger intention to change their job content (β=0.35) and stronger intention to leave their jobs (β=0.22). Job support provided to the pharmacists was positively related to job satisfaction (β=0.85) of the pharmacists and negatively

related to the pharmacist intention to change job content (β=-0.20) and to leave their jobs (β=-0.27). Female pharmacists were more likely to have higher levels of insomnia and intention to reduce their working hours. The hospital pharmacists with higher monthly income were likely to have lower insomnia level and those with older ages were less likely to leave their jobs.

A study in Thailand [63] was conducted with 209 community pharmacists to explain the relationships among organizational resources, job characteristics, pharmacist engagement, social supports, and pharmacist turnover intention. About 21% of the community pharmacists intended to quit their job within one year. In the 5-point Likert scale, the pharmacists neither agreed nor disagreed for the turnover intention from their jobs within one year. Pharmacist engagement (β=-0.24) and organizational resources (β=-0.45) had significantly negative relationships with pharmacist turnover intention. Job characteristics (β=0.44) and social support (β=0.55) had significantly positive relationships with pharmacist engagement.

A study in Malaysia [64] was conducted with 247 registered pharmacists in public sectors to assess job satisfaction and organizational commitment among pharmacists, their effects on the pharmacist likelihood to stay in the public sector. About 27% of the pharmacists were unlikely to stay in their current jobs and about 71% were likely to stay in their jobs. The pharmacists intending to stay in their jobs had significantly higher levels of job satisfaction and organizational commitment. Female pharmacists were 2.5 times more likely to stay in their public sector jobs than male pharmacists. Increasing one score in job satisfaction and organizational commitment increased 4.4% and 8.6% in the odds of staying in their jobs, respectively.

Factors influencing turnover intention

To predict the turnover intention of the pharmacists, there were many factors evaluated in many studies. Most factors impacting pharmacists' intention to leave their jobs were related to the job or organization.

1) Organizational commitment

Many studies investigated the relationship between organizational commitment and turnover intention of the pharmacists. Organizational commitment was defined as the degree to which a person is psychologically attached to a working organization through feelings such as loyalty, belongingness, affection, etc. [64] It was also described as a person's emotional attachment to, identification with, and involvement in the working organization. [44] Some studies described that there were three constructs of organizational commitment; 1) Affective

commitment was a person's emotional or psychological attachment to an organization, 2) Normative commitment was a person's feeling obliged to remain with an organization, and 3) Continuance commitment was compliances or conformity as a result of rewards and punishments. [45, 47] In most of the studies, organizational commitment was negatively related with pharmacist turnover intention. [54, 44, 45, 19, 47] The pharmacists who had higher organizational commitment level were less likely to leave their jobs. Some studies used the measurement adopted from the study of Mowday et al., which included 15-item questions. [58, 64, 20, 54, 19, 56] Some studies measured organizational commitment by the measurement of Meyer and Allen, which included three constructs such as affective, normative and continuance commitments. [44, 45, 47]

2) Job satisfaction

Another factor affecting to the pharmacist turnover intention was job satisfaction. Job satisfaction was defined as the extent to which employees like (satisfaction) or dislike (dissatisfaction) their jobs. [58] It was also the feeling of employees about their jobs and the extent to which these feelings were satisfied in their workplace. [64] It was also a positive attitude and emotional state regarding the appraisal of the job situation. [48] Job satisfaction had a positive relationship with pharmacist intention to leave their jobs. [58, 43, 54, 44, 46, 48, 61, 18, 62] The more the pharmacists were satisfied, the less the pharmacists intended to leave their jobs. Many studies used Herzberg's Two-Factor Theory to measure employees' job satisfaction. [58, 64, 61, 62] Some studies evaluated job satisfaction with Warr-Cook-Wall job satisfaction scale [18] and Job Descriptive Index. [48] Job satisfaction had a positive relationship with organizational commitment. [44]

3) Career commitment

Career commitment was defined as employees' attitude towards their profession or vocation and as the strength of their motivation to work in a chosen career role. [20, 54, 44, 19] Career commitment was negatively related to turnover intention in many studies. The pharmacists with higher career commitment were less likely to leave their current jobs. Many studies evaluated the pharmacists' career commitment by the Blau's measure. [20, 54, 44, 19] Career commitment had positive relationships with organizational commitment and job satisfaction. [20, 44, 19]

4) Job stress

Job stress was described as the non-specific negative response of the body to demands in the work. [44] The characteristics of job environment posing a threat to the employees was also job stress. [59] Job stress positively affected to pharmacist intention to leave their jobs. [44, 59, 61, 62] The more job stress level, the more the pharmacist turnover intention. Some studies measured job stress by using Job Stress Inventory. [44, 59] Job stress also had negative effect on organizational commitment, job satisfaction and career commitment. [44, 61, 62]

5) Perceived organizational support

Perceived organizational support was defined as the employees' perception of how the organization cared about their needs and expectations. [56] It was also the employees' perception that the organization valued their contributions and cared about their well-being. [48] It had a negative effect on pharmacist turnover intention. [48, 56] The pharmacists with higher perceived organizational support level were less likely to leave their jobs. Some studies evaluated it by using Perceived Organizational Support Instrument of Eisenberger et al. [48, 56] Perceived organizational support had positive effects on job satisfaction and organizational commitment. [48, 56]

6) Work climate

Work climate is a working environment in the workplace. [61] It is a characteristic of the organizational environment represented by a better work schedule, less workload and less stress. [44] It was also defined as the employees' perception of the work environment which was valuable information to an organization and aiding it in identifying and improving workplace deficiencies. [59] Work climate had a negative relationship with pharmacist turnover intention. [44, 59, 61] The better work climate made the employees less intend to leave their jobs. The instruments used in previous studies were Organizational Climate Inventory and physical environment measures. [59, 61] Work climate had positive effects on job satisfaction, organizational commitment, and career commitment. [44, 61] It had a negative effect on job stress. [44, 59]

7) Role overload

Role overload was found as having the positive relationship with pharmacist turnover intention. [44] Role overload was defined as the conflict between time and organizational demands concerning the work amount to be done. [44] It had also negative effects on

organizational commitment, job satisfaction, and career commitment, but had a positive effect on job stress.

8) Role conflict

Role conflict was positively related to pharmacist turnover intention. It was reflecting the simultaneous occurrence of two or more pressure sets such that compliance with one would make compliance with the other more difficult. [44] Role conflict was evaluated by using the measure created from Role Theory. [44] It was also negatively related to organizational commitment, job satisfaction, and career commitment. [44] It had a positive effect on job stress. [44]

9) Job embeddedness

Job embeddedness was reported by having a negative effect on the pharmacist turnover intention.[48] It was defined as the combined forces that keep employees from leaving their jobs. [48] In literature, job embeddedness was evaluated with the measure created by Crossley et al. [48]

10) Job-embeddedness organizational activities

Job-embeddedness organizational activities had a negative effect on the pharmacist turnover intention. [48] It was the engagement activities to keep employees from leaving their jobs. [48] Job embeddedness organizational activities also had positive relationships with job satisfaction and perceived organizational support. [48]

11) Organizational resources

Organizational resources had a negative effect on turnover intention of the pharmacists. It was defined as the provision of physical aspects of the organization, and characterizing by training & development, payment & recognition, and physical working condition. [63] It was assessed with 3 indicators including payment & recognition, training & development, and physical working condition. [63]

12) Patient care performance

Patient care performance was negatively related to pharmacist turnover intention. It was described as the overall evaluation of how well the individual was meeting the expectations of the organization in terms of job performance.” [45]

13) Compensation & advancement

Compensation and advancement were characteristics of the organizational environment including better pay, benefits and advancement opportunities. [44] It had a direct positive effect on pharmacist turnover intention as well as indirect effects on their turnover intention through job satisfaction, organizational commitment and job stress. [44]

14) Pharmacist well-being

Pharmacist well-being had a significant effect on pharmacist turnover intention. [51] It was measured by using Well-Being Index and composed of reverse multi-dimensions of distress, including anxiety, depression, stress, fatigue, and burnout. [51] The higher well-being index score indicated the more distress level of pharmacists leading to the pharmacists being less likely to leave their jobs. [51]

15) Pharmacist career stage

Pharmacist career stage was identified into four primary career stages to progress through the pharmacist's career: 1) exploration stage which concerned with finding a good job fit and learning the basics of a career, 2) establishment stage where the employees tried to master job skills and to advance through the hierarchy of ranks existing within their career", 3) maintenance stage what characterized by plateaus in which the employees no longer actively strived to attain higher rank or skill in their career, and 4) disengagement stage where the employees were preparing to retire from the industry. [43] This career stage had a negative relationship on pharmacist turnover intention.

16) Insomnia

The insomnia status of the pharmacists was positively related to pharmacist turnover intention. [62] It had a negative relationship with pharmacists' job satisfaction. The pharmacists suffering more from insomnia were less satisfied with their jobs and were more likely to leave their job.

17) Responsibilities of household activities

Responsibilities of household activities were referred to the percentage of household activities pharmacists performed, such as grocery shopping, childcare, or housekeeping. [45] The responsibilities of household activities had not only a direct positive effect on pharmacist turnover intention but also an indirect effect through organizational commitment. [45]

18) Work-home conflict

Work-home conflict was a predictor positively affecting to the pharmacist turnover intention. [44] It was defined as the conflict in which the role pressures from work and family were mutually incompatible. [44] It had negative effects on job satisfaction, organizational commitment and career commitment, but had a positive effect on job stress. [44]

19) Interpersonal interactions

Interpersonal interactions were described as the interactions that pharmacists had were examined in the context of pharmacist-management, pharmacist-patient and pharmacist-coworker interactions. [44] For the pharmacists, interpersonal interactions had a positively strong correlation with pharmacist turnover intention. It also had a positive effect on job stress, and negative effects on organizational commitment, job satisfaction, and career commitment.

20) Social support

Social support was job support from high-level person, leader, peer, subordinate, patient, and family support. [62] Supports from high-level person, leader, peer, and family were significantly negative correlated with pharmacist intention to leave.

21) Availability of acceptable jobs

Availability of acceptable jobs was the ease to finding an acceptable job alternative. [44] It had not only a direct positive effect on pharmacist turnover intention but also an indirect effect through job stress, organizational commitment, and job satisfaction.

22) Role ambiguity

Role ambiguity was a predictor for the pharmacist turnover intention by having a positive relationship. [44] It was defined as the extent to which the employees were unclear about the expectations of others as well as the degree of uncertainty associated with their performance and it was measured with the measurement created from Role Theory. [44] It also had negative effects on job satisfaction, organizational commitment and career commitment, but had a positive effect on job stress.

23) Balance of exchange

Balance of exchange was identified into the weighing of the benefits received by (organization owes), and the benefits given by the individual (I owe). [45] Balance of exchange with the feeling of the pharmacists being owed by the organization had a positive relationship with

their intention to leave the jobs, but the balance of exchange with the feeling of the pharmacists owing the organization had a negative relationship. The balance of exchange with the feeling being owed by the organization had a negative effect on normative commitment. The balance of exchange with the feeling owing the organization had positive effect on three types of organizational commitment which were affective, normative and continuance commitments.

24) Reciprocity-based obligation

Reciprocity-based obligation was a feeling that the employees owed their organization and the employees' feeling of obligation to their working organization due to the exchange of benefits assessed this. [45] It had a negative effect on turnover intention as well as a positive effect through organizational commitment.

25) Workplace burnout

Workplace burnout was the employees' feeling of emotional exhaustion, depersonalization, and a reduced sense of their personal accomplishment. [59] Workplace burnout was positively correlated with both pharmacist intention to leave their jobs and job stress.

26) Organizational loyalty

Organizational loyalty was a predictor negatively affecting to the pharmacist turnover intention. It was defined as the state or quality of being faithful to the working organization. [47] In specifying the practice settings, the organizational loyalty was significantly related to turnover intention of independent community pharmacists, but not significant in the relationship of turnover intention of hospital and chain community pharmacists.

27) Pharmacist engagement

Pharmacist engagement was defined as a continuous state of overall positive mental satisfaction with the job. [63] It was demonstrated into; 1) Vigor which was the high energy and mental resilience levels while working at the pharmacy; 2) Dedication which was strongly involved at the job and experienced a sense of significance, inspiration, enthusiasm, pride, and challenge while working in this job, and 3) Absorption what was the employees' mental state of being fully concentrated on and happily engrossed in the current work, whereby time passed quickly. [63] It had a negative effect on pharmacist turnover intention. [63]

28) Reducing work-hour intention

Pharmacists' intention to reduce the working hours had a positive correlation with pharmacists' intention to leave their jobs. [61, 62] The more the pharmacists intended to reduce their work hours, the more the pharmacists were likely to leave their current jobs.

29) Changing job-content intention

Similarly, the pharmacists' intention to change the job content had a strongly positive correlation with pharmacist turnover intention from their jobs. [62] The pharmacists who had more intention to change their job content were more likely to leave their jobs.

30) Perceived workload

In a previous study, 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". [53] Rating perceived workload was significantly higher in the pharmacists who intended to leave their jobs than those who did not intend to leave, but it was not significantly related to the pharmacist turnover intention from their jobs. The perception level on effect of workload was significantly lower in the pharmacists who intended to leave their jobs and it was significantly related to the pharmacist turnover intention.

CHAPTER III

METHODOLOGY

Data sources and searches

The current systematic review was conducted following the PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analysis) statements. [65] The search string to be used for searching was: (turnover intention) OR (intention to leav*) OR (intention to quit*) OR (intention to turnover) OR (intention to stay*) AND (pharmacist*). The search terms used in the six databases were different depending on the database searching guidelines. The used databases were PubMed, Scopus, ScienceDirect, ProQuest, ERIC, and ERIC-EBSCO. There was no starting date to cut off the articles but the last date for searching the articles was December 2020. The bibliographies of retrieved articles were also examined to identify relevant studies that were not indexed in the former databases. The keywords used in six databases were:

1) PubMed - ((((turnover intention) OR (intention to leav*)) OR (intention to quit*)) OR (intention to turnover)) OR (intention to stay)) AND (pharmacist*)
2) Scopus - (TITLE-ABS-KEY (turnover AND intention) OR TITLE-ABS- KEY (intention AND to AND leave) OR TITLE-ABS-KEY (intention AND to AND quit) OR TITLE-ABS-KEY (intention AND to AND turnover) OR TITLE-ABS-KEY (intention AND to AND stay) AND TITLE-ABS-KEY (pharmacist))
3) ScienceDirect - ("turnover intention" OR "intention to leave" OR "intention to quit" OR "intention to turnover" OR “intention to stay) AND ("pharmacist")
4) ProQuest - ab(turnover intention) OR ab(intention to leav*) OR ab(intention to quit*) OR ab(intention to turnover) OR ab(intention to stay) AND ab(pharmacist*), Source type - Dissertations & Theses, Scholarly Journals, Working Papers, Language - English
5) Eric - pharmacist turnover intention pharmacist intention to leave pharmacist intention to quit pharmacist intention to stay
6) Eric-EBSCO - TX (turnover intention or intention to leave or intention to quit or intention to stay OR TX intention to turnover) AND TX pharmacist*, Limiters - Full Text; Journal or Document: Journal Article (EJ); Language: English, Expanders - Apply equivalent subjects, Search modes - Find all my search terms.

