

# **Value based management: An application in North West regional pharmacies**

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## ABSTRACT

Value based management is a process that can be used to determine a business's value drivers. It attempts to determine how the drivers link to value creation, and then break down the value drivers into achievable activities that can be pursued by employees.

Due to strict medicine pricing regulations in the country, it is becoming increasingly difficult for pharmacy businesses to stay profitable. This study set out to develop a value based management framework that could be used by pharmacy management in order to maximise value creation in the business and help ensure its survival despite the strict pricing regulations. Secondary objectives were to contextualise the term "value based management", to identify the value drivers in a pharmacy business and to determine the extent to which value based management and its principles are being applied in pharmacies in the North West region of South Africa.

The research study began in the literature where the term "value based management" was introduced and a literature study was done to conceptualise the term by investigating why value based management and value creation were important. Value based management metrics, the components of value based management; and key success factors for the implementation of value based management principles were investigated. A further literature study was done to identify possible value drivers in a pharmacy business.

An empirical study was conducted among registered pharmacists in the North West region of South Africa. Using the value drivers identified in the literature study as constructs, a questionnaire was designed to explore participants' level of exposure to (and knowledge of) value based management as well as the extent to which the principles of value based management were being applied at the pharmacy businesses where participants were employed. Analysis of the responses showed the questionnaire to be reliable and valid. The results of the study highlighted that

many respondents' lack knowledge regarding the constructs (value drivers), cost price in the dispensary and cost of wages. Constructs (value drivers) that were better understood included product mix in the front shop and debtors' control. Constructs (value drivers) that were best managed at the pharmacies where participants were employed, were cost price in the front shop and stock control. Constructs (value drivers) that were not as thoroughly managed were sales growth in the front shop and cost of wages.

Conclusions regarding the findings of the research study were presented and recommendations were made. The research study was evaluated opposite the primary and secondary objectives with the conclusion that both were achieved. Finally, recommendations for further research into value based management and the application of its principles in pharmacy businesses were proposed.

**Keywords:** value based management, value drivers, pharmacy business management, value creation and shareholder value.

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## LIST OF ABBREVIATIONS

<b>Acronym</b>	<b>Term</b>
VBM	Value based management
CF	Cash flow
CFROI	Cash flow return on investment
COD	Cash on delivery
CVA	Cash value added
DCF	Discounted cash flow
EBDIT	Earnings before depreciation, interest and tax
EBIT	Earnings before interest and taxes
EP	Economic profit
EPS	Earnings per share
EVA	Economic value added
FCF	Free cash flow
GAAP	Generally accepted accounting principles
MVA	Market value added
NOPAT	Net operating profit after tax
OCFD	Operational cash flow demand
OCF	Operational cash flow
P/E	Price per earnings
r	Discount rate
ROCE	Return on capital employed
ROI	Return on investment
ROIC	Return on invested capital
SEP	Single exit price
SVA	Shareholder value added
TBR	Total business returns
TSR	Total shareholder return
VBM	Value based management
WACC	Weighted-average cost of capital

## CHAPTER 1

### PHARMACIES AND PRICE CONTROL BACKGROUND

#### 1.1 INTRODUCTION

In South Africa it becomes increasingly difficult for pharmacies to stay profitable, as medicine prices are regulated here. Pharmacy owners cannot make decisions regarding the mark-up and dispensing fees on scheduled medicines in their dispensaries, as it is regulated by law. In November 2010, the latest dispensing fee for pharmacists was published. The dispensing fee is calculated using a medicine's Single Exit Price (SEP). This is the price set by the manufacturer or importer of a medicine. It is the price of the lowest unit of the medicine within a pack multiplied by the number of units in a pack. According to Anon (2011:9), "the dispensing fee is calculated by first calculating the percentage of SEP. The fixed rand value is then added. Value Added Tax (VAT) is calculated on the dispensing fee component only (percentage and rand component) and then added to the SEP, as the SEP already includes VAT". The 2010 pricing structure is shown in table 1.1.

**Table 1.1: Dispensing fee 2010**

<b>Band</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>SEP Threshold (VAT included)</b>	<R75.00	R75.00- R199.99	R200.00- R699.99	≥ R700.00
<b>Fixed Rand (VAT excluded)</b>	R6.00	R15.75	R51	R121
<b>% Fee (VAT excluded)</b>	46%	33%	15%	5%

Source: Adapted from Anon (2011:9).

A dispensing fee is “a fee exclusive of Value Added Tax that may be charged to dispense a medicine” (SA, 2010:3). According to SA (2010:4), the appropriate dispensing fee to be charged by pharmacists, must:

- (a) “where the single exit price of a medicine or scheduled substance is less than seventy five rand, not exceed R6 plus 46 % of the single exit price in respect of that medicine or scheduled substance;
- (b) where the single exit price of a medicine or scheduled substance is greater than or equal to seventy five rand but less than two hundred rand, not exceed R15.75 plus 33% of the single exit price in respect of that medicine or scheduled substance;
- (c) where the single exit price of a medicine or scheduled substance is greater than or equal to two hundred rand but less than seven hundred rand, not exceed R51 plus 15% of the single exit price in respect of that medicine or scheduled substance; and
- (d) where the single exit price of a medicine or scheduled substance is greater than or equal to seven hundred rand, not exceed R121 plus 5% of the single exit price in respect of that medicine or scheduled substance.”

The Minister of Health reviews these regulations annually. The Minister must take into account the need to ensure the availability and affordability of medicines in the country and annual inflation rates.

This new strict pricing structure causes a challenge to pharmacists. Pharmacy owners will have to manage all expenses and cost drivers carefully in order to stay profitable. Value based management (VBM) might be a useful tool that pharmacy managers can use to ensure value creation and maximisation in pharmacy businesses in order to stay profitable.

VBM is a framework used by businesses as a strategic performance measurement instrument. It aims to focus internal performance on value creation and therefore stakeholder wealth creation. The principles of VBM can be used to focus management on value creation and encourage and direct all business activities towards the creation of maximum value in a business (Frigo, 2002:7).

VBM is established in evaluating decisions, choices and actions in order to gain the maximum economic value in a business. It constitutes the basis for competitive

strategic principles in order to have a profitable business. VBM is a mindset which requires all stakeholders in a business to understand the reality of where and how the business operates and competes, how the business's performance compares to competitors, and how value is created in the business (Pienaar, 2008:2).

According to Flynn (2008:463), VBM comprises of "strategies for creating, measuring, and managing value in a business." It is an integrated approach to business management that includes the business culture, communications, mission, strategy, and decision-making.

In a pharmacy business's income statement, the following can influence the net profit earned: sales, cost of sales, other income and operating expenses (Cloete & Marimuthu, 2009:40). These must be managed in order to maximise profits and ultimately value creation.

This study explores the importance and application of value based management principles that can possibly be applied in a pharmacy business in order to maximise value creation in the business and help ensure the business's survival.

A pharmacy can be divided roughly into two divisions: the front shop and the dispensary. The front shop is where unscheduled substances, cosmetics and other items are being kept and sold. The items stocked in these departments are not subjected to the Medicines and Related Substances Control Act (101/1965) and the dispensing fee regulations do not apply in this division of the pharmacy. The dispensary is where scheduled medicines are kept. These are subjected to rules and regulations such as the dispensing fee structure.

This study will explore key areas that can and must be managed in a retail pharmacy (in both the front shop and dispensary) in order to maximise value creation and help ensure a business's survival. Secondly, the study will investigate to what extent these critical areas are being managed in different retail pharmacies in South Africa.

## **1.2 PROBLEM STATEMENT**

The new pricing regulations are making it increasingly difficult for pharmacies to stay profitable. Attention must be given to ways in which value can be created in a pharmacy business in order to ensure a retail pharmacy's existence despite the strict pricing regulations.

Value based management strives to maximise value creation across all areas of a business. Since medicine prices are regulated by law, it is not as easy for pharmacies to stay profitable. Applying the principles of value based management may ensure that maximum value is created and could ensure a business's survival.

This research aims to develop a value based management framework that can be used by pharmacy management in order to maximise value creation in the business. The term "value based management" will be conceptualised by doing a thorough literature study on the topic. Next, key value drivers in a pharmacy business will be identified from the literature. The empirical study aims to identify key areas in a pharmacy business that must be managed in order to maximise value creation and ensure a business's survival. The empirical study will then determine respondents' knowledge of value based management and the extent to which the principles of value based management are being applied in pharmacy businesses effectively to maximise value creation.

## **1.3 OBJECTIVES OF THE STUDY**

### **1.3.1 Main goal**

The objective of this research is to develop a management framework that can be used by pharmacy managers in order to create maximum value and help ensure a pharmacy's survival despite the strict medication pricing regulations in South Africa. The framework will be constructed by exploring the principles, components and benefits of value based management and by identifying critical areas that must be managed in order to create value in a pharmacy business.

### **1.3.2 Sub-Objectives**

#### **1.3.2.1 Contextualisation of the term “value based management”**

The contextualisation includes a disposition of:

- Reasons why value based management and value creation are important.
- Value based management metrics.
- The components of value based management; and
- Key success factors for the implementation of value based management.

#### **1.3.2.2 Identification of the value drivers in a pharmacy business**

Key value drivers in the front shop, as well as the dispensary, of a pharmacy business will be identified. Attention will be given to ways to manage sales, cost of sales and operational costs in these areas.

#### **1.3.2.3 Determining pharmacists’ knowledge of VBM and the application of its principles in pharmacy businesses**

This will entail an empirical study among pharmacists in the North West region. This study will be conducted by means of a questionnaire that explores participants’ level of exposure to (and knowledge of) value based management, as well as the extent to which the principles of value based management are being applied at the pharmacy businesses where participants are employed. The level of application of value based management principles at pharmacy businesses will be explored by determining whether identified value drivers are being managed effectively.

## **1.4 RESEARCH METHODOLOGY**

This research consists of two phases: a literature review and an empirical study.

### **1.4.1 Literature review**

A literature study will be done in order to conceptualise the term “value based management”, its definitions, metrics and components. It will explain the benefits value based management can bring along to a business, provided that it is being applied correctly.

The literature review serves the purpose of reviewing, perhaps discovering, the necessary information to give the foundational knowledge needed to understand value based management.

Furthermore, value drivers will be identified from the literature. These are elements of the pharmacy business that can be managed in order to maximise value creation. These value drivers will be determined for the dispensary as well as the front shop of a pharmacy business.

#### **1.4.2 Empirical study**

The focus is placed on the analysis of the data obtained from the questionnaires distributed, and subsequently collected, during the research. The aim of the questionnaires is to determine the extent to which value based management principles are being applied in retail pharmacies in South Africa and the extent to which the identified value drivers are being managed effectively in pharmacy businesses in South Africa.

#### **Research design**

This empirical study consists of four phases (discussed in Chapters 4 and 5), namely:

- The selection of measuring instruments.
- Data analysis.
- The report and discussion of the results of the empirical investigation; and
- Conclusions and recommendations based on the results of the empirical investigations.

#### **Participants**

The empirical research is based on a questionnaire that was given to each participant. Targeted respondents were registered pharmacists in the North West region of South Africa.



## **Measuring Instrument**

The instrument used consists of a questionnaire. The first part seeks general information (biographical data) about the respondent. This includes a respondent's occupation, experience as a registered pharmacist, experience in corporate pharmacy and level of formal business management training.

The second part of the questionnaire seeks more focused information concerning participants' knowledge of VBM and the value drivers that must be managed in the front shop and dispensary of a pharmacy business. This information determines respondents' exposure to VBM.

The third part of the questionnaire explores respondents' knowledge of VBM and the value drivers that can be managed in the overall pharmacy. This information also helps to determine respondents' exposure to VBM and its principles.

The fourth (and final) part of the questionnaire assesses the extent to which VBM management principles are being applied at the pharmacy businesses where respondents are employed.

## **1.5 SCOPE OF THE STUDY**

The subject area of this study is financial management. This study will focus on pharmacists in the North West region in South Africa. Respondents will provide information about their knowledge of VBM and the extent to which its principles are being applied at their place of work.

## **1.6 LIMITATIONS OF THE STUDY**

There are a number of limitations imposed on the study. Most importantly, not all the distributed questionnaires were retrieved or fully completed. This might affect the validity of the data. Secondly, the concept of value based management is wide; thus, interpretations of the terms used may vary, perhaps leading to questionable results. Thirdly, the findings of the research were based on questionnaires of a

sample of pharmacists in the North West regions and might not represent all pharmacists in the North West region or in South Africa.

## **1.7 LAYOUT OF THE STUDY**

### **CHAPTER 1: Pharmacies and price control background**

This chapter sets the context of the research topic. It contains the problem statement, objectives of the study, methods used in the research and the relevant limitations of the study.

### **CHAPTER 2: Conceptualization of the term “value based management”**

This chapter provides a theoretical background for the term “value based management”. The literature study will conceptualize value based management, its metrics and components. It will explain the benefits value based management can bring along to a business, provided that it is being applied correctly.

### **CHAPTER 3: Value drivers in a retail pharmacy business**

This chapter identifies the value drivers in a pharmacy business that can and must be managed in order to maximise value creation and help ensure the survival of the business despite the strict pricing regulations in South Africa. This is done by a literature study.

### **CHAPTER 4: Reporting and discussion of results**

Standardised questionnaires will be distributed among registered pharmacists in the North West region of South Africa. The aim of these questionnaires will be to determine the level of understanding of (and exposure to) VBM among respondents and the application of its principles at the respondents' place of work. The results of the empirical research will be reported and discussed.

### **CHAPTER 5: Conclusion and recommendations**

A summary of the research results will be given. Findings and conclusions will be discussed. Recommendations will be made regarding the use of value based management in pharmacies and finally a value based management framework will be constructed for pharmacy businesses in the North West region.

## **CHAPTER 2**

# **CONCEPTUALISATION OF THE TERM “VALUE BASED MANAGEMENT”**

### **2.1 INTRODUCTION**

This chapter aims to provide the theoretical background to VBM. The first sub-objective, the conceptualisation of VBM, is addressed in this chapter. The following themes will be addressed:

1. An overview of value based management.
2. The components of value based management.
3. VBM metrics.
4. Advantages and critique of using VBM; and
5. Key success factors for the implementation of VBM.

Value creation and value drivers in a pharmacy business will be identified and discussed in chapter 3.

### **2.2 VALUE BASED MANAGEMENT – AN OVERVIEW**

The term “value based management” can be defined in different ways. According to Frigo (2002:6), value based management can be defined as the process used to determine a strategy’s value drivers. It strives to understand how the drivers link to value creation, and then break down these drivers into achievable activities that can be pursued by all employees. VBM is not concerned with the actual creation of strategy, but it represents a process for strategy execution, broken down into specific value drivers for a specific organisation.

Koller (1994:89) defines VBM as a “marriage between a value creation mindset and the management systems that are necessary to carry the mindset into action”. It involves managing both the balance sheet and the income statement, and taking into account long and short term perspectives.

Knight (1998:307) continues that VBM strives to align strategy, performance measurement and activities in order to maximise shareholder value. Shareholder value is created when businesses provide capital at profits that exceed the cost of that capital. VBM broadens these concepts by putting emphasis on how businesses use it to make decisions (Koller, 1994:87).

The value based management process entails that all employees, from senior management to employees on the shop floor, base every decision made on increasing cash flow and creating shareholder value. Annual performance objectives are founded on the profitability that each division of a business must achieve and is traced through regular reporting. Employees perceive VBM to be a reward system that facilitates behavioural change with the intention of creating shareholder value. Shareholder value is created when cash flow increases within the company. VBM entails that a business base its reward system on the rate at which cash is generated. It is based on financial forecasts. The metrics of VBM allow for the exclusion of accounting distortions and are regarded as the most reliable indicator of total shareholder return over the long term (Lew & Barnard, 2005:20).

Value based management is quickly developing into “management for value.” Strategies are now being implemented to create value for both shareholders and customers (Lew & Barnard, 2005:20).

According to Koller (1994:87), the idea behind VBM is not complicated. The value of a business is decided by its discounted future cash flows. When VBM principles are properly applied, it is a management process that aligns a company’s overall objectives and analytical techniques to focus management decision making on the key value drivers of the business. VBM focuses on improved decision making at all levels in a business. It acknowledges that top-down command-and-control structures do not work well. It rather calls on managers to use value based performance metrics in order to make better decisions. When VBM principles are applied correctly, it brings remarkable benefit.

The process of VBM can be explained as follows: Firstly, senior managers have to assign to the concept of value creation through managed decisions and outputs.

The profit driven strategy must then be clearly devised. The VBM process is not a once-off event. It is a continual strategy development process that ensures improved allocation of resources, performance management and incentivised compensation. The particular value drivers of the company must be clear to all members of the work force. The strategy must be linked to actionable steps. Successful implementation of the steps must be rewarded through suitable incentives (Lew & Barnard, 2005:20).

## **2.3 COMPONENTS OF VALUE BASED MANAGEMENT**

VBM has its origin in finance and economics, but it is dependent on an organisation's financial accounting and reporting as a starting point in computing the metrics used (Frigo, 2002:6).

According to Fourie (2010:14), the key elements of VBM that differentiates it from other management approaches, include:

- The intention of VBM is to create shareholder value.
- VBM identifies the value drivers in an organisation.
- It links performance measurement, goal setting and incentives to value creation and value drivers; and
- VBM links decision making and action planning to value creation or value drivers.

