

# **KEY FACTORS AFFECTING THE RETENTION OF PRODUCTION PHARMACISTS IN PHARMACEUTICAL MANUFACTURING IN SOUTH AFRICA**

**By**

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# **KEY FACTORS AFFECTING THE RETENTION OF PRODUCTION PHARMACISTS IN PHARMACEUTICAL MANUFACTURING IN SOUTH AFRICA**

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Master's in Business Administration  
in the Faculty of Business and Economic Sciences  
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**TITLE OF PROJECT:** *Key Factors affecting the Retention of Production Pharmacists in Pharmaceutical Manufacturing in South Africa*

I, Mzwandile Mvunyiswa hereby declare that:

- The work that is contained in this treatise is my own original work, except as indicated in the acknowledgements, text and the reference list;
- The work submitted is in partial fulfilment of the Master's in Business Administration degree at the Nelson Mandela University Business School; and
- This treatise has not been previously submitted in full or partial fulfilment for the requirements for an equivalent or higher qualification at any other recognised education institution.

*M. Mvunyiswa*

Mzwandile Mvunyiswa

08/01/2022

Date

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## **ABSTRACT**

The goal of the study was to look at elements that influenced the retention of production pharmacists in the pharmaceutical manufacturing industry. The South African pharmaceutical manufacturing industry is in charge of producing a wide range of pharmaceutical products for both the domestic and foreign markets. Production pharmacists are leaving the industry to pursue employment outside of the production environment, which is a problem for the industry.

The goal of the study was to discover crucial factors that would help pharmacists in South Africa stay in the pharmaceutical product manufacturing industry. After doing a literature review to identify the determinants of retention, a hypothesis model was created to see if the identified factors had a positive link with pharmacist retention. The information was gathered via a survey with a questionnaire that was prepared and distributed to 81 people.

Factor analysis confirmed the factors measured in the study, with Employee Reward and Recognition emerging as two separate factors. The study revealed that the factor of Employee Reward and Recognition (Factor A), which means receiving rewards and recognition was done in a fair and competitive manner did not relate to Employee Reward and Recognition as an actual Retention Factor (Factor B), or with Leadership, Training, Employee Career Development, Work-Life Balance or Job Security.

In general, positive responses were received for Employee Reward and Recognition A (receiving rewards and recognition, and this was done in a fair and competitive manner), and neutral responses were received for Leadership, Work-Life Balance and Job Security and negative responses were recorded for Employee Career Development, Training and Employee Rewards and Recognition B (effectiveness of reward system to retain pharmaceutical talent). Pharmaceutical manufacturing companies must devise strategies to address the factors that elicited negative and neutral responses from the respondents. If the factors are not addressed, important talent, such as pharmacists, may be lost.

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# **CHAPTER 1**

## **INTRODUCTION TO THE STUDY**

### **1.1 INTRODUCTION OF THE STUDY**

Due to the competitive, dynamic nature of the environment in which organisations operate, managers in the twenty-first century face a number of obstacles. Increased globalisation, which has resulted in increased competition for skilled labour, has exacerbated these difficulties. As a result of the heightened competition, managers around the world are finding it challenging to retain qualified staff. Managers and executives face a perpetual struggle in terms of employee turnover (Lee, Hom, Eberly & Li, 2018).

Poor retention has a detrimental impact on the company. According to Lee et al. (2018), replacing employees who leave organisations can cost up to 200 percent of an employee's annual salary since companies must seek, hire, and onboard new employees. Personnel losses have an impact on service quality and lower corporate performance since departing employees tend to also take other competent staff with them especially when appointed in leadership positions. Furthermore, high labour turnover demoralises surviving employees by burdening them with additional tasks.

Adding new staff to the payroll adds to the losses. According to Stamolampros, Korfiatis, Chalvatzis and Buhalis (2019), the issue of employee retention is economically significant due to the expenditures of severance, training and replacement. The high rate of pharmacist turnover is a significant source of concern and a problem that pharmaceutical manufacturing companies must solve (Lan, Huang, Kao & Wang, 2020). The scenario not only raises the cost of recruitment, employment and training, but it also increases the workload of employees who opt to stay. Poor employee retention has a very negative impact on the organisation. Loss of employees has significant negative impact on the organisation as the cost to replace the lost employees could go up to 213% of the employee's annual salary (Kerpditak, 2020).

According to Neog and Barua (2015), a high turnover rate causes disruptions and increased responsibilities for the remaining staff. Neog and Barua (2015) state that when the surviving employees discover that other employees are leaving, their efficiency levels drop. Organisations consider employee turnover as undesirable because of the costs associated with recruiting and training replacement personnel, as well as the loss of expertise and associated human capital, all of which have a detrimental impact on productivity (Parmenter & Barnes, 2021).

This is especially true in the case of pharmacists and production pharmacists, who are classified as knowledge workers. A knowledge worker is described as a person with the ability to make decisions and provide innovative solutions from available information. Nickols (2012) states that knowledge workers carry out work in their head and their work involves conversion of information from one form to another, yielding intangible consequences. Production pharmacists are knowledge workers due to the fact that they have to use available production information to make decisions on the quality and safety of the product. They use their pharmacological and regulatory information to make critical decisions on product quality and safety.

Managers in the pharmaceutical manufacturing industry should proactively put rules and systems in place to prevent employees from leaving the company by investigating the factors that affect employee retention. Addressing these issues may have a favourable impact on staff retention.

Another study indicated that employees who received transition training had lower turnover than employees who did not receive transition training (Mattox & Jinkerson, 2005). Transition training is a type of training that focuses on preparing or inducting employees into a new environment or position (Di Renzo & Bliss, 2010). The training is designed to acquaint staff with their new surroundings or function.

Employee turnover may be influenced by the atmosphere created by the company. Employee turnover has been linked to a lack of teamwork, authoritative management, trust issues between departments and unfair management (Yang, Wan & Fu, 2012). Research

indicates that immediate managers with very strong leadership increased retention rates by 2.7 percentage points, while senior managers with great leadership increased retention rates by 2.1 percentage points (Carter, Dudley, Lyle & Smith, 2019).

Workplace stress is a leading cause of occupational ill health, low productivity and human error. It could lead to the loss of staff, poor performance and an increase in accidents as a result of human error. Job expectations, job control, managerial support, peer support, role clarity and change are all factors that contribute to workplace stress (Elci, 2012). Similarly, Elci (2012) and Neog and Barua (2015) argue that money alone will not be enough to keep employees for a longer period of time if they do not have work-place flexibility.

To achieve a good work-life balance for their people, organisations must make modifications to their organisational structure and jobs (Parakandi & Behery, 2016). According to Neog and Barua (2015), good compensation or rewards aid in the retention of good employees who are an important element of an organisation and for whom the organisation spends a significant amount on recruiting, training and orientation.

Employees of Generation Y are more likely than their predecessors to have strong positive work attitudes and are less motivated by money. Millennials frequently choose to work for a firm that is concerned about society, and they will not work for a company that does not value corporate social responsibility (Frye, Kang, Huh & Lee, 2020).

The retention of knowledge employees in a pharmaceutical organisation is critical. Not retaining these knowledge workers could have consequences for quality in the production, packaging and shipping of medical projects. Pharmaceutical manufacturing is the process of converting non-active and active raw materials into pharmaceutical or medical goods that are used to treat a wide range of ailments and disorders. Medicines are manufactured and tested in a highly regulated setting.

The organisations involved must ensure that processes and policies are in place to ensure that the therapeutic goods that arise are safe, effective and inexpensive (Oparna, 2019). Furthermore, before an organisation may commercially distribute a product, it must

demonstrate that it can consistently create Active Pharmaceutical Ingredients (APIs) and medicinal products with compliant qualities relating to identification, stability and quality.

The manufacturing process must be supervised by a certified pharmacist, according to one of the regulatory requirements. Pharmacists, who work in the pharmaceutical manufacturing industry, have a variety of functions in the production of pharmaceutical products. These pharmacists are in charge of accepting and signing-off on products at different stages of production.

The production pharmacists are also in charge of approving the product and releasing it to the market. Production pharmacists are legally responsible for ensuring that every product put into the market complies with all applicable product specifications. This job entails ensuring the product's quality throughout the manufacturing, packaging and shipping processes to the client.

It is therefore evident that retention is a critical issue for most organisations in a globalised environment, and even more so for organisations employing knowledge workers such as production pharmacists. This study therefore contributes to knowledge of retention and specifically the retention of production pharmacists in South Africa.

## **1.2 PROBLEM STATEMENT**

South Africa is plagued by poor retention of production pharmacists, which has negative implications for the pharmaceutical industry and the supply of pharmaceutical products in the country. The high turnover of production pharmacists in South African pharmaceutical companies could result in the loss of critical skills, increased recruitment, training and onboarding costs and lack of continuity, all of which have consequences for projects, knowledge transfer and innovation (Jeranji, 2020).

The country has a poor pharmacist to patient ratio. South Africa presently has one pharmacist for every 3 849 people, which equates to 30 pharmacists per 100 000 patients. This is very much below the WHO's recommendation of one pharmacist for every 2 300

people (Jeranji, 2020). According to current data provided by the Pharmacy Council, Gauteng has the most pharmacists (6 040), followed by the Western Cape (2 919) and other provinces with relatively low numbers, such as the Northern Cape with only 288 pharmacists. According to the WHO's recommended pharmacist to population ratio, the country lacks adequate pharmacists, and this shortage is aggravated by age or relocation (Jeranji, 2020).

It is evident that an additional supply of pharmacists is required for the sustainability of the industry and that the organisations in the industry can ill-afford to lose pharmacists due to labour turnover. South Africa will need to register an average of 1 200 pharmacists each year to meet the target of 1 200 pharmacists per year by 2030 (Masango, 2019). Universities also need to increase the number of students they are registering each year. Masango (2019) states that South African universities have to register an additional 750 students each year in order to meet WHO's requirements.

Employee turnover is costly to the organisation, since it necessitates training and recruitment costs, which may result in direct losses in terms of productivity, quality and clientele (Kerdpitak & Jermsittiparsert, 2020). Retaining an employee is cheaper than replacing a new employee. Recruiting, hiring and onboarding new staff to replace departing employees can cost up to 200 percent of yearly salary (Lee et al., 2018).

Personnel losses decrease service quality and lower corporate performance because departing employees take their competence with them and demoralise remaining employees since they are given more work to do. In terms of personal, work unit and organisational re-adjustments, the expenses of individuals departing their employment and the subsequent recruiting of replacement personnel, new-hire training and general administrative costs can be extensive. Employee turnover can influence the organisation's bottom line. Production accepting, signing-off the product at various phases of manufacturing and releasing the product to the market are all responsibilities of pharmacists.



Production pharmacists also have a legal obligation to guarantee that every product released to the market complies with all applicable product specifications. The high turnover of production pharmacists to the retail and clinical sectors has a significant impact on pharmaceutical manufacturing companies' performance, product quality, regulatory compliance and price. The loss of production pharmacists in South Africa could have an impact on the competitiveness of South African pharmaceutical companies since it inhibits them from developing new products.

### **1.3 THE PURPOSE OF THE STUDY**

In light of the low retention and shortage of production pharmacists in the South African pharmaceutical manufacturing industry, the purpose of the study is to investigate factors that could influence production pharmacist retention and to make recommendations to pharmaceutical manufacturing companies on how to improve retention.

### **1.4 RESEARCH OBJECTIVES**

#### **1.4.1 Primary research objective**

The primary objective of the study is to identify key factors to improve the retention of pharmacists in the pharmaceutical product manufacturing industry in South Africa.

#### **1.4.2 Secondary research objectives**

In order to achieve the above stated primary objective, the following secondary research objectives were pursued:

- Conduct a literature review on the role and importance of production pharmacists in the pharmaceutical manufacturing industry, with specific reference to the South African pharmaceutical industry.
- Conduct a literature study on factors that influence the retention of employees.

- Develop a hypothesised model to identify the factors that influence the retention of production pharmacists.
- Explain and justify the selected research methodology to be used for the study.
- Develop a research questionnaire covering the identified factors that could have an influence on the retention of pharmacists.
- Analyse the results of the survey based on the hypothesised model.
- Formulate recommendations that can be implemented by pharmaceutical manufacturing companies and explore the benefits with them if the retention of production pharmacists is improved.

## **1.5 RESEARCH QUESTIONS**

Based on the background and purpose of the study, the following research questions were identified.

### **1.5.1 Main research question**

What are the key factors affecting the retention of production pharmacists in the pharmaceutical product manufacturing industry?

### **1.5.2 Research sub-questions**

- What is the relationship between Employee Reward and Recognition and the retention of production pharmacists?
- What is the relationship between Employee Career Development and the retention of production pharmacists?
- What is the relationship between Leadership and the retention of production pharmacists?
- What is the relationship between Training and the retention of production pharmacists?

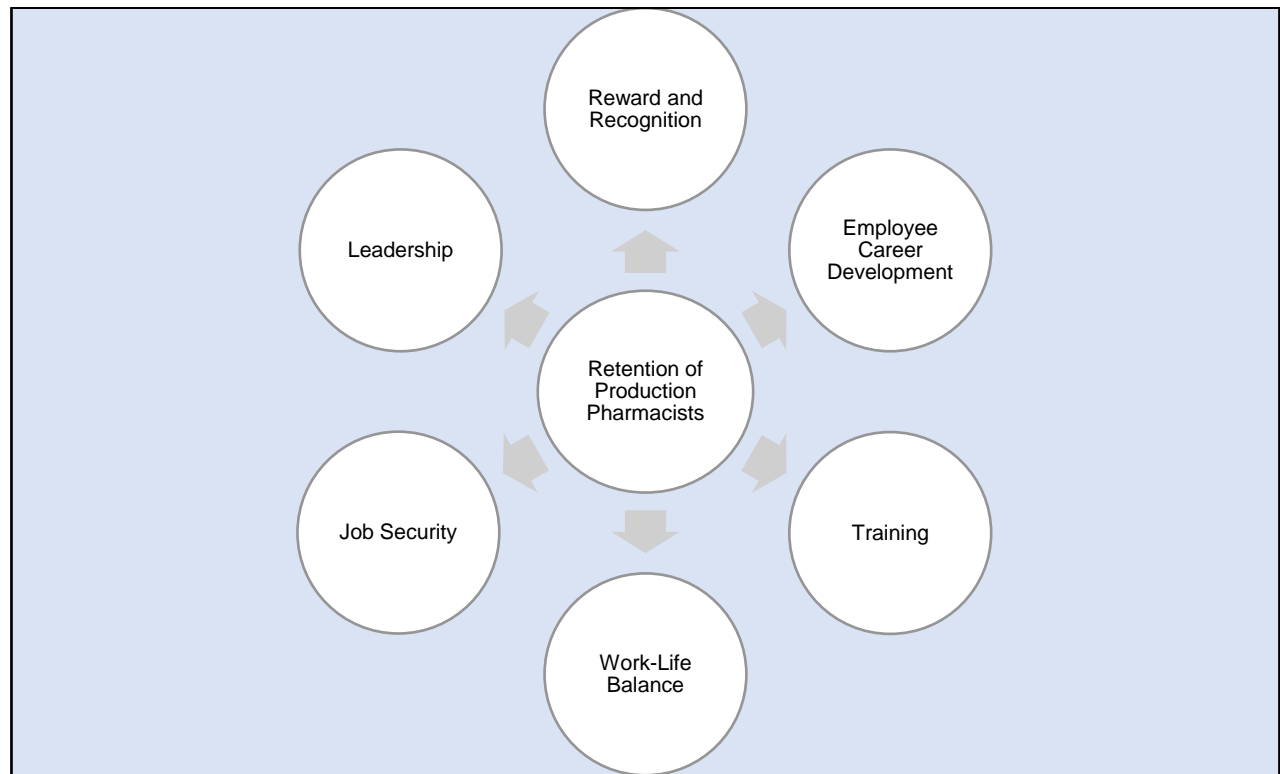
- What is the relationship between Work-Life Balance and the retention of production pharmacists?
- What is the relationship between Job Security and the retention of production pharmacists?

## **1.6 RESEARCH HYPOTHESIS**

The following hypothesised relationships are tested in the study:

- i. H<sub>1</sub>: There is a significant positive relationship between Employee Reward and Recognition and the retention of pharmacists.
- ii. H<sub>2</sub>: There is a significant positive relationship between Employee Career Development and the retention of pharmacists.
- iii. H<sub>3</sub>: There is a significant positive relationship between Leadership and the retention of pharmacists.
- iv. H<sub>4</sub>: There is a significant positive relationship between Training and the retention of pharmacists.
- v. H<sub>5</sub>: There is a significant positive relationship between Work-Life Balance and the retention of pharmacists.
- vi. H<sub>6</sub>: There is a significant positive relationship between Job Security and the retention of pharmacists.

**Figure 1.1: Conceptual Framework**



## **1.7 RESEARCH METHODOLOGY**

### **1.7.1 Research paradigm and approach**

Good selection of the research paradigm improves the credibility of the study. Conducting research into human behaviour usually necessitates the use of a research paradigm with the goal of increasing the study's credibility and generalisability. The use of paradigms in research differs from one researcher to the next, based on the researcher's preferences and the nature of the topic under investigation (Kankam, 2019). Research paradigms are a basic collection of common views among scientists. A research paradigm is a collection of beliefs about the nature of reality and the production of knowledge. Research questions, methodology, methodologies and the way data is acquired and analysed are all influenced by paradigms (Davis & Fisher, 2018).

Research paradigms come from agreements by researchers or bodies of researchers on how research problems should be solved. Rahi (2017) defines research paradigms as a set of agreements about how problems are to be understood, how researchers view the world and how they conduct research. Moreover, these paradigms contain a foundational set of beliefs or assumptions that influence the study questions. The research paradigm used for this study was a positivist research paradigm.

A quantitative research approach was followed in this study. Quantitative research refers to the collection of data by means of coding information and quantifying results via the use of descriptive and inferential analytics rather than qualitative analysis, which is done by means of extracting themes and deeper meaning. The quantitative approach is used to obtain information which describes a population of interest or to hypothetically test a relationship which is believed to exist in a population. For this study, a Likert type scale was used ranging from disagree (1) to strongly agree (5), and as such the responses were quantified. The results are presented in tables and figures in chapter 4 of the study.

The survey was in the form of a questionnaire with closed-ended questions which was sent to the respondents via email with a link to the questionnaire. The data was captured electronically and saved on a secure server. The respondents were production pharmacists who were currently working within pharmaceutical manufacturing in South Africa and pharmacists who previously worked within production in pharmaceutical manufacturing.