Study selection

Initially, the titles and abstracts were screened to identify potential studies meeting inclusion criteria which were that (1) the articles were written in the English language, (2) the researchers were able to retrieve full text, (3) the method being employed was a quantitative

technique and (4) the studies included the results of pharmacists specifically. If the studies have been conducted with multi-type of healthcare professionals but not identified the pharmacist turnover, turnover intention, or any factor relating to their turnover intention, the studies were excluded. Screening of the articles was manually performed by one researcher (S.M.T.) according to the eligible criteria and checked by another researcher (T.K.*). The quality of the methodology was used as an exclusion criterion. Only the studies that demonstrated good quality (higher than or equal to 0.75 of quality score) were included.

Quality assessment of articles

All included studies were entirely read and assessed for methodology quality using The QualSyst tool by Kmet, Lee, and Cook [66]. This tool includes 14 criteria assessing all facets of study design and reporting with the score of 0= not appropriate, 1= partial appropriate, 2= totally appropriate, and N/A = not applicable for some studies. The total average score was calculated, resulting in a score between 0 and 1. The methodology quality assessment was carried out independently by three researchers (S.M.T., T.K.*, and B.C.) to reduce the bias. Then, the average scores from all reviewers were calculated. A score of 0.75 and above indicates that the study design and methodology are appropriate.[67] The questions of the tool used in this review were as the following;

Q1: Question/Objective sufficiently described?

Q2: Study design evident and appropriate?

Q3: Method of subject/comparison group selection or source of information / input variables described and appropriate?

Q4: Subject (and comparison group, if applicable) characteristics sufficiently described?

Q5: Outcome and (if applicable) exposure measure(s) well defined and robust to measurement/ misclassification bias?

Q6: Sample size appropriate?

Q7: If interventional and random allocation was possible, was it described? *(N/A for the included* studies*)*

Q8: If interventional and blinding of investigators was possible, was it reported? *(N/A for the included* studies*)*

Q9: If interventional and blinding of subjects was possible, was it reported? *(N/A for the* included *studies)*

Q10: Analytic methods described/ justified for the main results?

Q11: Some estimate of variance is reported for the main results?

Q12: Results reported in sufficient detail?

Q13: Conclusion supported by the results?

Q14: Controlled for confounding? *(N/A for the included studies)*

Data extraction and synthesis

For the objective 1, the data extraction was performed by two researchers (S.M.T. and T.K.*), and the extracted data consisted of; 1) the percentages of pharmacists' actual turnover both from their jobs and the pharmacy profession, 2) the percentages and mean scores of pharmacists' turnover intention intensity from their jobs and pharmacy profession, and 3) the factors affecting to the pharmacist turnover intention from their jobs. The other data such as authors, published year, study place, sample population, number and age of participants, male (%), and response rate in each study were also extracted.

Initially, the data about the factors affecting the pharmacist turnover intention, and associations among these 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 on turnover intention in the results were identified and grouped into same dimension. Finally, a model for the pharmacist turnover intention was synthesized. Two researchers performed the data extraction with extracted the results and synthesizing 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 10, 11 & 12). 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).

CHAPTER IV

RESULT

The first objective of this study was to reveal the extent of pharmacists' actual turnover and turnover intention from their jobs and pharmacy professions in different pharmacy settings or countries. The second objective was to explore the factors affecting the turnover intention of the pharmacists from their jobs. In this chapter, the results for above objectives were provided.

Quality assessment score

Based on 14 quality criteria of the QualSyst tool, the methodological quality of all studies was assessed by 3 researchers. All total average scores of the studies were equal or above 0.75 which was indicating the good study quality. The scores were shown in table 1.

Table 1: Quality assessment scores for included studies

Author (year)	Researcher	Questions of the tool used in the current systematic review										Total	Total average score
		Q 1	Q 2	Q 3	Q 4	Q 5	Q 6	Q 10	Q 11	Q12	Q13		
Smith et al, 1986 [30]	S.M.T.	2	2	2	1	1	0	1	0	2	1	12	0.75
	T.K.*	2	2	2	2	2	1	2	0	2	2	17	
	B.C.	2	2	2	1	2	1	2	1	2	1	16	
McHugh et al, 1999 [52]	S.M.T.	2	2	2	2	1	2	1	1	1	1	15	0.82
	T.K.*	2	2	2	2	2	1	2	0	2	2	17	
	B.C.	2	2	2	2	2	1	1	1	2	2	17	
Boardman et al, 2000 [55]	S.M.T.	2	1	1	2	1	2	1	0	1	2	13	0.8
	T.K.*	2	2	2	2	2	2	2	0	2	2	18	
	B.C.	2	2	2	2	2	1	2	0	2	2	17	
Mott et al, 2000 [17]	S.M.T.	2	2	2	2	2	2	1	1	1	2	17	0.8
	T.K.*	2	2	1	1	1	1	2	0	2	2	14	
	B.C.	2	2	2	2	2	1	1	1	2	2	17	
Kahaleh et al, 2003 [47]	S.M.T.	2	2	2	2	2	2	2	2	1	1	18	0.88
	T.K.*	2	1	1	1	2	2	2	2	2	2	17	
	B.C.	2	2	2	2	2	2	2	2	1	1	18	
Garber et al, 2005 [45]	S.M.T.	2	2	2	2	2	2	2	2	2	2	20	0.95
	T.K.*	2	2	2	1	2	1	2	2	2	2	18	
	B.C.	2	2	2	2	2	1	2	2	2	2	19	
Gaither et al, 2007 [53]	S.M.T.	2	2	2	2	2	2	2	2	2	2	20	0.95
	T.K.*	2	2	2	2	2	1	2	1	2	2	18	
	B.C.	2	2	2	2	2	2	2	1	2	2	19	
Garrett et al, 2008 [57]	S.M.T.	2	1	1	2	2	0	1	1	2	2	14	0.75
	T.K.*	2	2	1	2	2	1	2	1	2	2	17	
	B.C.	2	2	1	1	2	0	1	1	2	2	14	
Goodyear-smith et al, 2008 [41]	S.M.T.	2	1	1	2	2	2	1	1	1	1	14	0.77
	T.K.*	2	2	2	2	2	2	2	0	2	2	18	
	B.C.	2	1	1	2	2	1	1	0	2	2	14	

Author (year)	Researcher	Questions of the tool used in the current systematic review										Total	Total average score
		Q 1	Q 2	Q 3	Q 4	Q 5	Q 6	Q 10	Q 11	Q12	Q13		
Seston et al, 2009 [18]	S.M.T.	2	0	1	2	2	2	2	2	2	1	16	0.78
	T.K.*	2	1	1	1	1	1	2	2	2	2	15	
	B.C.	2	1	1	2	1	2	2	2	2	1	16	
Yeh et al, 2010 [62]	S.M.T.	2	2	2	2	2	1	2	2	2	1	18	0.87
	T.K.*	2	1	1	1	2	1	2	1	2	2	15	
	B.C.	2	2	2	2	2	1	2	2	2	2	19	
Roslan et al, 2014 [42]	S.M.T.	2	2	2	1	2	1	1	1	1	1	14	0.85
	T.K.*	2	2	2	2	2	2	2	2	2	2	20	
	B.C.	2	2	2	1	2	1	1	2	2	2	17	
Chua et al, 2014 [64]	S.M.T.	2	2	2	2	2	2	2	2	2	2	20	1
	T.K.*	2	2	2	2	2	2	2	2	2	2	20	
	B.C.	2	2	2	2	2	2	2	2	2	2	20	
Al-Muallem et al, 2019 [58]	S.M.T.	2	2	2	2	2	2	2	2	2	2	20	0.93
	T.K.*	2	2	1	1	1	2	2	2	2	2	17	
	B.C.	2	2	2	1	2	2	2	2	2	2	19	
Skrupky et al, 2020 [51]	S.M.T.	2	1	1	2	1	2	1	1	2	1	14	0.8
	T.K.*	2	2	1	2	1	1	2	2	2	2	17	
	B.C.	2	2	1	2	1	1	2	2	2	2	17	
Gaither et al, 1998 [20]	S.M.T.	2	2	2	2	2	2	1	1	1	1	16	0.87
	T.K.*	2	1	1	1	2	2	2	2	2	2	17	
	B.C.	2	2	2	1	2	2	2	2	2	2	19	
James et al, 1990 [19]	S.M.T.	2	2	2	2	2	2	2	2	2	2	20	0.98
	T.K.*	2	2	2	1	2	2	2	2	2	2	19	
	B.C.	2	2	2	2	2	2	2	2	2	2	20	
Gaither et al, 1999 [54]	S.M.T.	2	2	2	2	2	2	2	2	2	2	20	0.95
	T.K.*	2	2	2	2	2	1	2	1	2	2	18	
	B.C.	2	2	2	2	2	2	2	1	2	2	19	
O'Neill et al, 2007 [50]	S.M.T.	2	1	2	2	2	2	2	2	2	1	18	0.88
	T.K.*	2	2	1	1	1	2	2	2	2	2	17	
	B.C.	2	2	2	1	1	2	2	2	2	2	18	
Munger et al, 2013 [49]	S.M.T.	2	2	2	2	2	2	2	1	1	1	17	0.83
	T.K.*	2	2	1	1	1	1	2	2	2	2	16	
	B.C.	2	2	2	2	1	2	2	2	1	1	17	
Nakpun et al, 2020 [63]	S.M.T.	2	2	2	2	2	1	2	2	2	2	19	0.98
	T.K.*	2	2	2	2	2	2	2	2	2	2	20	
	B.C.	2	2	2	2	2	2	2	2	2	2	20	
Kerr et al, 2005 [40]	S.M.T.	2	1	1	2	2	1	2	2	2	1	16	0.85
	T.K.*	2	2	2	2	2	1	2	1	2	2	18	
	B.C.	2	2	2	2	2	1	2	1	2	1	17	
Arndt et al, 2006 [43]	S.M.T.	2	1	1	2	2	2	2	2	2	1	17	0.87
	T.K.*	2	2	1	1	1	2	2	2	2	2	17	
	B.C.	2	2	1	1	2	2	2	2	2	2	18	
Lin et al,	S.M.T.	2	1	2	2	1	1	2	2	2	1	16	0.82

Author (year)	Researcher	Questions of the tool used in the current systematic review										Total	Total average score
		Q 1	Q 2	Q 3	Q 4	Q 5	Q 6	Q 10	Q 11	Q12	Q13		
2007 [60]	T.K.*	2	2	1	1	1	1	2	2	2	2	16	
	B.C.	2	2	2	1	1	1	2	2	2	2	17	
Gaither et al, 2008 [44]	S.M.T.	2	2	2	2	2	2	2	2	2	2	20	0.98
	T.K.*	2	2	2	1	2	2	2	2	2	2	19	
	B.C.	2	2	2	2	2	2	2	2	2	2	20	
Leupold et al, 2013 [48]	S.M.T.	2	1	1	2	2	0	2	1	2	1	14	0.77
	T.K.*	2	2	1	1	1	1	2	2	2	2	16	
	B.C.	2	2	1	1	2	1	2	1	2	2	16	
Urbonas et al, 2015 [56]	S.M.T.	2	1	2	2	2	2	2	2	1	2	18	0.87
	T.K.*	2	1	1	1	2	1	2	2	2	2	16	
	B.C.	2	1	2	2	2	2	2	2	1	2	18	
Lan et al, 2020 [59]	S.M.T.	2	2	1	2	2	2	1	1	2	1	16	0.82
	T.K.*	2	2	1	1	1	2	2	2	2	2	17	
	B.C.	2	2	1	2	2	2	1	1	2	1	16	
Hardigan et al, 2010 [46]	S.M.T.	2	2	2	2	2	1	1	2	2	1	17	0.8
	T.K.*	2	2	1	1	1	1	2	0	2	2	14	
	B.C.	2	2	2	1	2	1	2	2	2	1	17	
Lin et al, 2008 [61]	S.M.T.	2	2	2	2	1	1	2	1	2	1	16	0.83
	T.K.*	2	2	1	1	2	1	2	2	2	2	17	
	B.C.	2	2	2	1	2	1	2	1	2	2	17	

Note: [scores: 2 = totally appropriate, 1 = partially appropriate, 0 = not appropriate, and N/A = not applicable for the study]

Q1: Question/Objective sufficiently described?

Q2: Study design evident and appropriate?

Q3: Method of subject/comparison group selection or source of information / input variables described and appropriate?

Q4: Subject (and comparison group, if applicable) characteristics sufficiently described?

Q5: Outcome and (if applicable) exposure measure(s) well defined and robust to measurement/ misclassification bias?

Q6: Sample size appropriate?

Q10: Analytic methods described/ justified for the main results?

Q11: Some estimate of variance is reported for the main results?

Q12: Results reported in sufficient detail?

Q13: Conclusion supported by the results?

Reliability analysis

The reliability of the three sets of quality assessment results were be tested with interclass correlation coefficient (ICC) of interrater reliability, which is used to determine the consistent and agreeable feature of evaluation measures. [68] Interrater reliability reveals the variation between two or more raters measuring the same group of subjects. (69) Based on 2-way mixed model with

absolute agreement for the scores of three raters, ICC estimate was 0.71 with 95% confident interval (0.47-0.85) which could be regarded as “moderate” to “good” reliability (Table 2).

Table 2: Interclass correlation coefficient (ICC) of inter-rater reliability

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
51.6000	20.524	4.53036	3

Intraclass Correlation Coefficient

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.445[a]	.227	.653	3.507	29	58	.000
Average Measures	.706[c]	.469	.849	3.507	29	58	.000

Two-way mixed effects model where people effects are random and measures effects are fixed.

a. The estimator is the same, whether the interaction effect is present or not.

b. Type A intraclass correlation coefficients using an absolute agreement definition.

c. This estimate is computed assuming the interaction effect is absent, because it is not estimable otherwise.