## **2.4 VALUE BASED MANAGEMENT METRICS**

VBM can improve the way financial performance is evaluated by eliminating some of the accounting anomalies and distortions that exist in financial reporting (Frigo, 2002:6). A value based management system presents an exact and unambiguous metric upon which an entire organisation can be built. This metric is "value" (Koller, 1994:87).

According to Mohanty (2006:265), value based management methods and its metrics have become a well-liked method to link management reimbursement with shareholder wealth. Variable compensation structures, such as economic value added (EVA), market value added (MVA) and free cash flow (FCF) structures can be

used. Currently more modern metrics such as shareholder value analysis (SVA), economic profit (EP), cash flow return on investment (CFROI) and total business returns (TBR) are in use. Each of the metrics will be discussed shortly.

**Discounted Cash Flow (DCF)**

Discounted cash flow (DCF) is noteworthy as it recognises the time value of money (Brigham & Ehrhardt, 2005:962). It is complicated to determine how stock analysts determine a "fair value" for companies. The answer frequently lies in how the DCF valuation method is applied. The DCF analysis can be used as a supporting technique to value a company's stock by comparing costs and benefits in different time periods and by calculating net present value (NPV). NPV uses DCF to formulate decisions and to focus on those options that create the most value. According to the DCF method, the value of a company can be stated as the present value of expected future cash flows discounted at the company's cost of capital. The DCF analysis is widely used to evaluate investment decisions.

DCF can be calculated with the following formula:

$$DCF = \frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \dots + \frac{CF_n}{(1+r)^n} \dots\dots\dots 1$$

CF = Cash Flow

r = discount rate (WACC)

Discounted cash flow (DCF) analysis utilises future free cash flow projections and discounts them in order to get to a present value. This discounted present value is used to assess the potential for investment. If the DCF derived value is higher than the current cost of the investment, the opportunity may be a good one.

**Cash Flow Return on Investment (CFROI)**

This is the cash flow that a business generates in a certain period as a percentage of the cash invested in the assets of the business. Cash flow and assets are both stated in current Rand to adjust for inflation. The asset base is adjusted too to

include the capitalisation of operating leases. The cash flow to cash invested ratio is then adapted to an internal rate of return measure over the regular economic life of the implicated assets (Ryan & Trahan, 1999:47). According to Anon. (2009), CFROI is a valuation model that assumes the stock market determines prices based on cash flow, and not on corporate performance and earnings.

CFROI is represented by the following formula:

$$\text{CFROI} = \frac{\text{Cash Flow}}{\text{Market Value of Capital Employed}} \dots\dots\dots 2$$

CFROI is the cash flow that a company generated in a given period, stated as a percentage of the cash invested in the company's assets.

**Return on Invested Capital (ROIC)**

ROIC is calculated by dividing EBIT (Earnings before interest and taxes) by average invested capital less excess cash. According to Porter (2008:83), ROIC is an appropriate measure of profitability of strategy formulation. Equity investors use it as a directing instrument.

**Economic Value Added (EVA)**

EVA is calculated as a firm's net operating profits after taxes (NOPAT) minus its cost of funds. According to Megginson, Smart & Graham (2010:915), EVA is regularly used as a growth target. Brigham and Ehrhardt (2005:963) define EVA as a method to measure an organisation's actual profitability. According to Erasmus and Lambrechts (2006:15), EVA is similar to conservative measures of profit, but with two distinct differences. Firstly, EVA takes the total cost of capital into account and secondly, EVA is not constrained by generally accepted accounting principles (GAAP). Ezzamel and Burns (2005:756) define EVA as accounting profit less the cost of capital.

Formula for EVA:

$$\text{EVA} = \text{NOPAT} - \text{After tax cost of total operating capital} \dots\dots\dots 3$$

Or

$$\text{EVA} = \text{EBIT} (1 - \text{tax rate}) (\text{Total net operating capital}) (\text{WACC}) \dots\dots\dots 4$$

EVA can also be expressed in terms of ROIC:

$$\text{EVA} = (\text{Operating capital})(\text{ROIC} - \text{WACC}) \dots\dots\dots 5$$

Where:

WACC = Weighted average cost of capital

EBIT = Earnings before interest and tax

ROIC = Return on invested capital

NOPAT = Net operating capital after tax

If EVA is positive, the business has created value for shareholders. A negative EVA entails that management has destroyed value for the shareholders. According to Mohanty (2006:265), the EVA based compensation system is the most popular variable compensation system presently used in the corporate world.

### **Cash Value Added (CVA)**

CVA can be defined as the difference between Operational Cash Flow (OCF) and the Operational Cash Flow Demand (OCFD) (Ottosson & Weissenrieder, 1996:5). The sum of all cash items, that is Earnings before Depreciation, Interest and Tax (EBDIT, adjusted for non-cash charges), working capital movement and non-strategic investments is OCF. OCFD is the cash flow required to meet the shareholder's financial expectations on the company's strategic investments (the cost of capital).

### **Return on Capital Employed (ROCE)**

According to Hafeez, Zhang and Malak (2002:42), ROCE is a measure that states an organisation's profits for an accounting period as a percentage of its period-end capital employed. It can be used to calculate the efficiency and profitability of a



company's capital investments. It is calculated by dividing Earnings before Interest and Tax (EBIT), by the difference between total assets and current liabilities.

### **Total Shareholder Return (TSR)**

De Jonge (2012) explains TSR as the change in the capital value of a company over a period. It is expressed as a positive or negative percentage of the opening value. Other terms used for TSR is the shareholder rate of return and total business return.

### **Economic Profit (EP)**

EP is the accounting income attributable to shareholders at the end of the period less the accounting book value of shareholder funds at the end of the previous period multiplied by the cost of capital (Martin & Petty, 2000:81).

### **Market Value Added (MVA)**

According to Brigham and Ehrhardt (2005:967), MVA is the "difference between the market value of the firm and the book value of the firm's common equity, debt, and the market value of preferred stock". MVA is the difference between the organisation's value and capital supplied by investors. A high MVA means that the organisation has created significant wealth for shareholders. A negative MVA indicates that the value of the actions and investments of management is less than the value of the capital contributed to the company by the capital markets. This means that wealth or value has been destroyed. Management should strive to maximise MVA and not to maximise the value of the organisation since this can be achieved by investing escalating amounts of capital.

MVA can be calculated by the following formula:

$$\begin{aligned} \text{MVA} &= \text{Market value of stock} - \text{Equity capital supplied by shareholders} \dots\dots\dots 6 \\ &= (\text{Shares outstanding}) (\text{Stock price}) - \text{Total common equity} \dots\dots\dots 7 \end{aligned}$$

or

$$\begin{aligned} \text{MVA} &= \text{Total market value} - \text{Total capital} \dots\dots\dots 8 \\ &= (\text{Market value of stock} + \text{Market value of debt}) - \text{Total capital} \dots\dots\dots 9 \end{aligned}$$

## 2.5 BENEFITS OF VALUE BASED MANAGEMENT

VBM brings remarkable benefit when it is well implemented. According to Koller (1994:87), VBM is similar to restructuring in order to achieve maximum value on a regular basis. It has high impact and often resulted in improved economic performance, as illustrated in Table 2.1.

**Table 2.1: Examples of VBM's impact**

<b>Business</b>	<b>Change in behaviour</b>	<b>Impact</b>
Retail household goods	Shifted from a broad national growth program to a focus on building regional scale first	30 - 40% increase in potential value
Oil production	Used new planning and control process to help drive major change program	Multimillion dollar reduction in planning function through streamlining Prompted an acquisition Exposed nonperforming managers
Insurance	Repositioned product portfolio to emphasize products most likely to create value	25% increase in potential value
Banking	Choose growth versus harvest strategy, even though five-year return on equity very similar	124% potential value increase
Telekoms	Generated ideas for value creation such as new service and premium pricing.	New service: 240% potential value increase in one unit Premium pricing: 246% potential value increase in one unit

Source: Adapted from Koller (1994:88)

The growth in popularity suggests VBM works. According to Koller (1994:87), an organisation's management processes provide decision makers at all levels with the relevant information to make value-creating decisions when VBM is implemented successfully. Frigo (2002:6) is convinced that VBM can help to focus management on value creation - and motivate and guide activities toward this end. But to achieve the ultimate goal of VBM, the organisation's strategy must be focused on maximising value creation. It requires a disciplined commitment, leadership and the relevant metrics.

Cooper, Crowther, Davies and Davis (2001) give a summary of the advantages associated with the application of VBM principles:

- VBM provides a general language in the business that is practical, both internally and externally.
- It is a potent comparative instrument when it comes to benchmarking competitive performance.
- VBM is valuable for resource allocation as it provides better differentiation between value-creating and value-destroying investments.
- It has a positive effect on financial performance. This is achieved by reductions in capital base.
- VBM is a potent strategic tool. It helps management to focus on value drivers; and
- It helps in the creation of more shareholder value by getting more accountability for all business units.

## **2.6 CRITIQUE OF VALUE BASED MANAGEMENT**

Value based management has some challenges. When not applied correctly, it may become a staff-captured exercise that has no impact on operating managers and the decisions that they make. Instead of value based management, companies run the risk of simply practising value veneering (Koller, 1994:88). VBM metrics provide a performance measure for executing the value based management strategy. However, the metrics in isolation (without the appropriate strategy) will not result in value creation. VBM is a practical management tool, but it should not be given more credit than it deserves. VBM provides a way for companies to measure financial performance and many of the value drivers in the company, but it's the underlying business strategy that ultimately creates the value. Using VBM alone may have particular weaknesses by failing to reflect all the paths to value creation. Integrating VBM with a balanced scorecard framework may provide a way to evade this limitation (Frigo, 2002:8).

According to Lew and Barnard (2005:21), even experts in value based management have found constraints in the implementation of value creation strategies. These difficulties include:

### **A passion for value**

VBM is an accounting and economics driven program that needs to find its momentum in people based activities. The strategy must be supported by a corporate culture where all employees see the passion for the strategy in their superiors. Value creation relies as strongly on the strategy and an understanding of the business's value drivers as on the buy-in of all employees. Unfortunately not all employees share a passion for value creation (Lew & Barnard, 2005:21).

### **Lack of insight in VBM principles**

According to Lew & Barnard (2005:21), another difficulty is getting employees at all levels to not only support the theory, but to understand the process of VBM in order to take the initiative to reach improved performance and, ultimately, cash. Experts of VBM sometimes find it difficult to find realistic, implementable ideas. Communication gaps regularly occur where middle management struggle to explain ideas to lower level managers. Every manager must be able to grasp opportunities to create value. This necessitates all managers to understand where value can be generated and how daily decisions can affect the larger structure. All decisions must be linked to value creation. Employees must think like business owners. They must be willing to take full responsibility for the outcome of business decisions in order to realise the principles of value creation.

### **Insufficient reward driven motivation**

VBM requires that business decisions must be linked to ensure that the most possible value is created for shareholders. Employees who create the increased shareholder value must in turn be compensated through an incentive system. However, it is difficult to assure that the reward system is adequate in creating and sustaining required actions. It takes time for the true value and positive effects of VBM to get to all levels of the business and to realise in the pockets of shareholders. A viewpoint of rewards for actions may lead to a shortage when long term opportunities and realised values are overlooked (Lew & Barnard, 2005:21).

### **Conflicts between shareholder and customer interests**

VBM cannot satisfy the needs of customers and shareholders to the same extent. An example is when managers insist on shorter payment terms from customers in

order to increase cash flow. It is uncertain whether customers benefit in the long run when companies reduce prices as a result of increased cash flow as the main intent is to ensure liquidity. A fine balance must be maintained between shareholder needs and customer expectations. Merely focusing on shareholder needs will not result in long term client loyalty and sustained cash generation (Lew & Barnard, 2005:21).

### **Putting the process above the principle**

There is a possibility that VBM could become a self-regulatory system which finally fails when too much time is spent on scrutinising actions rather than implementing them. Over-policing of VBM activities wipes out the intention of value creation and innovation.

Cooper *et al.* (2001) give a summary of the drawbacks connected with the application of the methods of VBM:

- The different forms of VBM and its methods complicate assignments.
- It is comparatively dissatisfying at the secondary business level due to the difficulty of predicting value.
- The managerial costs linked with implementation is high.
- The complexity in the calculation is a constraint.
- It is difficult to translate the financial measures into operating customer measures; and
- Technical measurement constraints (such as the cost of capital).

Lew & Barnard (2005:21) concludes that one should not conclude that VBM does not add value after realising the imperfections of the process. The difficulties of VBM are not unsolvable. The obstacles emphasise the strong need to face the challenges head-on and move back to the basics. Each manager must understand that it is a matter of managing people and of generating cash in order to succeed. It involves the hearts and minds of the entire team. “Getting back to basics” training initiatives focus on:

- The basic principles of value creation.
- An understanding of the mission and strategy of the organisation.

- An understanding of responsibility and how individual efforts add to the overall strategy and value creation for customers and shareholders; and
- Training in decision making skills to ensure that business decisions result in increased cash flow.

All employees must be able to recognise investment opportunities and to distinguish between value creating and value demolishing activities. The primary problem of VBM is getting all employees on board. Once this is achieved, all stakeholders will share in the rewards (Lew & Barnard, 2005:21).

## **2.7 KEY SUCCESS FACTORS FOR THE IMPLEMENTATION OF VMB**

In order for VBM approaches to be successful, all employees of an organisation must be focused on value creation. Employees must have a value creating mind-set (Lew & Barnard, 2005:21). This requires an organisational culture transformation.

Haspeslagh, Noda and Boulos (2001:66) are convinced VBM requires five elements to achieve the desired cultural transformation. These include:

### **A clear commitment to shareholder value**

This can be used as a communication channel to the public, announcing that the business is in the process of changing its culture and busy to motivate employees to change attitudes and behaviour.

### **Providing intensive training programs**

The intention of these programs is to make sure that all employees are convinced that managing for value is the right thing to do (Knight, 1998:266).

### **Pay for performance**

VBM is not only about financial numbers. It also involves changing the behaviour of managers and employees within the organisation to enable them to make decisions that are in line with the aim of maximising shareholder value (Francis & Minchington, 2002:242). Motivating employees to create value involves changing behaviour,

which is part of the process of organisational change. Compensation systems that affect human behaviour play a vital role in motivating employees to create value for a business (Martin & Petty, 2000:157). According to Rappaport (1999:100), incentive compensation of executives will directly link to improving shareholder value.

### **Willingness to make major changes that allows all employees to make value creation decisions**

This practice encourages managers to develop more significant value creating options. Management should spend more time on business concerns rather than controlling budgets.

### **Allowing broad changes rather than a narrow focus on financial reports and compensation**

According to Stewart (1995:118), VBM requires each part of the business to identify the value drivers that have the greatest influence on creating profit, in order to focus employees' behaviour toward value creation.

Martin and Petty (2000:9) stated that the following criteria play a key role to make VBM successful, namely:

- VBM must have the full support and co-operation of the management of a business before it can become part of the business's culture. Although the decision in selecting and using the VBM system may come from management, all employees must buy into the concept of value creation (Wenner & LeBer, 1989:52-53).
- There must be a linkage between behaviour and reward in order for VBM to affect individual employees' actions.
- Skilled employees play a vital role in the implementation of VBM. These members of staff can spot problems and understand the results when implementing VBM (Wenner & LeBer, 1989:64).
- In order for a VBM system to be successful in changing behaviour, all employees must understand the VBM system; and
- The implementation of VBM principles should be simplified so that employees can understand it. Employees must realise why VBM is important and what

effect it will have on personal well-being (Haspeslagh *et al.*, 2001:70). Education and training are extremely important when it comes to the success of a VBM program.

## **2.8 CHAPTER SUMMARY**

The aim of VBM is to create shareholder value. VBM identifies the value drivers in an organisation. It then connects performance measurement, goal setting and incentives to value creation and value drivers. Lastly, VBM aligns decision making and action planning to value creation or value drivers (Fourie, 2010:14).

According to Mohanty (2006:265), metrics used in value based management methods are economic value added (EVA), market value added (MVA) and free cash flow (FCF). More modern metrics include shareholder value analysis (SVA), economic profit (EP), cash flow return on investment (CFROI) and total business returns (TBR). The most popular metric used in the corporate world is EVA.

Although the successful implementation of VBM principles can bring tremendous benefit to an organisation, there is much critique for this management system. However, these challenges can be overcome by paying attention to the essential success factors for the implementation of VBM.



## **CHAPTER 3**

### **VALUE DRIVERS IN A PHARMACY BUSINESS**

#### **3.1 INTRODUCTION**

In the previous chapter, the theoretical background to VBM was discussed. This chapter aims to discuss value creation and the identification of critical value drivers in a pharmacy business.

#### **3.2 VALUE CREATION**

In order for a business to be successful, managers must realise that the purpose of any business is to create value for customers, employees and investors. These three groups' interests are linked. The most important aim should be to create value for the customer, but this cannot be accomplished unless competent employees are selected, developed and rewarded, and unless investors receive more than adequate returns (O'Malley, 1998). According to Mauboussin (2009:1), business managers generate shareholder value when they make investments with the aim of maximising the present value of long-term free cash flows. These investments may consist of capital spending, research and development, mergers and acquisitions, share repurchases, as well as managing human capital, which entails putting the right people in the right positions.