As indicated, a quantitative research design was used to conduct the study. Quantitative research has been granted the imperial position of being valid, accurate and a truth-mirror (Poni, 2014). Furthermore, the ability to verify the untruth or veracity of interrelations between regularities of the social environment is credited with this approach. The quantitative research approach involves the collection and analysis of numeric data with an intention to make generalisations about the target population (Daniel, 2012).

### **1.7.2 Population and sampling**

The population for this study consisted of pharmacists who were at the time of the study working in the pharmaceutical manufacturing industry or who had previously worked in the pharmaceutical manufacturing industry. Sampling is used since it is often impractical or impossible for a researcher to include all the members of a population in a study.

Sampling starts with having a clear understanding of the research problem and clear research objectives. These must be stated logically and consistently. According to Mishra and Alok (2017), sampling then establishes the foundation for data gathering, measurement and analysis. Sampling design is an important and flexible way of gathering data if studying the entire universe or the entire population becomes problematic. Jawale (2012) states that sampling gives the researcher a choice of focusing on a specific section or a representative group of a total population.

The research design for this study was a quantitative research design. The purpose was to draw data in a numerical form from the population (production pharmacists in South Africa). The targeted population was pharmacists who had experience as production pharmacists. The study targeted participants who fitted the profile of the ideal participant (Igwenagu, 2016). Being a production pharmacist or having worked as a production pharmacist in a South African organisation was therefore one of the criteria used for inclusion in the study.

The data for the study was gathered using a non-probability sampling approach. A non-probability sampling approach is one in which the units of the population do not all have the same chance of being sampled or selected (Alvi, 2016).

For this study, quota sampling and snowballing was used. Quota sampling is described by Etikan and Bala (2017) as a sampling method where the researcher has ease of access to the population (convenience) and is guided by a pre-determined quota or characteristics such as sex and race, based on the population of interest. Snowballing is done through the use of networks. Snowballing is used in extremely rare cases where the population of

interest can be identified by an individual who knows that a particular person meets the required criteria (Nayak & Singh, 2021).

In this study, a representative sample of 71 people was sampled. The sample was large enough to produce a good statistical analysis. A good sample is one that is statistically representative of the target population and large enough to address the research problem. Sample size depends on a variety of factors. Size depends on the type of analysis to be performed, the required level of precision and the type of comparison to be made (Nayak & Singh, 2021). Pharmacists from several pharmaceutical manufacturing companies in South Africa made up the sample.

### **1.7.3 Data collection instrument and administration**

Data collection has a direct impact on the quality of the research. Data collection is a significant part of research and it is an important factor which determines the cost and success of the research (Wilcox, Gallagher, Boden-Albala & Bakken, 2012). The collected data is quantified and subjected to statistical treatment to support or refute alternate knowledge claims.

In this study, the research data was collected using an administered questionnaire. The questionnaire was administered through Questionpro. The link to the survey was distributed to the participants via email. A questionnaire is a tool used when primary data about the behaviour, attitudes, awareness of people is required (Flowerdew & Martin, 2005).

The questionnaire consisted of Section A (biographical data questions) and Section B contained questions related to the factors believed to have an influence on the retention of production pharmacists in the pharmaceutical manufacturing industry, as uncovered in the literature study. The factors included Job Security, Employee Reward and Recognition, Work-Life Balance, Leadership and Employee Career Development. The relationship between the biographical data and the data obtained in Section B of the questionnaire was also explored.

To measure the above stated factors, a five-point Likert scale was used ranging from strongly disagree (1), disagree (2), neutral (3), agree (4) and strongly agree (5). The data was automatically captured on the Internet and in a MS Excel file.

#### **1.7.4 Data analysis**

Both descriptive and inferential statistics were utilised and the results are presented in chapter 4. Firstly, the response rate to the survey is presented, followed by the biographical data. A total of 71 usable questionnaires were received.

Secondly, descriptive statistics of frequency scores and percentages for the various factors measured in the study: Employee Reward and Recognition, Employee Career Development, Training, Leadership, Work-Life Balance and Job Security, are presented.

Thereafter, factor analysis was performed to confirm the factors measured in the study. All of the factors remained as they were, except for the factor Employee Reward and Recognition, which delivered two factors. The first Employee Reward and Recognition factor (Factor A) is related to receiving remuneration, recognition and rewards, and it being done in a fair manner, and the second factor is Employee Reward and Recognition as a retention factor. The first factor was labelled Employee Reward and Recognition A and the second factor was labelled Employee Reward and Recognition (Retention) B.

The next set of analysis focused on reliability. For this purpose, Cronbach Alpha analysis was used. The Cronbach scores emerged as fair for one factor to good and excellent for the rest of the factors.

Descriptive factors for the factors were then presented in terms of percentages, which were categorised as very negative to negative, neutral, to positive and very positive.

Thereafter, one sample T-tests and inferential ranking were used to categorise the factors either as negative, neutral or positive and to determine whether differences between factors were significant. Lastly, inferential tests were conducted to determine if significant



differences existed in the results for the factors based on biographical differences.

Both descriptive and inferential statistics were used to analyse the data. As part of the descriptive statistics, the mean and standard deviation were calculated. According to (Leedy & Ormrod, 2010), descriptive statistics summarise the nature of the data collected and inferential statistics assist the researcher in making decisions about the data obtained.

## **1.8 ETHICS**

Before the research data was collected, the researcher received ethics clearance from the Nelson Mandela University Ethics Committee (H21-BES-BUS-183). This was done to ensure that the research was done in an ethical manner and to prevent any conflict of interest in the research study. This was also done to safeguard the respondents who participated and that no people considered as vulnerable were included in the study.

## **1.9 SIGNIFICANCE OF THE STUDY**

The results of this study will enable companies in the pharmaceutical manufacturing industry to gain an understanding of critical factors which have a significant influence on the retention of production pharmacists. It will also enable them to develop good procedures, policies and strategies, thus enabling them to retain critical skills and talent. This will in turn result in organisations improving their quality and increasing their market share.

## **1.10 ORGANISATION OF THE REMAINDER OF THE STUDY**

The research report consists of five chapters and the outline of the report is listed below:

Chapter 1: Introduction and Problem Statement

Chapter 2: Literature Review

Chapter 3: Research Methodology

Chapter 4: Research Findings

Chapter 5: Conclusion

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 INTRODUCTION**

Chapter 1 introduced the study which was aimed at identifying factors influencing the retention of production pharmacists in South Africa. The pharmaceutical industry creates millions of items that are used to treat a wide range of illnesses and disorders all over the world. It is a highly regulated industry, and companies that deal in the industry or market must adhere to all regulatory rules. Manufacturers must show that they have the ability to produce consistent quality. A manufacturer must have a high level of confidence in the manufacturing process's ability to consistently produce active pharmaceutical ingredients (APIs) and drug products with compliant attributes such as identity, strength, quality, purity and potency before any product can be commercially distributed for consumer use (Orpana, 2019).

Companies must have strong quality management systems in place to manufacture products that fulfil these regulatory criteria. Failure to comply with these regulations could result in the creation of low-quality products, damage to the company's reputation, the loss of life and the loss of an operating license. The appointment of pharmacists is one of the most significant regulatory criteria. Pharmacists work in a variety of supply chain divisions, from raw material warehousing to finished goods' transportation. Their job is to ensure that pharmaceutical items are manufactured in accordance with regulatory criteria.

The following sections of this chapter will examine the many functions fulfilled by pharmacists, as well as the factors that influence their retention in the pharmaceutical manufacturing industry and possible solutions to the problem of poor retention of these production pharmacists.

## **2.2 PHARMACISTS AS KNOWLEDGE WORKERS**

A steady supply of competent and knowledgeable pharmacists is one of the most important aspects of a well-functioning health-care system. Pharmacists are important members of the health-care team because they have the skills and knowledge to start, monitor and adjust drug therapy, and they are well-known as pharmaceutical specialists among the general public (Faruquee & Guirguis, 2015). Pharmacy is a highly skilled profession and pharmacists are typically crucial members of health-care teams (Lan et al., 2020). Pharmacists must have vast knowledge and skills to comprehend continually changing information regarding medical technologies and environments.

Previously, a pharmacist's responsibility was confined to verifying doctor prescriptions, distributing medications and advising patients on proper dosages and product safety. Today, pharmacists work in a variety of settings, including clinical, instructional, marketing, regulatory, research, quality assurance and manufacturing. The pharmacist's responsibility includes not just dispensing medication to patients and educating them about drugs, but also developing, evaluating and manufacturing drugs and medications (Verma, 2014).

Production pharmacists play a very significant role in the pharmaceutical product supply chain. In support of Verma's (2014) assertion, Saleh, Rezk, Laika and El-Metwally (2015) claim that production pharmacists play a critical role in the supply chain of pharmaceutical products or medicine production, from the manufacturing of the raw materials to pharmaceutical product production, distribution, retail and distribution of pharmaceutical products at the pharmacy or hospital.

Organisations must reassure their stakeholders that the products they are offering are up to standard. Pharmacists have a responsibility to ensure that safe, high-quality medicines are produced, but they also have a responsibility to ensure that pharmaceutical product manufacturing does not have a harmful influence on the environment (Singleton, Nissen, Barter & McIntosh, 2014). Pharmacists also play a vital role in reducing the environmental impact of pharmaceuticals, both by maximising resource efficiency to limit waste production and by ensuring safe waste disposal.

Consumer health and safety are critical. Pharmacists use current knowledge about the direct impact of environmental pollutants on human health, particularly in vulnerable populations such as pregnant women, toddlers, children, adolescents, the elderly, immunodeficient patients and patients with chronic diseases (Novaković et al., 2017). Furthermore, pharmacists have a role in reducing the detrimental effects of pollutants on the environment and persons, as well as putting pressure on legislators to limit their production, import and use.

The education of pharmacists covers a variety of pharmaceutical disciplines. A pharmacist's education encompasses a wide range of pharmaceutical specialities as pharmacy is a multi-disciplinary profession. Pharmaceutical education is divided into different categories which include chemistry, medicinal chemistry, drug discovery, pharmaceutical analysis, pharmaceutical technology, biopharmaceutics, pharmacology, clinical pharmacy and hospital pharmacy, with diagnostics and laboratory testing covered in additional courses (Verma et al., 2014). A pharmacy degree requires five years of university education. In addition, pharmacists must be licensed in order to practice (Milicevic, Matejic, Terzic-Supic, Dedovic & Novak, 2010).

Pharmacists can choose from a range of career choices after graduation. The majority of pharmacy graduates work in the community/retail sector, followed by hospitals, industry, and academia. Academia, however, continues to demand registered pharmacists, but it is difficult to attract qualified individuals due to low salaries relative to other industries (Sosabowski & Gard, 2008). Furthermore, academic pharmacists face the annual registration fees that all professional pharmacists are required to pay. As a result, many academic pharmacists re-consider if they need to continue registering if they have no clinical commitments.

From the above, it is evident that pharmacists are knowledge workers due to their intensive training, wide range of responsibilities and specialist knowledge. Pharmacy is a large industry with a wide range of opportunities and career paths. The following section provides an overview of the many jobs and opportunities available in industry for pharmacists who have completed their university degrees.

## **2.3 DIFFERENT AREAS OF SPECIALISATION FOR PHARMACISTS**

The role that pharmacists fulfil is critical in ensuring that the world is provided with high-quality medications that are useful in the treatment of a variety of ailments. Their function has also been expanded by rising regulation in the pharmaceutical environment, particularly in the pharmaceutical manufacturing industry, which has resulted in many corporations putting in place procedures to assure compliance with the requirements. As a result of these initiatives, many new occupations have been established, with an increase in the demand for pharmacists. The rising need for pharmaceutical manufacturing and the rise of the pharmaceutical industry have also expanded the roles and demand for pharmacists. In this section, the different areas of specialisation for pharmacists are discussed. The purpose of this discussion is to distinguish the role of the production pharmacist from other types of pharmacists. In addition, when pharmacists decide to leave the production environment, they may decide to divert to one of the other fields of pharmacy.

### **2.3.1 Academic pharmacists**

The increasing demand for pharmacists must be matched by an increase in the supply of pharmacists. An academic pharmacist is a pharmacist who devotes their career to educating and training pharmacists at educational institutions (Verma, 2014). Academic pharmacists play a crucial role in the development of pharmacists. Academic pharmacists teach, conduct research and train future pharmacists (Kokane & Avhad, 2016).

The pharmaceutical industry is confronted with numerous obstacles. Academic pharmacists encounter numerous difficulties. Furthermore, academicians face the challenge of providing a high-quality educational experience to an ever-increasing number of pupils. In the experiential learning scenario, increased class sizes need an increase in teacher and non-faculty resources.

### **2.3.2 Retail pharmacists and on-line pharmacists**

The retail industry, after the clinical and hospital sectors, is one of the largest employers of graduate pharmacists. Dispensing medications in drug stores and supermarkets (such as Dischem and Clicks) is the responsibility of retail pharmacists (Sekhon & Kamboj, 2011).

Pharmacists in this field also work in grocery shops, hospitals and communities. Consumers can also profit from online pharmacies in a variety of ways. Consumers believe that on-line purchasing of pharmaceutical products is a more convenient and private method of securing medicine than traveling to a neighbourhood drugstore where they are exposed to another customer who might listen to their narrative about their illness and their medicine (Sekhon & Kamboj, 2011). If a patient is confined to their house, their doctor may recommend that they use an internet pharmacy. People who want to save time while retaining privacy and security would appreciate the online drugstore. More immediate access versus waiting for a general practitioner appointment, as well as reduced travel time and health-care expenditures, are some of the potential benefits of consulting a pharmacist first (Sekhon & Kamboj, 2011).

### **2.3.3 Clinical pharmacists**

Clinical pharmacy absorbs the majority of university graduates. The majority of these students are hired by the government as clinical pharmacists after graduation. Clinical pharmacy is a health-care profession in which pharmacists improve pharmacological therapy and promote health, wellness and disease prevention. Clinical pharmacy is a field of pharmacy that emphasises pharmaceutical care by combining a caring attitude with professional therapeutic knowledge, experience and assessment to ensure that patients receive the best possible care (Abualenain & Bakhsh, 2018).

Clinical pharmacists conduct patient assessments, collaborate with physicians to construct collaborative practice agreements, order, interpret and monitor pharmaceutical related tests, as well as coordinate wellness, disease prevention care, immunise patients and

educate caregivers, and ensure that all clinical activities are documented in the medication management system (Abualenain & Bakhsh, 2018; Scott, Heck & Wilson, 2017).

Pharmacists are key to good health-care. Clinical pharmacists are well positioned to deal with the challenges of fast changing needs and the global health-care system since they are widely available and easily accessible (Bell, Dziekan, Pollack & Mahachai, 2016).

High quality health-care necessitates devoted professionals who can work as part of a multi-disciplinary team. Clinical pharmacists, also known as hospital pharmacists, are an important part of the multi-disciplinary team involved in patient-centred care (Dalton & Byrne, 2017). In addition, their responsibilities go beyond the dispensary to include delivering clinical services on the ward, including assessing patients' prescriptions and consulting other health-care experts on pharmacotherapy.

One of the most crucial aspects of the pharmaceutical industry is consumer safety. Clinical pharmacists must be good communicators and drug experts who understand where to access the most up-to-date information on all drug usage, therapeutic and adverse effects, mode of action and administration, storage and dispensing, and regulation (Okoro, 2021).

According to Abualenain and Bakhsh (2018) and Verma et al. (2014), these types of pharmacists monitor the health and progress of patients to ensure the safe and effective administration of medication. Clinical pharmacists encourage the use of generic pharmaceutical products. Clinical pharmacists also play a key role in growing generic pharmaceutical use by alerting patients and health insurance companies about the potential cost savings of generics, as well as increasing generic alternatives and dispensing (Okoro, 2021).

Clinical pharmacists also notify physicians about drug availability and interchangeability of reference products and biosimilars in compliance with interchangeability policies. Clinical pharmacists are also involved in biotherapeutic monitoring, which entails evaluating patients for efficacy as well as immunogenicity and toxicity indications (Okoro, 2021).

Pharmacists are educators. Pharmacists are knowledgeable about numerous medications and play a vital role in educating patients about the various drugs available to them (Yip & Chong, 2020). Patient education includes drug administration schedules, the importance of treatment adherence, side effect control and pain management (Yip & Chong, 2020).

#### **2.3.4 Production pharmacists**

This study is focused on production pharmacists. Production pharmacists, also called industrial pharmacists, play a key role in guaranteeing the safety of pharmaceutical products. These pharmacists are employed in organisations such as Aspen, Cipla Mepro, Adcock Ingram, GlaxoSmithKline or Sanofi-Aventis and are directly involved in the manufacturing of pharmaceutical products.

The purpose of an industrial pharmacist is to guarantee that pharmaceutical products are made in accordance with good manufacturing practices, from product validation to product testing before they are issued to the market (Kokane & Avhad, 2016).

In the pharmaceutical manufacturing supply chain, production pharmacists play a critical role in the management and control of quality. Pharmacists are responsible for assuring and controlling product quality, technology transfer, overseeing production, warehousing, and distribution of products, and developing systems and processes to ensure that processes comply with the requirements of good manufacturing practices (Masango, 2019).

Industrial pharmacists are responsible for determining if medications coming off the production line have all of the required constituents in the proper amounts. They can work at any level of the manufacturing process, including research, development, clinical trials, manufacturing, quality testing, drug registration and marketing (Masango, 2011).

Production pharmacists also work on the development and testing of innovative medications that must undergo extensive testing to ensure their safety and efficacy. In



addition, industrial pharmacists assist with administrative tasks such as drafting product information for submission to regulatory agencies (Bosman, 2020).

Production pharmacists are responsible for planning and prioritising daily, weekly and monthly production activities and they have to determine, request and use assets optimally. In addition, their responsibilities include the inspection and verification of schedule five products, the cleanliness of production rooms, equipment performance, maintenance and dispensing. They have to ensure that the production process occurs according to the required quality standards and that the production areas are always in an audit ready state (Bosman, 2020).

Production pharmacists have to review and manage change controls, deviations and customer complaints, while reviewing the compliance of the manufacturing plant, optimising and identifying gaps in policies and procedures (Bosman, 2020). In addition, they must train new pharmaceutical staff and identify refresher training needs, ensure good document practice, complete batch records, resolve production batch document queries, sign off declarations and verify calculations in BMR (Bosman, 2020).

The production pharmacist needs to have a minimum of a Bachelor's degree in Pharmacy, one to three year's work experience as a pharmacist, pharmaceutical manufacturing experience, be registered with the South African Pharmaceutical Council and be able to gather and interrogate information, meet deadlines and ensure final output (Bosman, 2020).