The extents of actual turnover and turnover intention of the pharmacists

There were 2,468 articles found from the 6 databases which were used in this systematic review and then two more articles were identified from the references of the included articles (in Figure 2). The duplications were discarded (n=28). After screening the titles and abstracts, 2401 were discarded because they were not related to the pharmacy workforce (n= 2,370) or related to job issues in pharmacy but not mentioned turnover or turnover intention (n=31). The full texts of the remaining 41 articles were retrieved and assessed for their inclusion criteria. Thirteen articles were further discarded because the studied subjects were healthcare professionals and the actual turnover or turnover intention of the pharmacists could not be identified (n= 3), the terms actual turnover and turnover intention were not clearly defined (n = 6), and the studies used qualitative method (n= 4). The remaining 28 articles were assessed for methodology quality with quality assessment scoring and all of them remained for the review because they got the quality scores higher than 0.75 in total.

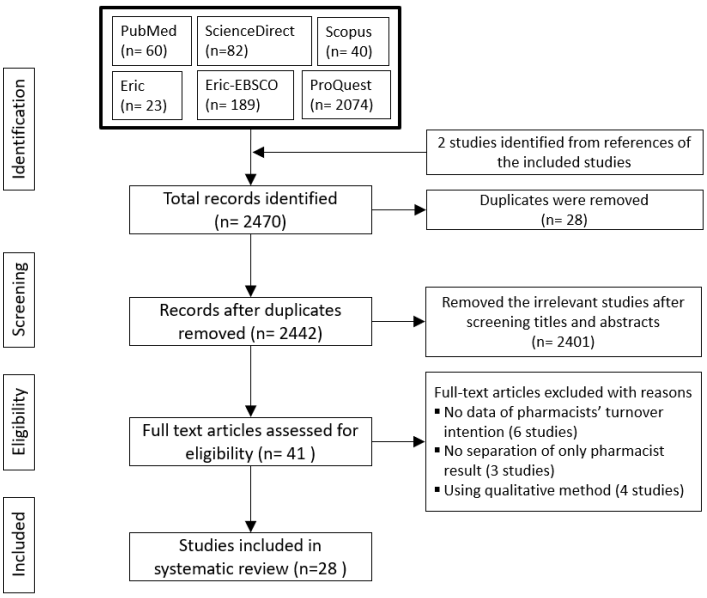


*Figure 2: **PRISMA Flow Chart of included studies in the review***

Study characteristics

In the 28 articles included in this systematic review, 48498 participants were surveyed, and the number of study participants was ranged from 22 to 32181. The response rates were ranged from 6.37% to 100%. Fifteen studies (53.6%) were conducted in the US,[43, 20, 54, 44, 53, 45, 19, 47, 48, 52, 17, 49-51, 30] two studies (7.1%) were in UK.[55, 18] In Asia, three studies (10.7%) were conducted in Taiwan,[59, 60, 62] two studies (7%) in Malaysia,[64, 42] one (3.6%) in Saudi Arabia [58] and one (3.6 %) in Thailand.[63] The four remaining were conducted in Jamaica, [40] Lithuania, [56] Australia, [57] and New Zealand, [41] individually. Regarding studied participants, six studies [45, 57, 40, 59, 30, 62] (21.4%) focused only on hospital pharmacists including the pharmacists in teaching hospital and military, seven studies [20, 41, 48, 49, 63, 50, 56] (25%) focused only on community or retail pharmacists, and the remaining studies focused on the pharmacists in all pharmacy settings. [58, 43, 55, 64, 54, 44, 53, 19, 47, 52, 17, 42, 18, 51]

In terms of the focus of the study, three studies (10.7%) reported the actual turnover percentage of the pharmacists both from their jobs and the pharmacy profession. [20, 17, 18] Only one study reported actual turnover rates of the pharmacists from their jobs. [30] Three studies (10.7%) reported about the pharmacists' turnover intention both from their jobs and from the pharmacy profession.[55, 20, 19] Twenty-two studies (78.6%) only reported about the pharmacists' turnover intention from their current jobs [58, 43, 64, 54, 44, 53, 45, 57, 41, 47, 40, 59, 48, 60, 52, 49, 63, 50, 42, 51, 56, 62] and only one study [18] (3.6%) reported about their turnover retention from the pharmacy profession. The characteristics of the included studies are summarized as shown in Table 3.

Table 3: Characteristics of included study

Author, Year (Ref. No.)	Study place	Population	Number of participants	Participant characteristics		Response rate (%)	Extent of turnover intention % (Agreement intensity on intention to leave)		Extent of actual turnover	
				Age (years) Mean± SD	% Male		From job	From profession	From job	From profession
James et al, 1990 [19]	US	Registered pharmacists*	1510	43.2± 11.8	70.8	66	13% (Slightly disagree)	6.5% (Disagree)	-	-
McHugh et al, 1999 [52]	US	Registered pharmacists*	1199	39.2 Range:22-56+	48	60	33%	-	-	-
Gaither et al, 1999 [54]	US	Registered pharmacists*	653	-	70.4	71	31% (Slightly disagree)	-	-	-
Mott et al, 2000 [17]	US	Registered pharmacists*	541	43.5± 13.4	44.5	34.50	-	-	11%	9%
Kahaleh et al, 2003 [47]	US	Registered pharmacists*	421	47± 12	56	40	25.3%	-	-	-
Arndt et al, 2006 [43]	US	Registered pharmacists*	313	Average age was between 40-55 years	52.7	31.30	(Neither agree nor disagree)	-	-	-
Gaither et al, 2007 [53]	US	Registered pharmacists*	1542	49.3± 13.4	52.6	30	14.75%	-	-	-
Gaither et al, 2008 [44]	US	Registered pharmacists*	2250	46± 13	57	46	(Slightly disagree)	-	-	-
Skrupky et al, 2020 [51]	US	Registered pharmacists*	2231	50% had age between 35- 64 years	28.7	69.30	48.1%	-	-	-
Smith et al, 1986 [30]	US	Hospital pharmacists	217	33	59	41	-	-	14.4 %	-
Garber et al, 2005 [45]	US	Military pharmacists	469	37.6± 8.0	63.2	83	27.5%	-	-	-
Gaither et al, 1998 [20]	US	Community pharmacists	653	-	70	70.90	(Slightly disagree)	(Disagree)	17%	6%
O'Neill et al, 2007 [50]	US	Community Pharmacists	252	-	60	33	23% (Disagree)	-	-	-
Leupold et al, 2013 [48]	US	Retail pharmacists	143	50.6± 11.5	59.9	6.37	(Slightly disagree)	-	-	-
Munger et al, 2013 [49]	US	Community pharmacists	303	44.7	58	35.40	57% (Neither agree nor disagree)		--	-

Author, Year (Ref. No.)	Study place	Population	Number of participants	Participant characteristics		Response rate (%)	Extent of turnover intention % (Agreement intensity on intention to leave)		Extent of actual turnover	
				Age (years) Mean± SD	% Male		From job	From profession	From job	From profession
Boardman et al, 2000 (55)	UK	Registered pharmacists*	1767	Range:21-65	-	68.8	14.4%	18.8%	-	-
Seston et al, 2009 (18)	UK	Registered pharmacists*	32181	40± 10.75 Range: 21-64	40.3	76.60	-	8.7%	0.83 %	14.9%
Lin et al, 2007 (60)	Taiwan	Hospital, clinic, and community pharmacists	298	41.3± 10.0	46.6	14.90	(Slightly disagree)	-	-	-
Yeh et al, 2010 (62)	Taiwan	Hospital pharmacists	247	37	36	22.30	30.34%	-	-	-
Lan et al, 2020 (59)	Taiwan	Teaching hospital pharmacists	101	32.2± 9.8 Range: 21-70	24.8	91.82	(Neither agree nor disagree)	-	-	-
Chua et al, 2014 (64)	Malaysia	Registered pharmacists* (public sector)	247	27 (median)	16.2	52.9	27.2%	-	-	-
Roslan et al, 2014 (42)	Malaysia	Healthcare employees (hospital, clinic, and health offices)	10457 healthcare employees including pharmacists	42% had age between 27-36 years	31.3	64%	38.8%	-	-	-
Al-Muallem et al, 2019 (58)	Saudi Arabia	Registered pharmacists*	325	79.1% had age between 25 – 40 years	42.2	63.10	61.2%	-	-	-
Nakpun et al, 2020 (63)	Thailand	Community pharmacists	209	32.3	25.84	14.52	20.6% (Neither agree nor disagree)	-	-	-
Kerr et al, 2005 (40)	Jamaica	Hospital pharmacists	22	Range: 18- 54+	22.7	100	(Slightly disagree)	-	-	-
Urbonas et al, 2015 (56)	Lithuania	Community pharmacists	324	-	-	77.10	(Disagree)	-	-	-
Garrett et al, 2008 (57)	Australia	Hospital pharmacists	81	Range: 25- 55+	-	50	25%	-	-	-
Goodyear-smith et al,	New Zealand	Community pharmacists	246	48 Range:	52	89	47%	-	-	-

Author, Year (Ref. No.)	Study place	Population	Number of participants	Participant characteristics		Response rate (%)	Extent of turnover intention % (Agreement intensity on intention to leave)		Extent of actual turnover	
				Age (years) Mean± SD	% Male		From job	From profession	From job	From profession
2008 (41)				26-75						

* The setting of the pharmacy practice was not specified. SD = Standard deviation.

Actual turnover

Out of 28 articles, four articles (14.3%) measured the actual turnover of pharmacists from their jobs and the pharmacy profession.[20, 17, 18, 30] Two articles were conducted in the US and two articles were in the UK.

The percentage of the actual turnover of pharmacists from the pharmacy profession ranged from 6 to 9.[20, 17, 18] In a UK study, about 7.1% of the pharmacists were no longer on the Royal Pharmaceutical Society of Great Britain Register and the pharmacists who quitted from their profession were more likely to be white (93% vs 73.1%) and have been working part-time (67% vs 41.1%) than those who had not quitted. [18] Studies in the US showed that about 6-9% of the pharmacists left the pharmacy profession or worked in other professions. [20, 17] This article also suggested the potential predicting factors of actual turnover from the profession, i.e., career withdrawal intention, years in the active practice, working hours per week, and the number of dependent children. [20]

Actual turnover percent of the pharmacists in their jobs were ranged between 8.6% to 17%.[20, 17, 18, 30] In the UK, about 8.6% of the pharmacists intending to leave their jobs left their jobs, actually [18], and in the US, 11-17% of the pharmacists changed their employers. [20, 17, 30] Pharmacists were more likely to change their employers if they had high intention to withdraw from the job, did not have second jobs, and did not have major life events. [20] A longitudinal study in the US showed that the annual job turnover of pharmacists was 11% on average. [17] Female pharmacists were more likely to leave their jobs than male pharmacists (15% vs. 9.7%). Both groups left the jobs because of the desire for a change. Interestingly, different reasons for leaving the jobs were the salary for males and the relocation for females. A study in Chicago showed that 14.4% of the pharmacists left their current jobs for the reasons of payments & benefits, promotion & advancement opportunities, relocation from the area, having better job opportunities, unmet expectations (dissatisfaction), or job location. [30]

Turnover intention

Turnover intention rate (%)

Twenty-six articles reported the percentages or intensity of the turnover intention of the pharmacists from their jobs and the pharmacy profession. [58, 43, 55, 64, 20, 54, 44, 53, 45, 57, 41, 19, 47, 40, 59, 48, 60, 52, 49, 63, 50, 42, 18, 51, 56, 62] Among them, 4 articles revealed pharmacists' turnover intention from the pharmacy profession. [55, 20, 19, 18] Two studies were conducted in the US and two were conducted in the UK. Three of four studies showed the percentage of turnover intention from the pharmacy profession. In the US, the turnover intention from the pharmacy profession was 6.5% (1990) [19] where in UK this figure ranged between 8.7 and 18.8% (2009 & 2000). [55, 18] Although the study in the UK[18] found that hospital pharmacists were less likely to have the intention to leave from pharmacy profession than community pharmacists, the association between practice setting and turnover intention from the profession was not statistically significant (OR = 0.94; 95% CI: 0.78,1.14; P= <0.05).

Seventeen studies included in the review explored pharmacist turnover intention from jobs. The percentages of turnover intention in different countries and different pharmacy practices were reported from 1990-2020 as shown in figure 3 and 4. [58, 55, 64, 54, 53, 45, 57, 41, 19, 47, 52, 49, 63, 50, 42, 51, 62] (The 3 lines in figure 4 were drawn for hospital, community and non-specified pharmacy setting in order to facilitate the readers.) Among 17 studies, 9 studies were conducted in the US and the percentages of pharmacists' turnover intention in their jobs were gradually increasing over time. Most of the Asian studies were observed after 2010. A study in Saudi Arabia showed that the percentages of intention to change job were significantly different among practice settings and hospital pharmacists had the highest intensity of turnover intention from their jobs. [58]

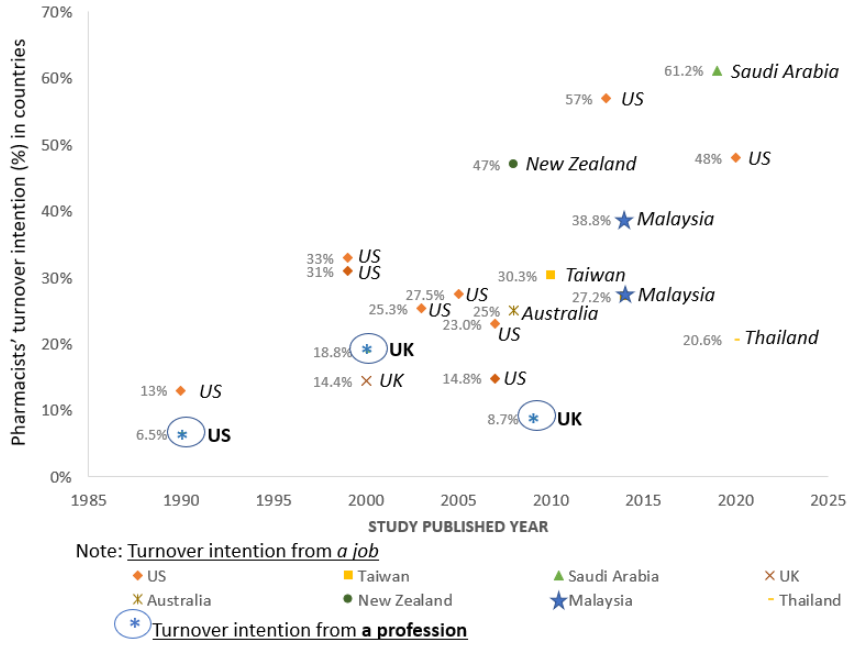


Figure 3: Turnover intention (%) of pharmacists from their jobs and profession among different countries