In order to maximise value creation, managers must acquire a value creation mindset. This means that managers must realise that the main financial objective is to maximise value. An understanding of which variables drive the value of the company is crucial. Once this recognition is made, the business strategy must focus the business' resources and employees' focus on the correct variables. Management systems and processes must encourage employees and managers to act in ways that promote value maximisation in the business. Planning, objective setting, performance evaluation, and incentive systems work effectively when it is linked closely to the principles of value creation (Koller, 1994:89). According to Frigo

(2002:6), generating more cash flow than the cash invested in the business should be the main financial and strategic objective of a business. Merely producing a positive return is not sufficient. Value is truly generated when more return is yielded than could have been generated if the same cash investment had been made somewhere else. This means that the principal objective of a business' strategy should be to create a return that is more than the opportunity cost of the cash invested. The process of creating value is not simply applying a given set of tools or rules. It involves creating a sustainable competitive advantage in the market. Managing for value starts with strategy setting and ends with financial results (Duyck, 1998:102).

Rappaport (2006:3) determined a few basic principles for value creation in any business. By applying the principles, management will realise the potential for creating shareholder value. Some of these principles that could be applied to a pharmacy business include:

- **Do not manage earnings or provide earnings guidance**

Businesses give up value when they invest at rates lower than the cost of capital or sacrifice investment in value creating opportunities in an effort to increase short term earnings (Fourie, 2010:20).

- **Make value maximising strategic decisions, even if it means reduced short term earnings**

Strategic decisions should be evaluated against expected increased value of future cash flows, rather than evaluating it against reported earnings. Management should determine how alternative strategies will affect value, which strategy is most likely to create the greatest value and how sensitive the value of the most likely scenario is to variables such as shifts in competitive dynamics, technology life cycles, regulatory issues and other relevant variables (Rappaport, 2006:3).

- **Only carry assets that maximise value**

Value-orientated businesses must assess on a regular basis whether there are buyers who are willing to pay a significant premium above the estimated cash flow

value to an organisation for its business units, brands, real estate and other detachable assets. Businesses can decrease the capital employed and enhance value by focusing on high-value activities where the company enjoys a comparative advantage. Companies can also outsource low value-added activities that can be reliably performed by others at lower cost (Rappaport, 2006:5).

- **Reward senior executives for delivering superior long-term returns**

Businesses should give efficient compensation at all levels to maximise the possible higher returns (Rappaport, 2006:6).

- **Reward the middle managers and frontline employees for delivering superior performance on the key value drivers they influence directly**

Middle managers and “shop floor” employees need dynamic and current information to direct them in their everyday activities. Rappaport (2006:8) suggests that most businesses can focus on three to five main markers and by doing so capture an essential part of the markers' long-term value-creation potential. The improvement on main markers' performance will create superior shareholder value added (SVA) and will ultimately increase long-term shareholder value.

Management must constantly strive to maximise shareholder returns. Management should know which aspects affect value most and which of these aspects can be most easily influenced or managed. These factors are called “value drivers,” and they are the main focus in companies that succeed in maximising shareholder value (L.E.K. Insights, 1999:1).

In the quest to create value in a business, management must start by identifying which factors drive shareholder value. Thereafter the management of these value drivers can commence (Fourie, 2010:19).

### **3.3 IDENTIFICATION OF KEY VALUE DRIVERS**

An essential element of VBM is a thorough understanding of the performance variables that will in fact create the value of the business – the key value drivers (Koller, 1994:91). According to Akalu (2002:2), the term “value driver” is used for

economic variables that are crucial to return and cost functions of an organisation. An understanding of the key value drivers is crucial because a business cannot act directly on value. A business can only act on things it can influence. A variable that influences the value of the company is called a value driver. Managers must determine which value drivers have the greatest impact on value and allocate responsibility for these key drivers to individuals who can help the business meet its objectives. Variables such as sales growth, operating margins, and capital returns are generic value drivers which apply to most business units. However, these value drivers lack specificity and cannot be used well at the grass roots level (Koller, 1994:91). The VBM framework aims to identify the value drivers that lead to the creation of shareholder value. After the value drivers and its interrelations are known, it could be possible to improve performance measurement, resource allocation and information system designs. This can be done by identification of the factors that cause costs to rise or revenues to change (Haspeslagh *et al.*, 2001:64). An analysis of a business's value drivers assists with keeping a consistent strategy focus and setting management priorities. To achieve this, firstly a summary of all value drivers of a business has to be made. Secondly, a sensitivity analysis indicates the strength of the influence of a value driver on business value. This sensitivity of all value drivers is then compared to the degree to which management is able to influence or manage the value driver. Value drivers with little impact on company value may be integrated into an early warning system if management can control them. If management's influence on a value driver with a strong link to business value is limited, risk reducing strategies may be implemented. However, if management's influence is high, the value driver should be a key performance indicator with strong priority (Fourie, 2010:19).

Six critical factors that collectively account for the intrinsic value of a business were identified by Stewart (1999:299). These factors can be divided into factors which are under the control of management - factors which are beyond the control of management.

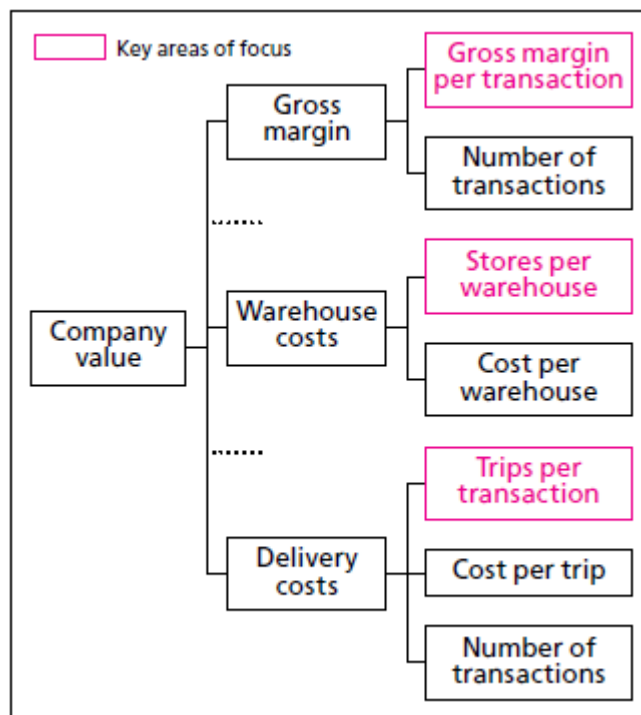
Factors under control of management include:

- Net operating profit after tax (NOPAT).
- The tax benefit of debt associated with management's target capital structure.

- The amount of new capital invested for growth in a normal year of the investment cycle; and
- The after-tax rate of return expected from new capital investments.

Factors beyond management's control include:

- Weighted cost of capital (WACC).
- The future period of time over which investors expect management; and
- Attractive investment opportunities.

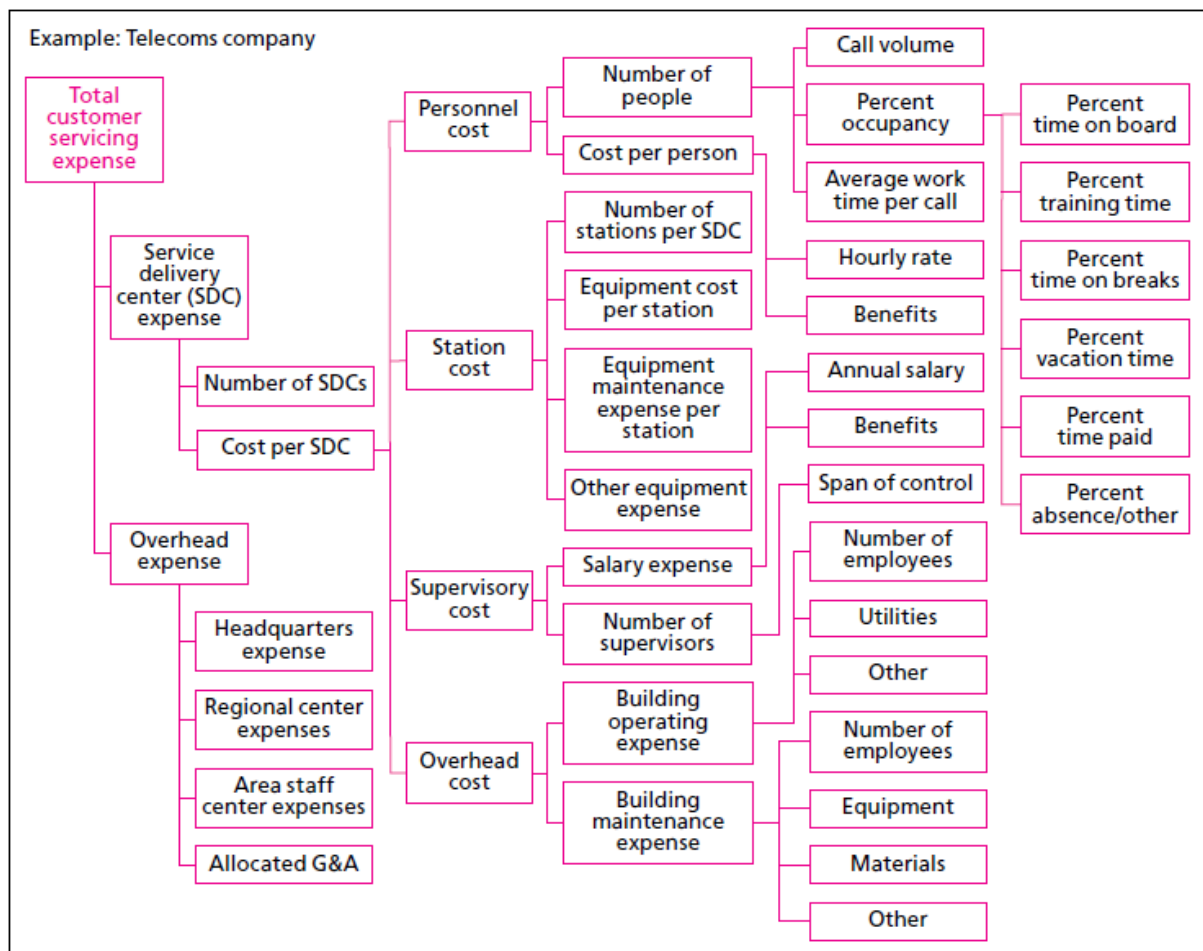


Source: Adapted from Koller (1994:94)

**Diagram 3.1: Value drivers for a hard goods retailer**

Diagram 3.1 shows possible value drivers for a hard goods retailer. Diagram 3.2 shows possible value drivers for businesses in the customer servicing business. The diagrams show that every business will have its own set of value drivers. Value drivers will differ from retail businesses to service orientated businesses. Pharmacy businesses contain both of these elements and will have a combined set of value drivers. Value drivers depend on each company's unique situation. Value drivers of a business should not be seen in isolation, because many value drivers are linked to

each other in a way. Focusing on one in isolation may have a negative impact on a different one (Hall, 2002:20).



Source: Adapted from Koller (1994:94)

### Diagram 3.2: Value drivers in customer servicing

Researchers differ regarding the number of value drivers present in organisations. Ruhl and Cowen (1990:53) identified five value drivers. Moskowitz (1988:31) was convinced that six value drivers are present in all organisations, and Rappaport (1998:72) identified seven value drivers. Turner (1998:71) discusses eight value drivers. These include: sales growth rate, operating profit margin, income tax rate, incremental investment in working capital, incremental investment in fixed capital, replacement of fixed capital, cost of capital and forecast duration. According to Cant (2006:33), seven value drivers determine the objective of creating shareholder value in any business. These value drivers are turnover growth, profit margins, cash tax,

fixed assets, working capital, weighted-average cost of capital (WACC) and competitive advantage period.

According to Akalu (2002:2), the value drivers of an organisation can be seen as generic as they can be broken down into smaller elements. The break down can assist managers to identify the most crucial factors in the process of maximising shareholder value. The sensitivity study of sub-elements enhances the importance of the analysis of value drivers from grass root level.

Akalu (2002:3) tried to determine whether value driver positions are the similar for businesses in different industries. In the research, the chemical, food and machinery & equipment industries were considered. The positions of the collective and the individual industries in the study were not identical. Similarities in the position of value drivers could however be found. In the overall analysis, income taxes took the first or second position among the group. Seeing that this variable is out of the control of company managers, it has limited importance for managerial decision-making. If income tax is omitted, value drivers related to the cost of investment were placed between 3rd and 6th ranks among the group. The four most important value drivers were found to be: interest expense on debt, the operating cost, sales, and replacement cost.

Identifying and managing the key value drivers of a business help management focus on aspects that will have the greatest effect on value. This focus allows management to convert the broad objective of value creation into the particular actions most likely to convey that value. By focusing on value drivers, management can prioritise the specific activities that will affect performance in each area. Most operating managers have a concrete understanding of the variables that affect an organisation's performance. They tend to attempt to manage all those variables assertively. However, the list of variables is often very long and may be prioritised against goals other than value creation. Valuable resources are often positioned to increase market share, maintain pricing, increase distribution, introduce new products and increase operating efficiency without an unambiguous logic of what "true" value drivers are (L.E.K. Insights 1999:1).

L.E.K. Insights (1999:1) further describes how managers can recognise key value drivers and structure a performance measurement approach around it. There are two ways to identify “true” value drivers:

- “True” value drivers have a noteworthy effect on value; and
- “True” value drivers are manageable.

A few of these value drivers will now be highlighted and discussed in order to emphasise what the importance thereof in retail pharmacy businesses are.

### **3.3.1 Growth in sales**

Growth in sales is a parameter that depicts the ability of a business to generate income (Maladze, 2007:59). Pharmacies must consider alternative ways to increase turnover. One option is to copy supermarkets and seek to maximise value to clients through customer relationship management systems by studying customers' behaviour. Pharmacies can improve revenue growth by effectively managing merchandising (Cant, 2006:33), increasing sales price, diversifying the sales mix or increasing the sales volume (Akalu, 2002:2).

### **3.3.2 Cost of goods sold**

According to Cloete and Marimuthu (2009:39), the cost price of goods sold can be calculated by using the following formula:

$$\text{Cost of sales} = \text{opening stock} + \text{purchases} - \text{closing stock} \dots\dots\dots 10$$

A physical stock count of remaining stock will have to be conducted in order to determine the amount of closing stock. Periodic cycle counts will assist in this calculation. During cycle counts expired stock can be identified, written off and taken off the physical stock list. More importantly, dead stock may be identified and contingency plans can be put in place to make sure that the pharmacy either sells the stock that is not moving to customers, exchange it with other pharmacies, or arrange for wholesalers to take the dead stock back before it expires. This will also affect stock turn positively.



### **3.3.3 Operating cost**

According to Akalu (2002:3), increasing sales is not the only way to increase the cash flow potential of a business. Other factors that may affect the cash generating process are operating costs and interest expense on debt (capital structure). According to Akalu's study (2002:3), the effect of operating cost and interest are much more important than sales. The main component of operating cost is pharmacy staff's salaries. The wages to turnover ratio of a pharmacy business tend to be very high. Reducing this ratio should be a priority when pharmacy businesses attempt to improve profit margins. A reduction in labour cost may reduce the total cost of sales and consequently increase the profit margin (Akalu, 2002:3). Pharmacy managers should determine how many pharmacists are really needed according to the average amount of prescriptions dispensed and the business's turnover. Locum staff can be utilised during the busiest hours of the day. Pharmacies could review and refresh cost levels and perform benchmarking exercises. Similarly, outsourcing of non-core activities, such as deliveries, should be considered. It would imitate what many businesses are doing: focusing on the core business and outsourcing all other activities (Cant, 2006:34).

### **3.3.4 Tax**

In a study conducted by Akalu (2002:3), it was found that the effects of income tax, working capital and replacement costs were prominent in the value creation process. The effect of income tax was higher than all other value drivers. The effect of income tax was found strong although the variable is out of the control of business managers.

### **3.3.5 Net operating profit after taxes**

A business's profit margin indicates its operating efficiency. It indicates the efficiency in cost controlling of the organisation (Maladze, 2007:60). An organisation's profit margin is easily adaptable by changing the cost structure of the organisation.

### **3.3.6 Weighted average cost of capital**

The weighted average cost of capital influences a business's value. The lower the WACC, the higher is the business's value (Maladze, 2007:30). However, according to Stewart (1999:299), it is a factor that is beyond management's control.

### 3.3.7 Return on invested capital

ROIC is a key financial value driver. ROIC is the ratio of net operating profit after taxes (NOPAT) to invested capital (Brigham & Ehrhardt, 2005:16). It can be expressed as:

$$\text{ROIC} = \frac{\text{NOPAT}}{\text{Capital}} \dots\dots\dots 11$$

NOPAT is the earnings before interest and taxes less taxes, while capital is the amount invested in the business. ROIC considers the factors that drive value in the EVA model. It reorganises and breaks down accounting statements into components to gain greater analytical insights. The value of a business cannot be created if the ROIC does not exceed the cost of capital. Consequently, the return on invested capital drives the value of a business. It can be used to set targets and track performance (Copeland, Koller and Murin, 2000:71), as investing in projects/activities that yield an ROIC greater than WACC could potentially create value for a business.