Due to the limited size of the industry and a lack of knowledge about the profession, the production pharmacy role is far less well-known and popular than that of other pharmacy roles. Students showed minimal interest in industrial pharmacy, according to a study done by Smith (2008), which was partly owing to the low profile of industrial pharmacy and the lack of work possibilities. This is also attributable to the fact that clinical pharmacy is the primary focus of the pharmacy curriculum. Interaction with practicing pharmacists has an impact on student recruitment.

As indicated in the introduction to the study, the pharmaceutical manufacturing industry in South Africa is plagued by shortage and poor retention of production pharmacists and this was the reason for the study to be conducted. The following section presents a summary of the causes of poor retention of production pharmacists as well as suggested solutions to the problem.

## **2.4 RETENTION OF PRODUCTION PHARMACISTS IN THE SOUTH AFRICAN PHARMACEUTICAL MANUFACTURING INDUSTRY**

Employee retention is defined as the process of encouraging employees to stay or remain in a position or in an organisation for a maximum number of years. Neog and Barua (2015) state that it is a process that is beneficial to both the organisation and the employee. Parmenter and Barnes (2021) define employee retention as the ability to attract and retain employees and indicate that it is critical to organisational competitiveness. Employee retention can further be defined as the policies and practices organisations use to avoid precious employees from quitting their jobs (Neog & Barua, 2015).

Companies in the pharmaceutical production industry are faced with many challenges which include shortage and poor retention of pharmacists. South Africa presently has one pharmacist for every 3 849 people (Masango, 2011). Based on WHO's suggested pharmacist to population ratio, the country lacks adequate pharmacists. Masango (2019) further mentions that South Africa needs to register an average of 1 200 pharmacists every year, or one pharmacist for every 1 200 people in order to meet the WHO requirements. The shortage of pharmacists negatively affects pharmaceutical companies and industry. High turnover is costly to the organisation since it necessitates training and recruitment costs, which may result in direct losses in terms of productivity, quality and clientele (Kerdpitak & Jermsittiparsert, 2020).

The poor retention of production pharmacists has a significant negative impact. Employee turnover costs 150% of an individual employee's annual compensation, according to estimates. Failure to adopt systems and processes to retain personnel could result in an increase in organisational expenses (Neog & Barua, 2015). Furthermore, because the cost

is 200% to 250% of income for administrative and sales jobs, the cost for production pharmacists could be expected to be higher due to their specialised knowledge.

Employee turnover has a negative influence on HR tasks such as recruitment and selection, and training and development (Haldorai, Kim, Pillai, Park & Balasubramanian 2019). High staff turnover leads to higher recruitment and training expenditures (Haldorai et al., 2019). This leads to disruptions of operations and stunted growth of the company. The loss of highly trained individuals not only disrupts a company's short-term operations, but it also jeopardizes the company's long-term growth (Domeyer, 2007).

Organisations are constantly subjected to change. Employee turnover is not always a bad thing for companies as employee turnover is necessary for the organisation to gain fresh ideas and enhance innovation, but it must be done in a balanced manner (Shakeel & But, 2015). Furthermore, it is a procedure that entails inspiring employees to stay with a company for as long as possible.

Pharmaceutical companies benefit greatly from the ability to retain personnel. Employee retention is vital, because when an employee stays with an organisation for a long time, they become the repository of the organisation's expertise and secrets. However, when they leave their current employer and join a new one, it is favourable for the latter and harmful for the former because information and secrets are transferred with the employee (Neog & Barua, 2015).

Satisfied employees stay with their companies longer, saving money on hiring and training new employees and decreasing recruitment costs. Organisations should ensure that they address or implement factors/practices that aid in employee retention (Al-Omar, Arafah, Barakat, Almutairi, Kurshid & Alsutan, 2019).

A variety of factors influence employee retention and turnover. Employee turnover rates rise when employees are dissatisfied with their employers and this causes them to leave (Terera & Ngirande, 2014). Retention methods or factors have an impact on an employee's decision to stay with or leave an organisation (Gani, Potgieter & Coetzee, 2020).

Compensation and benefits, job stability, training and development, supervisor support, culture, work environment and organisational justice/fair treatment are all mentioned by Neog and Barua (2015) as factors that influence the retention of pharmacists. Furthermore, pay, job features, training and growth possibilities and supervisor support are also retention factors to consider. However, Frye et al. (2020) state that workplace culture, employee compensation, management relationships and employee empowerment are all elements that influence employee retention in organisations. Salary and job security influence retention. It is critical that the organisations adopt suitable HR policies such as salary and job security to retain personnel (Bibi, Ahmad & Majid, 2016).

The pharmaceutical industry in South Africa, which employs around 6% of the entire pharmacy workforce, faces a difficult future due to a scarcity of pharmacists and difficulty in retaining experienced pharmacists (Masango, 2011). The following sections present the retention factors investigated in this study.

#### **2.4.1 Job security**

Employee job security has a significant, beneficial impact on employee morale and performance. Job security is the degree to which organisations provide steady positions for their employees (Bibi et al., 2016). Employment security is defined as the likelihood of an employee keeping their job (Jimenez & Didona, 2017).

Employees who believe their jobs are secure perform better than those who believe they are not. Job security is higher for employees who are content with their jobs than for those who are unsatisfied with their jobs, resulting in organisations keeping employees for longer periods of time than their competitors. Job security is crucial for retaining employees (Neog & Barua, 2015).

The greater the likelihood of retaining the employee, the more likely the organisation is to maintain the person. The better the employee's chances/probability of keeping their employment, the higher the job security. Furthermore, to promote job security,

organisations must implement policies and programs that increase employee education and experience (Jimenez & Didona, 2017).

Trade unions have a great deal of power with job security. Unions have an impact on job security and non-unionized employees perceive their positions to be less safe than employees who are members of unions (Jimenez & Didona, 2017).

Lack of training, poor management and poor economic conditions all have an adverse effect on job security. Job instability is caused by a lack of training, employee incapacity to keep up with technological advancements, poor managerial attitudes and poor economic situations (Abolade, 2018).

#### **2.4.2 Employee remuneration**

While job security is a significant retention factor, it does not guarantee that employees will stay with the company. Organisations must ensure that job stability is accompanied by a competitive wage package.

Salaries that are competitive are essential for employee retention. Remuneration or compensation is defined as the competitiveness of a company's reward packages, the company's remuneration policy and wage increases (Gani et al., 2020). Good compensation directly impacts the employee's intention to leave or remain in the organisation. When a better offer comes along, pharmacists are more likely to leave (Benslimane & Khalifa, 2016). Salary motivates employees and is viewed as the biggest and strongest motivator, followed by job promotion, while work attractiveness is regarded as the lowest motivator, according to a study conducted by Benslimane and Khalifa (2016) on pharmacist motivation and job satisfaction. Organisations need to understand these motivational factors.

Human resource management should identify relevant motivational elements that can lead to continuous improvement and enhanced competitive advantage, according to the findings, and companies should include non-financial incentives when developing

strategies. Good pay motivates, attracts and keeps good personnel. Bibi et al. (2016) state that compensation is important to employees since it one of the main reasons why people work, and effective remuneration can help organisations motivate, attract and keep skilled staff. Appealing compensation always aids in retaining good employees who are an integral part of the company (Bibi et al., 2016; Neog & Barua, 2015).

Employee loyalty, motivation and productivity are influenced by remuneration. Bibi et al. (2016) consider salary to be extremely important since it influences employee loyalty and motivation, productivity and social standing. Many South African companies are concerned about maintaining highly skilled employees due to the increased demand for highly qualified professionals such as production pharmacists. Organisations require new compensation systems that satisfy employees to attract, retain and remain profitable (Terera & Ngirande, 2014).

Employee retention hinges on the development of effective retention methods. Compensation is a crucial aspect that employees evaluate when deciding whether or not to stay with a company, and it is critical for management to establish a retention plan that addresses employee remuneration and compensation (Terera & Ngirande, 2014). Employee retention is influenced by factors such as remuneration, according to Coetzee and Stoltz (2015), who agree with Neog and Barua (2015) and Terera and Ngirande (2014). Failure to remunerate or offer adequate remuneration packages will result in the loss of talent or in the inability to attract good people from other organisations (Frye et al., 2020).

### **2.4.3 Employee recognition**

Employee recognition directly influences the retention of employees. Employee turnover is caused by a variety of factors which include lack of training, employee benefits and employee appreciation and recognition (Ramos, 2017). Employee appreciation programs must be a part of the company's operations. It is no longer an option but a must to implement a strategic recognition program (Kwawcke, 2018). Furthermore, Kwawcke (2018) contends that failing to appreciate the efforts and sacrifices made by employees is a major disservice to them and may lead to their departure from the company.

Employees enjoy being praised for their hard work and they like to know that their efforts and hard work are noticed by management (Kimer, 2018). Making individuals feel appreciated, whether through increases, promotions or using simple words or symbols of appreciation, keeps them around. Employers have realized that paying employees more money does not ensure that they will stay with the company. Most organisations are turning to or employing recognition programs as a measure for keeping staff (Kujawa, 2015). Employees are not only motivated by good compensation. Intrinsic rewards, such as recognition, work autonomy and a sense of accomplishment are more important in retaining employees than extrinsic rewards (Frye et al., 2020).

Employees should be praised for their efforts on a regular basis. Early recognition of employees has a direct impact on their motivation to constantly deliver excellent work and remain with the company (Stuart, 2015). Therefore, managers should not wait for an anniversary or a large end-of-year event to thank their personnel, but instead make employee recognition a part of the etiquette as it motivates people to do better.

Employee retention and turnover are impacted by a variety of factors, including a lack of training and inadequate employee benefits as well as employee appreciation and recognition (Ramos, 2017). Employee appreciation initiatives should be viewed as investments rather than as expenses by companies. This can be accomplished by ensuring that the organisation's recognition initiatives align with its overall business plan (Hart, 2012). Furthermore, genuine employee appreciation does not have to be expensive; it only needs to be unique, real and timely.

Rewarding and recognising employees should not be limited to the end of the month. Employees should be encouraged to be innovative and creative as part of the company culture. Organisations, particularly in the manufacturing industry, must constantly devise quality improvement efforts. Furthermore, companies must devise a reward system for employees who fulfil significant operational goals to foster a culture of continuous improvement, (Kahle, 2016).

#### **2.4.4 Leadership**

Leaders have a critical role in the establishment of a productive working environment. Leaders are also responsible for ensuring that staff have access to the tools and resources they require. The role of the leader has shifted in recent years. Implementing and promoting excellent ethical behaviour and governance is one of the most critical tasks or roles of leaders. Elci (2012) describes an ethical leader as someone who exhibits appropriate behaviour in their own acts and relationships, as well as encouraging their followers to do the same through communication, reinforcement and decision-making. These leaders, according to Elci (2012), are transparent and engage in open communication, supporting and rewarding ethical behaviour among their followers.

Employee retention is influenced by strong and ethical leadership. Effective leadership has a significant positive impact on employee turnover (Elci, 2012). Strong leadership is a key aspect in establishing an employee-driven company (Brahm, Kelly-Rehm & Farmer, 2009). Brahm et al. (2009) go on to state that leadership is critical in keeping operations running smoothly and reducing employee turnover.

Employees need to be supported by strong and ethical leaders. Personnel with high-demand positions, such as pharmacists, require the support or backing of their superiors to perform successfully in a stressful work environment (Al-Omar et al., 2019). Additionally, keeping employees happy at work implies that they are less likely to leave for another company, reducing the need to hire and train new employees and so saving money (Al-Omar et al., 2019). As a result, empowering employees and treating them fairly not only demonstrates strong ethical leadership, but also makes good commercial sense. Mentorship can be a type of support and having leadership and mentorship programs in the workplace might enhance employee retention (Vergara, 2017).

A lack of leadership support can present itself in a variety of poor behaviours and can be a sign of unequal treatment, while supervisor support is key to retention. According to Yang et al. (2012), unfair management, poor relationships with employees and colleagues, a lack of independence, inhumane or overly militarised management, frequent changes in



operational policy, gender discrimination, a lack of organisational capacity and deliberate attempts to make things difficult for staff, as well as negative and unconstructive feedback and unconstructive criticism are critical factors impacting retention. Employees are more likely to stay in an organisation if their boss or supervisor supports them (Gani, 2020) and employees are more likely to remain longer in organisations, especially if they feel valued by their managers (Lohr, 2019).

#### **2.4.5 Employee training and development**

Employee retention is influenced by training and development, which has ramifications for career advancement, promotion and employability. Staff training and development are systematic methods of improving and growing employee skills, abilities and knowledge to improve organisational effectiveness (Fletcher, Alfes & Robinson, 2018). Employee talent development is the process of putting bright people in situations where they can hone their skills, improve their qualities, advance their careers and feel that they are a valuable contribution to the company.

Companies with a robust staff development program that allows individuals to develop and climb the organisational career ladder would be able to enhance employee retention (Jayathilake, Daud, Eaw & Annuar, 2020). Furthermore, HRM activities such as employee training and development make employees believe that the company's processes are geared to help and empower them to advance within the company. As a result, training and development sends a message to employees that they are valued and the company wishes to retain them.

According to Jayathilake et al. (2020), good training and development help organisations maintain their competitive advantage by retaining good employees. The key to employee retention is a good employee retention strategy. Employee development programs have been shown to improve employee job satisfaction as well as loyalty and trust in their employers (Diah, Hasiara & Irwan, 2020). Furthermore, the programs not only improve job satisfaction, loyalty and trust but also improve employee skills and work performance. In addition, Diah et al. (2020), argue that employee development has significant positive

impact on the organisation, allowing pharmaceutical companies to become more efficient and maximise earnings.

Employee discontent and turnover continue to be primary drivers of employee turnover (Davis, 2015). Training is vital for both new and seasoned agents and is a key factor for agent retention (Boe, 2010). Furthermore, the provision of continual training and personal development opportunities to employees are critical and often serve as powerful incentives or motivation for employees to stay with a company. As a result, organisations should not assume that production pharmacists are already trained in their field and do not require additional training. Training and development are critical for continuous improvement and for people to make a difference in how things are done in an organisation, to assume future leadership roles and to contribute to the achievement of strategic goals.

Employees are more likely to stay when they have support and opportunities for career learning and development (Gani, 2020). However, support can include both internal (promotions) and external (job openings) opportunities (employment at a new organisation). Lohr (2019) explains that training and development opportunities influence the decision to stay at one's current employment. Training has been shown to enhance revenue and improve retention among experienced employees (Mattox & Jinkerson, 2005).

Today's employees are more inclined to stay with a company if they perceive there is a lot of room for professional growth and improvement (Domeyer, 2007). Employee recruiting is the first step in a strong employee development strategy (Davis, 2015). Employees must be informed about the organisation's development strategy, and the organisation must collaborate with employees to facilitate internal employee movement. Furthermore, organisations might conduct an internal career day to educate internal employees about the various career prospects and paths available within the company.

To support internal employees, the organisation can host an interview or CV writing skills workshop, as well as a reward system for employees who complete an educational program or course (Davis, 2015). For production pharmacists, the organisation may help

with career pathing and clarifying succession options, or it could increase the job area of staff.

#### **2.4.6 Work-life balance**

Work-life balance has become difficult in a VUCA society marked by continual change and growing use of technology. Increasing remuneration was once thought to be the best way to keep valued employees, but it is no longer the most effective technique. Rather, today's workers are more interested in initiatives that assist work-life balance and career advancement (Domeyer, 2007). Money, while beneficial as an attraction element, is not enough to keep employees for longer periods of time (Neog & Barua, 2015).

Parakandi and Behery (2016) define work-life balance (WLB) programmes as various systems and processes which are implemented by organisations to acquire a healthy balance between the work life and personal life of employees. Gani (2020) refers to work-life balance as maintaining a satisfactory balance between one's personal life and work schedule, with marginal conflict between the multiple roles one has to fulfil in terms of one's personal and work lives. The duration and time employees spend at work are very crucial, as they not only determine how long employees are exposed to other working conditions, but also how much time is available for recovery, leisure activities or private obligations (Brauner, Wöhrmann, Frank & Michel, 2019).

In support of Gani (2020), workplace stress is defined by Kerdpitak and Jermsittiparsert (2020) as stress that employees experience as a result of the environment in which they work, as well as internal conflicts that arise as a result of their supervisors or employers requiring tasks to be completed in a certain amount of time. Furthermore, Kerdpitak and Jermsittiparsert (2020), define work-life balance as a requirement for employees to strike a balance between work and other elements of their lives. Personal interests, social and recreational activities and most importantly, family are all significant parts of life.

A career as a pharmacist can be incredibly gratifying, but it can also be very stressful, as employees are required to work long hours with enormous workloads (Brahm et al., 2009).

These conditions have a significant impact on pharmacists' health, making it harder for them to work at their best, potentially leading to job turnover. This is reflected in the great level of responsibility that comes with working in the pharmaceutical industry. Employees who work with few resources or time and work over-time, bear an excessive workload, have insufficient rest or are expected to accede to the demands of the job (Brahm et al., 2009). Work-life balance has a direct impact on employee turnover. Work-life balance could have serious negative consequences for the organisation regarding employee turnover, which in turn impacts employee efficiency and performance. Furthermore, by achieving a work-life balance that balances work and personal needs, an organisation can obtain exceptional results because it motivates employees by reducing work stress and emotional exhaustion (Kerpitak, 2020).

According to Olubiyi, Smiley, Luckel and Melaragno (2019), employees who do not have a flexible work-life balance find it difficult to pursue other life goals, which leads to dissatisfaction, stress and frustration at work. Similarly, Olubiyi et al. (2019) and Brauner et al. (2019) claim that high work time demands and insufficient work time control cause employees to become stressed and they leave their jobs. Pharmacists face stress as a result of being overworked while still providing excellent service, navigating time restrictions, competing demands, managing role demands and staffing challenges. Stress and poor work-life balance result in unfavourable results for the firm. Stress and poor work-life balance have negative consequences for the organisation, which HR departments should investigate and address (Kerdpitak & Jermsittiparsert, 2020).

Companies need to understand factors which improve employee work-life balance. Companies can develop and implement ways to meet their employees' needs for flexibility and work-life balance (Parakandi & Behery, 2016). The authors continue to state that the techniques chosen are determined by the type of industry and the nature of certain employment. As a result, it is critical for companies to establish measures that promote a healthy balance between work and personal aspirations. According to the report, companies should develop policies and initiatives that provide them with a work-life balance, such as flexible working options. These findings are important because they allow

solutions to be devised that consider the demands of working pharmacists in their pursuit of a work-life balance.

Pharmacists are important members of the health-care team because they have the skills and knowledge to initiate, monitor and administer medication therapy. According to the literature, job security, employee remuneration and recognition, work-life balance, leadership, and employee training and development are all elements that affect employee retention in pharmaceutical organisations. Pharmaceutical companies must create and implement strategies to improve their capacity to retain pharmacists and, as a result, obtain a competitive edge. Failure to implement successful plans will result in financial losses due to loss of talent and expertise, as well as a reduction in the organisation's competitive advantage.