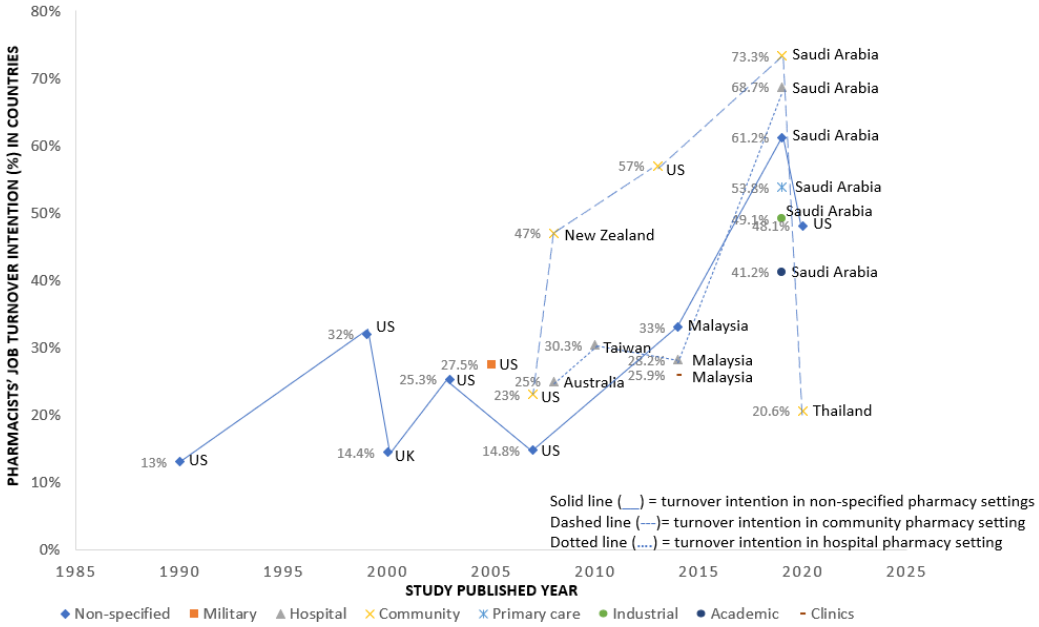


Figure 4: Turnover intention (%) of pharmacists from their jobs among different pharmacy practice settings

Turnover intention level

Fourteen studies mentioned the intensity (mean score) of turnover intention from their jobs, using agreement Likert scales: shown in table 4. [43, 20, 54, 44, 19, 40, 59, 48, 60, 52, 49, 63, 50, 56] There were only two studies among them that also mentioned turnover intention from the pharmacy profession. [20, 19] Registered pharmacists[19] and community pharmacists [20] in the US disagreed with the statements indicating the intention to leave the profession. Hospital pharmacists had a significantly higher intention to leave the profession than those in the chain and independent community practices. [19]

Among these 14 studies, nine were conducted in the US, [43, 20, 54, 44, 19, 48, 52, 49, 50] two were conducted in Taiwan, [59, 60] the remaining three were conducted in Lithuania,[56] Jamaica,[40] and Thailand,[63] individually. The timeframe of pharmacists' turnover intention used in US studies was mostly next or one year (in 5 studies), 1 and 2 years (in 2 studies), 3 months, 6 months, & 1 year (in one study), and no definite time (in one study). Two Taiwanese studies were conducted with hospital pharmacists in no specific timeframe of turnover intention. One Jamaican study was conducted with hospital pharmacists in the timeframe of 3 months, 6 months, 1 and 2 years. One Thai study and one Lithuanian study were conducted in community pharmacists in the one-year timeframe and no specific timeframe, respectively.

Four studies conducted in US registered pharmacists used the Likert scale to measure the intensity of intention to turnover from their jobs. The US studies in registered pharmacists showed that pharmacists slightly disagreed with the statements indicating the intention to leave their jobs within 3 months, 6 months, or 1 year [43] and in the next year. [54, 44, 19] Hospital pharmacists still had a higher intensity of intention to leave their jobs in the next year than community pharmacists. [19]

Five studies explored pharmacist turnover intention intensity in the hospital setting. A study in Taiwan presented that hospital pharmacists neither agreed nor disagreed intending to leave their jobs. In addition, they had a higher intensity of intention to leave their jobs than the pharmacists in community and clinic settings. [59, 60] The US study showed that hospital pharmacists slightly disagreed with having turnover intention from their jobs in the next year or anytime. [19, 52] A study in Jamaica also showed the same trend as in the US study that hospital pharmacists slightly disagreed intending to leave their jobs in 3 months, 6 months, 1 year, or 2 years. [40] Nine studies explored pharmacist turnover intention in community pharmacies. Studies in the US revealed that pharmacists neither agreed nor disagreed [49], disagreed [19, 48, 50], and slightly disagreed [20, 19, 48, 52] on the turnover intention from their jobs in 1 year and 3 years or anytime. The study in Thailand also showed that the community pharmacists neither agreed nor

disagreed on having the intention to leave their jobs in 1 year. [63] Pharmacists working in chain community pharmacies had higher turnover intention intensity than those in independent community pharmacies. [19, 52] Studies in Lithuania and Taiwan also showed the same trend as in the US studies that community pharmacists disagreed [56]and slightly disagreed [60] on the turnover intention from their jobs at any time.

Table 4: Intensity of turnover intention to leave jobs

Practice setting	Turnover intention level Mean ± SD (range of possible scores)	Timeframe: Intention to leave	Location (Sample size)
All	4.2 ±3.1 (score 1-7)	Within 3 months, 6 months and 1 year	US [43] (N= 313)
	9.6±6.3 (score 3-21)	Within next year	US[44] (N= 2250)
	7.3± 5.7 (score 3-21)	Within next year	US [54] (N= 653)
	7.63± 5.95 (score 3-21)	Within next year	US [19] (N= 1510)
Hospital	3.31± 0.94 (score 1-5)	Anytime	Taiwan [59] (N= 101)
	12.84± 6.38 (score 4-28)	Within 3 months, 6 months, 1 and 2 years	Jamaica [40] (N= 22)
	9.34 ±6.21 (score 3-21)	Within next year	US [19] (N= 1510)
	3.67 ±0.53 (score 1-7)	Anytime	Taiwan [60] (N= 298)
	2.96 (score 1-6)	Anytime	US [52] (N= 1199)
Community	2.25± 1.65 (score 1-7)	In next year	US [48] (N= 143)
	3.03± 1.98(score 1-7)	In 3 years	
	7.4± 5.8 (score 3-21)	In one year	US [20] (N= 653)
	7.3± 5.7 (score 3-21)	In next 3 years	
	For chain **7.94± 5.96** (score 3-21) For independent **5.79± 5.17** (score 3-21)	Within next year	US [19] (N= 1510)
	2.4± 1.7 (score 1-7)	Within next year	US [50] (N= 252)
	3.76± 3.00 (score 1-7)	In new year	US [49] (N= 303)
	2.82± 1.01 (score 1-5)	In one year	Thailand [63] (N= 209)
	3.26 (±0.45) (score 1-7)	Anytime	Taiwan [60] (N= 298)
	2.1± 1.35 (score 1-5)	Anytime	Lithuania [56] (N= 324)
	For chain	Anytime	US [52] (N= 1199)

Practice setting	Turnover intention level Mean ± SD (range of possible scores)	Timeframe: Intention to leave	Location (Sample size)
	3.13 (score 1-6) For Independent 2.48 (score 1-6)		
Clinic	**3.25 (±0.44)** (score 1-7)	Anytime	Taiwan [60] (N= 298)

Note: **Bold** is significant between the different pharmacy settings. SD = Standard deviation.

The factors affecting pharmacists' turnover intention

For this systematic review, 2,470 studies were identified (in Figure 5). The duplicated articles were discarded (n= 28). After screening the titles and abstracts of the 2442 articles, 2,401 were discarded because they were not related to the pharmacy workforce (n= 2,370) or related to job issues in pharmacy but not mentioned turnover or turnover intention (n=31). The full texts of the remaining 41 articles were retrieved and assessed for their inclusion criteria and then 21 articles were discarded because of the studies with no data of the pharmacists' turnover intention and its affecting factors (n= 14), 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 assessment got the quality scores higher than 0.75 in total and they remained for the review.

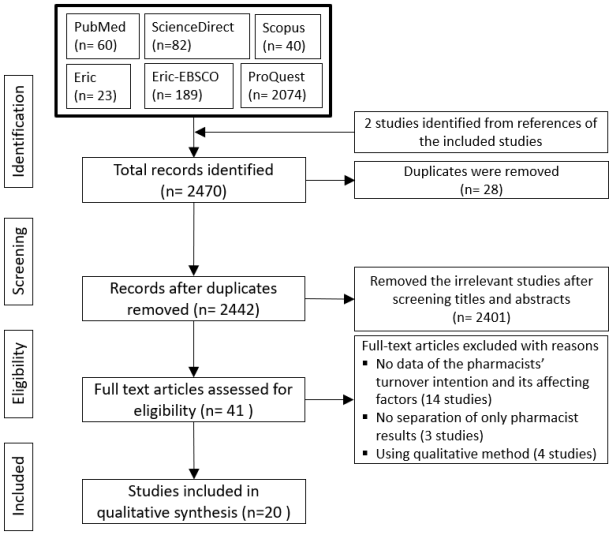


*Figure 5: **PRISMA Flow Chart of included studies in the review***

Study characteristics

There were 20 articles included in this systematic review and 44,786 participants were included in the survey. 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 these 20 articles, one article (18) was conducted only for the pharmacist turnover intention from pharmacy profession and two articles (20, 19) were conducted for the turnover intention both from jobs and from pharmacy profession. The study characteristics were shown in Table 5.

Table 5: Characteristics of included studies

Author, Year (Ref. No.)	Study Place	Population	Number of participants	Participant characteristics		Response rate	Variables significantly related to turnover intention
				Age (years) Mean± SD	% Male		
James et al, 1990 [19]	US	primary practice pharmacists (chain, independent and hospital)	1510	43.2± 11.8	70.8%	66%	• Organizational commitment • Career commitment
Gaither et al, 1998 [20]	US	Community pharmacists	653	-	70%	70.90%	• Organizational commitment • Career commitment
Gaither, 1999 [54]	US	Registered pharmacists	653	-	70.4%	71%	• Job satisfaction • Organizational commitment
Kahaleh et al, 2003 [47]	US	Registered pharmacists	421	47± 12	56%	40%	• Organizational commitment • Organizational loyalty
Garber et al, 2005 [45]	US	Military Pharmacists	469	37.6± 8.0	63.2%	83%	• Organizational commitment • Reciprocity-based obligation with organization • Patient care performance

Author, Year (Ref. No.)	Study Place	Population	Number of participants	Participant characteristics		Response rate	Variables significantly related to turnover intention
				Age (years) Mean± SD	% Male		
							• Balance of exchange with organization • Responsibility of household activities
Arndt et al, 2006 (43)	US	Registered pharmacists	313	Average age was between 40-55 years	52.7%	31.30%	• Job satisfaction • Distributive fairness • Career stage
Gaither et al, 2007 (53)	US	Registered pharmacists	1542	49.3± 13.4	52.6%	30%	• Rate workload • Effect of workload
O'Neill et al, 2007 (50)	US	Community Pharmacists	252	-	60%	33%	• Organizational identification
Gaither et al, 2008 (44)	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
Seston et al, 2009 (18)	UK	Community, hospital, and primary care pharmacists	32181	40± 10.75 Range: 21-64	40.3%	76.60%	• Job satisfaction
Hardigan et al, 2010 (46)	US	Registered pharmacists	533	45	45%	23%	• Job satisfaction
Leupold et al, 2013 (48)	US	Retail pharmacists	143	50.6± 11.5	59.9%	6.37%	• Job satisfaction • Job embeddedness • Perceived organizational support

Author, Year (Ref. No.)	Study Place	Population	Number of participants	Participant characteristics		Response rate	Variables significantly related to turnover intention
				Age (years) Mean± SD	% Male		
							• Job-embeddedness organizational activities
Skrupky et al, 2020 (51)	US	Registered pharmacists	2231	50% had age between 35- 64 years	28.7%	69.30%	• Pharmacist wellbeing
Urbonas et al, 2015 (56)	Lithuania	Community pharmacists	324	-	-	77.10%	• Organizational commitment • Perceived organizational support
Lin et al, 2008 (61)	Taiwan	Hospital pharmacists	182	83.6% had age between 20- 49 years	33%	16.40%	• Job satisfaction • Job stress • Reducing work-hour intention • Physical environment
Yeh et al, 2010 (62)	Taiwan	Hospital pharmacists	247	37	36%	22.30%	• Job satisfaction • Insomnia • Reducing work hours • Changing job-content intention • Stress of dispensing • Stress of work climates • Stress of consultation • Stress of pharmacy management • Stress of hospital rules • Stress of healthcare industry environment
Lan et al, 2020 (59)	Taiwan	Teaching hospital pharmacists	101	32.2± 9.8 Range: 21-70	24.8%	91.82%	• Workplace burnout • Organizational climate • Job stress
Chua et al, 2014 (64)	Malaysia	Registered pharmacists (public sector)	247	27 (median)	16.2%	52.9%	• Job satisfaction • Organizational commitment
Al-Muallem et al, 2019 (58)	Saudi Arabia	Registered pharmacists	325	79.1% had age between 25 – 40 years	42.2%	63.10%	• Job satisfaction • Organizational commitment
Nakpun et	Thailand	Community	209	32.3	25.84%	14.52%	• Pharmacist engagement

Author, Year (Ref. No.)	Study Place	Population	Number of participants	Participant characteristics		Response rate	Variables significantly related to turnover intention
				Age (years) Mean± SD	% Male		
al, 2020 (63)		pharmacists					• Organizational resources (Training & development, payment & recognition, and physical working condition) • Job characteristics (Autonomy, job skill variety, task significance, and task identity) • Social support (from supervisor or peer)

Note: SD = Standard Deviation

Factors contributing turnover intention of pharmacists

There were 30 factors have been studied as drivers of turnover intention. In order to make more sense of the drivers, they were sought into three dimensions such as psychological dimension, self & social dimension, and organizational dimension (figure 6):

Figure 6: Drivers affecting the pharmacists' turnover intention

1. 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 been evaluated the relationship between organizational commitment and pharmacists' turnover intention from their jobs (58, 64, 20, 54, 44, 45, 19, 47, 50, 56). Among these ten studies, two studies reported about the relationship between organizational commitment and pharmacist turnover intention from the pharmacy profession (20, 19). Organizational commitment was a commitment or loyalty of a person to the working or employing organization or job (54, 19) and a person's perception in which he or she perceived him or herself as a symbol of working organization and felt that the successes and failures of this organization as his or her own (47, 50). 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 (64, 20, 54, 44, 45, 19, 47, 50, 56). Only one study in Saudi Arabia reported the significantly positive association (58). In two studies of them, organizational commitment also had a negative association with pharmacist intention to leave the pharmacy profession, but its magnitude associated with professional turnover intention (β= -0.08, r= -0.34 to -0.41) was less than that associated with pharmacists' job turnover intention (β= -0.61 to -0.70, r= -0.63 to -0.70) (20, 19).