The DuPont model can be used to illustrate how the above mentioned value drivers have an effect on a business's financial statements and on value creation in a business.

### 3.4 THE DUPONT MODEL

According to Megginson *et al.* (2010:46), the DuPont system uses both the income statement and balance sheet to decompose the ROA and ROE ratios into component pieces. It highlights the influence of net profit margin and total asset turnover on a business's profitability. According to the DuPont system, the return on total assets equals the product of the net profit margin and the total asset turnover:

$$\text{ROA} = \text{Net profit margin} \times \text{Total asset turnover} \dots\dots\dots 12$$

Net profit margin is equal to earnings available for common stockholders divided by sales. Total asset turnover equals sales divided by total assets:

$$\text{ROA} = \frac{\text{Earnings available for common shareholders}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Total assets}} \dots\dots\dots 13$$

When the two ratios are multiplied together, the sales figure cancels and the ROA becomes:

$$\text{ROA} = \frac{\text{Earnings available for common shareholders}}{\text{Total assets}} \dots\dots\dots 14$$

ROA is a product of how much profit the firm earns on each Rand of sales and the efficiency with which the business utilises its assets to generate sales. An increase in the total asset turnover increases the firm's ROA, providing that the net profit margin is kept constant. Holding total asset turnover constant, an increase in the net profit margin increases ROA.

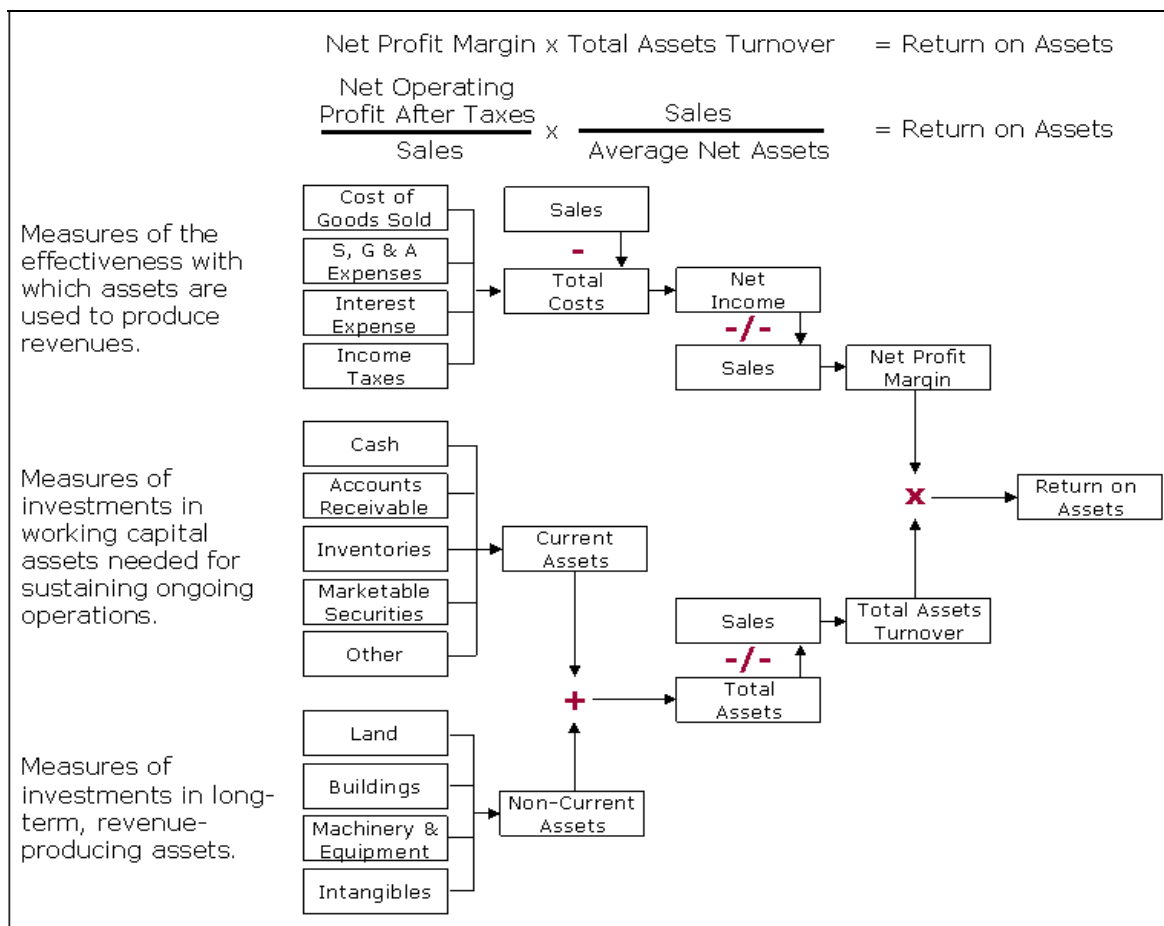
The DuPont system can be pushed one step further by multiplying the ROA by the assets-to-equity (A/E) ratio, or the equity multiplier. The product of these two ratios equals the return on common equity:

$$\text{ROE} = \text{ROA} \times \text{A/E} \dots\dots\dots 15$$

$$\text{ROE} = \frac{\text{Earnings available for common shareholders}}{\text{Total assets}} \times \frac{\text{Total assets}}{\text{Common stock equity}} \dots\dots\dots 16$$

$$\text{ROE} = \frac{\text{Earnings available for common shareholders}}{\text{Common stock equity}} \dots\dots\dots 17$$

Diagram 3.3 shows a schematic representation of the DuPont Model and its components.



Source: Adapted from Cees (2006).

### Diagram 3.3: The DuPont Model

For a business that uses no debt and has no preferred stock, the ratio of assets to equity is 1 and so the ROA equals the ROE. For all other businesses, the ratio of assets to equity is more than 1.

The advantage of the DuPont model is that it allows a business to decompose its return on common equity into three components linked to the financial statements:

- A profit-on-sales component (net profit margin) linked to the income statement.
- An efficiency-of-asset-use component (total asset turnover) that links to the balance sheet; and
- A “financial leverage use” component (an assets-to-equity) ratio that also links to the balance sheet.

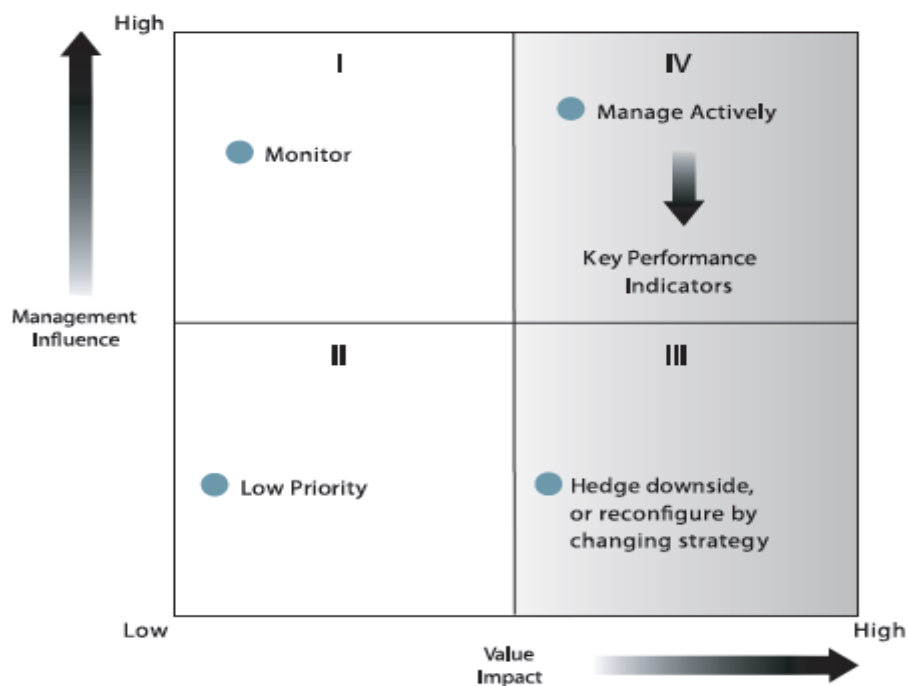
This enables analysts to study the effect of each of these factors on the overall return to common stockholders (Megginson *et al.*, 2010:47).

After the identification of strategic objectives, stakeholders in the organisation should agree on the key factors that are critical for achieving the objectives and on those areas in which the organisation must excel in order to ensure success.

### 3.5 PRIORITISING VALUE CREATING ACTIVITIES: THE ROLE OF VALUE DRIVERS

According to Akalu (2002:3) determining the strength of value drivers is crucial to understand their weight in the process of free cash flow generation.

Diagram 3.4 illustrates a framework for prioritising value drivers. Variables that exist in quadrant IV must be identified. Resources must be directed at influencing variables that reside in quadrants I to III. A Value driver analysis is an essential basis for strategic planning. It helps management to determine critical strategic forces.



Source: Adapted from L.E.K. Insights (1999:2).

**Diagram 3.4: Value driver matrix**

Value driver analysis necessitates management to invest significant time and energy. It may involve information that is difficult to obtain. However, businesses

that made this investment, found that a value driver analysis helps to focus management's attention on a manageable number of value drivers. It can also provide the foundation for determining which strategies will optimise value driver performance and ultimately maximise value creation.

### **3.6 MANAGING VALUE DRIVERS**

Once management has reached agreement about key value drivers, they can focus on the logistics of increasing value driver performance. For example, if inventory management is a key value driver, management should focus on system and process improvements that will result in increased inventory turns (L.E.K. 1999). Martin & Petty (2000:70) believe that the application of VBM principles can only make a difference in a business if the important linkage between decisions being made and its effect on the value of the organisation is realised by management. This knowledge can be gained by creating a value map for a business. The aim of a value map is to highlight the linkages between value drivers of a business and the business's value. The value map focuses on the stakeholders (employees, managers, customers, suppliers, the government) and the business's value needs that determines the development of strategic objectives of the business (Jack, 2002:2). Value maps can set direction and focus on the measures that create value in a business. Value maps integrate strategy across business units, departments and teams. A sufficient performance measurement system should flow down the business. It should be incorporated with the general business strategy and ultimately ensure that all stakeholders are working together in the same direction (Akalu, 2002:3).

### **3.7 CHAPTER SUMMARY**

A key value driver analysis can be a useful method to focus management's attention on actions that will have the greatest impact on value in the business. It involves a considerable commitment from management and should be given high precedence within the business if it is to succeed. Once completed, a value driver analysis can help to ensure that strategies and decision making are aligned within the true drivers of value for the business.

## CHAPTER 4

### REPORTING AND DISCUSSION OF RESULTS

#### 4.1 INTRODUCTION

This chapter details the empirical research study conducted among registered pharmacists in the North West province of South Africa. The main objective was to develop a management framework that could be used by pharmacy managers to create maximum value and help ensure a pharmacy's survival despite the strict medication pricing regulations in South Africa. Secondary objectives were:

- to contextualise the term “value based management”,
- to identify the value drivers in a pharmacy business; and
- to determine the extent to which value based management and its principles are being applied in pharmacies in the North West region.

The contextualisation of value based management was done in Chapter 2 by consulting existing literature on the topic. It included a disposition of:

- Reasons why value based management and value creation are important.
- Value based management metrics.
- The components of value based management; and
- Key success factors for the implementation of value based management.

In Chapter 3, some key value drivers were identified. Using the literature study of Chapter 3, a questionnaire was developed with value drivers determined as constructs to test the understanding and management of these drivers in a pharmacy business in both the dispensary and in the front shop of the business. The questionnaire determines the extent to which participating pharmacists had been exposed to value based management and its principles, and also the extent to which

the principles of value based management are being applied in pharmacies in the North West province.

## **4.2 THE PROCEDURE AND SCOPE OF THE QUANTITATIVE RESEARCH**

The empirical study set out to explore the relevant value drivers in both the dispensary and front shop of a pharmacy business, the exposure of pharmacists to value based management and its principles, and the application thereof in pharmacies in the North West region.

### **4.2.1 Sample and group size**

Pharmacists in the North West region of South Africa were selected for the study. This is the target population selected within the North West region of South Africa. The target population comprises of registered pharmacists in the mentioned areas. A total of 135 questionnaires were distributed. A total of ninety two completed questionnaires were collected, returned to the researcher and analysed in the study.

### **4.2.2 The questionnaire**

When conducting research, researchers can use two main approaches, namely quantitative and qualitative methods. A quantitative research approach entails the evaluation of numbers (objective data), whereas the qualitative approach entails the analysis of subjective data acquired from people. Quantitative research does analyses based on complex structured methods. Qualitative research necessitates more flexible and explorative methods in order to achieve a better understanding of the research subject (Welman, Kruger & Mitchell, 2005:8).

In order to meet the research objectives of this study, a quantitative approach was selected. A questionnaire was selected as the survey instrument. The questionnaire can be seen in Appendix A. Based on the literature study performed in Chapter 3, the questionnaire was developed to assess respondents' knowledge of the value drivers in the front shop and dispensary of a pharmacy business. The questionnaire also assessed to which VBM principles were being applied in pharmacies where



respondents were employed. The questionnaire consisted of 28 selection type questions.

The questions were structured into four sections namely:

- Section A – Demographic questions.
- Section B – Questions to determine the respondent's knowledge of value drivers in the front shop and dispensary.
- Section C – Questions to determine the respondent's knowledge of value drivers in a pharmacy business as a whole; and
- Section D – Questions to determine the application of value based management principles in the pharmacy business

A four-point scale was utilised in the greater part of the assessment. Respondents were asked to indicate whether they: Totally disagree (1), Disagree to some extent (2), Agree to some extent (3), or Totally agree (4) with given statements.

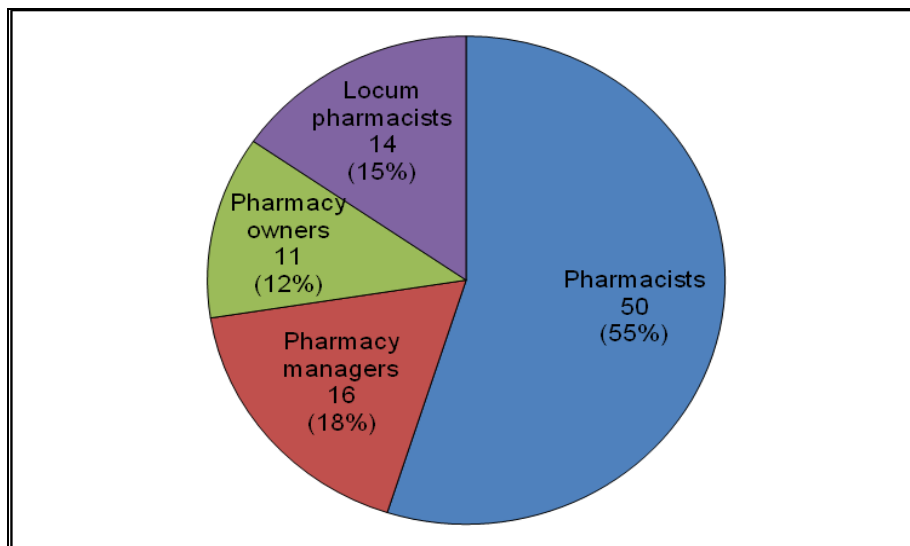
Other questions asked participants to indicate the most applicable answer out of a few possible options given.

#### **4.2.3 Data collection**

Hard copies of the questionnaire were manually distributed to members of the target population. Population members were assured that all responses would be treated anonymously and confidentially. Respondents were given seven to ten days to complete the questionnaire; thereafter the completed questionnaires were collected. A total of 92 responses were obtained and analysed. Demographic information collected via the questionnaire included:

- Occupation (pharmacy manager, pharmacist, pharmacy owner or locum pharmacist).
- Experience as a registered pharmacist (in years).
- Experience in corporate pharmacy; and
- Highest level of formal business management training.

Diagrams 4.1 to 4.4 show the demographic information for the respondents. The first demographic information was the current position held by the respondents. Ninety one of the ninety two respondents answered this question. All of the respondents were registered pharmacists, however their current positions held could be divided into four categories, namely: pharmacy owners, pharmacy managers, locum pharmacists and pharmacists. A summary of this demographic information is shown in diagram 4.1.