## **2.5 PREVIOUS STUDIES ON EMPLOYEE RETENTION**

Poor work-life balance is one of the major causes of low pharmacist retention. Organisational problems include restrictive work schedules, lengthy working hours with insufficient employees, low pay and limited career progression chances (Brahm et al., 2009).

Compensation (monetary and non-monetary rewards); job characteristics (skill variety and job autonomy); training and development opportunities (formal development activities provided by the organisation); supervisor support (recognition by and feedback from supervisors to employees); and career opportunities (internal and external career options) are all factors that influence employee retention (Coetzee & Stoltz, 2015). A good understanding of critical factors for the retention of pharmacists is necessary for pharmaceutical manufacturing organisations in South Africa. A study conducted by Neog and Barua (2015) found that poor employee retention was caused by factors such as employee compensation and rewards, job security, training and development, supervisor support culture and work environment.

Employee retention hinges on employee career development and rewards. In a study conducted by Axon (2012), career growth and employee development were found to be key drivers in employee retention. Ncede (2013), however, believes that in organisations, performance and successes should be recognized and rewarded. It is vital to the organisation's success to identify and utilise people's abilities, as well as delegate and give them responsibility and ownership where appropriate.

Advancement in their professions, income and hours worked all have an impact on employee retention. According to Mabindisa (2013), there is a lack of prospects for advancement, income and working conditions. Organisations must invest in training and development in order to maintain important skills. Employees may profit from training and development programs by gaining new skills and information, according to Kumari (2018), who supports research by Axon (2012). Employees also like the training and development programs offered by their employers on a regular basis. At the same time, these strategies assist companies in retaining staff for extended periods of time. A study conducted by Naidoo (2015) on the retention of pharmacists found that the majority of respondents agreed that training and development programs motivate them to remain with the organisation. The study also found that the respondents were motivated to remain in the organisation through recognition of good performance and effort, good leadership and support, and availability of opportunities for career advancement (Naidoo, 2015).

As stated by Kumari (2018), ongoing training and development of employee talent not only improves their ability for current roles, but also equips and prepares them for future chances and responsibilities, whether within or outside of the firm. Kumari (2018) states that skilled personnel are more productive and profitable because they are motivated, confident and create high-quality work.

Employees who have a better work-life balance are more likely to stay with the company. Kumari (2018) states that every employee wants to create a balance between their personal and professional lives. Employees labour hard to maintain the quality of their deliverables as their workload increases, resulting in a disconnect between their personal and professional lives. As a result, it is critical for staff retention. Work-life balance has a

significant association with the employee's intention to leave the company, according to a study conducted by Kerpditak (2020) which supports the work-life balance impacting efficiency, and effectively the employee's performance. Furthermore, by building a work-life balance with personal performance, a company can achieve exceptional results since work-life balance motivates employees by minimising stress and emotional depletion. Work-life balance was valued by most of the respondents as a factor which influences their intention to remain with the company (Naidoo, 2015). These findings are important because they allow solutions to be devised that consider the demands of working pharmacists in their pursuit of a work-life balance.

Organisations must implement methods to improve their employees' perceptions of their job security. Job security is widely recognized as an essential and highly valued feature of employees, according to a study conducted by Artz and Kaya (2014). However, not every job security situation can be handled in the same way. Job security, for example, enhances worker job satisfaction more in economic contractions than in expansions, because workers fear losing their jobs more in contractions than in expansions as job vacancies are scarcer in contractions than in expansions. Top management should provide opportunities for employees to advance their careers within the company (Mabindisa, 2013). Providing opportunities for career advancement can help employees become more competent and enjoy their work even more, as well as give internal personnel the recognition they deserve when new roles become available.

A study conducted by Benslimane and Khalifa (2016) on the retention of pharmacists, found that production pharmacists were mostly motivated by salary or compensation, job happiness and recognition, with females under the age of 40 motivated the most by a mix of financial and non-financial incentives. It is therefore very important for the organisation to determine the aspects impacting production pharmacist turnover and improve organisational performance.

## **2.6 CONCLUSION**

The chapter gave an overview of the pharmacy profession, as well as the various career positions and opportunities open to pharmacists. The chapter also looked at elements that are thought to affect and influence employee and pharmacist retention, as well as past studies on employee and pharmacist retention.



## **CHAPTER 3**

### **RESEARCH DESIGN AND METHODOLOGY**

#### **3.1 INTRODUCTION**

Research is a systematic process which requires the researcher to identify and use research tools and methods to produce good research results. The first step in this process is to identify and select the correct research method. Research methodology is described by Igwenagu (2016) as a collection of systematic methods used in research to instruct and guide researchers on how to perform research studies and these methods specify modes or methods of data collection or in some cases, how specific results are to be produced. Research methodology, as defined by Mishra and Alok (2017), is the process of comprehensively solving research problems. It's a science that considers how research is done in a systematic way.

As a research technique, the methodology transforms ontological and epistemological assumptions into research-governing rules, processes and activities. There are many diverse research techniques and no single recognised research methodology can be applied to answer all research problems (Nayak & Singh, 2021).

The next section provides a summary of the research approach that was used to investigate the factors that influenced the retention of production pharmacists. The research paradigm, research approach, research design, data collection, data analysis, data reporting and data synthesis are presented and discussed.

#### **3.2 RESEARCH PARADIGM**

This study was conducted in a positivistic paradigm. The paradigm was followed due to the nature of the study, which was to collect information from a large number of production pharmacists about the factors that influenced their retention. The assumption was that responses from the target group could be analysed objectively and systematically to

unravel the truth about factors that influenced their retention and that the findings could be generalised to a bigger cohort of production pharmacists. The use of paradigms in research varies from one researcher to the next (Kankam, 2019), depending on the researcher's preferences and the nature of the topic under inquiry. The term research paradigm refers to a set of beliefs held by scientists. A research paradigm is a set of assumptions about the nature of reality and how knowledge is created. In this case, the belief is that knowledge can be created in an objective manner. Paradigms have an impact on research topics, procedures and the way data is collected and processed (Davis & Fisher, 2018).

Research paradigms are a set of agreements about how challenges should be understood, how one should approach the world and how one should conduct research (Rahi, 2017). Furthermore, these paradigms include a set of fundamental beliefs or assumptions that influence research topics. The positivist research paradigm was used in this study.

Based on this paradigm or philosophy, true knowledge can be obtained by observation and experiment. Positivists use scientific methods to generate knowledge and positivism is associated with phrases such as scientific method, empirical science, post positivism and quantitative research (Rahi, 2017). The shared idea is that there is a universal generalization that may be used in a variety of situations.

Khaldi (2017) states that the research approach selected by the researcher is guided by the research philosophy or paradigm they support and this choice influences the study objectives and research instruments used to resolve the research problem.

According to Wayhuni (2012), the quantitative research model underpins the positivist research paradigm. This strategy concentrates on new data gathering in response to a problem and this data is collected in an objective manner.

### **3.3 RESEARCH APPROACH**

The research approach selected for this study was quantitative. Quantitative research is concerned with the measurement of a specific phenomenon in numerical terms

(Alharahsheh & Pius, 2020). In the case of this study, it meant that data was collected from production pharmacists in a numerical form (e.g. frequency) and also presented in a numerical form (e.g. through mean scores). Quantitative research is very effective for performing large scale research because it is independent of the researcher and it allows consistent results to be obtained, irrespective of the researcher (Nayak & Singh, 2021).

Mackenzie and Knipe (2006) state that quantitative approaches (methods) to data gathering and analysis are associated with the positivistic paradigm, although not exclusively, whereas qualitative approaches (methods) are associated with the interpretivist/constructivist paradigm. This method makes use of numerical data and is concerned with obtaining numeric data to explain and describe a phenomenon and specific topics through the analysis of numeric data and statistical methods (Nayak & Singh, 2021).

The information for this study was gathered using surveys. This method is used to acquire information about a population of interest or to test a hypothetical relationship that is thought to exist in a population.

### **3.4 QUESTIONNAIRE DEVELOPMENT**

One of the most crucial steps in research is the development of a questionnaire. This step is important because it has a huge impact on the quality of the research information or data obtained from the respondents. A poor quality questionnaire will result in bad or inaccurate data (Acharya, 2010). A questionnaire contains research questions with measurement scales used to obtain information or data from the respondents or research participants (Acharya, 2010). It enables the researcher to systematically collect information.

Surveys are used to collect data about behaviours and perceptions at a specific point in time (Igwenagu, 2016). Structured questionnaires are commonly used in quantitative research and consist of pre-coded questions with well-defined answers (Acharya, 2010). In this study, the survey took the form of a thorough questionnaire with closed-ended questions that was distributed to respondents through email with a link.

The questionnaire was developed using Questionpro. The questionnaire used in this study was divided into two sections, with Section A containing questions about biographical information and Section B containing questions on factors thought to impact the retention of production pharmacists in the pharmaceutical manufacturing industry.

Biographical data questions allow the researcher to collect information on the participants' gender, race, language, occupational level, level of education, age and length of service, all of which are critical for analysis of the data in Section B as well as an understanding of the demographics of the participants (Punch, 2005). This is also to see if there is a link between the biographical information and the information collected in Section B of the questionnaire.

Section B included questions intended at eliciting information about the factors thought to impact pharmacist retention in the pharmaceutical manufacturing industry, and covered job security, employee rewards, employee recognition, work-life balance, leadership and employee growth. A five-point Likert scale ranging from strongly disagree (1), disagree (2), neutral (3), agree (4), and strongly agree (5) was used to assess the afore-mentioned criteria.

The questions were derived from the literature presented in this study as well as prior studies that addressed the same issue. The questionnaire was accompanied by a cover letter and a consent form containing the details of the study, including contact details of the researcher and the supervisor as well as details of the ethics approval. After the ethics approval was received, the questionnaire was prepared through Questionpro and then distributed via emails. The collected data was automatically recorded on a spreadsheet.

Data obtained through a questionnaire needs to be valid and reliable. The authenticity and trustworthiness of the data are also determined throughout the statistical analysis. To assess the trustworthiness of the data obtained in this study, the Cronbach's Alpha was calculated. The Cronbach Alpha is a tool used to determine the internal consistency of the obtained data and it is graded on a scale of 0-1, with 1 indicating greater internal consistency (Tahardoost, 2016). In this study, the Cronbach Alpha coefficients for the

different factors ranged between 0.69 and 0.91. This can be considered as an indication of reliable data (Jain & Angural, 2017).

Validity refers to how successfully a research instrument performs its functions and reliability is described as the consistency with which findings are obtained (Andrade, 2018). Validity analysis consists of two types, namely internal and external validity. Internal validity determines whether the study was conducted in a manner which was organised and provided reliable answers to the research questions and external validity determines the applicability of the study findings to other situations or contexts (Andrade, 2018).

The information collected in this study was automatically captured in a MS Excel spreadsheet. Production pharmacists operating in pharmaceutical manufacturing in South Africa and pharmacists who had previously worked in pharmaceutical manufacturing were among the respondents.

### **3.5 POPULATION, SAMPLING FRAME AND SAMPLING METHOD**

Since it is often impractical or impossible for a researcher to include all members of a population in a study, sampling is used. Sampling starts with having a clear understanding of the research problem and clear research objectives. These must be stated logically and consistently. According to Mishra and Alok (2017), sampling then establishes the foundation for data gathering, measurement and analysis. Sampling design is an important and flexible way of gathering data if studying the entire universe or the entire population becomes problematic Jawale (2012). Sampling gives the researcher a choice of focusing on a specific section or a representative group of a total population.

The research design for this study was a quantitative research design. The purpose was to draw data in a numerical form from the population (production pharmacists in South Africa). The targeted population was pharmacists who had experience as production pharmacists. The study targeted participants who fitted the profile of the ideal participant (Igwenagu, 2016) Being a production pharmacist or having worked as a production

pharmacist in a South African organisation were therefore the criteria used for inclusion in the study.

The data for the study was gathered using a non-probability sampling approach. A non-probability sampling approach is one in which the units of the population do not all have the same chance of being sampled or selected (Alvi, 2016).

For this study, quota sampling and snowballing were used. Quota sampling is described by Etikan and Bala (2017) as a sampling method where the researcher has ease of access to the population (convenience) and is guided by a pre-determined quota or characteristics such as sex or race, based on the population of interest. Snowballing is done through the use of networks. Snowballing is used in extremely rare cases where the population of interest can be identified by an individual who knows that a particular person meets the required criteria (Nayak & Singh, 2021).

A representative sample of 71 people was sampled in this study. The sample was large enough to produce good statistical analysis. A good sample is one that is statistically representative of the target population and is large enough to address the research problem. Sample size depends on a variety of factors. Size depends on the type of analysis to be performed, the required level of precision and the type of comparison to be made (Nayak & Singh, 2021). Pharmacists from several pharmaceutical manufacturing companies in South Africa made up the sample in this study.

### **3.6 DATA COLLECTION**

Prior to the collection of data, ethics approval was obtained from the university (BES-Ethics no H21-BES-BUS-183). The application for ethics approval prohibits the fabrication, falsification or misrepresentation of research data in order to promote truth and avoid error. For this study, a web-based self-administered questionnaire was used to gather data for the study. Participants received an email with a link to the survey. A letter was also issued to the participants, advising them that the institution had granted ethical approval and that participation was entirely voluntary.

The questionnaires were sent to production pharmacists working in pharmaceutical manufacturing companies as well as pharmacists who had previously worked in the industry. As indicated earlier, this was done via a network of production pharmacists and their connections with pharmacists who had worked in production previously.

After that, the information was converted to MS Excel spreadsheet document. The spreadsheet was subsequently forwarded to a statistician assigned by the institution. The statistician was able to perform a quality audit of the data collected and process the data.

### **3.7 DATA ANALYSIS AND REPORTING**

Both descriptive and inferential statistics were utilised and the results are presented in chapter 4. Firstly, the response rate to the survey is presented and thereafter the biographical data. A total of 71 usable questionnaires were received.

Secondly, descriptive statistics, namely frequency scores and percentages for the various factors measured in the study, namely Employee Reward and Recognition, Employee Career Development, Training, Leadership, Work-Life Balance and Job Security are presented.

Thereafter, factor analysis was performed to confirm the factors measured in the study. All of the factors remained as they were, except for the factor Employee Reward and Recognition, which delivered two factors. The first Employee Reward and Recognition factor (Factor A) is related to receiving remuneration, recognition and rewards, and it is being done in a fair manner. The second factor is Employee Reward and Recognition as a retention factor. The first factor was labelled Employee Reward and Recognition A and the second factor was labelled Employee Reward and Recognition (Retention) B.

The next set of analysis focused on reliability. For this purpose, Cronbach Alpha analysis was used. The Cronbach scores immersed as fair for one factor to good and excellent for the rest of the factors.

Descriptive factors for the factors were then presented in terms of percentages, which were categorised as very negative to negative, neutral, to positive and very positive.

Thereafter, one sample T-test and inferential ranking were used to categorise the factors either as negative, neutral or positive and to determine whether difference between factors were significant. Lastly, inferential tests were conducted to determine if significant differences existed in the results for the factors based on biographical differences.

Both descriptive and inferential statistics were used to analyse the data. As part of the descriptive statistics, the mean and standard deviation were calculated. According to (Leedy & Ormrod, 2010), descriptive statistics summarise the nature of the data collected and inferential statistics assist the researcher in making decisions about the data obtained.

### **3.8 CONCLUSION**

The chapter provided a summary of the research methodology utilised to determine the factors influencing the retention of production pharmacists. The study paradigm, method, design, data collection, data analysis and data reporting and synthesis were covered. These were guided by the positivist research paradigm and a quantitative research method was used. The data was collected via a web-based questionnaire with a link to the questionnaire sent to prospective participants.



## CHAPTER 4

### PRESENTATION AND ANALYSIS OF DATA

#### 4.1 INTRODUCTION

This chapter contains the presentation and analysis of the data collected for the research study, on factors affecting production pharmacist retention. The section starts with a breakdown of the questionnaire response rate, then moves to the presentation of the biographical data, the validity and reliability and finally the inferential statistics. All of the tables in this chapter are the researcher's own construction.

The questionnaire was distributed among pharmacists who had experience working as production pharmacists. Table 4.1 presents the response rate.

**Table 4.1: Response Rate**

	No. of Questionnaires	Response Rate
Total distributed	83	86%
Total received completed	71	

A total of 83 people received the survey. Although all 83 people responded to the survey, only 71 of them completed all of the questions, giving a response rate of 86%.

#### 4.2 DEMOGRAPHICAL PROFILE OF THE SAMPLE

The results of the questionnaire items regarding respondents' demographics are captured in Tables 4.2 to 4.7.

**Table 4.2: Frequency Distribution - Gender**

Gender	No. of Respondents	Percentage Rate
Male	32	45%
Female	39	55%
Total	71	100%

The results in Table 4.2 reflect that both male and female production pharmacists were well represented in this study.

**Table 4.3: Frequency Distribution - Marital Status**

Marital status	No. of Respondents	Percentage Rate
Single	35	49%
Married	36	51%
Total	71	100%

The results in Table 4.3 show that both single and married production pharmacists were adequately represented in the study.

**Table 4.4: Frequency Distribution - Language**

Language	No. of Respondents	Percentage Rate
Xhosa	12	17%
English	39	55%
Afrikaans	8	11%
Other	12	17%
Total	71	100%

The results in Table 4.4 indicate that the majority (55%) of respondents indicated English as their speaking language.

**Table 4.5: Frequency Distribution - Occupational Level**

Occupational Level	No. of Respondents	Percentage Rate
Pharmacist	46	65%
Junior Management	8	11%
Middle Management	10	14%
Senior Management	7	10%
Total	71	100%

The results in Table 4.5 reflect that the majority (65%) of the respondents were working or practising as pharmacists, but that different levels of management were also represented.

**Table 4.6: Frequency Distribution - Highest level of education**

Highest level of education	No. of Respondents	Percentage Rate
Bachelor's Degree	24	34%
Honours	26	37%
Masters	19	27%
Doctorate	2	3%
Total	71	100%

The results in Table 4.6 show that the majority (70%) of the respondents had a bachelor's degree or an honours degree, while 30% had either a master's or doctoral degree. This confirms production pharmacists as well as qualified employees.

**Table 4.7: Frequency Distribution - Age**

Age	No. of Respondents	Percentage Rate
18-24	1	1%
25-34	42	59%
35-44	24	34%
45-54	2	3%
55-64	2	3%
Total	71	100%

It is evident from Table 4.7 that most (93%) of the respondents were between the ages of 25 and 44 years.