The antecedents of organizational commitment were identified and grouped into 3 dimensions, showing in figure 7. Job satisfaction, career commitment, job stress, perceived organizational support, work climate, construed external image, met expectation, career prospects, reciprocity-based obligation, balance of exchange and role ambiguity were grouped into psychological dimension. Responsibility of household activities, availability of acceptable job, family support, tenure, lack of skill transferability, work-home conflict and interpersonal interactions were grouped into self & social dimension. Pharmaceutical care practice, structural empowerment, compensation & advancement, out service training, role conflict and role overload were grouped into organizational dimension. Some antecedents had direct effects on turnover intention of the pharmacists. They were job satisfaction, career commitment, job stress, perceived organizational support, work climate, balance of exchange, reciprocity-based obligation, role ambiguity, interpersonal interaction, responsibility of household activities, availability of acceptable jobs, work-home conflict, role conflict, role overload and compensation & advancement.

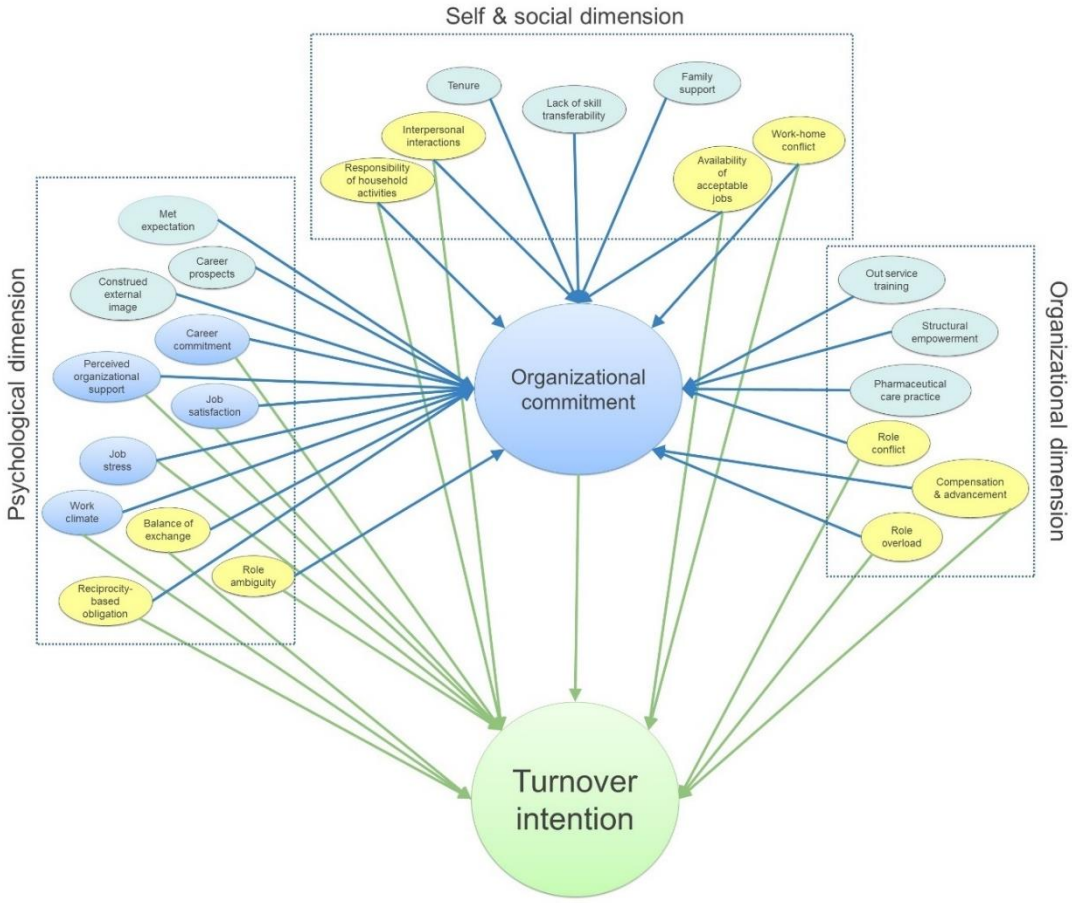


Figure 7: Antecedents affecting organizational commitment

There were 10 articles (50%) studied about the relationship between job satisfaction and pharmacists' turnover intention (58, 43, 64, 54, 44, 46, 48, 61, 18, 62). Among them, 9 articles reported about the relationship between job satisfaction and pharmacist turnover intention from their jobs (58, 43, 64, 54, 44, 46, 48, 61, 62). One reported about job satisfaction related with pharmacist turnover intention from pharmacy profession (18). Job satisfaction was the extent of a person's liking or disliking their jobs (58) or the degree to which a person had a positive attitude or emotional state in regard to the appraisal of the situation of the current job (48). It was also defined as the match between a person's expectations and the perceived reality of his or her job as a whole (54). Job satisfaction negatively associated with pharmacist turnover intention from both their jobs (β= -0.04 to -3.23) and the pharmacy profession (β= -0.53) (58, 43, 54, 44, 46, 48, 61, 18, 62). 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 (46).

Career commitment, job stress, perceived organizational support, work climate, role ambiguity, desire to practice pharmacy, polychronic-orientation, and met expectation in psychological dimension; insomnia, availability of acceptable job, work-home conflict, interpersonal interaction, and career goals in self & social dimension; and job-embeddedness organizational activities, compensation & advancement, role conflict, and role overload in organizational dimension; were antecedents of job satisfaction (in Figure 8). Some factors which were career commitment, job stress, perceived organizational support, work climate, role ambiguity, insomnia, availability of acceptable job, work-home conflict, interpersonal interaction, job-embeddedness organizational activities, compensation & advancement, role conflict, and role overload had direct effects on pharmacist turnover intention.

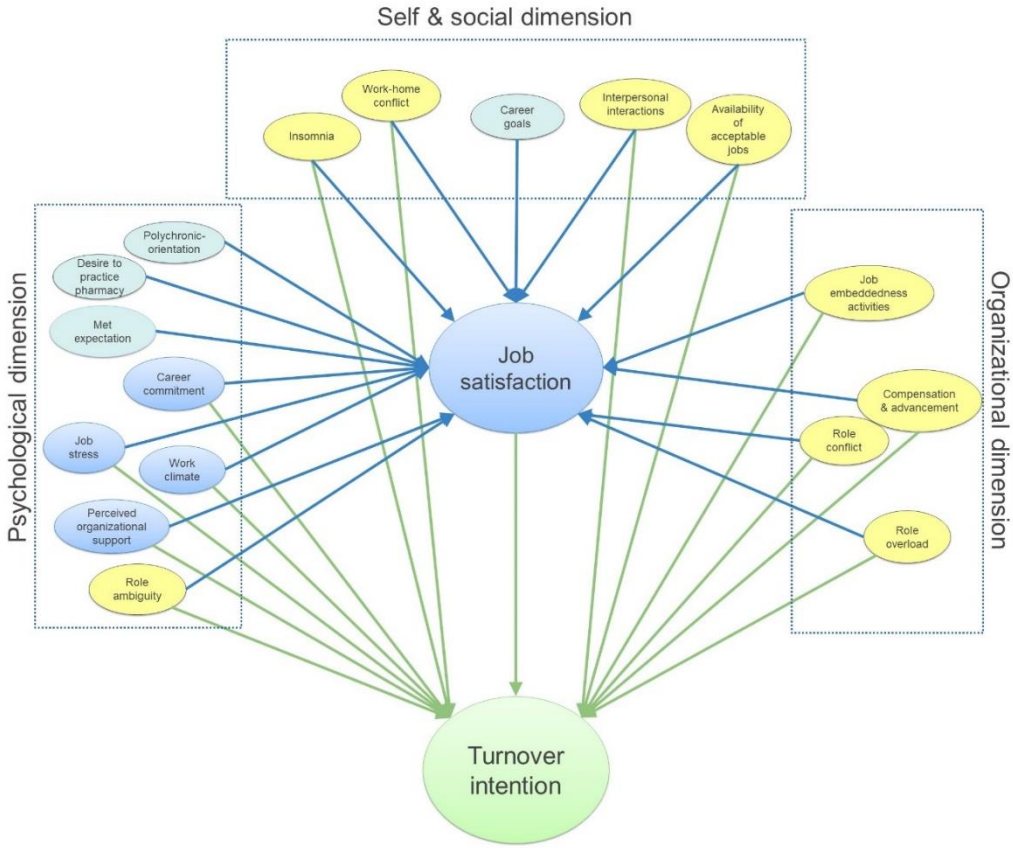


Figure 8: Antecedents affecting job satisfaction

Career commitment was also mentioned about the connection with pharmacist turnover intention. Four articles (20%) studied the relationship between career commitment and pharmacists' turnover intention from their jobs (20, 54, 44, 19), in which two articles also reported the pharmacists' career commitment related to their turnover intention from the

pharmacy profession (20, 19). Career commitment was the attitude of towards his or her profession or vocation and as the strength of a person's motivation to work in a selected career role (20, 54, 19). Three out of four studies found that career commitment was significantly negative associated with pharmacist turnover intention from their jobs and was also significantly negative associated with turnover intention from pharmacy profession (20, 44, 19). The effect of career commitment on turnover intention from pharmacy profession (β= -0.65 to -0.81, r= -0.71 to -0.75) was higher than effect on turnover intention from a job (β= -0.06, r= -0.26 to -0.32) (20, 19).

Job stress, work climate, and role ambiguity in psychological dimension; professional involvement, consultation time, interpersonal interactions, and work-home conflict in self & social dimension; and role conflict and role overload in organizational dimension; were the antecedents of career commitment (in Figure 9). Job stress, work climate, role ambiguity, interpersonal interactions, work-home conflict, role conflict and role overload had direct effects on pharmacist turnover intention.

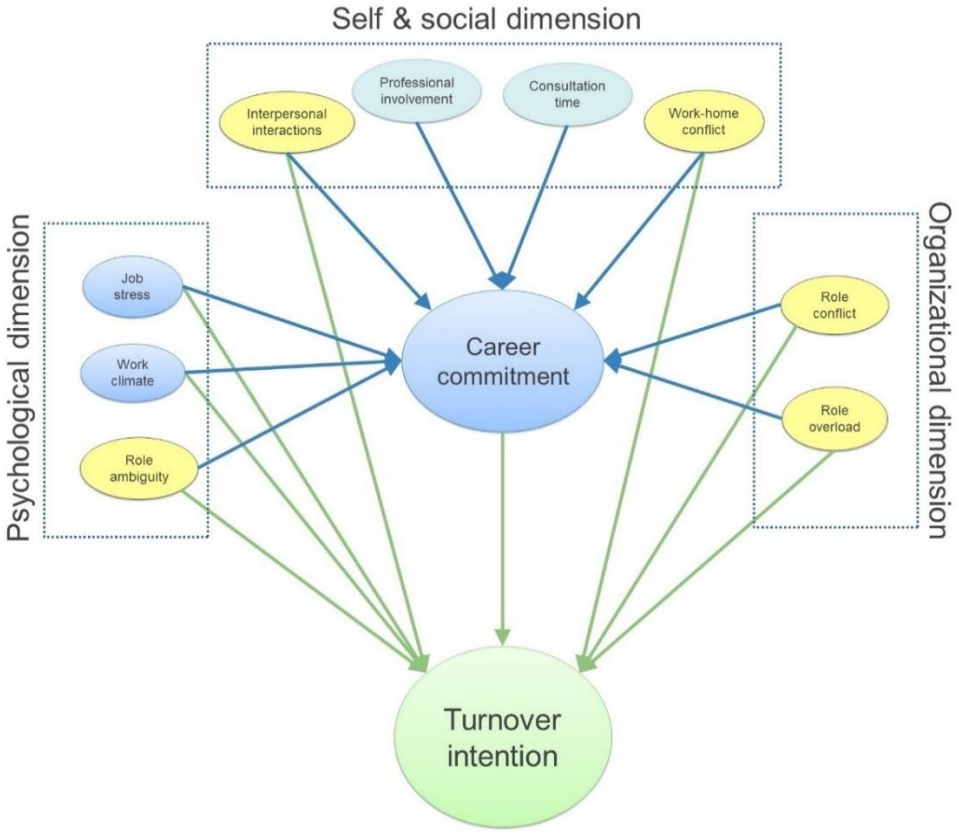


Figure 9: Antecedents affecting career commitment

Job stress was found in correlation with pharmacist turnover intention. There were 4 studies (20%) evaluated this relationship. Job stress was a psychological stress response of a person in his or her job (59). Job stress of pharmacists was significantly positive 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 (44, 59).

Work climate, workplace burnout and role ambiguity in psychological dimension; availability of acceptable job, interpersonal interactions, and work-home conflict in self & social dimension; and compensation & advancement, role conflict, and role overload in organizational dimension were the antecedents of job stress (in Figure 10). All antecedents of job stress had direct effects on turnover intention of the pharmacists.