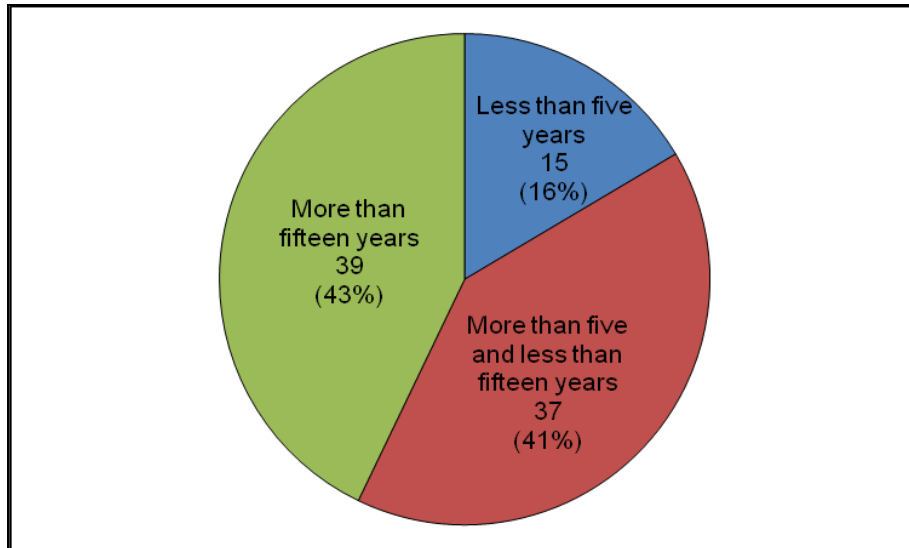


**Diagram 4.1: Occupation of respondents**

Eleven (12%) of the respondents were pharmacy owners, fourteen (15%) were locum pharmacists, sixteen (18%) were pharmacy managers and fifty (55%) were pharmacists.

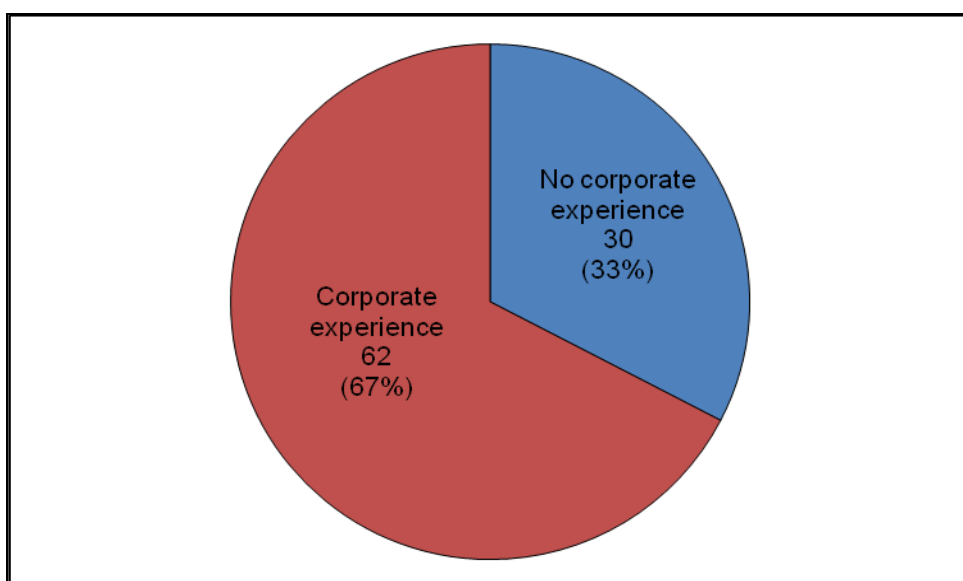
The second demographic was the respondents' years of experience as a registered pharmacist. Respondents had to indicate how many years' experience they had as registered pharmacists. Possible answers included "less than five years' experience", "more than five and less than fifteen years' experience" and "more than fifteen years' experience. Diagram 4.2 shows the results.

Only one respondent did not answer this question. Fifteen (16%) of the respondents had less than five years' experience, thirty seven (41%) had between five and fifteen years' experience and thirty nine (43%) had more than fifteen years' experience as a registered pharmacist.



**Diagram 4.2: Respondents' experience as a registered pharmacist**

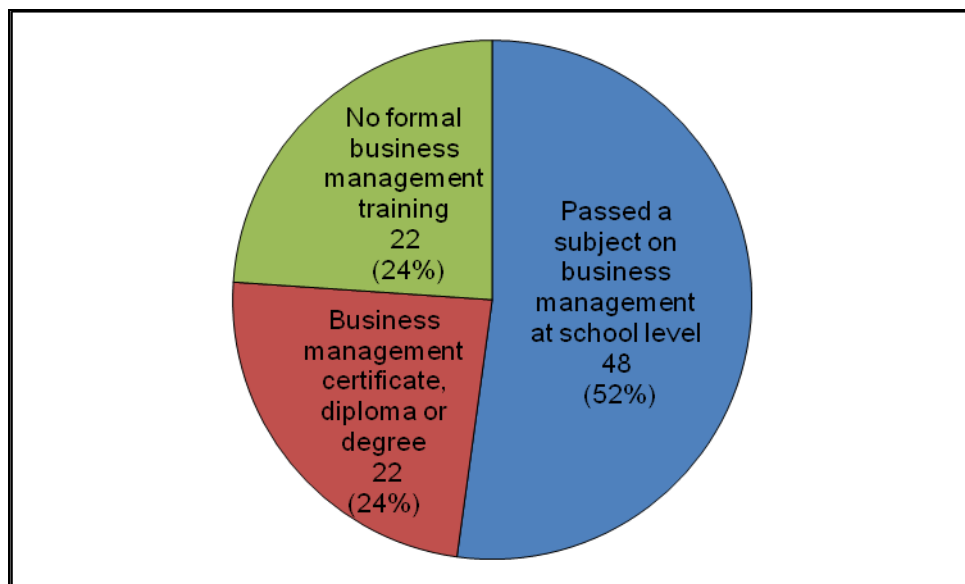
The third demographic question asked in the questionnaire was the respondents' experience in corporate pharmacy. By "corporate pharmacy" is meant a pharmacy owned by a corporate entity. It is a pharmacy business that is not owned by a private pharmacist, but by a company. The questionnaire not only required the respondents' experience in corporate pharmacy, but also asked whether the respondents were still working in corporate pharmacy or no longer did so. For analytical purposes however, only the respondents' corporate experience (in years) were used. A summary of this demographic question is shown in diagram 4.3.



**Diagram 4.3: Respondents' experience in corporate pharmacy**

All of the ninety two respondents answered this question. Thirty (33%) of the respondents had no corporate experience. Sixty two (67%) had corporate experience.

The fourth demographic question asked in the questionnaire was the respondents' exposure to formal business management training. A summary of this demographic question is shown in diagram 4.4.



**Diagram 4.4: Respondents' formal business management training**

All of the ninety two respondents answered this question. Twenty two (24%) had no formal business management training. Forty eight (52%) passed a subject on business management at school level and twenty two (24%) had a certificate, diploma or degree in business management.

### 4.3 DESCRIPTIVE STATISTICS

For statistical analysis purposes the responses to the questions were coded as detailed in Appendix B . The four-point Likert scale was coded as: I totally disagree with the statement = 1, I disagree to some extent with the statement = 2, I agree to some extent with the statement = 3 and I totally agree with the statement = 4. Most questions required the respondent to answer according to the Likert scale. Eleven questions asked the respondent to indicate the most applicable answer out of a few

possible options. Using SAS (2005), descriptive statistics were obtained from the dataset by the Statistical Consultation Services of North West University. Refer to Appendix D for a summary of the descriptive statistics.

#### **4.3.1 Arithmetic mean and standard deviation**

The arithmetic mean of a sample is the most frequently used measure of central tendency. It indicates the balance point or average in a set of data (Levine, Stephan, Krehbiel & Berenson, 2008:97). The standard deviation of a sample gives an indication of how close the data is to the mean. A higher standard deviation indicates a larger spread of data around the mean (Field, 2009:38).

##### **4.3.1.1 Analysis of mean values for questions testing participants' knowledge of value based management**

High mean values indicate that most of the participants marked the answers “I agree” or “I totally agree” when answering these questions. High mean values indicate a high level of knowledge of the value based management principle tested by the relevant question. For the questions relating to the participants' knowledge of value based management, table 4.1 shows the questions that yielded the highest mean values for the respondent's perception of the importance of value drivers in a pharmacy business.

**Table 4.1: Highest mean values for questions relating to the participants' knowledge of value based management**

<b>Question Number</b>	<b>Question</b>	<b>Mean</b>	<b>Standard Deviation</b>
Q12N4	Pharmacy debtors should be managed by making efforts to limit outstanding COD amounts	3.84	0.40
Q12N2	Pharmacy debtors should be managed by making efforts to limit unpaid levy amounts	3.82	0.42
Q12N3	Pharmacy debtors should be managed by investigating unpaid CODs	3.80	0.43

Question numbers Q12N4, Q12N2 and Q12N3 yielded the highest mean values. The table can be interpreted as follows: After analysing all of the answers to question Q12N4, the mean value was 3.84, which is a high mean value. The high mean value indicates that most participants very strongly agreed that pharmacy debtors should be managed by making efforts to limit outstanding cash on delivery (COD) amounts. By interpreting the rest of the table in the same way, it can be said that most respondents strongly agreed and that pharmacy debtors should be managed by making efforts to limit unpaid levy amounts and that unpaid CODs had to be investigated. The high mean values resulting from these questions indicate that most of the respondents showed a good understanding of the value based management principles (management of outstanding CODs, unpaid levy amounts and pharmacy debtors) tested by the questions.

The standard deviations of these questions vary from 0.40 to 0.43. These low values indicate that answers were not widely spread around the respective mean values.

Table 4.2 shows the questions that yielded the lowest mean values for questions relating to the participants' knowledge and perception of the importance of value drivers in a pharmacy business. Lower mean values indicate that participants were less knowledgeable about the value based management principle tested by the question.

**Table 4.2: Lowest mean values for questions relating to the participants' knowledge of value based management**

<b>Question Number</b>	<b>Question</b>	<b>Mean</b>	<b>Standard Deviation</b>
D6N3	Sales growth in the dispensary can be improved by increasing sales prices	1.68	0.85
F6N3	Sales growth in the front shop can be improved by increasing sales prices	2.39	1.07
Q9N6	Cost of wages in the dispensary can be managed by employing half day staff instead of full day staff	2.54	1.05

Question numbers D6N3, F6N3 and Q9N6 yielded the lowest mean values. The table can be interpreted as follows: After analysing all of the answers to question D6N3, the mean value was 1.68, which is a low mean value. The low mean value indicates that, in general, most participants disagreed to some extent that sales growth in the dispensary could be improved by increasing sales volumes. By interpreting the rest of the table in the same way, it can be said that most respondents disagreed to some extent that sales growth in the front shop could be improved by increasing sales prices and most participants agreed to a low extent that cost of wages in the dispensary could be managed by employing half day staff instead of full day staff. The lower mean values indicate that respondents (overall) showed a lower understanding of the value based management principles tested by these questions.

The standard deviations of these questions vary from 0.85 to 1.07. These high values indicate that the answers to these questions are spread widely around the respective means. Question F6N3 yielded the largest standard deviation. This means that the questions were more widely spread around the mean than what was the case with questions that yielded lower standard deviations.

#### **4.3.1.2 Analysis of mean values for questions testing the application of value based management**

High mean values indicate that most of the participants marked the answers “I agree” or “I totally agree” when answering these questions. This indicates a high level of application of the value based management principle tested by the relevant question. Table 4.3 shows the questions that yielded the highest mean values for the respondent’s perception of the application of value based management principles at the pharmacy business where they were employed at the time when the questionnaires were completed.

**Table 4.3: Highest mean values for questions relating to the application of value based management principles**

<b>Question Number</b>	<b>Question</b>	<b>Mean</b>	<b>Standard Deviation</b>
Q18N1	Most front shop items are ordered from the supplier that offers the lowest prices	3.53	0.68
Q18N2	Most front shop items are ordered from suppliers that offer discount on products	3.50	0.63
Q23N5	Regular stock checks are done to identify expired stock	3.48	0.67

The table can be interpreted as follows: After analysing all of the answers to question Q18N1, the mean value was 3.53, which is a high mean value. The high mean value indicates that, in general, most participants strongly agreed that at the pharmacy businesses where they were employed, most front shop items were ordered from the supplier that offer the lowest prices. By interpreting the rest of the table in the same way, it can be said that most participants strongly agreed that, at the pharmacy businesses where they were employed, most front shop items were ordered from suppliers that offer discounts on products. Generally, they also reported that regular stock takes were done at these pharmacies in order to identify expired stock. The higher mean values indicate that the value based management principles tested by these questions (ordering from suppliers that offer discount and lower prices and doing regular stock takes to identify expired stock) were being applied more readily at participating pharmacies.

The standard deviations of these questions vary from 0.63 to 0.68. These low values indicate that answers were not widely spread around the respective mean values.

For the questions relating to the application of value based management principles in participants' place of work, table 4.4 shows the questions that yielded the highest mean values for the respondent's perception of the application of value based management principles in the relevant pharmacy businesses.



**Table 4.4: Lowest mean values for questions relating to the application of value based management principles**

<b>Question Number</b>	<b>Question</b>	<b>Mean</b>	<b>Standard Deviation</b>
D17N3	Sales growth is improved by increasing sales prices in the dispensary	1.71	0.85
Q22N3	Half day staff are employed instead of full day staff	1.86	0.94
D17N1	Sales growth is improved by the implementation of loyalty programs in the dispensary	2.17	1.28

Questions that yielded the lowest mean values in this section were D17N3, Q22N3 and D17N1. Overall, most participants disagreed to some extent that at the pharmacy where they were employed, sales growth in the dispensary was improved by increasing sales prices and by the implementation of loyalty programs. Generally, they also disagreed to some extent that the cost of wages in the pharmacy businesses was managed by employing half day staff instead of full day staff. The lower mean values indicate that the value based management principles tested by these questions (improving sales growth by increasing sales and implementation of loyalty program and employing half day staff instead of full day staff) were less readily being applied at the pharmacy businesses where participants were employed.

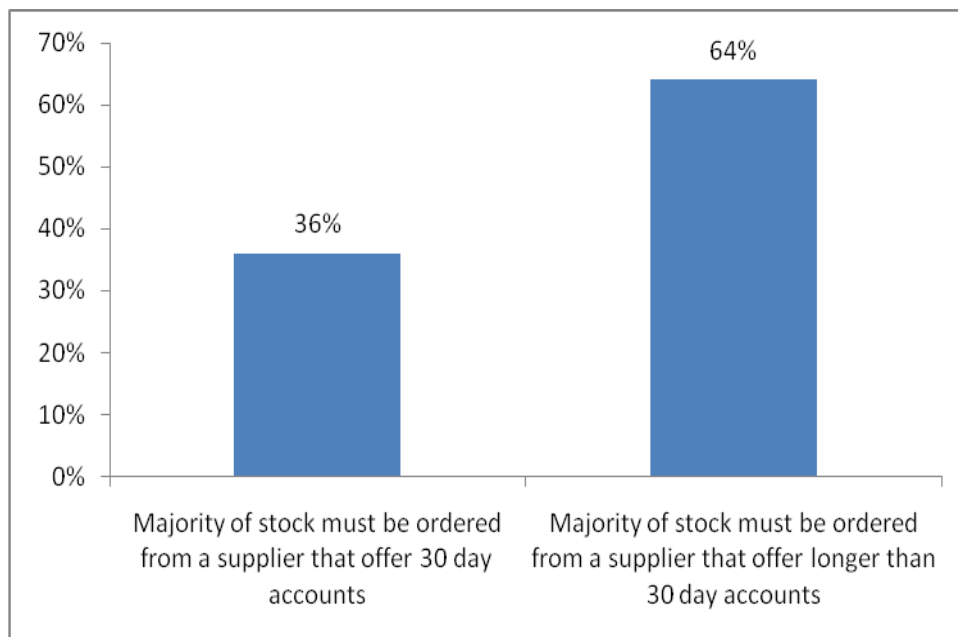
The standard deviations of these questions vary from 0.85 to 1.28. These high values indicate that the answers to these questions were spread widely around the respective means. Question D17N1 yielded the largest standard deviation. This means that the questions were more widely spread around the mean than what was the case with questions that yielded lower standard deviations.

#### 4.4 FREQUENCY ANALYSIS

Using SAS (2005), a frequency analysis was done on the dataset by the Statistical Consultation Services of the North West University. Refer to Appendix D for the frequency analysis of questions that used the Likert scale.

A total of eleven questions did not require an answer according to the Likert scale used in the other questions. These questions required participants to mark the most applicable answer out of a few possible given options.

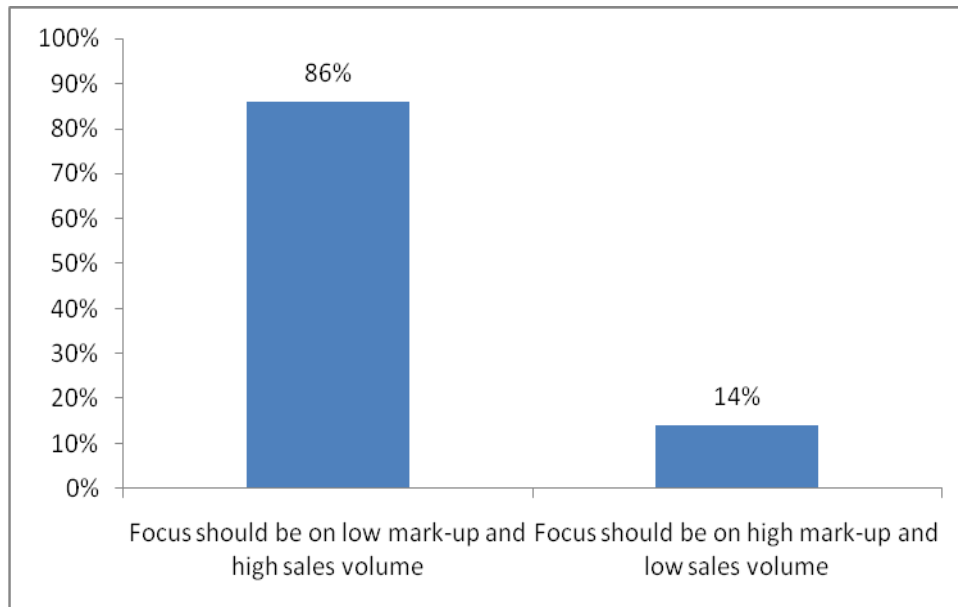
Questions 13, 14, 15 and 16 tested participants' knowledge of certain value based management principles. Diagrams 4.5 To 4.8 give a summary of the answers received.