### **4.3 FREQUENCY DISTRIBUTIONS – MEASUREMENT ITEMS**

In this section, the responses to the questionnaire items for measurement of the factors are summarised in Tables 4.8 to 4.13. The majority / largest proportion of responses per item is flagged in grey in each table.

#### **4.3.1 Employee Reward and Recognition - Questionnaire items**

The first factor measured in the survey was Employee Reward and Recognition. The descriptive statistics, namely frequency description is presented in Table 4.8.

**Table 4.8: Frequency Distributions - Employee Reward and Recognition - Questionnaire Items (n = 71)**

	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>
Reward programmes are generally effective in retaining pharmaceutical-related talent	8 (11%)	9 (13%)	13 (18%)	29 (41%)	12 (17%)
The reward system contributes to me staying with the organisation	4 (6%)	12 (17%)	17 (24%)	31 (44%)	7 (10%)
The organisation offers competitive remuneration for production pharmacists	7 (10%)	20 (28%)	16 (23%)	23 (32%)	5 (7%)
The company recognises good performance	8 (11%)	28 (39%)	15 (21%)	15 (21%)	5 (7%)
Incentive schemes are performance based and fair	13 (18%)	15 (21%)	18 (25%)	18 (25%)	7 (10%)
My manager always gives recognition for a job well done	5 (7%)	14 (20%)	22 (31%)	26 (37%)	4 (6%)

Table 4.8 indicates that the responses for Employee Reward and Recognition were quite spread out across the Likert scale indicating a variety in the way the participants responded. Only two statements obtained agree/strongly agree responses that added up to more than 50%. These two statements are “Reward programmes are generally effective in retaining pharmaceutical-related talent” (combined percentage of 58%) and “The reward system contributes to me staying with the organisation” with 54% combined agree/strongly agree responses. One factor received a combined strongly disagree/response, namely “The company recognises good performance”.

### 4.3.2 Leadership - Questionnaire items

**Table 4.9: Frequency Distributions - Leadership - Questionnaire Items (n = 71)**

	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>
My personal objectives are mutually agreed upon with my line manager	4 (6%)	11 (15%)	18 (25%)	34 (48%)	4 (6%)
I have a clear understanding of my performance objectives	6 (8%)	7 (10%)	9 (13%)	40 (56%)	9 (13%)
My manager gives recognition for a job well done	6 (8%)	10 (14%)	20 (28%)	28 (39%)	7 (10%)
Managers create an environment in which production pharmacists can thrive	7 (10%)	32 (45%)	12 (17%)	16 (23%)	4 (6%)
My manager embraces diverse contributions from the team	3 (4%)	16 (23%)	21 (30%)	25 (35%)	6 (8%)
I am inspired to work beyond what is required	4 (6%)	17 (24%)	17 (24%)	20 (28%)	13 (18%)
I receive constructive performance feedback from my manager	3 (4%)	16 (23%)	19 (27%)	28 (39%)	5 (7%)

Table 4.9 indicates that that only two statements received more than 50% combined agree/strongly agree responses. These are “My personal objectives are mutually agreed upon with my line manager” (54%) and “I have a clear understanding of my performance objectives” (69%).

The statement “Managers create an environment in which production pharmacists can thrive” received a combined strongly disagree/disagree response of 55%.

### 4.3.3 Training - Questionnaire items

**Table 4.10: Frequency Distributions - Training - Questionnaire Items (n = 71)**

	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>
The company does a good job in developing my talent to its full potential	14 (20%)	22 (31%)	16 (23%)	14 (20%)	5 (7%)
There are learning opportunities to help me improve my performance	12 (17%)	20 (28%)	17 (24%)	16 (23%)	6 (8%)
A skills audit is conducted regularly to determine skills gaps among production pharmacists	18 (25%)	34 (48%)	11 (15%)	8 (11%)	0 (0%)
I am afforded an equal opportunity to learn and grow	6 (8%)	21 (30%)	18 (25%)	23 (32%)	3 (4%)
Training programmes are in place to help fast track the development of my talent	12 (17%)	25 (35%)	16 (23%)	16 (23%)	2 (3%)
I receive study assistance	14 (20%)	21 (30%)	21 (30%)	13 (18%)	2 (3%)
I receive training to help me learn and grow in my career	10 (14%)	15 (21%)	19 (27%)	21 (30%)	6 (8%)

Table 4.10 indicates that the majority or the largest proportion of respondents were negative (disagreed or disagreed strongly) with most of the statements related to Training. These are: “The company does a good job in developing my talent to its full potential; A skills audit is conducted regularly to determine skills gaps among production pharmacists; Training programmes are in place to help fast track the development of my talent; I receive study assistance”. The rest of the statements received responses spread across the scale.

#### 4.3.4 Employee Career Development - Questionnaire items

**Table 4.11: Frequency Distributions - Employee Career Development - Questionnaire Items (n = 71)**

	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>
My company's strategic plan is in line with my career needs	9 (13%)	19 (27%)	23 (32%)	18 (25%)	2 (3%)
After training there is an opportunity to apply new skills on the job	6 (8%)	22 (31%)	21 (30%)	20 (28%)	2 (3%)
Every production pharmacist on the same level has an equal chance at being considered for an advertised position	12 (17%)	18 (25%)	15 (21%)	23 (32%)	3 (4%)
There is adequate succession planning for production pharmacists	20 (28%)	28 (39%)	14 (20%)	7 (10%)	2 (3%)
There are mentoring and coaching opportunities for	15 (21%)	28 (39%)	17 (24%)	7 (10%)	4 (6%)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
production pharmacists					
Internal employees are considered for promotions	4 (6%)	10 (14%)	26 (37%)	28 (39%)	3 (4%)
There are reasonable job vacancies available for my career progression	9 (13%)	23 (32%)	15 (21%)	19 (27%)	5 (7%)
It is possible to change jobs between different departments if requested	13 (18%)	13 (18%)	25 (35%)	17 (24%)	3 (4%)

Table 4.11 indicates two responses received combined strongly disagree/disagree responses of 50% or more. The rest of the statements received responses spread across the scale. The two statements are: “There is adequate succession planning for production pharmacists; There are mentoring and coaching opportunities for production pharmacists”.

#### 4.3.5 Work-Life Balance - Questionnaire items

**Table 4.12: Frequency Distributions - Work-Life Balance - Questionnaire Items (n = 71)**

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
My personal life benefits as a result of my work experiences	11 (15%)	16 (23%)	18 (25%)	23 (32%)	3 (4%)
I have the necessary resources to be effective at work	2 (3%)	15 (21%)	20 (28%)	29 (41%)	5 (7%)



	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>
My job is well integrated with my personal life to provide acceptable balance	13 (18%)	13 (18%)	21 (30%)	22 (31%)	2 (3%)
My mood improves because of my work experiences	7 (10%)	20 (28%)	22 (31%)	17 (24%)	5 (7%)

Table 4.12 indicates that for the factor Work-Life Balance, the responses were spread across the scale with no outstanding negative or positive results.

#### 4.3.6 Job Security - Questionnaire items

**Table 4.13: Frequency Distributions - Job Security (n = 71)**

	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>
My job is secure	7 (10%)	12 (17%)	23 (32%)	23 (32%)	6 (8%)
I foresee a future for myself in the production of pharmaceuticals	2 (3%)	11 (15%)	16 (23%)	29 (41%)	13 (18%)
I am settled in my current position	6 (8%)	24 (34%)	17 (24%)	20 (28%)	4 (6%)
I am an example of a person that has been successfully retained by the organisation	3 (4%)	25 (35%)	16 (23%)	19 (27%)	8 (11%)
I generally experience satisfaction with my current role in the organisation	6 (8%)	13 (18%)	17 (24%)	33 (46%)	2 (3%)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I am planning to stay in my current organisation for at least five years	14 (20%)	16 (23%)	19 (27%)	16 (23%)	6 (8%)

Table 4.13 indicates two responses received combined strongly agree/agree responses of 50% or more. The rest of the statements received responses spread across the scale. The two statements are: “I foresee a future for myself in the production of pharmaceuticals and I generally experience satisfaction with my current role in the organisation”.

#### 4.4 ITEM ANALYSIS

Exploratory factor analysis was performed to ensure the statements in the survey loaded on to the factors and that they were reliable measures of the concepts.

##### 4.4.1 Exploratory factor analysis

The purpose of the exploratory factor is to confirm the factors measured in the study and the items used to measure each factor. The number of factors to extract was determined using two guidelines: eigenvalues greater than 1 and the scree plot. Factor loadings greater than or equal to 0.645 were deemed significant at  $\alpha = 0.05$  for a sample size  $n = 71$  in accordance with the recommendations by Hair (2006). The first factor examined was Employee Reward and Recognition.

##### 4.4.1.1 EFA - Employee Reward and Recognition

Table 4.14 presents the eigenvalues for Employee Reward and Recognition.

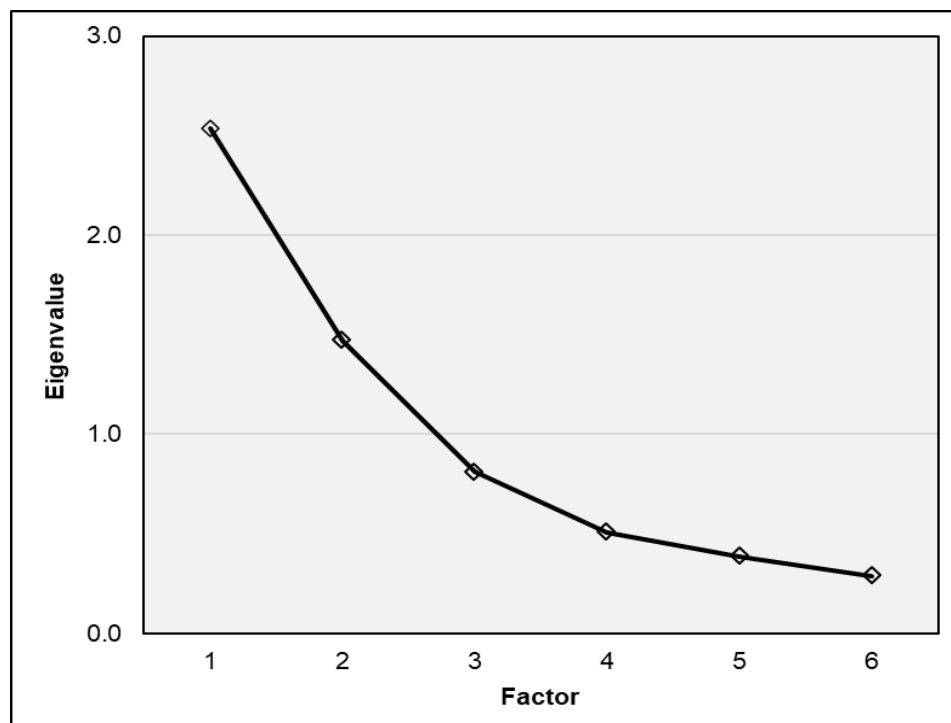
**Table 4.14: EFA Eigenvalues - Employee Reward and Recognition (n = 71)**

Factor	Eigenvalue	% Total Variance
1	2.533	42.2
2	1.472	24.5
3	0.811	13.5
4	0.508	8.5
5	0.388	6.5
6	0.288	4.8

Table 4.14 indicates that Employee Reward and Recognition has two significant factors as they both have an eigenvalue greater than 1.

Figure 4.1 presents the scree plot indicating factors.

**Figure 4.1: EFA Eigenvalues Scree Plot - Employee Reward and Recognition (n = 71)**



The scree plot in Figure 4.1 also indicates two significant factors (the number of factors before the “hinge”).

Tables 4.15 and 4.16 reflect the one-factor and two-factor EFA results for Employee Reward and Recognition.

**Table 4.15: EFA Loadings (1 Factor Model) - Employee Reward and Recognition (n = 71; Minimum significant loading = .645)**

Item	Factor 1
ERR_05 Incentive schemes are performance based and fair	<b>-.850</b>
ERR_04 The company recognises good performance	<b>-.839</b>
ERR_03 The organisation offers competitive remuneration for production pharmacists	<b>-.690</b>
ERR_06 My manager always gives recognition for a job well done	-.633
ERR_02 The reward system contributes to me staying with the organisation	.406
ERR_01 Reward programmes are generally effective in retaining pharmaceutical-related talent	.255
Total % of Variance Explained = 42.2%	

**Table 4.16: EFA Loadings (2 Factor Model) - Employee Reward and Recognition (n = 71; Minimum significant loading = .645)**

Item	Factor 1	Factor 2
ERR_04 The company recognises good performance	<b>.887</b>	.003
ERR_05 Incentive schemes are performance based and fair	<b>.848</b>	-.147
ERR_03 The organisation offers competitive remuneration for production pharmacists	<b>.737</b>	.028
ERR_06 My manager always gives recognition for a job well done	.596	-.213
ERR_01 Reward programmes are generally effective in retaining pharmaceutical-related talent	.027	<b>.877</b>
ERR_02 The reward system contributes to me staying with the organisation	-.137	<b>.862</b>
Explained variance	2.42	1.58
% of Total variance	40.4%	26.3%
Total % of Variance Explained = 66.8%		

Tables 4.15 and 4.16 show that the first three factor items obtained a factor loading equal to or bigger than 0.645. This factor was labelled as Employee Reward and Recognition Factor 1. This factor is operationalised as the organisation offering competitive

remuneration and recognising performance via competitive incentive schemes. For this factor, item 6 was retained, as its factor loading was close to 0.6.

#### 4.4.1.2 EFA – Leadership

Table 4.17 and Figure 4.2 present the EFA eigenvalues for Leadership

**Table 4.17: EFA Eigenvalues - Leadership (n = 71)**

Factor	Eigenvalue	% Total Variance
1	3.533	58.9
2	0.722	12.0
3	0.536	8.9
4	0.479	8.0
5	0.418	7.0
6	0.313	5.2

Table 4.17 and Figure 4.2 indicate that Leadership has one significant factor with an eigenvalue greater than 1. Figure 4.2 presents a scree plot for Leadership.

**Figure 4.2: EFA Eigenvalues Scree Plot - Leadership (n = 71)**

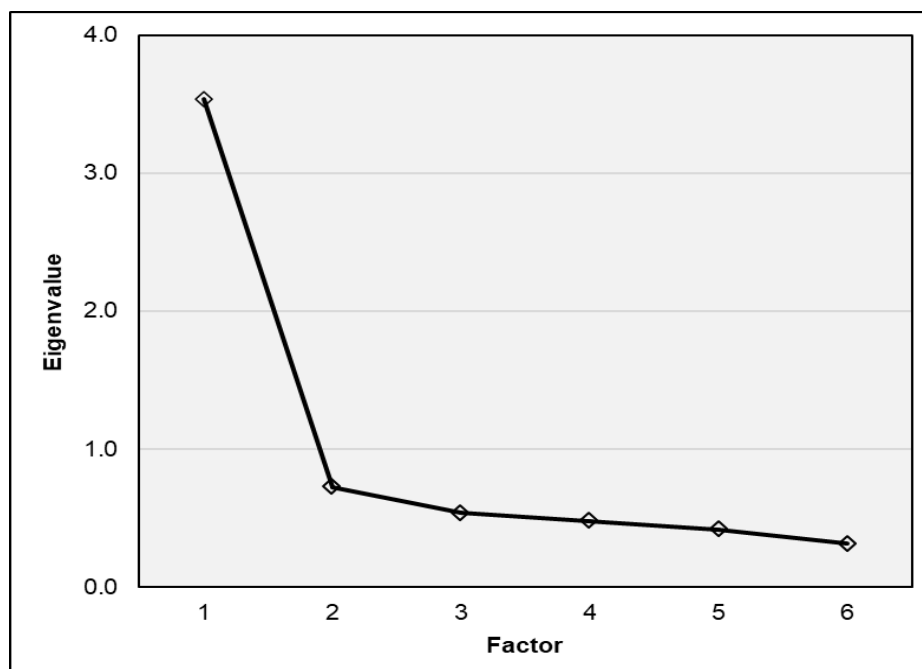


Table 4.18 presents the EFA loadings for Leadership.

**Table 4.18: EFA Loadings (1 Factor Model) - Leadership (n = 71; Minimum significant loading = .645)**

Item	Factor 1
L_05 My manager embraces diverse contributions from the team	<b>.820</b>
L_03 My manager gives recognition for a job well done	<b>.788</b>
L_06 I am inspired to work beyond what is required	<b>.777</b>
L_04 Managers create an environment in which production pharmacists can thrive	<b>.761</b>
L_07 I receive constructive performance feedback from my manager	<b>.759</b>
L_01 My personal objectives are mutually agreed upon with my line manager	<b>.694</b>
Total % of Variance Explained = 58.9%	

Table 4.18 indicates that all items loaded onto Leadership as significant as they had an EFA loading greater than 0.645. The Leadership factor is operationalised as the manager being open to diverse contributions, mutual agreeing on objectives, inspiring extra-ordinary performance, providing a thriving environment, giving constructive performance feedback and giving recognition.

#### 4.4.1.3 Training

Table 4.19 and Figure 4.3 present the EFA eigenvalues for Training. The table indicates that Training has one significant factor with an eigenvalue greater than 1.

**Table 4.19: EFA Eigenvalues - Training (n = 71)**

Factor	Eigenvalue	% Total Variance
<b>1</b>	<b>4.116</b>	<b>68.6</b>
2	0.583	9.7
3	0.462	7.7
4	0.331	5.5
5	0.292	4.9
6	0.215	3.6

Table 4.19 and Figure 4.3 indicate that Training has one significant factor.

**Figure 4.3: EFA Eigenvalues Scree Plot - Training (n = 71)**

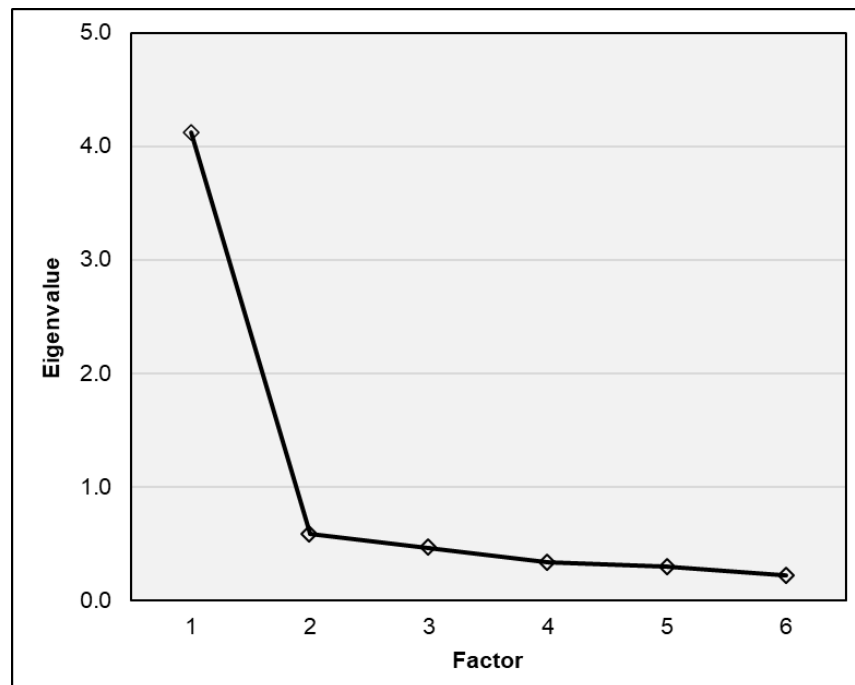


Table 4.20 presents the EFA loadings (1 factor) for Training.