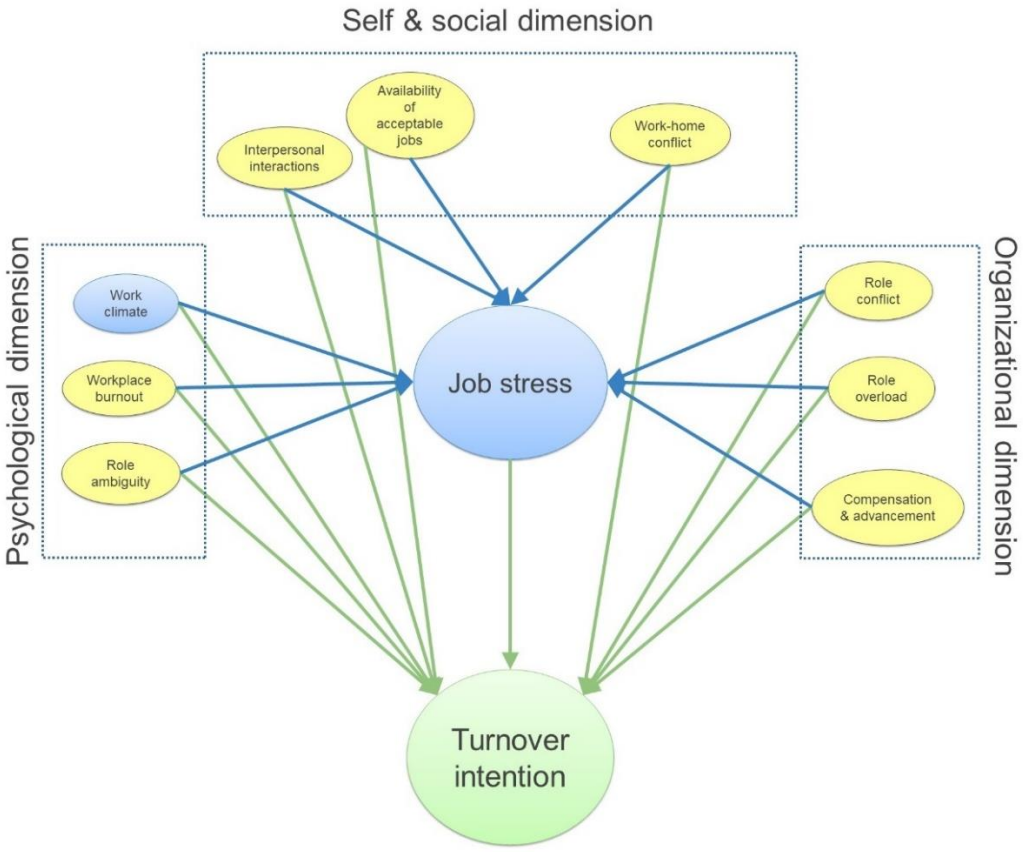


Figure 10: Antecedents affecting job stress

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 (43, 48, 56). Perceived organizational support was the extent to which a person believed that his or her working

organization valued his or her contributions and cares about this 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 (43, 48). It was also a perception of a person how an organization cared about his or her needs or expectations (56). Perceived organizational support was significantly negative correlated to turnover intention (43, 48, 56). In one study, perceived organizational support had a significantly negative relationship (43). However, other two studies showed it had no significant relationships with pharmacist turnover intention if there were other factors in the model (48, 56).

Job-embeddedness organizational activities in organizational dimension; and polychronic-orientation in psychological dimension were the antecedents of perceived organizational support (in Figure 11). Job-embeddedness organizational activities had a direct effect on turnover intention of the pharmacists.

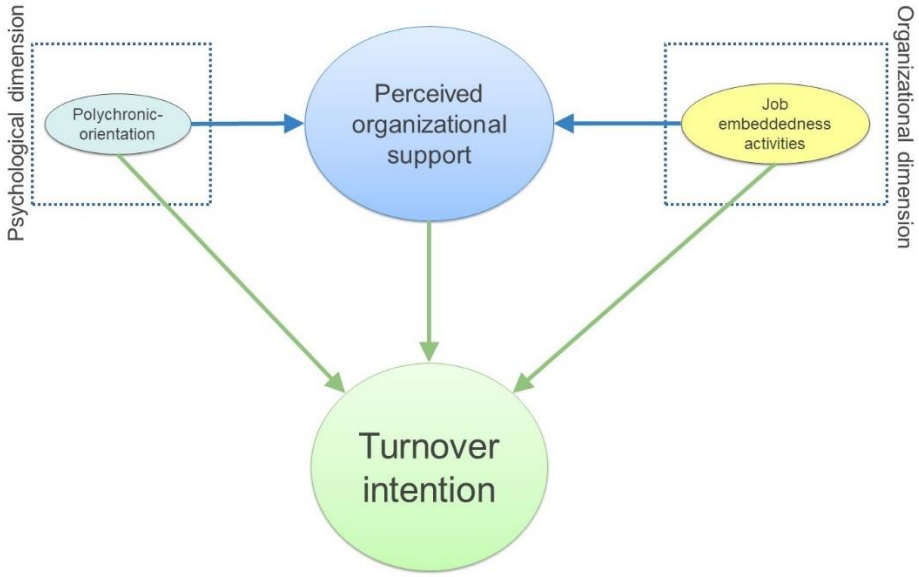


Figure 11: Antecedents affecting perceived organizational support

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%) (44, 59, 61). 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 (59). It was also a characteristic of the organizational environment representing less workload, better work

schedule and less stress (44, 61). The more feeling good about work climate, the less 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 (44, 59).

The psychological feeling factors have been considered from the search. Other 10 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 (44, 53, 45, 47, 59, 48, 61, 63, 62). Their definitions in the included studies were shown in Table 6.

Role ambiguity and workplace burnout were moderately and positively correlated with the pharmacists' turnover intention (44, 59) but reciprocity-based obligation with the organization was negatively correlated with the turnover intention (45). Reducing work-hour intention had a positively moderate to strong correlation with the turnover intention of the pharmacists (61, 62). Changing job-content intention had a strong positive correlation with pharmacists' turnover intention (62). Job embeddedness comprises perceived link, fit, and sacrifice to organization and community. It had a strong negative correlation with pharmacists' turnover intention (48). 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 the pharmacist and this factor significantly and negatively affected the pharmacist's turnover intention (45). The balance of exchange with the feeling of pharmacists being owed by the organization had a significant positive relationship with turnover intention (β =0.313). While the feeling of the pharmacists owed the organization had a significant negative relationship with turnover intention (β =-0.250) (45). 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 (β = –1.0). There was no relationship between perceived level of workload and pharmacist turnover intention (53). Pharmacist loyalty to organization had negative relationships with turnover intention in overall pharmacy (β = -0.24) and independent community setting (β = -0.46) but not significant in the hospital and chain community pharmacy settings (47). 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 (β = -0.24) (63).

Table 6: Definitions of constructs in psychological dimension

Construct	Definition
Organizational commitment	• *"An employee's emotional attachment to, identification with and involvement in the organization"*. [44] • 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*." [45] • *"Devotion and loyalty to one's employing firm."* [19] • *"Accepting the organization's goals and values, putting forth effort and wanting to remain a member."* [47] • "*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."* [50] • "*Emotional involvement and congruence with his/her organization."* [20, 56] • "*One's loyalty to the employing organization."* [54] • "*The degree to which an individual is psychologically attached to an employing organization through feelings such as loyalty, affection, belongingness, etc."* [64]
Job satisfaction	• "*The extent to which people like (satisfaction) or dislike (dissatisfaction) their jobs."* [58] • "*The overall sense of affect an employee has for the job situation*." [43] • "*The match between an individual's expectations and the perceived reality of the job as a whole."* [54, 44] • "*A positive attitude and emotional state regarding the appraisal of the current job situation*." [48] • "*The feelings that an individual has about his/her job and the extent to which these feelings are satisfied in the workplace*." [64]
Career commitment	• "*One's attitude towards one's profession or vocation and as the strength of one's motivation to work in a chosen career role*." [20, 54, 44, 19]
Job stress	• "*The nonspecific negative response of the body to demands in the workplace."* [44]

Construct	Definition
	• *"Any characteristics of the job environment which pose a threat to the individual."* [59]
Perceived organizational support	• *"The extent to which pharmacists perceived that the organization values their contributions and cares about their well-being."* [48] • *"A perception of how the organization cares about employees' needs and expectations."* [56] • *"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."* [43]
Work climate	• *"A characteristic of the organizational environment which represented by a better work schedule, less workload and less stress."* [44] • *"The perceptions of the work environment which are valuable information to an organization and aiding it in identifying and improving workplace deficiencies."* [59] • Working environment in the workplace. [61]
Role ambiguity	*"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."* [44]
Balance of exchange	*"The weighing of the benefits received by (organization owes), and the benefits given by the individual (I owe)."* [45]
Reciprocity-based obligation	*"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."* [45]
Workplace burnout	*"Feeling of emotional exhaustion, depersonalization, and a reduced sense of personal accomplishment."* [59]
Reducing work-hour intention	Pharmacists' intention to reduce the working hours. [61, 62]
Changing job-content intention	Pharmacists' intention to change the job content. [62]
Perceived workload	There were 2 dimensions of perceived workload which were 1) rate workload means "perceived workload level" and 2) effect of workload means

Construct	Definition
	"perception of effect of workload". [53]
Organizational loyalty	"*The state or quality of being faithful to the working organization.*" [47]
Pharmacist engagement	Continuous state of overall positive mental satisfaction with the job. [63]
Job embeddedness	*"The combined forces that keep a person from leaving his or her job."* [48]
Construed external image	"*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."*[50]
Met expectation	"*How closely the actual job meets the individual's expectations.*" [54]
Desire to practice pharmacy	"*The strength of desire to practice in the pharmacy.*" [18]
Polychronic-orientation	"*The extent to which people prefer to switch among multiple tasks at the same time-block.*" [43]
Career prospects	"*The employee's perception of the opportunity for the advancement and being promoted in their career.*" [45]

Note: Normal letters = had direct effect on pharmacist turnover intention, Italic letter = had indirect effect on the turnover intention, Bold italic letter = had both direct and indirect effect on the turnover intention

2. Self & social dimension

Eight factors related to pharmacists themselves and their significant persons in 5 included studies were grouped into self & social dimension (43-45, 51, 62). 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 7. 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 had 10 times more likely to leave their current jobs within 2 years (51). 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 (44). Pharmacist career stage, insomnia, and availability of acceptable jobs had small correlations with turnover intention (43, 44, 62). 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 (62). However, the supports from subordinates and patients were not significantly correlated with their turnover intention (62). Interestingly, increasing 1% of the responsibility of household activity significantly raised the pharmacists' turnover intention by 13.6% (45). The higher the work-home conflict, the more the pharmacists were likely to leave their jobs (44).

Table 7: Definitions of constructs in self & social dimension

Construct	Definition
Pharmacist well-being	It composed of reverse multi-dimensions of distress, including anxiety, depression, stress, fatigue, and burnout. [51]
Insomnia	The insomnia status of the pharmacists. [62]
Pharmacist career stage	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*". [43]
Responsibility of household activities	The percentage of household activities pharmacists performed, such as grocery shopping, childcare or housekeeping. [45]
Work-home conflict	"*Conflict in which the role pressures from work and family are mutually incompatible.*" [44]
Interpersonal interactions	"*Interactions that pharmacists have are examined in the context of pharmacist-patient, pharmacist-management and pharmacist-coworker interactions.*" [44]
Social support	Job support from high-level person, leader, peer, subordinate, patient, and family support. [62]
Availability of acceptable jobs	"*Ease to finding an acceptable job alternative.*" [44]
Professional	There were three items: 1) memberships in professional organizations; 2)

Construct	Definition
involvement	frequency of reading of professional journals; and 3) attendance at professional meetings and continuing education programs. [19]
Tenure	The number of years on active duty. [45]
Family support	The extent and level of support from the family members to be in the working organization, or to accommodate the demand of their career. [45]
Lack of skill transferability	"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." [45]
Consultation time	The frequency of being consulted by other healthcare professionals in a week. [19]

Note: Normal letters = had direct effect on pharmacist turnover intention, Italic letter = had indirect effect on the turnover intention, Bold italic letter = had both direct and indirect effect on the turnover intention

3. Organizational dimension

Organizational dimension was an aspect related to working conditions or organizational environment and affected to pharmacists' turnover intention. The review found 6 factors related to organizational dimension. This dimension included compensation & advancement, role overload, role conflict, patient care performance, job-embeddedness organizational activities, and organizational resources. Definitions of these factors in the 4 included studies were shown in Table 8 (44, 45, 48, 63). The less engagement in job-embeddedness organizational activity, the more the pharmacists' turnover intention (48). The more the pharmacists had role overload and conflict, the more they intended to leave from their jobs (44). These three relationships were moderate. Compensation & advancement had a negatively low correlation with pharmacist turnover intention (44). However, patient care performance was positively correlated with the pharmacist intention to leave but this relationship was low (45). Organizational resource, characterized training & development, payment & recognition, and physical working condition, had a significantly negative relationship with pharmacists' turnover intention (β = -0.45) (63).

Table 10 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 11 and Table 12 showed the relationships of the factors driving turnover intention of hospital pharmacists and community pharmacists, respectively.

Table 8: Definitions of constructs in organizational dimension

Construct	Definition

Construct	Definition
Compensation & advancement	"*An organizational environment which included better pay, benefits and advancement opportunities*." [44]
Role overload	"*The conflict between time and organizational demands concerning the amount of work to be done*." [44]
Role conflict	"*Reflecting the simultaneous occurrence of 2 or more sets of pressures such that compliance with one would make compliance with the other more difficult*." [44]
Job-embeddedness organizational activities	Engaging activities to keep employees from leaving their jobs. [48]
Organizational resources	Provision of physical aspects of the organization, and characterizing by training & development, payment & recognition, and physical working condition. [63]
Patient care performance	"*The overall evaluation of how well the individual is meeting the organization's expectations in terms of job performance*." [45]
Structural empowerment	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. [47]
Out service training	The educational trainings [45]
Pharmaceutical care practice	"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." [50]

Note: Normal letters = had direct effect on pharmacist turnover intention, Italic letter = had indirect effect on the turnover intention, Bold italic letter = had both direct and indirect effect on the turnover intention

Antecedents affecting five drivers of turnover intention

Out of 30 factors driving turnover intention, 5 factors were frequently studied and showed their antecedents (Table 9). 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 (19). Workplace burnout could lead to job stress (59). Job satisfaction, responsibility of household activities, reciprocity-based obligation, balance of exchange, pharmaceutical care practice, structural empowerment, out-service training, family support, tenure, lack of skill transferability, construed external image, and career prospects were the antecedents of organizational commitment (44, 47, 50). The antecedents of job satisfaction were Insomnia, career goals and desire to practice (46, 18, 62).

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 (43, 48). From the findings, job stress resulted in job satisfaction, career commitment, and organizational commitment (44, 61, 62). Moreover, career commitment, perceived organizational support, met expectation 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 9.

Table 9: Antecedents affecting the five drivers of pharmacist turnover intention

Career commitment	Job stress	Organizational commitment	Job satisfaction	Perceived organizational support

<table>
<tr><td rowspan="3">● Professional involvement
● Consultation time

● Job stress</td><td rowspan="3">● Workplace burnout</td><td>● Job satisfaction
● Responsibility of household activities
● Reciprocity-based obligation
● Balance of exchange
● Pharmaceutical care practice
● Structural empowerment
● Out-service training
● Family support
● Tenure
● Lack of skill transferability
● Construed external image
● Career prospects</td><td>● Insomnia
● Career goals
● Desire to practice pharmacy</td><td></td></tr>
<tr><td></td><td>● Job-embeddedness organizational activities
● Polychronic-orientation</td><td></td></tr>
<tr><td>● Job stress
● Career commitment</td><td>● Perceived organizational support
● Met expectation</td><td></td></tr>
<tr><td colspan="3">● Compensation & advancement
● Availability of acceptable jobs</td><td></td></tr>
<tr><td colspan="4">● Work climate ● Interpersonal interactions ● Role conflict
● Role ambiguity ● Work-home conflict ● Role overload</td></tr>
</table>

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

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 had been studied and showed significantly associated 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 workhour 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 via 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 had been studied (figure 12).