**Diagram 4.5 Frequency analysis: creditors control**

All of the ninety two respondents answered this question. Thirty three respondents (36%) indicated that they thought that pharmacy creditors could be managed by ordering the majority of stock from a supplier that offers thirty day accounts. This means that all accounts payable must be settled within thirty days. Fifty nine respondents (64%) felt that the majority of stock should be ordered from suppliers that offer longer than thirty day accounts.

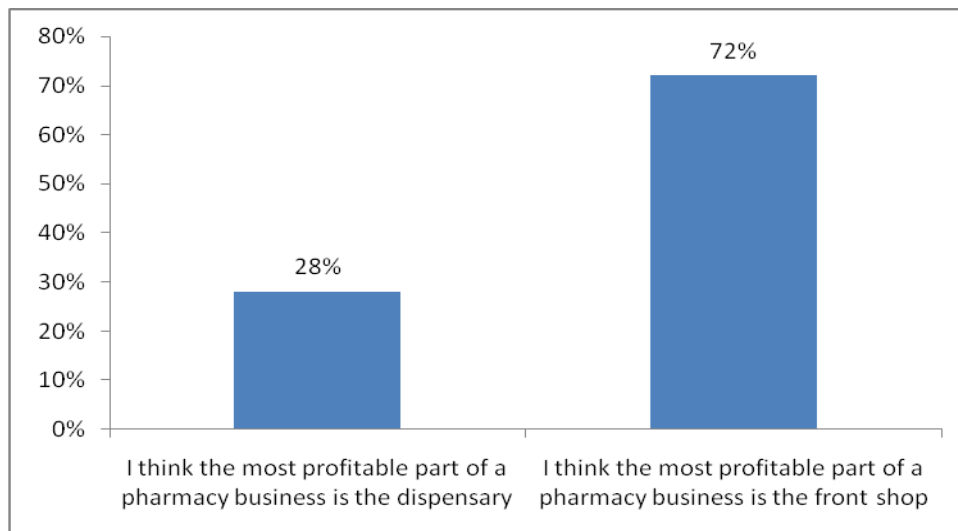
These fifty nine respondents showed better knowledge of the value based management principle (ordering stock from suppliers that offer longer account payment terms) tested by this question.



**Diagram 4.6: Frequency analysis: mark-up and sales volume**

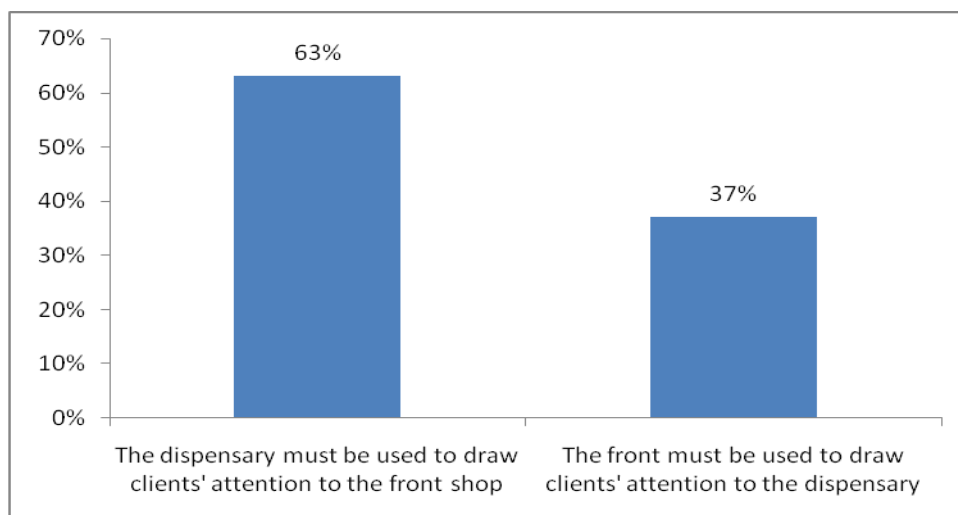
All of the ninety two respondents answered this question. Thirteen of the respondents (14%) were of the opinion that a pharmacy business should focus on high mark-up and low sales volumes. Seventy seven respondents (86%) thought that a pharmacy business should focus on low mark-up and high sales volumes. These respondents showed greater knowledge of the value based management principle (focus on low mark up and high sales volumes) tested by the question.

Diagram 4.7 shows the results of the frequency analysis performed on the question testing participants' knowledge relating to the most profitable part of a pharmacy business.



**Diagram 4.7: Frequency analysis: profitability**

All of the ninety two respondents answered this question. Twenty six respondents (28%) were of the opinion that the most profitable part of any pharmacy business should be the dispensary. Sixty six (72%) thought that the front shop of a pharmacy business should be the most profitable part.

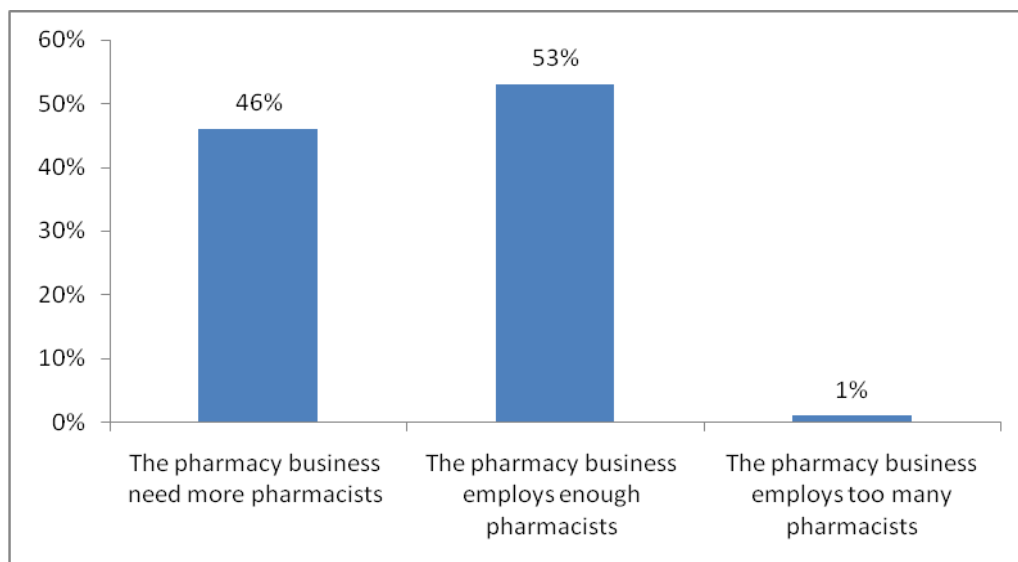


**Diagram 4.8: Frequency analysis: knowledge of the main attraction in a pharmacy business**

From the ninety two respondents, thirty four (38%) thought that the front shop should be used to draw clients' attention to the dispensary. Fifty seven (63%) were of the opinion that the dispensary should be used to draw clients' attention to the front

shop. By marking this answer, these fifty seven respondents showed greater knowledge of the value based management principle tested by this question.

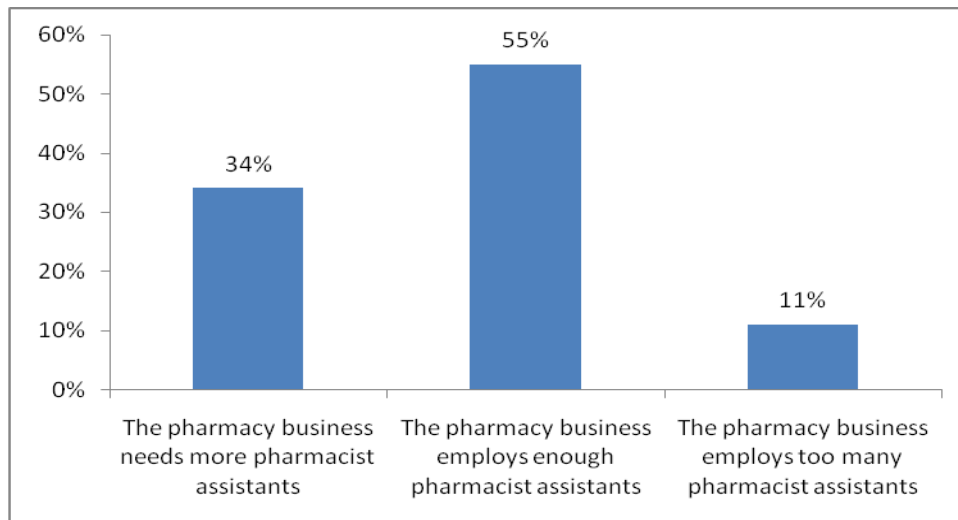
Questions 19, 20, 21, 24, 25, 26 and 27 tested the application of certain value based management principles. Diagrams 4.9 to 4.15 give a summary of the results.



**Diagram 4.9: Frequency analysis: management of pharmacists**

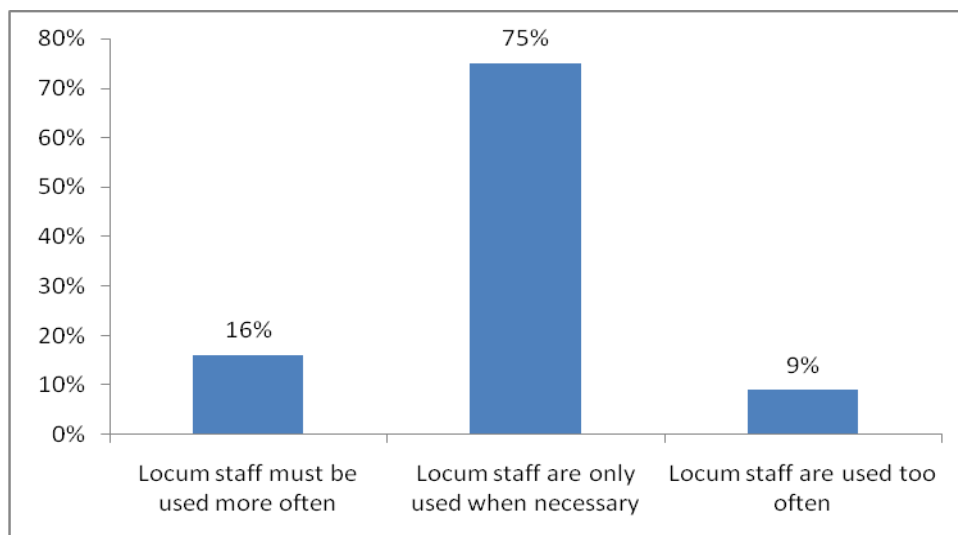
Of the ninety two respondents, forty two (46%) said that the pharmacy business where they are currently employed needs more pharmacists and only one (1%) was of the opinion that the pharmacy employed too many pharmacists. Forty nine (53%) said that the pharmacy employed an adequate number of pharmacists according to the number of prescriptions done. These results indicate that the principle of value based management tested by this question (employing an adequate number of pharmacists) were being applied at 53% of participating pharmacies.

A question that was related to the one determining whether an adequate number of pharmacists were employed at participating pharmacies, was the one enquiring whether an adequate number of pharmacist assistants were employed at these pharmacies. Results of the frequency analysis of answers to this question are shown in diagram 4.10.



**Diagram 4.10: Frequency analysis: management of pharmacist assistants**

From the ninety two respondents, thirty one (34%) was of the opinion that the pharmacy business where they are currently employed needed more pharmacist assistants, according to the number of pharmacists employed at the pharmacy business. Fifty one (55%) were convinced that enough pharmacist assistants were employed and ten (11%) thought that too many pharmacist assistants were employed. The value based management principle tested by this question (employing an adequate number of pharmacist assistants) were readily applied at 55% of participating pharmacies.



**Diagram 4.11: Frequency analysis: management of locum staff**

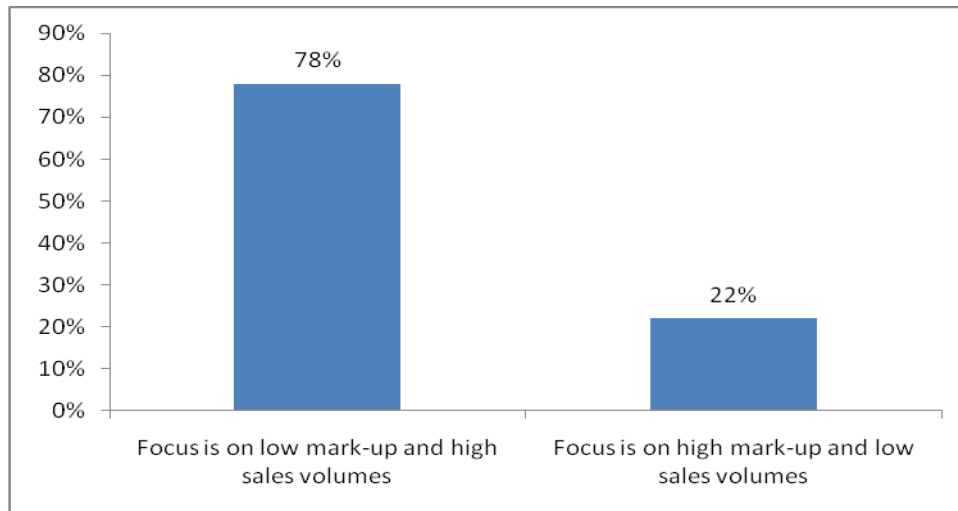
Fifteen (16%) of the ninety two respondents were convinced that locum staff should be used more often at the pharmacy where they are currently employed. Only eight (9%) were of the opinion that locum staff were being used too often. Sixty nine (75%) reported that locum staff were only being used when necessary. The value based management principle (only using locum staff when necessary) tested by this question were applied at 75% of participating pharmacies.



**Diagram 4.12: Frequency analysis: management of creditors**

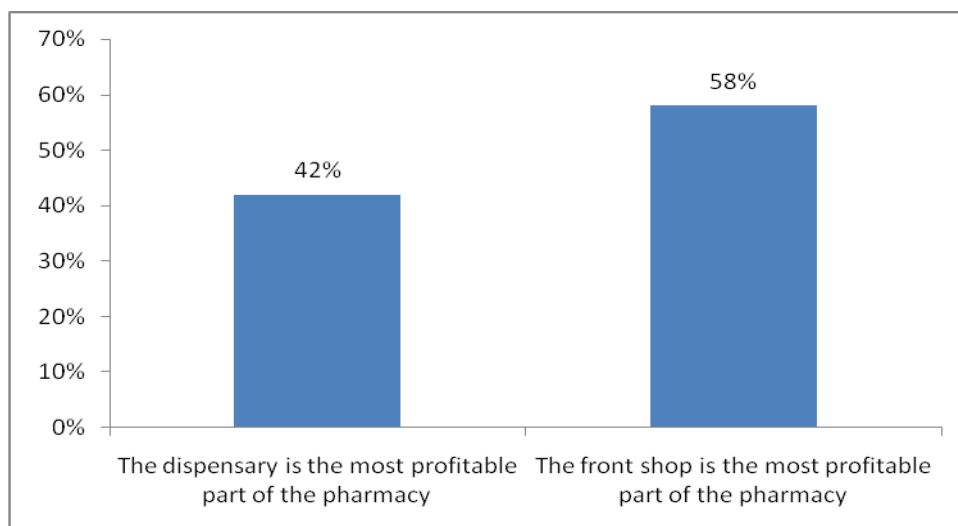
Fifty eight (64%) of the ninety respondents that answered this question reported that the pharmacy where they are employed ordered the majority of stock ordered from suppliers that offer longer than thirty day payment periods. Thirty two (36%) said that most stock were ordered from suppliers that offered thirty day payment periods on accounts. The results indicate that the value based management principle tested by this question (ordering stock from a supplier that offer longer than thirty day payment periods) were more readily applied at 64% of participating pharmacies.

Diagram 4.13 shows the results of the frequency analysis performed on the question testing the management of mark up and sales volume at participating pharmacy businesses.