**Table 4.20: EFA Loadings (1 Factor Model) - Training (n = 71; Minimum significant loading = .645)**

Item	Factor 1
T_05 Training programmes are in place to help fast track the development of my talent	<b>.861</b>
T_07 I receive training to help me learn and grow in my career	<b>.861</b>
T_02 There are learning opportunities to help me improve my performance	<b>.843</b>
T_01 The company does a good job in developing my talent to its full potential	<b>.840</b>
T_04 I am afforded an equal opportunity to learn and grow	<b>.797</b>
T_03 A skills audit is conducted regularly to determine skills gaps among production pharmacists	<b>.765</b>
Total % of Variance Explained = 68.6%	

Table 4.20 indicates that all of the Training items, excluding T\_06 were statistically significant as they had a factor loading greater than 0.645.

#### 4.4.1.4 Employee Career Development

Table 4.21 presents the EFA eigenvalues for Employee Career Development.

**Table 4.21: EFA Eigenvalues - Employee Career Development (n = 71)**

Factor	Eigenvalue	% Total Variance
1	3.050	50.8
2	0.805	13.4
3	0.647	10.8
4	0.618	10.3
5	0.484	8.1
6	0.396	6.6
7	0.465	5.8
8	0.372	4.7

Table 4.21 and Figure 4.4 indicate that Employee Career Development has one significant factor. Figure 4.4 indicates the scree plot for Employee Career Development.

**Figure 4.4: EFA Eigenvalues - Employee Career Development (n = 71)**

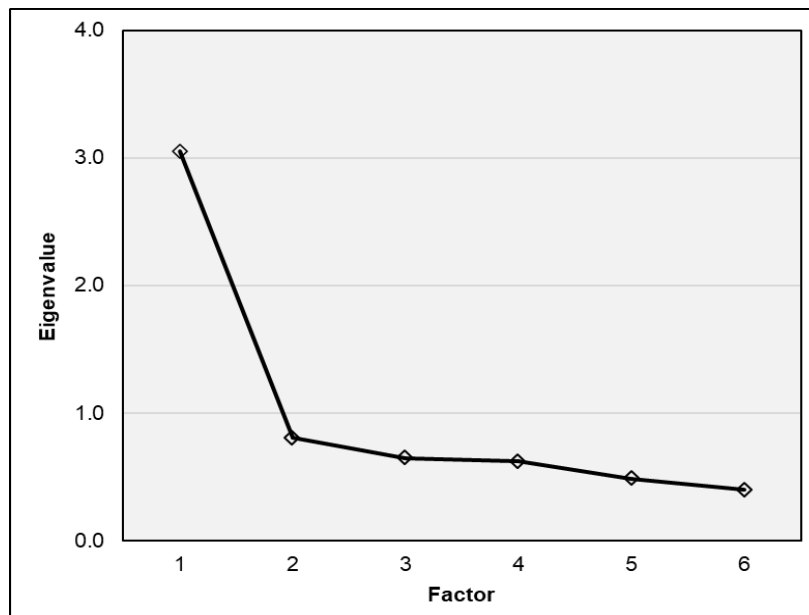




Table 4.22 presents the EFA loadings for Employee Career Development.

**Table 4.22: Exploratory Factor Analysis (EFA) Loadings (1 Factor Model) - Employee Career Development (n = 71; Minimum significant loading = .645)**

Item	Factor 1
ECD_02 My company's strategic plan is in line with my career needs	<b>.806</b>
ECD_06 There are mentoring and coaching opportunities for production pharmacists	<b>.728</b>
ECD_04 Every production pharmacist on the same level has an equal chance at being considered for an advertised position	<b>.705</b>
ECD_05 There is adequate succession planning for production pharmacists	<b>.705</b>
ECD_03 After training, there is an opportunity to apply new skills on the job	<b>.679</b>
ECD_08 There are reasonable job vacancies available for my career progression	.644
Total % of Variance Explained = 44.2%	

Table 4.22 indicates that all of the Employee Career Development loadings were significant except "ECD\_08 There are reasonable job vacancies available for my career progression". The factor was retained because its loading was marginally less than 0.645.

#### 4.4.1.5 Work-Life Balance

Table 4.23 presents the EFA eigenvalues for Work-Life Balance.

**Table 4.23: EFA Eigenvalues - Work-Life Balance (n = 71)**

Factor	Eigenvalue	% Total Variance
<b>1</b>	<b>1.867</b>	<b>62.2</b>
2	0.646	21.5
3	0.488	16.3

**Figure 4.5: EFA Eigenvalues - Work-Life Balance (n = 71)**

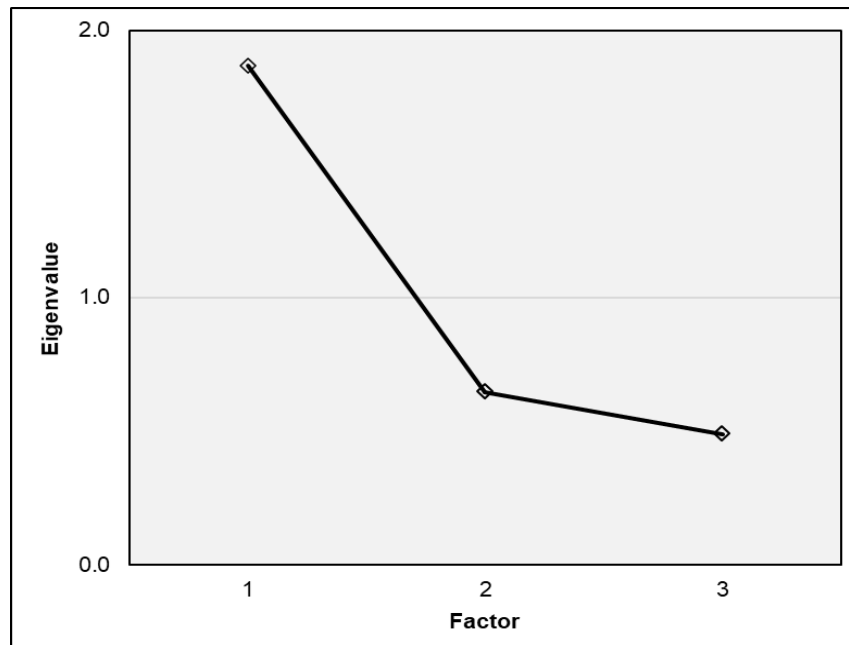


Table 4.23 and Figure 4.5 indicate that Work-Life Balance has one significant factor.

**Table 4.24: EFA Loadings (1 Factor Model) - Work-Life Balance (n = 71; Minimum significant loading = .645)**

Item	Factor 1
WLB_03 My job is well integrated with my personal life to provide acceptable balance	<b>.830</b>
WLB_01 My personal life benefits as a result of my work experiences	<b>.787</b>
WLB_04 My mood improves because of my work experiences	<b>.747</b>
Total % of Variance Explained = 62.2%	

Table 4.24 indicates that all Work-Life Balance factors were significant.

#### 4.4.1.6 Job Security

Table 4.25 presents the EFA eigenvalues for Job Security.

**Table 4.25: EFA Eigenvalues - Job Security (n = 71)**

Factor	Eigenvalue	% Total Variance
1	3.351	55.8
2	0.825	13.7
3	0.630	10.5
4	0.490	8.2
5	0.418	7.0
6	0.287	4.8

Table 4.25 and Figure 4.6 indicate Job Security only has one significant factor.

Figure 4.6 presents the EFA eigenvalues for Job Security.

**Figure 4.6: EFA Eigenvalues - Job Security (n = 71)**

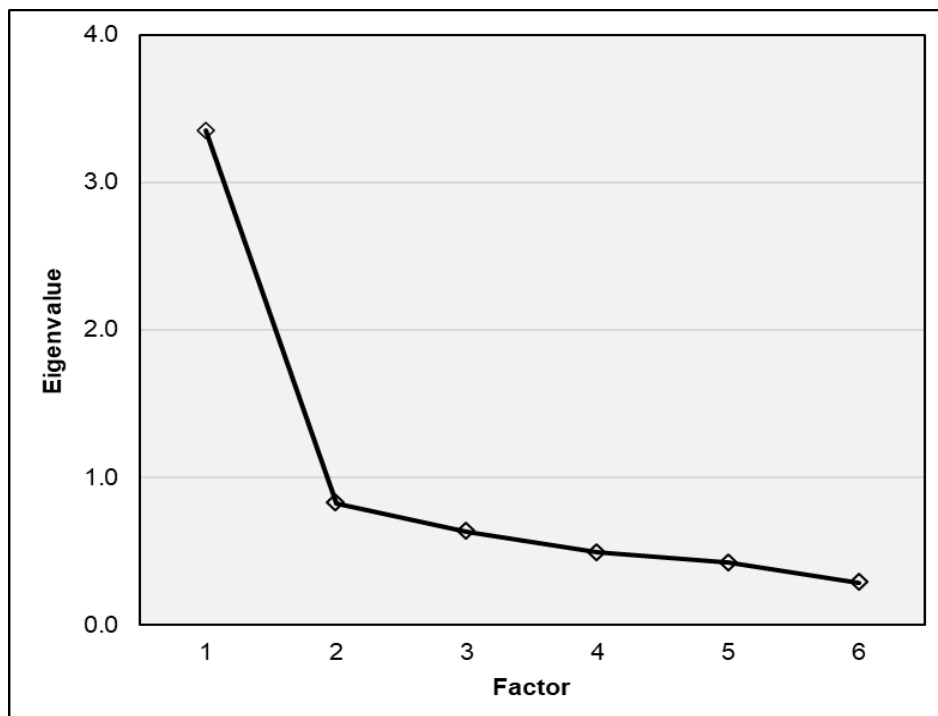


Table 4.26 presents the EFA loadings for Job Security.

**Table 4.26: EFA Loadings (1 Factor Model) - Job Security (n = 71; Minimum significant loading = .645)**

Item	Factor 1
JS_05 I generally experience satisfaction with my current role in the organisation	<b>.860</b>
JS_06 I am planning to stay in my current organisation for at least five years	<b>.771</b>
JS_03 I am settled in my current position	<b>.767</b>
JS_04 I am an example of a person that has been successfully retained by the organisation	<b>.761</b>
JS_02 I foresee a future for myself in the production of pharmaceuticals	<b>.694</b>
JS_01 My job is secure	.608
Total % of Variance Explained = 55.8%	

Table 4.26 indicates that all of the Job Security items loaded significantly on the single factor. “JS\_01 My job is secure” was retained because its loading was marginally less than 0.645. Job Security is operationalised as general job satisfaction, being settled in current position and organisation, intention-to-stay and remaining a production pharmacist. This factor is a good indication of the extent to which an employee will remain in a job/organisation.

#### 4.4.2 Reliability

The reliability of the scales as applied to each factor identified in the factor analysis was tested by calculating Cronbach’s Alpha coefficients, as presented in Table 4.27. The higher the Cronbach’s Alpha value, the more consistent are the responses to a set of items in a questionnaire.

**Table 4.27: Reliability testing - Cronbach Alpha scores for the identified factors**

Interpretation intervals for Cronbach Alphas:	
Excellent	0.80 +
Good	0.70 - 0.79
Fair	0.60 - 0.69
Poor	0.50 - 0.59
Unacceptable	< 0.50

<b>Cronbach Alphas</b>	
Employee Reward and Recognition A	0.69
Employee Reward and Recognition B	0.78
Leadership	0.86
Training	0.91
Employee Career Development	0.80
Work-Life Balance	0.70
Job Security	0.84

The Cronbach Alpha values for all of the factors were above the minimum allowed limit of 0.60, indicating that the reliability of the scales is good. Training, Employee Career Development, Job Security and Leadership received excellent reliability scores of 0.91, 0.80, 0.84 and 0.86 respectively while Employee Reward and Recognition (Retention) B and Work-Life Balance received good reliability scores of 0.70 and 0.78 and Employee Reward and Recognition A received a fair reliability score of 0.69. The positive outcome of the reliability analysis implies that the results with regard to factors related to the retention of production pharmacists can be viewed with confidence.

#### 4.5 DESCRIPTIVE STATISTICS FOR THE FACTORS

This section reports the descriptive statics for the factors. Table 4.28 provides frequency distributions of the respondents' scores for each of the factors studied and Table 4.29 gives summary statistics reflecting the central tendency and dispersion of these scores.

**Table 4.28: Frequency Distributions Summary - Factors (n = 71)**

	<b>Very Negative 1.00 to 1.79</b>		<b>Negative 1.80 to 2.59</b>		<b>Neutral 2.60 to 3.40</b>		<b>Positive 3.41 to 4.20</b>		<b>Very Positive 4.21 to 5.00</b>	
Employee Reward and Recognition A	3	4%	16	23%	12	17%	29	41%	11	15%
Employee Reward and Recognition B	6	8%	26	37%	18	25%	15	21%	6	8%
Leadership	2	3%	14	20%	29	41%	18	25%	8	11%

	<b>Very Negative 1.00 to 1.79</b>		<b>Negative 1.80 to 2.59</b>		<b>Neutral 2.60 to 3.40</b>		<b>Positive 3.41 to 4.20</b>		<b>Very Positive 4.21 to 5.00</b>	
Training	12	17%	24	34%	17	24%	13	18%	5	7%
Employee Career Development	7	10%	29	41%	26	37%	6	8%	3	4%
Work-Life Balance	9	13%	10	14%	34	48%	14	20%	4	6%
Job Security	4	6%	17	24%	24	34%	19	27%	7	10%

Table 4.28 shows that respondents were predominantly positive only about Employee Reward and Recognition A (56%). For Leadership (41%), Work-Life Balance (48%) and Job Security (34%), the largest proportion of the sample had scores in the neutral interval. The largest proportion/majority of the sample recorded negative scores for Employee Reward and Recognition B (45%), Employee Career Development (51%) and Training (51%). In terms of Employee Reward and Recognition, Factor A received a positive categorisation, but not Employee Reward and Recognition (Retention) Factor B. This would mean that the respondents indicated that they received rewards and recognition but not to the extent that it would retain them in the organisation.

**Table 4.29: Central Tendency and Dispersion - Factors (n = 71)**

	<b>Mean</b>	<b>S.D.</b>	<b>Minimum</b>	<b>Quartile 1</b>	<b>Median</b>	<b>Quartile 3</b>	<b>Maximum</b>
Employee Reward and Recognition A	3.37	1.01	1.00	2.50	3.50	4.00	5.00
Employee Reward and Recognition B	2.93	0.89	1.00	2.25	2.75	3.50	5.00
Leadership	3.17	0.82	1.33	2.67	3.00	3.83	5.00
Training	2.67	0.93	1.00	2.00	2.50	3.42	4.50
Employee Career Development	2.65	0.78	1.00	2.17	2.50	3.17	4.83
Work-Life Balance	2.86	0.90	1.00	2.33	3.00	3.50	5.00
Job Security	3.10	0.83	1.33	2.50	3.00	3.67	5.00

The aggregate mean scores for all of the factors leaned towards neutral responses. Employee Career Development had the lowest mean score at 2.65 and Employee Reward and Recognition A had the highest mean score at 3.37. All mean scores were in the neutral interval (2.60 to 3.40). The standard deviations appear low, ranging between 0.82 and 1.01, which reveal that the respondents consistently gave responses closer to neutral.

#### 4.6 ONE-SAMPLE T-TESTS AND INFERENTIAL RANKING

One-sample t-tests were conducted to categorise the factors as negative ( $M < 2.60$ ), neutral ( $2.60 \leq M \leq 3.40$ ) or positive ( $M > 3.40$ ).

Inferential ranking was conducted to compare the mean scores for the factors in the sampled population. The methodology for the ranking was that variables were ranked using matched-pair t-tests (statistical significance) and Cohen's d (practical significance) so that:

- The mean of the first variable in Significance Group (Signif.Group) i differs statistically and practically from the mean of the first variable in Signif.Group (i + 1);
- None of the means of the variables in Signif.Group i differ significantly from the mean of the first variable in that group.

Table 4.30 reports the t-tests conducted for the inferential ranking of the factors, the results of which are summarised in Table 4.31.

**Table 4.30: Inferential Ranking Statistics - Factors (n = 71; d.f. = 70)**

Variables Compared	Difference		Inferential Statistics			Significance	
	Mean	S.D	t-value	p-value	Cohen's d	Statistical	Practical
Employee Reward and Recognition A and Leadership	0.20	1.35	1.26	n/a	0.15	n/a	Not
Employee Reward and Recognition A and Job Security	0.28	1.39	1.68	.049	0.20	Yes	Yes

Variables Compared	Difference		Inferential Statistics			Significance	
	Mean	S.D	t-value	p-value	Cohen's d	Statistical	Practical
Job Security and Employee Reward and Recognition B	0.16	0.79	1.74	.043	0.21	Not	Yes
Job Security and Work-Life Balance	0.23	0.78	2.48	.008	0.29	Yes	Yes
Work-Life Balance and Training	0.19	0.73	2.20	.015	0.26	Yes	Yes
Training and Employee Career Development	0.03	0.57	0.38	n/a	0.05	n/a	Not

**Table 4.31: One-Sample t-Test Classification and Inferential Ranking - Factors (n = 71)**

Factors	Descriptive Statistics		One-Sample t-Test Classification (n = 70; d.f. = 70)			Inferential Ranking		
	Mean	S.D.	H <sub>1</sub> : $\mu \neq$	t-value	Cohen's d	Category	Rank	Signif. Group
				p-value				
Employee Reward and Recognition A	3.37	1.01	3.40	-0.22 .823	n/a	Neutral to Positive	1	1
Leadership	3.17	0.82	3.40	-2.34 .022	0.28	Neutral	1	1
Job Security	3.10	0.83	3.40	-3.11 .003	0.37	Neutral	3	2
Employee Reward and Recognition B	2.93	0.89	2.59	3.25 .002	0.39	Neutral	3	2
Work-Life Balance	2.86	0.90	2.59	2.58 .012	0.31	Neutral	5	3
Training	2.67	0.93	2.59	0.76	n/a		6	4



Factors	Descriptive Statistics		One-Sample t-Test Classification (n = 70; d.f. = 70)			Inferential Ranking		
	Mean	S.D.	H <sub>1</sub> : $\mu \neq$	t-value	Cohen's d	Category	Rank	Signif. Group
				p-value				
				.451		Negative to Neutral		
Employee Career Development	2.65	0.78	2.59	0.62	n/a	Negative to Neutral	6	4
				.536				

Table 4.31 indicates that the significant (statistically and practically) differences were between:

1. Employee Reward and Recognition A and Job Security.
2. Job Security and Work-Life Balance.
3. Work-Life Balance and Training.