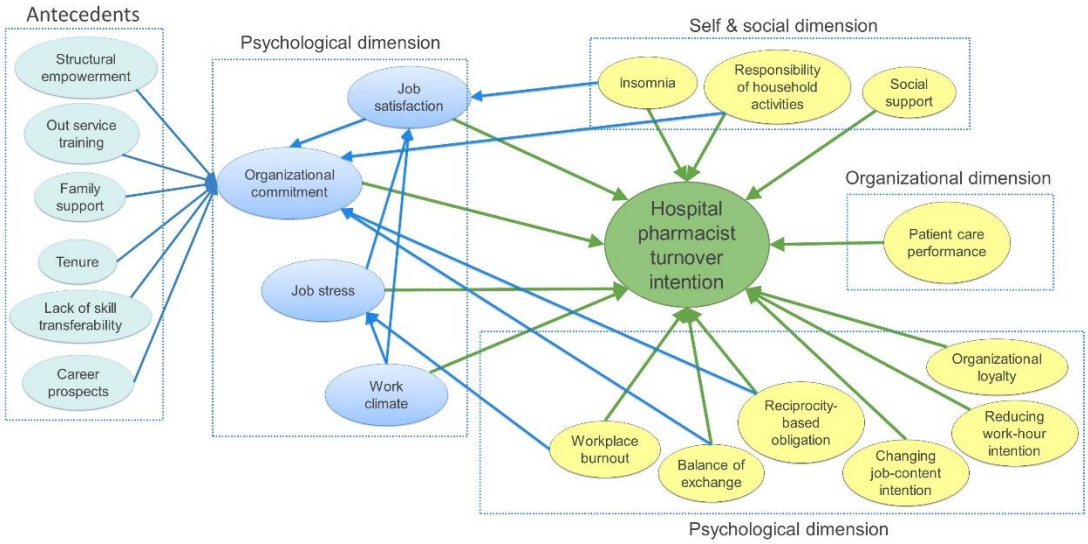


Figure 12: Driving factors of hospital pharmacist turnover intention

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, organizational resources were directly associated with turnover intention of community pharmacists. The turnover intention model for community pharmacists was presented in figure 13, 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 to 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, workplace burnout, etc. (figure 12 & 13).

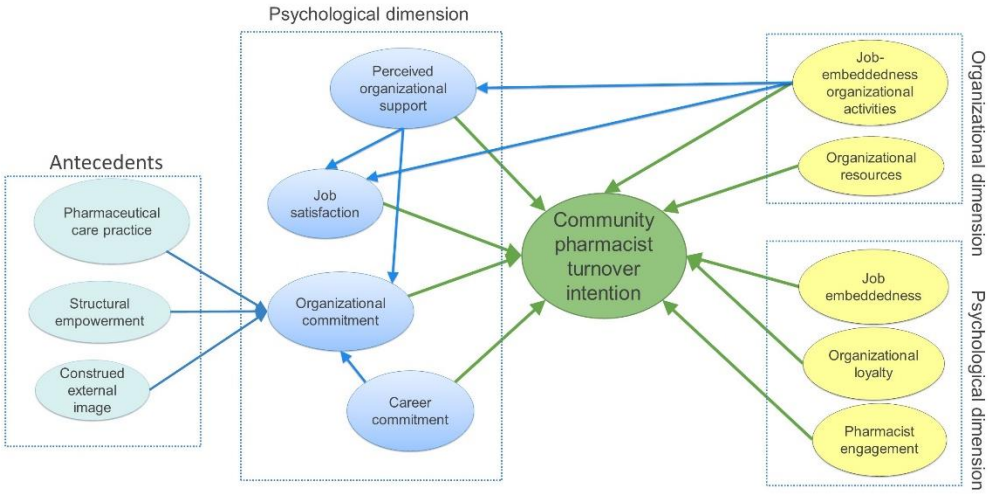


Figure 13: Driving factors of community pharmacist turnover intention

Pharmacists' turnover intention model

Organizational commitment, job satisfaction, career commitment, job stress, perceived organizational support and work climate had been found to have direct effects on turnover intention in most studies. They also had relationship with each other. Job stress had negative relationship with career commitment, and work climate had a positive relationship with career commitment. [44] With job stress, work climate had a negative relationship.[44, 59] Career commitment, perceived organizational support and work climate had positive relationships and job stress had a negative relationship with Job satisfaction. [44, 48, 61, 62] Job satisfaction, career commitment, perceived organizational support and work climate had significant positive relationships with organizational commitment. [44, 19, 56], and job stress had negative relationship with organizational commitment (in Figure 14).[44]

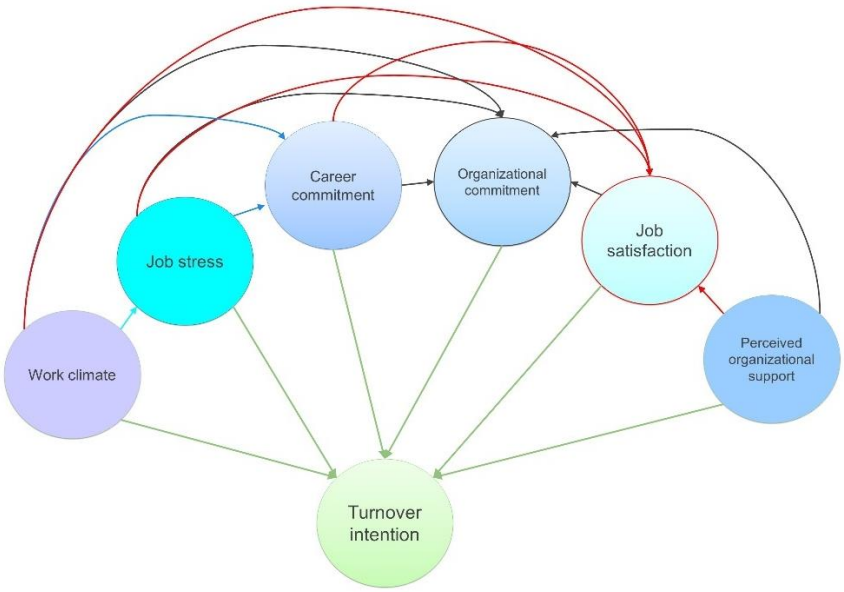
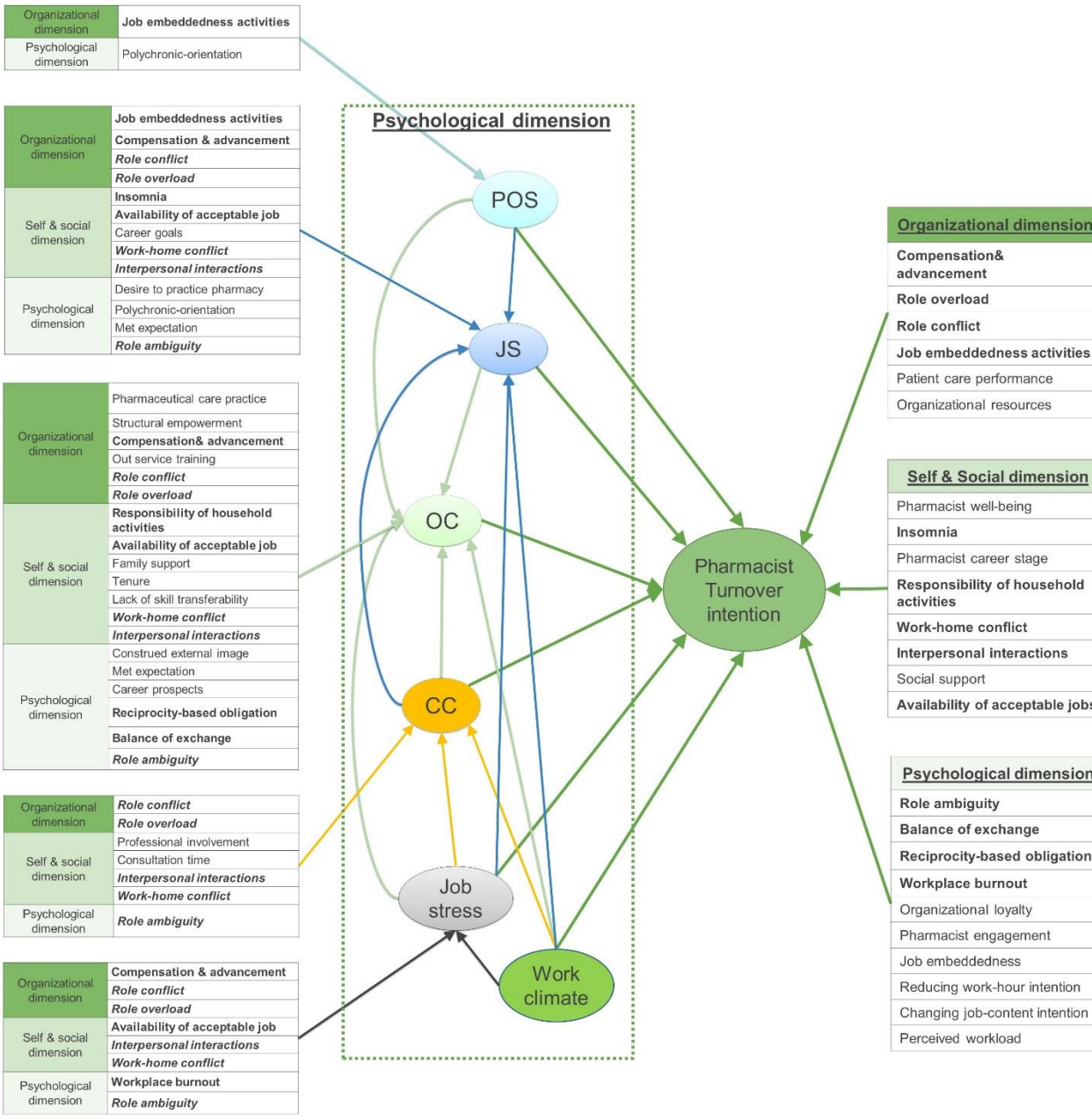


Figure 14: Relationships among six driving factors affecting pharmacist turnover intention

The other 24 factors had been used to study with pharmacist turnover intention. Not only they had direct effect on turnover intention, but some of them also had indirect effects on turnover intention via organizational commitment, job satisfaction, career commitment, job stress and perceived organizational support. In psychological dimension, role ambiguity had both direct and indirect effects on pharmacists' turnover intention through organizational commitment, job satisfaction, career commitment and job stress. Balance of exchange and reciprocity-based obligation also had both effects on turnover intention of the pharmacists through organizational commitment. Workplace burnout had both effects through job stress.

In self & social dimension, work-home conflict and interpersonal interactions had indirect effect on the turnover intention through organizational commitment, job satisfaction, career commitment and job stress. Availability of acceptable jobs had indirect effect through organizational commitment, job satisfaction and stress. Insomnia had indirect effect through organizational commitment. Responsibility of household activities also had indirect effect through job satisfaction. In organizational dimension, role overload, and role conflict had indirect effect through organizational commitment, job satisfaction, career commitment and job stress. Compensation & advancement had indirect effect on pharmacists' turnover intention through organizational commitment, job satisfaction, and job stress. Job-embeddedness organizational activities had indirect effect through job satisfaction and perceived organizational support. Patient

care performance had indirect effect through organizational commitment. The result of our systematic review is depicted in figure 15.



Note: OC= Organizational commitment, JS= Job Satisfaction, POS= Perceived Organizational Support, CC= career commitment

Figure 15: Research summary framework for the systematic review

Table 10: The extents of relationship among driving factors and turnover intention in non-specified pharmacy practice settings

Studies for non-specific pharmacy setting												
Driving factors of intention to leave	Al-Muallem et al, 2019. Saudi Arabia [58]	Arndt et al, 2006. US [43]	Gaither et al, 2008. US [44]	Hardigan et al, 2010. US [46]	James et al, 1990. US [19]		Seston et al, 2009. Great Britain [18] (From profession)	Kahaleh et al, 2003. US [47]	Gaither et al, 1999. US [54]	Chua et al, 2014. Malaysia [64]	Gaither et al, 2007. US [53]	Skrupky et al, 2020. US [51]
					From Job	**From Profession**						
Organizational commitment	**β** = 0.043*		r =-0.54* **β** = -0.20*		r =-0.63* **β** = -0.61*	r =-0.34* **β** = -0.08*		**β** = -0.74*	**β** = -0.64*	**β** = -0.083*		
Job satisfaction	**β** = -0.08 *	r =-0.28* **β** = -0.27*	r =-0.60* **β** = -0.38	**β** = -3.26*			**β** = -0.53*		**β** = -0.39*	**β** = -0.043*		
Career commitment			r =-0.26* β = *0.03*		r =-0.28* **β** = -0.06*	r =-0.67* **β** = -0.65*			β = *-0.02*			
Job Stress			r =0.41* β = *-0.01*									
Perceived organizational support		r =-0.23* **β** =-0.21*										
Work climate			r =-0.21* β =*0.00*									
Role ambiguity			r =0.28* **β**= -0.09*									
Organizational Loyalty								**β** =-0.24*				
Perceived											• Rate workload:	

Studies for non-specific pharmacy setting												
Driving factors of intention to leave	Al-Muallem et al, 2019. Saudi Arabia [58]	Arndt et al, 2006. US [43]	Gaither et al, 2008. US [44]	Hardigan et al, 2010. US [46]	James et al, 1990. US [19]		Seston et al, 2009. Great Britain [18]	Kahaleh et al, 2003. US [47]	Gaither et al, 1999. US [54]	Chua et al, 2014. Malaysia [64]	Gaither et al, 2007. US [53]	Skrupky et al, 2020. US [51]
					From Job	**From Profession**	**(From profession)**					
workload											β =*-0.286* Mean ±SD **3.49±0.75*** (stayers) **3.71±0.87*** (leavers) • Effect of workload: **β =-1.017*** Mean ±SD **3.24±0.80*** (stayers) **2.67±0.83*** (leavers)	
Career stage		r =-0.11*										
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)

Studies for non-specific pharmacy setting												
Driving factors of intention to leave	Al-Muallem et al, 2019. Saudi Arabia [58]	Arndt et al, 2006. US [43]	Gaither et al, 2008. US [44]	Hardigan et al, 2010. US [46]	James et al, 1990. US [19]		Seston et al, 2009. Great Britain [18]	Kahaleh et al, 2003. US [47]	Gaither et al, 1999. US [54]	Chua et al, 2014. Malaysia [64]	Gaither et al, 2007. US [53]	Skrupky et al, 2020. US [51]
					From Job	**From Profession**	**(From profession)**					
												-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 ***									

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

Table 11: The extents of relationship among driving factors and turnover intention in hospital pharmacy practice settings

Studies for hospital pharmacy setting					
Driving factors	Garber et al, 2005. US [45]	Kahaleh et al, 2003. US [47]	Lin et al, 2008. Taiwan [61]	Yeh et al, 2010. Taiwan [62]	Lan et al, 2020. Taiwan [59]
Organizational commitment	Affective commitment: **r =-0.504*, β = -0.205*** Normative commitment	**β = -0.44***			

Studies for hospital pharmacy setting					
Driving factors	Garber et al, 2005. US [45]	Kahaleh et al, 2003. US [47]	Lin et al, 2008. Taiwan [61]	Yeh et al, 2010. Taiwan [62]	Lan et al, 2020. Taiwan [59]
	r =-0.595*, β = -0.446* Continuance commitment r =-0.205*, β = *-0.062*				
Job satisfaction			r =-0.41*	r =-0.35*	
Job Stress			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) β = 0.22* (Overall job stress)	r =0.47*, β = *0.190*
Work climate			β =-0.29*		r =-0.62*, β =*0.012*
Balance of exchange	• Owing organization β =-0.250* • Owed by organization β =0.313*				
Reciprocity-based obligation	r =-0.261*				
Organizational Loyalty		β= *-0.19*			
Reducing work-hour intention			r =0.62*	r =0.43*	
Changing job-content intention				r =0.59*	

Studies for hospital pharmacy setting					
Driving factors	Garber et al, 2005. US [45]	Kahaleh et al, 2003. US [47]	Lin et al, 2008. Taiwan [61]	Yeh et al, 2010. Taiwan [62]	Lan et al, 2020. Taiwan [59]
Workplace burnout					**r =0.31*, β= -0.401***
Responsibility of household activities	**β =0.136***				
Insomnia				**r =0.15***	
Social support				**β =-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, β = beta coefficient, SD = standard deviation, Odds ratio reported in some studies were recalculated to beta coefficient.