**Diagram 4.13: Frequency analysis: management of mark-up and sales volume**

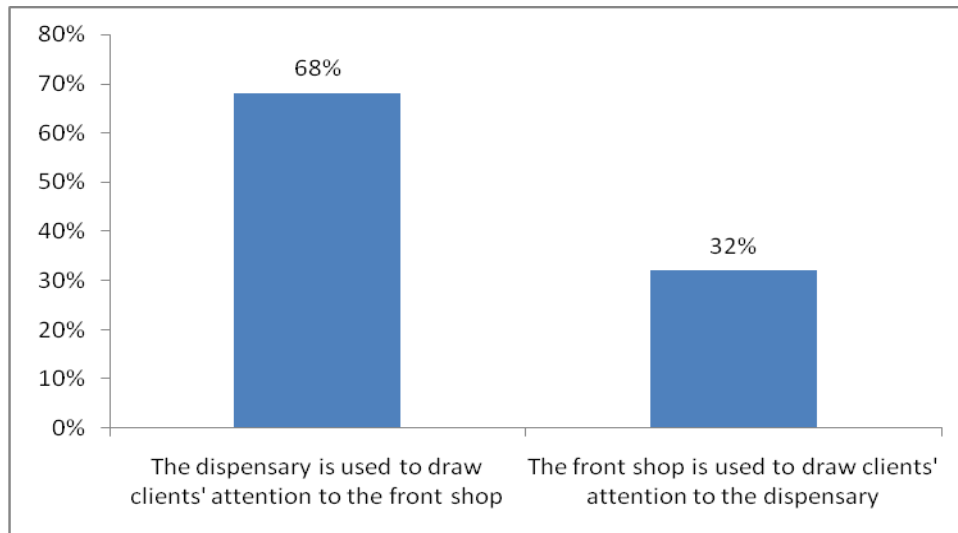
Eighty eight respondents answered this question. Sixty nine (78%) of the respondents reported that the pharmacy business where they were employed focussed on selling many products with a low mark-up. Nineteen (22%) said that the pharmacy where they were employed focussed on selling a few products with a high mark-up. The value based management tested by this question (focus on selling many products with a low mark-up) were being applied at 78% of participating pharmacies.



**Diagram 4.14: Frequency analysis: management of profitability**



Ninety one respondents answered this question. Thirty eight (42%) reported that the dispensary was the most profitable part of the pharmacy where they were employed. Fifty three (58%) said that the front shop was the most profitable part.



**Diagram 4.15: Frequency analysis: management of the main attraction in a pharmacy business**

Ninety two respondents answered this question. Sixty one (68%) reported that at the pharmacy business where they were employed, the dispensary was used to draw clients' attention to the front shop. Twenty nine (32%) indicated that the front shop was used to draw clients' attention to the dispensary.

#### **4.5 ASSESSMENT OF THE CONSTRUCTS MEASURED IN THE STUDY**

Appendix C gives a summary of the constructs used, construct coding and a summary of the contents of each construct. Constructs used to determine participants' knowledge of VBM included value drivers in the dispensary, value drivers in the front shop, sales growth in the dispensary, sales growth in the front shop, cost price in the dispensary, cost price in the front shop, cost of wages, product mix in the dispensary, product mix in the front shop, stock control and debtors control. The mean and standard deviation calculated for each of these constructs are given in Table 4.5.

**Table 4.5: Constructs to test knowledge of VBM**

Construct	Construct Number	n	Mean	Std. Dev.
Value drivers dispensary	C1	92	3.23	0.56
Value drivers front shop	C2	91	3.27	0.53
Sales growth dispensary	C3	*	*	*
Sales growth front shop	C4	*	*	*
Cost price dispensary	C5	92	3.00	0.88
Cost price front shop	C6	90	3.60	0.46
Cost of wages	C7	92	3.22	0.55
Product mix dispensary	C8	92	3.59	0.51
Product mix front shop	C9	91	3.72	0.42
Stock control	C10	92	3.54	0.48
Debtors control	C11	92	3.79	0.40

\*Values are not given, because these questions had to be analysed separately, as explained in section 4.5.1.

Areas marked in blue indicate which constructs yielded the highest mean values when analysed. Constructs that yielded the highest mean values were “Product mix front shop” (C9) and “Debtors control” (C11), with mean values of 3.72 and 3.79 respectively. These high mean values indicate that participants showed a high level of knowledge regarding the value drivers “product mix in the front shop” and “debtors control”.

Table areas marked in green indicate which constructs yielded the lowest mean values. The constructs “Cost price dispensary” (C5) and “Cost of wages” (C7) yielded the lowest mean values of 3.00 and 3.22 respectively. This indicates that, of all the value drivers analysed as constructs, these constructs (value drivers) were the ones respondents showed less knowledge about. All mean values were relatively high, the lowest being 3.00.

The standard deviations of the constructs vary from 0.40 to 0.88. These values indicate that the answers to the questions in these constructs were not spread widely

around the respective means. The construct “Cost price dispensary” yielded the largest standard deviation. This means that the answers to the questions in this construct were more widely spread around the mean than what was the case with constructs that yielded lower standard deviations.

Constructs used to determine the application of VBM principles at participating pharmacies included sales growth in the dispensary, sales growth in the front shop, cost price in the front shop, cost of wages, stock control, product mix in the dispensary and product mix in the front shop. The arithmetic mean and standard deviation calculated for each of these constructs are given in Table 4.6.

**Table 4.6: Constructs to test application of VBM**

Construct	Construct Number	n	Mean	Std. Dev.
Sales growth current dispensary	C12	88	2.68	0.69
Sales growth current front shop	C13	89	2.89	0.69
Cost price current front shop	C14	88	3.42	0.59
Cost of wages currently	C15	92	2.40	0.60
Stock control currently	C16	92	3.34	0.54
Product mix current dispensary	C17	92	3.22	0.68
Product mix current front shop	C18	90	3.27	0.70

Areas marked in blue indicate which constructs yielded the highest mean values when analysed. Constructs that yielded the highest mean values were “Cost price current front shop” (C14) and “Stock control currently” (C16), with mean values of 3.42 and 3.34 respectively. These high mean values indicate that, at the pharmacies where participants were employed, the principles of value based management were being applied more readily with regards to management of these value drivers (constructs).

Table areas marked in green indicate which constructs yielded the lowest mean values. The constructs “Sales growth current dispensary” (C12) and “Cost of wages

currently” (C15) yielded the lowest mean values of 2.68 and 2.40 respectively. This indicates that, of all the value drivers analysed as constructs, these constructs were the ones where the principles of value based management were less readily applied at participating pharmacies.

The standard deviations of the constructs vary from 0.54 to 0.79. These values indicate that the answers to the constructs were not spread widely around the respective means. The construct “Product mix current front shop” yielded the largest standard deviation. This means that the answers to questions in this construct were more widely spread around the mean than what was the case with questions that yielded lower standard deviations.

#### **4.5.1 Reliability and validity**

It is important to test the reliability and validity of the newly developed questionnaire. A reliable questionnaire must provide results that are both accurate and consistent (Field, 2009:673). Reliability refers to the measure of consistency of a questionnaire and the extent to which the same results are attained when using the instrument repeatedly on the same respondents (Ravid, 2011:192). Although various methods can be used to determine the reliability of a questionnaire, the internal consistency methods present the advantage to estimate reliability utilising scores from a single testing session rather than by repeating the test (Ravid, 2011:194-195). Cronbach’s alpha coefficient was the internal consistency method used to estimate reliability in this study.

The validity of a test refers to the extent to which the instrument truly measures what it was designed to measure (Field, 2009:11). It is important to realise that validity is a compulsory but not adequate condition. In order to be valid, the instrument must first be reliable (Field, 2009:12). Construct validity can be evaluated empirically using confirmatory factor analysis, or by evaluation of an expert. In this study, validity was confirmed by an expert. The expert is professor Ines Nel from North West University in Potchefstroom. He is an expert in value based management.

According to Ravid (2011:196), using Cronbach’s alpha coefficient as a measure of reliability is suitable for questionnaires that use a Likert scale. Field (2009:674)

describes Cronbach's alpha coefficient as a test that divides the data in two in every possible way and calculates the correlation coefficient for each division. The Cronbach alpha coefficient is the average of these values.

According to the Cronbach's alpha coefficient, a number between 0 and 1 describes the extent to which items are inter-related and measure the same construct. According to Field (2009:675), a generally acceptable value for Cronbach's alpha is greater than 0.8 for cognitive tests (such as intelligence tests) and greater than 0.7 for ability tests. However, when testing psychological constructs, even lower values may be accepted due to the diversity of constructs being assessed. It is important to acknowledge that the length of a test will influence the Cronbach's alpha value. Shorter tests will yield lower Cronbach alpha values (Tavakol & Dennick, 2011:53). Therefore, if fewer items are used to measure a construct, lower values of Cronbach's alpha may be expected comparative to where more items are used. Cronbach's alpha coefficient was calculated using SAS (2005) for each of the constructs. The results are given in Table 4.7 and 4.8.

**Table 4.7: Cronbach's Alpha Coefficients of constructs determining participants' knowledge of value based management**

<b>Construct</b>	<b>Construct number</b>	<b>Cronbach's Alpha Coefficient</b>
Value Drivers Dispensary	C1	0.66
Sales Growth Dispensary	C3	0.41
Cost Price Dispensary	C5	0.54
Cost Price Front shop	C6	0.72
Cost Wages Dispensary	C7	0.78
Product Mix Dispensary	C8	0.73
Stock Pharmacy	C10	0.86
Debtors' Pharmacy	C11	0.94

The table can be interpreted as follows: Construct number C10 (stock pharmacy) yielded a Cronbach alpha value of 0.86. This value is higher than 0.8 and therefore we can deduct that questions contained in this construct are inter-related and

measure the same variable. Questions in this construct can be analysed as a construct and separate analysis for each of the questions is unnecessary. In this study, all constructs yielding a Cronbach alpha value of more than 0.5 or higher will be analysed as a construct and separate analysis of individual questions will not be necessary.

Because constructs C1 and C2 (see appendix C) ask the same questions (C1 relates to the dispensary and C2 relates to the front shop), it is expected that if one construct yields acceptable values, the other will do so too. Therefore, Cronbach alpha values were only calculated for C1. The same principle is applied to C3 & C4, C8 & C9, C12 & C13, and C17 & C18.

Construct C3 yielded a Cronbach alpha value of less than 0.5. This indicates that questions contained in this construct are not inter-related. These questions will be analysed separately. Because the same questions were asked in constructs C3 and C4 (relating to the dispensary and front shop of a pharmacy business respectively), similar low Cronbach alpha value is expected for construct C4. Questions included in Construct C4 will therefore also be analysed separately.

**Table 4.8: Cronbach’s Alpha Coefficients of constructs determining the application of VBM in pharmacies**

<b>Construct</b>	<b>Construct number</b>	<b>Cronbach’s Alpha Coefficient</b>
Sales Growth Current Dispensary	C12	0.69
Cost Price Current Front shop	C14	0.71
Staff	C15	0.53
Stock Manage Currently	C16	0.86
Product Mix Current Dispensary	C17	0.61

All of the above constructs yielded Cronbach alpha values higher than 0.5. This indicates that questions contained in each of the respective constructs are inter-related. The questions will be analysed as a construct and not separately.

The majority (54%) of the Cronbach's alpha coefficients calculated were found to be greater than 0.7, which indicates a high degree of internal consistency for the questionnaire used. The questionnaire used to test the constructs can therefore be regarded as reliable. Therefore, the mean response count for each of the constructs in Tables 4.7 and 4.8 can be used in analysis to draw conclusions regarding the participants' knowledge of VBM and its principles, as well as the application of VBM and its principles. Separate analysis of responses received for each of the questions in the questionnaire is only necessary for the constructs named "sales growth dispensary" and "sales growth front shop", as these constructs yielded a Cronbach's alpha value of less than 0.5.

The reliability of the newly developed questionnaire was found to be acceptable with Cronbach's alpha coefficients calculated to be above 0.5 and a majority exceeding 0.7. With the aid of an expert, it was found that the validity of the questionnaire was acceptable and that the constructs allowed an appropriate level of information to be retained when only analysing the constructs instead of separate questions contained in the constructs.

#### **4.6 COMPARISON OF RESULTS FOR DIFFERENT DEMOGRAPHIC GROUPS**

When conducting research, it is not always practical to use the entire population. Random samples are rather drawn from the population and tested for statistical significance. This allows conclusions to be drawn about the population from which the sample was drawn (Steyn, 2002:10). Researchers use the  $p$ -value as a measure to determine whether the results obtained are statistically significant. Levine *et al.* (2008:337) refers to the  $p$ -value as the observed level of significance. It provides the probability of obtaining a test statistic equal to or more extreme than the sample result, given the null hypothesis is true. Generally a 95% confidence (or  $p$ -value smaller than 0.05) is used by researchers as sufficient evidence that a result is statistically significant (Field, 2009:51).

Although a non-probability sampling was used for this study, for the sake of completeness, p-values will be reported as if probability sampling was done.

According to Steyn (2002:10), effect sizes must be calculated from the descriptive statistics in order to determine the importance of a relationship that has been found to be statistically important. Field (2009:56) portrays an effect size as an objective and standardised measure of the degree of an observed effect. One of the most commonly used measures of effect sizes of differences is Cohen's  $d$ , (Field, 2009:57).

The following are guidelines for the interpretation of the effect size given the absolute value of  $d$ :

- $d = |0.2|$  small effect,
- $d \geq |0.5|$  medium effect; and
- $d \geq |0.8|$  large effect (practically significant and therefore of practical importance)

When  $d$  is calculated to be greater than 0.8, the effect size is considered to be practically significant and of practical importance.

Using the analysis of variance (ANOVA) methodology in SAS (2005), the difference of means calculated for each of the constructs of the demographic (dependent) variables were analysed for statistical significance. Cohen's  $d$  effect sizes were calculated to test for practical significance. Refer to Appendix E for the detailed tabulated results for each of the respective demographics.

Analysing the results can provide important information regarding the level of understanding of the principles of VBM, as well as the application thereof among the different demographic groups. This information can then be very helpful in the development of a framework that can be used by pharmacy managers in order to create maximum value, and help ensure a pharmacy's survival despite the strict medication pricing regulations in South Africa. Using the approach followed above,



the differences between the means of each of the constructs were tested for each of the demographic items (e.g. pharmacist, locum pharmacist, pharmacy owner and pharmacy manager) that make up the respective demographic group (e.g. occupancy) to compare the different levels of understanding of VBM principles and the application thereof. The difference in effect sizes was tabulated. Since the difference in effect sizes is difficult to quantify (Steyn, 2000:1), only interesting observations are highlighted in the discussion.

#### 4.6.1 Experience as a registered pharmacist

Table 4.9 summarises differences for different years of experience as registered pharmacist groups that were found to be statistically significant ( $p$ -values  $< 0.05$ ) and practically significant ( $d > 0.5$ ). Differences that had a medium effect size ( $d > 0.5$ ) are also shown.

**Table 4.9: Statistically and practically significant differences for different years' experience as a registered pharmacist**

Question/ Construct	Experience groups involved	Mean difference	Cohen's $d$ effect size
D6N1	Less than 5 years – more than 15 years	0.77	0.77 *
C6	Less than 5 years – 5 to less than 15 years	-0.31	0.67
C6	Less than 5 years – more than 15 years	-0.37	0.81 *
C12	Less than 5 years – more than 15 years	0.43	0.62
C13	Less than 5 years – more than 15 years	0.39	0.57
C14	Less than 5 years – 5 to less than 15 years	-0.38	0.65
C18	Less than 5 years – more than 15 years	0.39	0.55

\*Statistically significant on a 0.05 level ( $p$ - values  $< 0.05$ ).

Practically significant differences are highlighted in red and differences with effect sizes of more than 0.5 are highlighted in blue.

Two statistically significant differences ( $p$ -values  $< 0.05$ ) were found among the various levels of experience as registered pharmacist groups:

- Respondents with less than five years experience generally agreed to a greater extent that sales growth in the dispensary could be improved by the implementation of loyalty programs than ones with more than fifteen years' experience. When rounded off, this difference was also found to be practically significant ( $d$ -value  $> 0.8$ ); and
- Respondents with more than fifteen years' experience were more knowledgeable about the cost price of products sold from the front shop than ones with less than five years' experience. This difference was also found to be practically significant ( $d$ -value  $> 0.8$ ).

Differences that showed a medium practical significance included:

- Respondents with five to less than fifteen years' experience were more knowledgeable about the cost price of products sold from the front shop than ones with less than five years' experience.
- Respondents with less than five years' experience applied the principles of VBM regarding the management of sales growth in the dispensary, as well as the front shop, more readily than ones with more than fifteen years' experience.
- Respondents with five to less than fifteen years' experience applied the principles of VBM regarding the management or cost of products sold from the front shop more readily than ones with less than five years' experience; and
- Respondents with less than five years' experience applied the principles of VBM regarding the product mix in the front shop more readily than ones with more than fifteen years' experience.

#### **4.6.2 Occupation**

Table 4.10 summarises differences in the occupational groups that were found to be statistically significant ( $p$ -values  $< 0.05$ ) and practically significant ( $d > 0.8$ ). Effect sizes that had a medium effect ( $d > 0.5$ ) are also shown.