The results in Table 4.31 indicate that the factors can be classified into four groups based on their estimated population mean scores. These are in descending order (negative/neutral/positive classification in parentheses):

1. Employee Reward and Recognition A (neutral to positive) and Leadership (neutral).
2. Job Security (neutral) and Employee Reward and Recognition B (neutral).
3. Work-Life Balance (neutral).
4. Training (negative to neutral) and Employee Career Development (negative to neutral).

## 4.7 RELATIONSHIPS BETWEEN THE FACTORS

Pearson product moment correlations and Chi<sup>2</sup> tests were used to investigate the relationships between the factors. The results are reported in Tables 4.32 to 4.38.

For this study, a correlation coefficient  $r$  is statistically significant at the 0.05 level for  $n = 71$  if  $|r| \geq .234$  and practically significant, regardless of the sample size if  $|r| \geq .300$ . Thus significant (both statistically and practically) if  $|r| \geq .300$  (Gravetter & Wallnau, 2009). In Table 4.32, the correlations that are significant (both statistically and practically) are in red.

**Table 4.32: Pearson Product Moment Correlations for the Factors (n = 71)**

	Employee Reward and Recognition A	Employee Reward and Recognition B	Leadership	Training	Employee Career Development	Work-Life Balance	Job Security
Employee Reward and Recognition A	-	-.155	-.089	-.156	-.187	-.239	-.150
Employee Reward and Recognition B	-.155	-	.713	.650	.745	.594	.582
Leadership	-.089	.713	-	.692	.653	.629	.691
Training	-.156	.650	.692	-	.788	.682	.639
Employee Career Development	-.187	.745	.653	.788	-	.624	.655
Work-Life Balance	-.239	.594	.629	.682	.624	-	.587
Job Security	-.150	.582	.691	.639	.655	.587	-

According to Table 4.32, there are significant correlations between all of the factors except for Employee Reward and Recognition. The correlation coefficient  $r$  for all the factors is greater than 0.234 except for Employee Reward and Recognition A. The results reveal that that the relation between the factors is statistically, practically and significantly positive. The correlation coefficient  $r$  between Employee Reward and Recognition A and other factors is statistically and practically insignificant as it is less than 0.234 except for Work-Life Balance which has a correlation coefficient greater than 0.234.

For the contingency tables used in the  $\chi^2$  tests, each factor was categorised into three levels: Lower (scores < quartile 1); Middle (score between quartile 1 and quartile 3); Higher (score > quartile 3). Tests were conducted for the relationships between Job Security and

the other factors, given that the focus of the study was to investigate the factors influencing the retention of production pharmacists.

**Table 4.33: Contingency Table - Employee Reward and Recognition A and Job Security**

Employee Reward and Recognition A	Job Security			
	Lower (<Q1)	Middle (Q1-Q3)	Higher (>Q3)	Total
Lower (<Q1)	5 26%	9 47%	5 26%	19 100%
Middle (Q1-Q3)	13 32%	17 41%	11 27%	41 100%
Higher (>Q3)	3 27%	7 64%	1 9%	11 100%
Total	21 30%	33 46%	17 24%	71 100%
Chi <sup>2</sup> (d.f. = 4. n = 71) = 2.27; p = .686				

**Table 4.34: Contingency Table - Employee Reward and Recognition B and Job Security**

Employee Reward and Recognition B	Job Security			
	Lower (<Q1)	Middle (Q1-Q3)	Higher (>Q3)	Total
Lower (<Q1)	11 52%	8 38%	2 10%	21 100%
Middle (Q1-Q3)	8 24%	19 58%	6 18%	33 100%
Higher (>Q3)	2 12%	6 35%	9 53%	17 100%
Total	21 30%	33 46%	17 24%	71 100%
Chi <sup>2</sup> (d.f. = 4. n = 71) = 15.73; p = .003; V = 0.33 Medium				

**Table 4.35: Contingency Table - Leadership and Job Security**

Leadership	Job Security			
	Lower (<Q1)	Middle (Q1-Q3)	Higher (>Q3)	Total
Lower (<Q1)	10 63%	6 38%	0 0%	16 100%
Middle (Q1-Q3)	11 29%	20 53%	7 18%	38 100%
Higher (>Q3)	0 0%	7 41%	10 59%	17 100%
Total	21 30%	33 46%	17 24%	71 100%
Chi <sup>2</sup> (d.f. = 4. n = 71) = 24.54; p < .0005; V = 0.42 Large				

**Table 4.36: Contingency Table - Training and Job Security**

Training	Job Security			
	Lower (<Q1)	Middle (Q1-Q3)	Higher (>Q3)	Total
Lower (<Q1)	12 63%	6 32%	1 5%	19 100%
Middle (Q1-Q3)	9 26%	21 62%	4 12%	34 100%
Higher (>Q3)	0 0%	6 33%	12 67%	18 100%
Total	21 30%	33 46%	17 24%	71 100%
Chi <sup>2</sup> (d.f. = 4. n = 71) = 34.56; p < .0005; V = 0.49 Large				

**Table 4.37: Contingency Table - Employee Career Development and Job Security**

Employee Career Development	Job Security			
	Lower (<Q1)	Middle (Q1-Q3)	Higher (>Q3)	Total
Lower (<Q1)	10 59%	7 41%	0 0%	17 100%
Middle (Q1-Q3)	11 32%	17 50%	6 18%	34 100%
Higher (>Q3)	0 0%	9 45%	11 55%	20 100%
Total	21 30%	33 46%	17 24%	71 100%
Chi <sup>2</sup> (d.f. = 4. n = 71) = 23.81; p < .0005; V = 0.41 Large				

**Table 4.38: Contingency Table - Work-Life Balance and Job Security**

Work-Life Balance	Job Security			
	Lower (<Q1)	Middle (Q1-Q3)	Higher (>Q3)	Total
Lower (<Q1)	10 53%	9 47%	0 0%	19 100%
Middle (Q1-Q3)	11 32%	18 53%	5 15%	34 100%
Higher (>Q3)	0 0%	6 33%	12 67%	18 100%
Total	21 30%	33 46%	17 24%	71 100%
Chi <sup>2</sup> (d.f. = 4. n = 71) = 29.29; p < .0005; V = 0.45 Large				

The Chi<sup>2</sup> test results reported in Tables 4.33 to 4.38 corroborate with the results of the correlation analysis and confirm that Job Security is positively related to all of the other factors except for Employee Reward and Recognition A.

#### **4.8 RELATIONSHIPS BETWEEN THE DEMOGRAPHIC VARIABLES AND THE FACTORS**

Chi<sup>2</sup> tests (based on frequencies) and t-tests (based on mean values) were conducted to investigate the relationships between the factors and the demographic variables (Language excluded because of too small sample sizes per category). However, none of these test results were significant and there was thus no need to report the relevant statistics.

#### **4.9 CONCLUSION**

Chapter 4 provided a summary of the research survey results. This included the questionnaire completion rate, the demographic profile of the sample, the reliability of the scores for the research factors and the descriptive statistics for the research factors (frequency distributions and measures of central tendency and dispersion). The following inferential statistics for the factors were also presented: one sample t-tests to classify and

rank the factors, correlations, Chi<sup>2</sup> tests and t-tests of independence which were conducted to investigate the relationships among the factors and the relationships between the demographics variables and the research factors.

## **CHAPTER 5**

### **CONCLUSION AND RECOMMENDATIONS**

#### **5.1 INTRODUCTION**

The study's results and recommendations are the subject of this chapter. The goal of the study was to look factors that influenced the retention of production pharmacists in the pharmaceutical manufacturing industry. The South African pharmaceutical manufacturing industry is in charge of producing a wide range of pharmaceutical products for both the domestic and foreign markets. Production pharmacists are leaving the industry to pursue employment outside of the production environment, which is a problem for the industry. The primary objective of the study was to identify key factors to improve the retention of pharmacists in the pharmaceutical product manufacturing industry in South Africa.

##### **5.1.1 Summary of the study**

To provide a summary of the study, the objectives of the study, from chapter 1, are re-stated here to indicate how each one was resolved. The objectives of the study were stated as follows:

- Conduct a literature review on the role and the importance of production pharmacists in the pharmaceutical manufacturing industry, with specific reference to the South African pharmaceutical industry.

Pharmacists are highly trained professionals who work in a variety of sectors within the pharmaceutical manufacturing supply chain to ensure that high-quality products are delivered on time. According to Masango (2019), pharmacists are in charge of ensuring and monitoring product quality, technology transfer, overseeing product production, warehousing and distribution, and designing systems and processes to verify that activities conform with GMP criteria.

The role of the production pharmacist in the manufacturing of pharmaceutical products is crucial in assuring product quality and that manufacturing activities are carried out according to pharmaceutical criteria, according to the literature. The role of a production pharmacist is to guarantee that pharmaceutical products are made according to good manufacturing practices, from product validation to testing, before they are released to the market (Kokane & Avhad, 2016).

The growing demand for pharmacists necessitates a corresponding growth in pharmacist supply. A pharmacist who focuses their profession on educating and training pharmacists at educational institutions is known as an academic pharmacist (Vernam, 2014). Academic pharmacists play a critical role in pharmacist education. Academic pharmacists teach, conduct research and educate the next generation of pharmacists (Kokane & Avhad, 2016).

After the clinical and hospital sectors, the retail industry is one of the main employers of graduate pharmacists. Retail pharmacists are in charge of dispensing prescriptions in drug stores and supermarkets (such as Dischem and Clicks) (Kamboj, 2011).

Pharmacists work in a variety of settings, including grocery stores, hospitals and communities. Online pharmacy can also benefit customers in a variety of ways. According to Kamboj (2011), consumers believe that ordering pharmaceutical products online is a more convenient and private way of obtaining medicine, than going to a local drugstore where they may be exposed to another client who may listen to their story about their condition and medication.

The majority of university graduates are employed as clinical pharmacists. After graduation, the majority of these students are hired by the government as clinical pharmacists. Clinical pharmacy is a health-care profession in which pharmacists help patients by improving pharmacological therapy and promoting health, wellness and disease prevention. Clinical pharmacy is a branch of pharmacy that focuses on providing pharmaceutical treatment to patients by combining a caring approach with professional therapeutic knowledge, experience and judgment (Abualenain, 2018).



The focus of this study was on production pharmacists. Production pharmacists, sometimes known as industrial pharmacists, are critical to the safety of pharmaceutical goods. These pharmacists work for companies such as Aspen, Cipla Mepro, Adcock Ingram, GlaxoSmithKline and Sanofi-Aventis, and are directly involved in the production of pharmaceuticals.

The purpose of an industrial pharmacist is to guarantee that pharmaceutical products are made in accordance with good manufacturing practices, from product validation to product testing before they are issued to the market (Kokane & Avhad, 2016).

Production pharmacists are in charge of planning and prioritizing daily, weekly and monthly production activities, as well as determining, requesting and utilizing assets to their full potential. They also need to inspect and verify schedule 5 products, production room cleanliness, equipment performance, maintenance and dispensing. They must ensure that the manufacturing process adheres to the appropriate quality standards and that the manufacturing locations are constantly audit-ready (Bosman, 2020).

The production pharmacist must have a bachelor's degree in pharmacy, one to three years of experience as a pharmacist with pharmaceutical manufacturing experience and be registered with the South African Pharmaceutical Council (Bosman, 2020). In addition, the production pharmacist must be able to gather data, interrogate data, meet deadlines and ensure final output (Bosman, 2020).

- To conduct a literature study on the factors that influence the retention of employees.

The literature study, as presented in chapter 2, revealed that the work of the production pharmacist in the manufacturing of pharmaceutical products is critical in ensuring that product quality is maintained and that manufacturing operations are carried out in accordance with pharmaceutical guidelines. A production pharmacist's job is to ensure that pharmaceutical items are manufactured according to good manufacturing principles, from

product validation to testing before they are released to the market (Kokane & Avhad, 2016).

The literature review also found that companies that manufacture pharmaceutical goods employ roughly 6% of pharmacists and face a significant challenge with production pharmacist retention. According to research produced by Masango (2011) for the South African Pharmacy Council, there is currently one pharmacist for every 3 849 people in South Africa. Based on the WHO's recommended pharmacist-to-population ratio, this is extremely low. The low retention of pharmacists has a substantial, detrimental influence on pharmaceutical companies' business. High turnover costs money in an organisation since it entails training and recruitment expenses, which can lead to direct losses in productivity, quality and customers (Kerpditak & Jermsittiparsert, 2020).

The study found that a range of factors may contribute to the low retention of production pharmacists. Employee turnover is caused by a multitude of variables, according to Ramos (2017), including a lack of training, learning and development opportunities (formal learning activities given by the organisation), supervisor support (recognition by and feedback from supervisors to employees), and career chances (internal and external career options).

Employers have to understand that paying employees more money does not guarantee that they will stay with the company, according to Kujawa (2015). Most businesses are turning to or implementing recognition programs as a means of retaining employees. According to Hart (2012), this is accomplished by aligning the organisation's recognition activities with its broader business.

Employee retention is influenced by effective and ethical leadership, according to the literature review. Employee turnover is significantly reduced by effective leadership (Elci, 2012). According to Brahm, Kelly-Rehm and Farmer (2009), developing an employee-driven firm requires strong leadership.

Training and development impact employee retention, which has implications for career growth, promotion and employability. Employees today are more likely to stay with a

company if they believe there is plenty of space for professional development (Domeyer, 2007). Furthermore, according to Jayathilake et al. (2020), strong training and development helps organisations retain good people, which helps them to keep their competitive advantage. Career progression and staff development were shown to be major drivers in employee retention in a survey conducted by Axon (2012). Ncedo (2013) however, believes that achievement and performance should be recognized and rewarded in organisations. Identifying and utilizing people's strengths, as well as delegating and giving them responsibility and ownership where appropriate, are critical to the organisations success.

It is vital to the organisation's success to identify and utilise people's abilities, as well as delegate and give them responsibility and ownership where appropriate.

A career as a pharmacist can be extremely rewarding, but it can also be extremely stressful, as pharmacists are expected to work long hours and with massive workloads (Brahm et al., 2009). These conditions have a major impact on pharmacists' health, making it difficult for them to work at their best and this sometimes contributes to job turnover. Employees who do not have a flexible work-life balance, according to Olubiyi et al. (2019), find it difficult to pursue other life goals, which leads to unhappiness, stress and frustration at work.

The literature review identified the following factors: Employee Reward and Recognition, Employee Career Development, Training, Leadership, Work-Life Balance and Job Security as factors which have an effect on the retention of pharmacists.

Pharmaceutical manufacturing companies in South Africa must have a clear awareness of the essential aspects that influence pharmacist retention, and failure to do so could result in the loss of critical skills and have a detrimental impact on the company's success.

- To develop a hypothesised model to identify the factors that influence the retention of production pharmacists.

The hypothesised model was presented in Section 1.6. The model indicated that Employee Reward and Recognition, Employee Career Development, Training, Work-Life Balance, Leadership and Job Security might impact the retention of pharmacists.

- To identify the factors which have a significant influence on the retention of production pharmacists. The following hypothesised relationships are tested in the study:
  - i. H<sub>1</sub>: There is a significant positive relationship between Employee Reward and Recognition and the retention of pharmacists.
  - ii. H<sub>2</sub>: There is a significant positive relationship between Employee Career Development and the retention of pharmacists.
  - iii. H<sub>3</sub>: There is a significant positive relationship between Leadership and the retention of pharmacists.
  - iv. H<sub>4</sub>: There is a significant positive relationship between Training and the retention of pharmacists.
  - v. H<sub>5</sub>: There is a significant positive relationship between Work-Life Balance and the retention of pharmacists.
  - vi. H<sub>6</sub>: There is a significant positive relationship between Job Security and the retention of pharmacists.

To decide whether to accept or reject the above stated alternative hypothesis, the following statistical testing was conducted.

**Table 5.1: Results of statistical testing for hypothesis testing**

Factors	Descriptive Statistics		One-Sample t-Test Classification (n = 70; d.f. = 70)			Inferential Ranking			Alternative Hypothesis
			H <sub>1</sub> : $\mu \neq$	t-value	Cohen's d	Category	Rank	Signif. Group	H <sub>1</sub> :
	Mean	S.D.		p-value					
Employee Reward and Recognition A	3.37	1.01	3.40	-0.22	n/a	Neutral to Positive	1	1	Fail to Accept
				.823					
Leadership	3.17	0.82	3.40	-2.34	0.28	Neutral	1	1	Accept
				.022					
Job Security	3.10	0.83	3.40	-3.11	0.37	Neutral	3	2	Accept
				.003					
Employee Reward and Recognition B	2.93	0.89	2.59	3.25	0.39	Neutral	3	2	Accept
				.002					
Work Life Balance	2.86	0.90	2.59	2.58	0.31	Neutral	5	3	Accept
				.012					
Training	2.67	0.93	2.59	0.76	n/a	Negative to Neutral	6	4	Fail to Accept
				.451					
Employee Career Development	2.65	0.78	2.59	0.62	n/a	Negative to Neutral	6	4	Fail to Accept
				.536					

The results revealed that there was a significant positive between Leadership, Job Security, Employee Career Development B, Work-Life Balance as the p-value was lower than the critical value of 0.05. This is strong evidence that the null hypothesis is invalid.

Training and Employee Career Development were rejected as they had a p-value larger than the critical value of 0.05. This is evidence that the alternative hypothesis is weak and therefore null hypothesis should not be rejected.

- Explain and justify the selected research methodology to be used for the study.

Chapter 3 presented an outline of the research methodology used in the study. The study was conducted from a positivistic paradigm, utilising quantitative methodology, with a survey questionnaire as the data collecting tool. The questionnaire was distributed via email to 83 respondents who were production pharmacists or experienced in production pharmacy. The respondents were sampled in a non-random manner, and specifically via quota, convenience and snowballing. The final sample consisted of 71 respondents, mostly between the ages of 25 and 44 years of age (93%) and represented both male (45%) and female (55%). Fifty-one percent were married and forty-nine percent were single. The majority were English speaking (55%) and were pharmacists (65%) with the rest being in junior to senior management positions. As knowledge workers, the highest education levels varied from degree (34%) to post-graduate qualification (67%). Interestingly, the inferential results did not reveal meaningful differences in responses based on the biographical details, validating the results for the cohort of production pharmacists under study.