Table 12: The extents of relationship among driving factors and turnover intention in community pharmacy practice settings

Studies for community pharmacy setting							
Driving factors	Kahaleh et al, 2003. US [47]	O'Neill et al, 2007. US [50]	Urbonas et al, 2015. Lithuania [56]	Gaither et al, 1998. US [20]		Leupold et al, 2013. US [48]	Nakpun et al, 2020. Thailand [63]
				From Job	From Profession		
Organizational commitment	**β = -0.34*** (for chain) **β = -0.35*** (for independent)	**r =-0.35*,** **β = -0.24***	**r =-0.66***	In 1 year **r =-0.70*, β = -0.70*** In 3 years **r =-0.55*, β = -0.65***	In 1 year **r =-0.41*** In 3 years **r =-0.35***		
Job satisfaction						In 1 year	

Studies for community pharmacy setting							
Driving factors	Kahaleh et al, 2003. US [47]	O'Neill et al, 2007. US [50]	Urbonas et al, 2015. Lithuania [56]	Gaither et al, 1998. US [20]		Leupold et al, 2013. US [48]	Nakpun et al, 2020. Thailand [63]
				From Job	From Profession		
						r =-0.59*, β = -0.54* In 3 years **r =-0.41*, β = -0.34***	
Career commitment				In 1 year **r =-0.32*** In 3 years **r =-0.26***	In 1 year **r =-0.75*, β = -0.75*** In 3 years **r =-0.71*, β = -0.81***		
Perceived organizational support			**r =-0.54***			In 1 year **r =-0.43*,** β = *0.15* In 3 years **r =-0.41*,** β = *0.08*	
Organizational Loyalty	**β= -0.46*** (for independent) β=*-0.17* (for chain)						
Pharmacist engagement							**β =-0.24***
Job Embeddedness						**r =-0.52*, β =-0.48***	
Job-embeddedness organizational activities						**r =-0.36***	
Organizational							**β =-0.45***

Studies for community pharmacy setting							
Driving factors	Kahaleh et al, 2003. US [47]	O'Neill et al, 2007. US [50]	Urbonas et al, 2015. Lithuania [56]	Gaither et al, 1998. US [20]		Leupold et al, 2013. US [48]	Nakpun et al, 2020. Thailand [63]
				From Job	From Profession		
resources							

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

CHAPTER V

DISCUSSION AND CONCLUSION

Theoretically, intention to withdraw from a job would lead to the action of withdrawal behavior or actual turnover.[70] In the withdrawal cognition process, firstly, employees will think of leaving their jobs and then intend to search for a new job. Secondly, they will intend to leave their jobs and finally, they will leave their current jobs. [70] This systematic review was the first study reviewing the pharmacists' actual turnover and turnover intention in different practice settings and countries. This study was able to recruit 28 studies. Most of the studies were conducted in the US. In terms of timeline, the studies before 2010 were found to be conducted in European countries and the US, whereas after 2010 the studies conducted in Asian countries were also found. Although there is no evidence of why the study of pharmacist turnover had gained interest after 2010, one possibility would be that during 2000 there were more job opportunities due to rapid development.

The percentage of actual turnover from the profession was found to range from 6 to 14.9 where the actual turnover from job ranged from 0.8 to 17. It should be noted that these figures were from studies in the US and UK and were published before 2010. Hence, it is not possible to conclude the current situation of pharmacist turnover. In this review, only four studies of actual turnover were found, it could be due to the difficulties in identifying study participants. Another possibility is that actual turnover is the past event, but the intention would lead to the future event, which is actual turnover. Therefore, studying turnover intention is more useful. Fewer working hours per week was the modifiable factor potentially predicting the actual turnover from the profession where unsatisfied payments & benefits and low advancement opportunity were the two modifiable factors that potentially affect the turnover from the job. However, these findings were obtained from the studies conducted in 1986 and 1998,[20, 30] the findings may not hold true at present. One turnover of the pharmacist from the profession could yield a large effect on the health service delivery system. According to the FIP report, the global mean capacity of pharmacists to population was 7.4 pharmacists per 10,000 population. [71] So, it indicated that we may need to concern about the healthcare service and safety of nearly 1,350 people when one pharmacist left the pharmacy profession. This could be a barrier to the development of the healthcare system. Although turnover from jobs may not be as serious as turnover from the profession, lapse times for learning new things when pharmacists changed jobs could be a barrier or slow down the efficiency of the healthcare system. The lack of evidence of pharmacist actual turnover makes it difficult to plan the expansion of pharmacy services. A

system to monitor pharmacist mobility across pharmacy practices or to other careers should be established.

The pharmacists' turnover intention percentages from their jobs were increased not only in European countries but also in Asian countries such as Taiwan, Malaysia, Thailand, and Saudi Arabia. The current systematic review showed that the turnover intention percentage of the pharmacists from their jobs were ranged from 13% to 61.2% from 1990-2020. Almost all of the studies in the US had evaluated the intensity of pharmacists' turnover intention from their jobs with the 7-point agreement Likert scale. Other studies in Taiwan, Thailand, and Lithuania had measured these intensities with the 5-point agreement Likert scale. Although the percentage of pharmacists' turnover intention from the job has been increasing, mean agreement scores on intention to leave their jobs in the majority of included studies have been in the scale of "slightly disagree" and "neither agree nor disagree" on the statement of intention to leave their jobs over time. One systematic review showed that the prevalence rate of the turnover intention of general practitioners from 1988 to 2019 was 47%. [36] Another systematic review for primary health workers in China revealed that the prevalence rate of primary health workers from 2011 to 2019 was ranged from 8% to 54.3%. [72] Pharmacist turnover intentions were a bit higher than turnover intention results from the former 2 systematic reviews which did not include the pharmacist population. However, both studies indicated that turnover was a major problem for health care organizations.

The current study reviewed that organizational commitment, job satisfaction, career commitment, job stress, and perceived organizational support were commonly studied as the drivers of pharmacist turnover intention. Among these studies, organizational commitment and job satisfaction had strong negative associations with pharmacists' turnover intention similar to other occupational turnover intention in two systematic reviews (73, 74). One systematic review showed that turnover intention of the US workers had negatively strong correlated with organizational commitment (r = -0.55) and job satisfaction (r = -0.55) (74). Another systematic review also revealed that nursing turnover intention had a strongly negative correlation with job satisfaction (r= -0.52) (73). Similarly, the current systematic review also showed that pharmacist turnover intention had negatively strong correlations with organizational commitment and job satisfaction (44, 19, 47, 48). 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 (44, 61, 62). Also, the systematic review of nurses' turnover intention showed that job stress had moderately negative

correlation with nurses' job satisfaction (73). Alternatively, job satisfaction was strongly correlated with nurses' turnover intention. Their path analysis also showed that job stress had indirect effect to turnover intention via job satisfaction.

Availability of acceptable jobs was another driver of turnover intention (44). 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 (75). 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 (76) but there was only one article in our systematic review studied their relationship with turnover intention in pharmacists. Pharmacist is professional personnel who based on the specialty education and training imparted while information technology is a career. Profession might make the role less likely to conflict and ambiguity, so these 2 drivers rarely found in the studies about pharmacist turnover intention.

Some antecedents of the five drivers of turnover intention were also studied as drivers of pharmacist turnover intention (Table 9). They had both direct and indirect effects on turnover intention of pharmacists. These factors could be recommended for some interventions to keep pharmacists have intention to stay in their jobs or organizations. Since job-embeddedness organizational activities was 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, 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 and 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. The review found that workplace burnout was an antecedent of job stress; work climate and role overload were antecedents of career commitment, job stress, job satisfaction and organizational commitment. Therefore, organizations should reduce the feeling of pharmacists about emotional exhaustion, and depersonalization, and the conflict between time and organizational demands. Improving work environment for pharmacists to identify and cope with workplace deficiencies would make pharmacists stay in their jobs. Concerning 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 it was the antecedent of organizational commitment, job satisfaction and job stress.

Recommendation

Since 2005, studies showed that the turnover intention of pharmacists was increasing and was beyond 50% after the year 2010. The difference of generations might be the issue because samples in the studies before 2005 were more likely to be baby boomers but later 2005 were more likely to be generation X. But there was a study that showed no attitudinal difference among baby boomers, generation X, and generation Y.[77] Thus, identifying what factors were driving pharmacist turnover intention is recommended in future studies.

The timeframes used for the pharmacist turnover intention were varied in included studies. The timeframe commonly used in most of the studies was one-year period for the intention to leave the job. Other timeframes used were multi-timeframe periods like one & three years, and 3 months, 6 months & one year. Some studies did not limit the timeframe for the pharmacist turnover intention. The variation of the turnover intention timeframes might lead the different results of turnover intention of the pharmacists in the studies. This review suggested that one year timeframe might be a suitable period for turnover intention because one year was neither too long nor too short for the employees to anticipate their self-intention to leave or stay in their current job.

The pharmacists who intended to leave their jobs were in the range of 25%-68.7% in hospital pharmacy and 23%-73.3% in community pharmacy. Three studies comparing the intensity of turnover intention between community pharmacists and hospital pharmacists showed that mean agreement scores on community pharmacists' intention to leave jobs were significantly lower than those of hospital pharmacists' turnover intention intensity. [19, 60, 52] The different strategic planning for retaining pharmacists may be different in different settings. Future studies were recommended to investigate the specific set of factors affecting pharmacist turnover intention in different types of the pharmacy profession.

This review mainly highlighted about the extents of pharmacists' turnover intention in different countries, which can be useful for future projects to reduce turnover intention of pharmacists in their working practices. It can also be useful for health managing stakeholders in assisting some implementations to increase the retention rate of skillful pharmacists in their organizations to save cost related to pharmacists' turnover; and increase work productivity and

quality of patientcare. This systematic review indicated that there were a few studies of pharmacy actual turnover both from job and from the profession. There was insufficient information about factors affecting the actual turnover. The possible reasons described in the included studies were highlighting the need in organization to improve more benefit or advancement for the pharmacists and to make the pharmacist job content being more interesting or professionalized.

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 (figure 12 & 13). These models could benefit for future research. They can also be used as a guidance for human resource strategic planning to prevent pharmacists leaving jobs.

In the hospital pharmacy settings, the patient care performance had been 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 pharmacist leaving from jobs. Balance of exchange and reciprocity were 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 then decrease turnover intention of hospital pharmacists. Improving work climate 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. Organization should value their contribution and care their well-being; and have any activities combined forces to keep a person from leaving the job. Organizational resources; the provision of physical aspect like training & development, payment & recognition, and physical working condition; would also decrease community pharmacist turnover intention. As mentioned above, organizational commitment had been found to be a driver of turnover intention. Enhancing empowerment of structural determinant access like organizational knowledge, pharmacists' career opportunity or supervisor support; the practice the pharmaceutical care activities; and the construed external image of organizational reputation were recommended. That is the reason why they 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 on their organizations were other psychological manipulations to augment community pharmacists to stay in their jobs.

Limitation

Some limitations existed similarly to many studies. Firstly, this systematic review did not include the studies with non-English languages. Secondly, only the published studies included in formal database were identified. Thirdly, turnover intention timeframes in each included study were varied. Most of the studies asked turnover intention in one or next year. (54, 19, 49, 63, 50) Four studies did not set timeframe when asking pharmacist turnover intention. (59, 60, 52, 56) Two studies used multiple timeframes like one and three years. (20, 48) One study asked turnover intention in 3 months, 6 months and 1 year. (43) One study asked turnover intention in 3 months, 6 months, 1 year and 2 years. (40) It may cause some variations in the results of turnover intention level. Finally, the sample size variation and response rates in included studies were largely varied. However, the low sample sizes in some included studies were enough and valid in their own studies and some forms of statistical analysis were used to overcome their own limitations. Lower response rates can be controversial with regards to acceptability.

Conclusion

This systematic review identified 28 studies on the actual turnover and turnover intention of the pharmacists in different practice settings. The majority were conducted after 2000 and most of them were from the US. The rates of actual turnover of the pharmacists from their jobs and pharmacy profession were about 9-17% and 7-9%, respectively. Similarly, the intensity of turnover intention from the job was higher than from the profession. Pharmacist turnover intention was increasing over time. The turnover intention score of hospital pharmacists was higher than the score of community pharmacists. The practice setting might be a predictor of the pharmacists' turnover intention. This study systematically summarized the factors of pharmacists' turnover and to form a model for the pharmacist turnover intention. Organizational commitment, job satisfaction, career commitment, job stress, perceived organizational support and work climate were commonly found as driving factors of pharmacists' turnover intention in all pharmacy practice settings. Antecedents of these drivers except work climate had been 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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