- Develop a research questionnaire covering the identified factors that could have an influence on the retention of pharmacists.

The questionnaire utilised in the study was based on literature, consisted of two sections and the respondents' perceptions of retention factors.

- Analyse the results of the survey based on the hypothesised model.

The results of the study were presented in chapter 4 and a summary of the main findings are presented in the next section.

- Formulate recommendations that can be implemented by pharmaceutical manufacturing companies.

Recommendations, based on the main findings in the study, are presented in chapter 5.

## **5.2 SUMMARY AND DISCUSSION OF THE MAIN FINDINGS**

The objective of the study was to identify key factors to improve the retention of pharmacists in the pharmaceutical product manufacturing industry in South Africa. The main factors

probed in the study included Employee Reward and Recognition, Employee Career Development, Training, Leadership, Work-Life Balance and Job Security.

### **5.2.1 Descriptive analysis of the sub-scales**

Descriptive statistics, namely frequency distribution, revealed responses that were quite spread across the Likert scale, with only a couple of items that were leaning either more towards strongly disagree/disagree or strongly agree/agree.

In terms of Employee Reward and Recognition, it was found that reward programmes were perceived as generally effective in retaining pharmaceutical talent, but that good performance was not perceived as being recognised (Table 4.8). For the rest of the six statements, the responses were spread across the scale. This is in line with Frye et al. (2020). Extrinsic benefits are less essential than intrinsic rewards such as recognition, work autonomy and a sense of accomplishment, in retaining employees.

In terms of Leadership, it was found that respondents agreed that personal objectives were mutually agreed upon with the line manager and that they were clear. However, an environment in which production pharmacists could thrive was lacking (Table 4.9). Responses for four other statements were spread across the scale. This is in agreement with Al-Omar's (2019) research, which found that employees in high-demand roles, such as pharmacists, required the support or backing of their superiors to succeed in a stressful work environment. Additionally, keeping people happy at work reduces the need to hire and train new staff, as they are less inclined to leave for another company.

In terms of Training, no positive results were found. Respondents strongly disagreed/disagreed that their talent was fully developed, that a skills audit was conducted, training programmes for fast tracking development existed and in addition, that study assistance was received (Table 4.10).

In terms of Employee Career Development, two statements received mostly negative responses while the rest of the responses were spread out over the scale. The two negative

responses related to succession planning and mentoring/coaching of production pharmacists (Table 4.11). This was in agreement with Axon (2012) who found that progression and staff development were identified to be major drivers in employee retention. If this is not addressed, the organisation's production pharmacists will leave for organisations or industries that may provide them with better career growth prospects.

In terms of Work-Life Balance, no outstanding negative or positive responses were found. The conclusion is therefore that this balance is not evident (Table 4.12). Work-Life Balance can have major negative effects for the organisation as it has a strong link to employee turnover, which in turn boosts staff productivity and performance. Furthermore, an organisation can achieve remarkable outcomes by attaining a Work-Life Balance that balances work and personal requirements, since it inspires people by minimizing work stress and emotional tiredness (Kerpditak, 2020).

In term of Job Security, respondents were positive that they saw a future for themselves as production pharmacists and that they generally experienced job satisfaction. Responses were regard to Job Security, being settled in the current position, being an example of retention by the organisation and planning to stay in the current organisation for at least five years, all received mixed responses, which do not bode well for production pharmacist retention (Table 4.13). This is in agreement with Jimenez and Didona (2017) who found that the greater the likelihood of retaining the employee, the more likely the organisation is to maintain the person and the better the employee's chances/probability of keeping their employment, the higher the Job Security. Furthermore, organisations must implement policies and programs that increase employee education and experience to promote Job Security.

### **5.2.2 Factor analysis and reliability of identified factors**

Factor analysis conducted on the results confirmed the validity of the structure of the questionnaire. All of the factors remained, but the scale of Employee Reward and Recognition delivered two factors (Table 4.16). The first factor, labelled Employee Reward and Recognition (Factor A), speaks to the existence of rewards and recognition, its



competitiveness and fairness, while the second factor Employee Reward and Recognition (Factor 2) is about the belief that rewards programmes are a factor in employee retention. The Cronbach Alpha analysis (Table 4.27) revealed alphas ranging between 0.69 and 0.91, and these were considered as fair, good or excellent.

### 5.2.3 Descriptive statistics for the factor

Table 5.2 presents the frequency distribution per factor.

**Table 5.2: Frequency distribution per factor**

	Negative 1.00 to 2.59		Neutral 2.60 to 3.40		Positive 3.41 to 5.00	
Employee Reward and Recognition A	19	27%	12	17%	40	56%
Employee Reward and Recognition B	32	45%	18	25%	21	30%
Leadership	16	23%	29	41%	26	37%
Training	36	51%	17	24%	18	25%
Employee Career Development	36	51%	26	37%	9	13%
Work-Life Balance	19	27%	34	48%	18	25%
Job Security	21	30%	24	34%	26	37%

It was indicated earlier that the results were quite spread across the Likert scale and the summary of the descriptive statistics for the factors demonstrated this as well. More positive results were received for Employee Reward and Recognition A and Job Security, neutral results for Leadership and Work-Life Balance, and negative results for Employee Recognition and Reward B, Training and Employee Career Development. The impression was created that the respondents were not satisfied with their Employee Career Development (including Training), and that they had less belief that Reward and Recognition Systems were adequate to serve retention well.

It can be concluded that the respondents did not believe reward and recognition could serve to retain them and they required further career development. It can also be speculated that production pharmacists, as they are already considered to be educated (validated in the biographical data) and as a cohort with knowledge and talent, do not require further development or it is up to themselves to create such opportunities. For this reason, an audit of their development needs may be recommended.

#### **5.2.4 Summary of test and inferential ranking**

One-sample T-tests (comparing average mean scores) (Table 4.30) were used to categorise the factors as negative, neutral or positive while inferential ranking was used for the comparison of the results. Significant differences were found between:

1. Employee Reward and Recognition A (mean 3.37) and Job Security (mean 3.1).
2. Job Security (mean 3.1) and Work-Life Balance (2.86).
3. Work-Life Balance (mean 2.86) and Training (2.65).

The above results confirmed concerns about Job Security (Retention), Work-Life Balance and Training (and associated Employee Career Development).

#### **5.2.5 Summary of correlation analysis**

Correlation analysis (Table 4.31) showed significant positive correlations among all of the factors except for Employee Reward and Recognition A which showed non-significant and weak, negative relations with all of the factors.

The conclusion is that Employee Reward and Recognition (specifically aimed at Retention), Leadership, Training, Employee Career Development, Work-Life Balance and Job Security (Retention) are interrelated and all of these factors need attention in an organisation, as they work together to support employee retention, as also confirmed by the Chi<sup>2</sup> test results. Even with Reward and Recognition A receiving the highest mean score (Table 4.30), the implication is that the current reward and recognition received is not a factor with a meaningful impact on retention.

### **5.3 RECOMMENDATIONS**

The results revealed that that none of the factors measured in the study received convincingly positive responses. Organisations employing production pharmacists should study the results and conduct a self-assessment to identify areas related to Employee Reward and Recognition, Employee Career Development, Training, Leadership and Work-Life Balance in which they can develop.

Organisations should not believe that giving rewards and recognition will enhance retention unless these rewards and recognition are specifically aimed at and earmarked for production pharmacists and the recipients perceive the rewards and recognition as meant for their retention. Rewards and recognition do not replace issues related to career development.

Training and Employee Career Development emerged as important factors in the retention of production pharmacists. Organisations should organise career development conversations with their production pharmacists, discussions which should be attended by line managers and section heads, as well as HR consultants. The aspirations of these pharmacists should be probed, and a skills audit must be done to see where most of the development could take place. Organisations should not believe that as these employees are already labelled as knowledge workers and they have good qualifications, that they do not need further development, or that they must take care of their development themselves. Opportunities could be created to involve them in management and leadership activities, so they can experience a deeper input into the organisational strategy accomplishment. Job enrichment and job rotation should be considered as well as mentoring. Leadership plays an important part in creating a work environment in which pharmacists feel recognised, and experience career growth and satisfaction. Organisations and leaders themselves should take more responsibility for connecting with pharmacists and positively supporting their careers.

To create a positive work experience, Work-Life Balance should be supported. This includes creating a thriving work experience and practising trust so that these knowledge workers can have more control over their work arrangements.

The results revealed that the respondents perceived reward programmes as effective enough for retention, they knew what was expected of them, they generally experienced satisfaction and they would want to remain in the field of production pharmacy. These were positive results from the study that should be emphasised.

#### **5.4 AREAS FOR FUTURE RESEARCH**

Further areas can include an investigation into how leaders can create an environment in which production pharmacists would thrive, as well as explore strategies to create a better Work-Life Balance without negatively impacting the performance of the pharmaceutical manufacturing facilities. An investigation should also be done to determine the impact of the current pharmaceutical education curricula on the retention of production pharmacists.

Lastly, future studies can investigate the reasons for unconvincingly positive results obtained for statements related to Employee Reward and Recognition, Employee Career Development, Training, Leadership and Work-Life Balance, as areas of development.

#### **5.5 CONCLUSION**

To perform the study, a literature review was conducted to identify the elements thought to influence production pharmacist retention and a questionnaire was created using Questionpro. To obtain authorization to perform the study, an ethics approval application was submitted to the university's research office. The questionnaires were then sent out to a group of 83 pharmacists who had previously worked as production pharmacists, and 71 successfully completed questionnaires were received. The gathered data was then subjected to statistical analysis, with both descriptive and inferential statistics used to analyse the data. These findings were presented in chapter 4 of the study.

The purpose of this study was to examine the elements thought to affect the retention of production pharmacists in the South African pharmaceutical manufacturing industry. Training and Employee Career Development are crucial aspects that are likely to have major impact on the retention of production pharmacists, according to the research data received from the respondents. Organisations should hold career development dialogues with their production pharmacists, line managers and division leaders, as well as with HR consultants. Production pharmacists' ambitions should be investigated and a skills audit conducted to determine where the majority of development can take place. Organisations should not assume that, even though these personnel are labelled as knowledge workers with high qualifications, they do not require further training or development. As none of the categories obtained substantial favourable findings, pharmaceutical manufacturing companies should also conduct assessments to discover and develop strategies to improve Leadership, Work-Life Balance and Employee Reward and Recognition.

It was a development opportunity to complete my MBA degree and conduct research for this treatise. My organisation underwent a Section 189 process in which all employees were asked to apply for their jobs. This had a negative impact on my personal life as well as my studies. This journey presented many obstacles and learning opportunities. I have gained much knowledge regarding the research process, which I can apply in future scenarios.

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## APPENDIX A: ETHICS APPROVAL



Chairperson: Faculty Research Ethics Committee (Human)

Tel: +27 (0)41 504 2906

**Ref: [H20-BES-BUS-183] / Approval]**

11 November 2020

Prof A Werner

Department: Graduate School

Dear Prof Werner,

**TITLE OF STUDY: KEY FACTORS AFFECTING THE RETENTION OF PRODUCTION PHARMACISTS IN THE PHARMACEUTICAL INDUSTRY IN SOUTH AFRICA (MASTERS)**

PRP: Prof A Werner

PI: M Mvunyiswa

Your above-entitled application served at the *Faculty Ethics Committee of the Faculty of Business and Economic Science*, (16 October 2020) for approval. The study is classified as a negligible/low risk study. The ethics clearance reference number is **H21-BES-BUS-183** and approval is subject to the following conditions:

1. The immediate completion and return of the attached acknowledgement to [Lindie@mandela.ac.za](mailto:Lindie@mandela.ac.za), the date of receipt of such returned acknowledgement determining the final date of approval for the study where after data collection may commence.

2. Approval for data collection is for 1 calendar year from date of receipt of above mentioned acknowledgement.
3. The submission of an annual progress report by the PRP on the data collection activities of the study (form RECH-004 to be made available shortly on Research Ethics Committee (Human) portal) by 15 December this year for studies approved/extended in the period October of the previous year up to and including September of this year, or 15 December next year for studies approved/extended after September this year.
4. In the event of a requirement to extend the period of data collection (i.e. for a period in excess of 1 calendar year from date of approval), completion of an extension request is required (form RECH-005 to be made available shortly on Research Ethics Committee (Human) portal).
5. In the event of any changes made to the study (excluding extension of the study), completion of an amendments form is required (form RECH-006 to be made available shortly on Research Ethics Committee (Human) portal).
6. In the event of any changes made to the study (excluding extension of the study), RECH will have to approve such amendments and completion of an amendments form is required PRIOR to implementation (form RECH-006 available on Research Ethics Committee (Human) portal).
7. Immediate submission (and possible discontinuation of the study in the case of serious events) of the relevant report to RECH (form RECH-007 to be made available shortly on Research Ethics Committee (Human) portal) in the event of any unanticipated problems, serious incidents or adverse events observed during the course of the study.
8. Immediate submission of a Study Termination Report to RECH (form RECH-008 to be made available shortly on Research Ethics Committee (Human) portal) upon unexpected closure/termination of study.
9. Immediate submission of a Study Exception Report of RECH (form RECH-009 to be made available shortly on Research Ethics Committee (Human) portal) in the event of any study deviations, violations and/or exceptions.
10. Acknowledgement that the study could be subjected to passive and/or active monitoring without prior notice at the discretion of Research Ethics Committee (Human).



Please quote the ethics clearance reference number in all correspondence and enquiries related to the study. For speedy processing of email queries (to be directed to Lindie@mandela.ac.za), it is recommended that the ethics clearance reference number together with an indication of the query appear in the subject line of the email.

We wish you well with the study.

Yours sincerely

**Prof S Mago**

Cc: Department of Research Capacity Development  
Faculty Research Co-ordinator: Lindie van Rensburg

## **ACKNOWLEDGEMENT OF CONDITIONS FOR ETHICS APPROVAL**

I, **Prof A Werner** (PRP) of the study **KEY FACTORS AFFECTING THE RETENTION OF PRODUCTION PHARMACISTS IN THE PHARMACEUTICAL INDUSTRY IN SOUTH AFRICA (MASTERS) (H20-BES-BUS-183)**, do hereby agree to the following approval conditions:

1. The submission of an annual progress report by myself on the data collection activities of the study by 15 December this year for studies approved in the period October of the previous year up to and including September of this year, or 15 December next year for studies approved after September this year. It is noted that there will be no call for the submission thereof. The onus for submission of the annual report by the stipulated date rests on myself.
2. Submission of the relevant request to Faculty RECH in the event of any amendments to the study for approval by Faculty RECH prior to any partial or full implementation thereof.
3. Submission of the relevant request to Faculty RECH in the event of any extension to the study for approval by Faculty RECH prior to the implementation thereof.
4. Immediate submission of the relevant report to Faculty RECH in the event of any unanticipated problems, serious incidents or adverse events.
5. Immediate discontinuation of the study in the event of any serious unanticipated problems, serious incidents or serious adverse events.
6. Immediate submission of the relevant report to Faculty RECH in the event of the unexpected closure/discontinuation of the study (for example, de-registration of the PI).
7. Immediate submission of the relevant report to Faculty RECH in the event of study deviations, violations and/or exceptions.
8. Acknowledgement that the study could be subjected to passive and/or active monitoring without prior notice at the discretion of Faculty RECH.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

## APPENDIX B: RESEARCH QUESTIONNAIRE



**Study Objective:** *Key factors affecting the retention of production pharmacists in the pharmaceutical industry*

### A. BIOGRAPHICAL DATA

No.	Please circle the correct answer for each of the questions / statements.		
1	Gender	Male	1
2		Female	2
3	Marital status	Single	1
4		Married	1
5	Language	Xhosa	1
6		English	2
7		Africans	3
8		Other, please specify	
9	Occupational level	Pharmacist	1
10		Junior Management	2
11		Middle Management	3
12		Senior Management	4
13	Highest qualification	Degree	1
14		Honours	2
15		Masters	3
16		Doctorate	4
17	Age	18-25 years	1
18		26-35 years	2
19		36-45 years	3
20		45-55 years	4
21		55 years and above	1
22	Length of service in production in the Pharmaceutical Industry		Years

## B. RETENTION FACTORS

Employee Reward and Recognition	1	Reward programmes are generally effective in retaining pharmaceutical-related talent
	2	The reward system contributes to me staying with the organisation
	3	The organisation offers competitive remuneration
	4	The company recognises good performance
	5	Incentive schemes are performance based and fair
	6	My manager always gives recognition for a job well done
Leadership	7	My personal objectives are mutually agreed upon with my line manager
	8	I have a clear understanding of my performance objectives
	9	My manager gives recognition for a job well done
	10	Managers create an environment in which diversity in terms of people thrives
	11	My manager always embraces diverse contributions from the team
	12	I am inspired to work beyond what is required
	13	I receive constructive performance feedback from my manager
Training	14	The company does a good job in developing my talent to its full potential
	16	There are learning opportunities to help me improve my performance
	17	A skills audit is conducted regularly to determine skills gaps
	19	I am afforded an equal opportunity to learn and grow
	20	Training programmes are in place to help fast track the development of my talent
	22	I receive study assistance
	29	I have access to study assistance
Employee Career Development	15	I receive training to help me learn and grow in my career
	18	My company's strategic plan is in line with my career needs
	21	After training, there is opportunity to apply new skills back on the job
	23	It is easy to change jobs between different departments if requested
	24	Everyone on the same level has an equal chance at being considered for an advertised position
	25	There is adequate succession planning
	26	There are mentoring and coaching opportunities
	27	Internal employees are considered for new appointments
	28	There are job vacancies available for my career progression
	30	It is easy to change jobs between the different departments

Work-Life balance	31	My personal life benefit as a result of my work experiences
	32	I am effective at work
	33	My job is well integrated with my personal life to provide acceptable balance
	34	My mood improves because of my work experiences
Job Security	38	My job is secure
	39	I foresee a future for myself in the production of pharmaceuticals
	40	I am settled in my current position
	41	I am an example of a person that has been successfully retained by the organisation
	42	I generally experience satisfaction with my current role in the organisation
	43	I am planning to stay in my current organisation for at least five years
Retention	44	I foresee a future for myself in the production of pharmaceuticals
	45	I am settled in my current position
	46	I am an example of a person that has been successfully retained by the organisation
	47	I generally experience satisfaction with my current role in the organisation
	48	I am planning to stay in my current organisation for at least five years