**Table 4.10: Statistically and practically significant differences for different occupational groups**

<b>Question/ Construct</b>	<b>Occupational groups involved</b>	<b>Mean difference</b>	<b>Cohen's <i>d</i> effect size</b>
D6N1	Pharmacist - pharmacy owner	0.65	0.54
D6N1	Pharmacy manager - pharmacy owner	0.67	0.55
D6N1	Pharmacy manager - locum pharmacist	0.67	0.51
D6N5	Pharmacist - pharmacy manager	-0.45	0.50
F6N4	Pharmacist - pharmacy owner	-0.51	0.94
F6N4	Pharmacy manager - pharmacy owner	-0.44	0.60
F6N4	Pharmacy owner - locum pharmacist	0.79	0.98 *
C1	Pharmacist - pharmacy owner	-0.29	0.55
C1	Pharmacy owner - locum pharmacist	0.33	0.54
C2	Pharmacist - pharmacy owner	-0.34	0.66
C2	Pharmacy manager - pharmacy owner	-0.36	0.57
C2	Pharmacy owner - locum pharmacist	0.34	0.63
C6	Pharmacist - pharmacy owner	-0.33	0.62
C7	Pharmacist - locum pharmacist	-0.29	0.57
C7	Pharmacy manager - locum pharmacist	-0.35	0.58
C11	Pharmacist - pharmacy owner	-0.30	0.62
C14	Pharmacist - pharmacy owner	-0.35	0.62

\*statistically significant on a 0.05 level ( $p < 0.05$ )

Practically significant differences are highlighted in red and differences with effect sizes of more than 0.5 are highlighted in blue.

The only statistically significant difference ( $p$ -values  $< 0.05$ ) among the various occupancy groups was a difference between participating pharmacy owners and locum pharmacists. Participating pharmacy owners agreed to a greater extent than

locum pharmacists that sales volume in the front shop could be increased by add-on sales. The effect size of this difference was also practically significant ( $d > 0.8$ ).

The only other practically significant difference was a difference between pharmacy owners and pharmacists. Participating pharmacy owners agreed to a greater extent that sales growth could be improved by increasing sales volume in the front shop. However, this difference was not statistically significant ( $p$ -values  $> 0.05$ ).

Differences that showed a medium practical significance were:

- Participating pharmacists generally agreed stronger than pharmacy owners that sales growth in the dispensary could be improved by the implementation of loyalty programs.
- Participating pharmacy managers generally agreed stronger than pharmacy owners and locum pharmacists that sales growth in the dispensary could be improved by the implementation of loyalty programs.
- Participating pharmacy managers agreed stronger than pharmacists that sales growth in the dispensary can be improved by add-on sales.
- Participating pharmacy owners generally agreed stronger than pharmacy managers that sales growth in the front shop could be improved by increasing the sales volume.
- Participating pharmacy owners had a better knowledge of the value drivers in the dispensary than pharmacists.
- Participating pharmacy owners were more knowledgeable of the value drivers in the dispensary than locum pharmacists.
- Participating pharmacy owners were more knowledgeable of the value drivers in the front shop than pharmacy managers, pharmacists and locum pharmacists.
- Participating pharmacy owners were generally more knowledgeable about the cost price of products in the front shop than pharmacists.
- Participating locum pharmacists were more knowledgeable about the cost of wages in a dispensary than pharmacists and pharmacy managers.
- Participating pharmacy owners applied the principles of VBM regarding debtors' management in the pharmacy more readily than pharmacists; and

- Participating pharmacy owners applied the principles of VBM regarding the management of cost prices in the front shop more readily than pharmacists.

#### 4.6.3 Experience in corporate pharmacy

Table 4.11 summarises differences between registered pharmacists with corporate experience compared to ones with no corporate pharmacy experience that were found to be statistically significant ( $p$ -values  $< 0.05$ ). Effect sizes that had a medium effect ( $d > 0.5$ ) are also shown.

**Table 4.11: Statistically and practically significant differences between pharmacists with and without corporate experience**

Question/ Construct	Corporate experience groups involved	Mean difference	Cohen's $d$ effect size
D6N1	No corporate experience – corporate experience	-0.68	0.58 *
D6N3	No corporate experience – corporate experience	-0.38	0.41 *
C5	No corporate experience – corporate experience	0.45	0.51 *

\*Statistically significant on a 0.05 level ( $p$ -values  $< 0.05$ ).

Differences with effect sizes of more than 0.5 are highlighted in blue. No practically significant differences ( $d$ -values  $> 0.8$ ) were found.

Three statistically significant differences ( $p$ -values  $< 0.05$ ) were found among the two demographic groups (registered pharmacists with corporate experience and ones without corporate experience):

- Participants with corporate experience agreed to a greater extent that sales growth in the dispensary could be improved by the implementation of loyalty programs than ones with no corporate experience. This difference had a medium effect size ( $d$ -value  $> 0.5$ ).

- Participants with corporate experience agreed to a greater extent that sales growth in the dispensary could be improved by increasing sales prices than ones with no corporate experience; and
- Participants with no corporate experience showed a greater understanding of the cost price of products in the dispensary than ones with corporate experience. This difference had a medium effect size ( $d$ -value  $> 0.5$ ).

#### 4.6.4 Formal business management training

Table 4.12 summarises differences between registered pharmacists with no formal business management training, ones that passed a subject on business management at school level and ones that had a certificate, diploma or degree in business management that were found to be statistically significant ( $p$ -values  $< 0.05$ ) and practically significant ( $d > 0.5$ ). Effect sizes that had a medium effect ( $d > 0.5$ ) are also shown.

**Table 4.12: Statistically and practically significant differences for various levels of formal business management training**

Question/ Construct	Different levels of formal business management training involved	Mean difference	Cohen's $d$ effect size
C6	None – certificate, diploma/degree	0.52	0.59
C12	None – certificate, diploma/degree	0.49	0.70 *
C12	School level – certificate, diploma/degree	0.51	0.76 *

\*Statistically significant on a 0.05 level ( $p$ -values  $< 0.05$ ).

Practically significant differences are highlighted in red and differences with effect sizes of more than 0.5 are highlighted in blue.

Two statistically significant differences ( $p$ -values  $< 0.05$ ) were found among the three demographic groups (registered pharmacists with no formal business management training, ones that passed the subject on school level and ones with a certificate, diploma or degree in the field of business management):

- Respondents with no formal business management training showed a greater understanding of ways to improve sales growth in the dispensary of a pharmacy business than ones with a certificate, diploma or degree in business management. This difference had a medium effect size ( $d$ -value  $> 0.5$ ).
- Respondent pharmacists that passed the subject of business management at school level showed a greater understanding of ways to improve sales growth in the dispensary of a pharmacy business than ones with a certificate, diploma or degree in business management. This difference had a medium effect size ( $d$ -value  $> 0.5$ ). When rounded off it had a practically significant difference ( $d$ -value  $> 0.8$ ).

A difference that had a medium effect size ( $d$ -value  $> 0.5$ ), but that was not found statistically significant, was that registered pharmacists with no formal business experience were generally more knowledgeable regarding the value driver “cost price in the front shop” than ones that had a diploma or degree.

#### **4.7 CHAPTER SUMMARY**

The objective of the empirical research conducted was to explore pharmacists' exposure to value based management and the application thereof in retail pharmacies, in order to develop a management framework that can be used by pharmacy managers in order to create maximum value and help ensure a pharmacy's survival despite the strict medication pricing regulations in South Africa. Based on the literature study, a new questionnaire was developed to test the respondents' exposure to value based management and the application thereof at the relevant pharmacies. Eight constructs and fourteen separately analysed questions were used to determine participants' knowledge and exposure to value based management. Seven constructs and seven separately analysed questions were used to explore the extent to which value based management principles were being applied at the various pharmacies where respondents were employed. Questionnaires were deployed manually via hard copies to pharmacists in the North West region. The results were analysed using SAS (2005) by Statistical Consultation Services of the North West University. Analysis of the Cronbach Alpha values for each of the constructs showed the questionnaire to be reliable. The

questionnaire was also found to be valid by an expert. A frequency analysis was done to determine the overall exposure of participants to value based management and the overall application of value based management principles in participating pharmacies. Constructs testing knowledge of value based management that yielded the highest mean values were C9 (Product mix front shop) and C11 (Debtors' control). Constructs testing knowledge of value based management that yielded the lowest mean values were C5 (Cost price dispensary) and C7 (Cost of wages). When separately analysed, questions testing knowledge of value based management that yielded the highest mean values were Q12N2 (Efforts should be made to limit unpaid levy amounts), Q12N3 (Unpaid CODs should be investigated) and Q12N4 (Efforts should be made to limit outstanding COD amounts). When separately analysed, questions testing knowledge of value based management that yielded the lowest mean values were D6N3 (Sales growth in the dispensary can be improved by increasing sales prices), F6N3 (Sales growth in the front shop can be improved by increasing sales prices) and Q9N6 (Cost of wages can be managed by employing half day staff instead of full day staff). When separately analysed, questions testing the application of value based management principles that yielded the highest mean values were Q18N1 (Most front shop items are ordered from the supplier that offers the lowest prices), Q18N2 (Most front shop items are ordered from suppliers that offer discount on products) and Q23N5 (Regular checks are done to identify expired stock). When separately analysed, questions testing application of value based management principles that yielded the lowest mean values were D17N3 (Sales growth in the dispensary is improved by increasing sales prices), Q22N3 (Half day staff are employed instead of full day staff) and D17N1 (Sales growth in the dispensary is improved by the implementation of loyalty programs).

Using the differences in the means for the different demographic groups (occupation, experience, experience in corporate pharmacy and level of formal business management training), Cohen's *d* effect sizes were calculated to determine the effect sizes of differences between the various demographic groups for each of the constructs, as well as the independent questions.

The comparison of value based management knowledge and the application thereof among the various demographic groups highlighted some interesting differences.



Two practically significant differences were found among the various occupational groups. Participating pharmacy owners generally agreed to a greater extent than locum pharmacists that sales volume in the front shop can be increased by add-on sales. Responding pharmacy owners agreed to a greater extent than pharmacists that sales growth could be improved by increasing sales volume in the front shop. Respondents with less than five years experience overall agreed to a greater extent that sales growth in the dispensary could be improved by the implementation of loyalty programs than ones with more than fifteen years' experience. Participating registered pharmacists with more than fifteen years' experience were more knowledgeable about the cost price of products sold from the front shop than ones with less than five years' experience. No practically significant differences were found among participating pharmacists with and without corporate experience; however, some differences showed effect sizes that were of medium importance. Participants that passed the subject of business management at school level generally showed a greater understanding of ways to improve sales growth in the dispensary of a pharmacy business than ones with a certificate, diploma or degree in business management.

## CHAPTER 5

### CONCLUSION AND RECOMMENDATIONS

#### 5.1 INTRODUCTION

The primary objective of this study was to develop a management framework that could be used by pharmacy managers in order to create maximum value and help to ensure a pharmacy's survival despite the strict medication pricing regulations in South Africa.

A literature study was done in Chapter 2 to conceptualise the term "value based management", setting the context for the literature study done in Chapter 3 to identify value drivers in a pharmacy business. Chapter 4 details the empirical study conducted quantitatively, using a new questionnaire designed to determine participants' knowledge of value based management, its principles and the application thereof in participating pharmacies. In Chapter 4 the results of the survey are given. This final chapter intends to draw conclusions from the results presented in Chapter 4. After drawing conclusions, recommendations will be made regarding insights from this research study which could be used by pharmacy managers in order to create maximum value and help ensure a pharmacy's survival despite the strict medication pricing regulations in South Africa. The success of the study will be evaluated against the primary and secondary objectives that were set in Chapter 1. Recommendations will be made for further research attempts related to the topic of value based management in pharmacies.

#### 5.2 CONCLUSIONS

The empirical study of Chapter 4 aimed to explore the relevant value drivers in both the dispensary and front shop in a pharmacy business, the exposure of pharmacists to value based management and its principles and the application thereof in pharmacies in the North West region. Conclusions will be drawn for the overall compilation of respondents' comprising of pharmacists in the North West region with different job descriptions (occupations), levels of experience as registered

pharmacists, corporate experience and exposure to formal business management training. Thereafter, conclusions will be given for the respective demographics making up the sample of respondents.

### **5.2.1 Overall knowledge of value based management and its principles**

Sections A and B in the questionnaire aimed to evaluate participants' knowledge of value based management and its principles. Questions in these sections that yielded the highest mean values were:

- Q12N4: pharmacy debtors should be managed by making efforts to limit outstanding COD amounts (mean = 3.84).
- Q12N2: pharmacy debtors should be managed by making efforts to limit unpaid levy amounts (mean = 3.82); and
- Q12N3: pharmacy debtors should be managed by investigating unpaid CODs (mean = 3.80).

These high means indicate a high level of knowledge among participants regarding the value based management principles tested in these questions.

Questions in these sections that yielded the lowest mean values were:

- D6N3: sales growth in the dispensary can be improved by increasing sales prices (mean = 1.68).
- F6N3: sales growth in the front shop can be improved by increasing sales prices (mean = 2.39); and
- Q9N6: cost of wages in the dispensary can be managed by employing half day staff instead of full day staff (mean = 2.54).

This means that respondents overall showed a lower level of understanding of the value based management principles tested in these questions. The results of answers received of question D6N3; however, do not indicate a low level of understanding of how sales growth can be improved in the dispensary. Theoretically, increasing sales prices can improve sales growth in a business. However, in a pharmacy business, sales prices are regulated by law. It is therefore practically impossible to increase sales prices in a dispensary to improve sales growth.

From the empirical study the following constructs were regarded by respondents as very important, as the calculated mean for these constructs yielded the highest values:

- C9: product mix front shop (mean = 3.72); and
- C11: debtors' control (mean = 3.79).

This means that most of the respondents strongly agreed that the statements made in these constructs were important in a pharmacy's survival. These high values indicate that the participants showed an overall high level of knowledge of these value drivers.

The results showed that respondents generally felt less strongly about the following constructs' importance, as the calculated mean for these constructs yielded the lowest values:

- C5: cost price dispensary (mean = 3.00); and
- C7: cost of wages (mean = 3.22).

The overall mean scores for all the constructs in this section were high (the lowest being a mean of three), which indicates that the respondents were, overall, very knowledgeable about value drivers in the front shop, dispensary and the pharmacy business in general.

### **5.2.2 Overall application of value based management and its principles**

Questions in section C of the questionnaire aimed to determine whether the principles of value based management were being applied at participating pharmacy businesses.

Questions that yielded the highest mean values were:

- Q18N1: most front shop items are ordered from the supplier that offers the lowest prices (mean = 3.53).
- Q18N2: most front shop items are ordered from suppliers that offer discount on products (mean = 3.50); and
- Q23N5: regular stock checks are done to identify expired stock (mean = 3.48).

This means that most of the participants strongly agreed that, at the pharmacy businesses where they were employed, most front shop items are ordered from the supplier that offers the lowest prices and that offer discount on products. Most respondents also reported that regular stock checks were done at these pharmacies to identify expired stock. These value based management principles were being applied readily at participating pharmacies.

Questions that yielded the lowest mean values were:

- D17N3: sales growth is improved by increasing sales prices in the dispensary (mean = 1.71).
- Q22N3: half day staff are employed instead of full day staff (mean = 2.17); and
- D17N1: sales growth is improved by the implementation of loyalty programs in the dispensary (mean = 2.17).

The principle of value based management (Sales growth is improved by increasing sales prices in the dispensary) was not readily applied at participating pharmacies. The reason for this being, as explained earlier, that sales prices are regulated by South African law and cannot be increased. Half day staff was not readily employed instead of full day staff at participating pharmacies. Sales growth in the dispensaries of participating pharmacies was not readily improved by the implementation of loyalty programs.

The following constructs yielded the highest values:

- C14: Cost price in current front shop (mean = 3.42); and
- C16: Stock control in current shop (mean = 3.34).

This means that most respondents indicated that they “agreed” or “strongly agreed” with the statements in these constructs. The conclusion can be made that the principles of value based management were applied regarding the cost price of products in the front shop and stock control in participating pharmacy businesses.

The results showed that respondents felt less strongly about the constructs' application, as the calculated mean for these constructs yielded the lowest values:

- C12: sales growth in current front shop (mean = 2.68); and
- C15: cost of wages in current dispensary (mean = 2.40).

This means that the principles of value based management regarding the sales growth in the front shop and cost of wages in the dispensary were less readily applied in participating pharmacies.

### **5.2.3 Frequency analysis for assessment of knowledge of VBM**

This part of the questionnaire tested participants' knowledge of value based management, including creditors' control, focus on the dispensary or front shop, profitability and the main attraction of a pharmacy business.

Thirty six percent of respondents indicated that they thought that pharmacy creditors could be managed by ordering the majority of stock from a supplier that offers thirty day accounts. This means that all accounts payable must be settled within thirty days. Sixty four percent felt that the majority of stock should be ordered from suppliers that offer longer than thirty day accounts. This means that stock should be ordered from suppliers that offer longer payment periods. The results indicate that sixty four percent of the participants understood the benefits of ordering from suppliers that offer longer than thirty day account payment periods.

Eighty six percent of the respondents thought that a pharmacy business should focus on low mark-up and high sales volumes. This means focus should be on selling many items of which the mark-up is low. These respondents understand that the low mark-up allowed by law in a pharmacy dispensary can be overcome by focussing on high selling volumes.

Seventy two percent of respondents indicated that the most profitable part of a pharmacy business should be its front shop. These respondents understand that, because the mark-up of products in the front shop is not regulated by law as in the

case with products in the dispensary, the front shop has the potential to be more profitable than the dispensary.

Sixty three percent of respondents were of the opinion that the dispensary should be used to draw clients' attention to the front shop. These respondents realise that the part of the pharmacy where prices are regulated by law (the dispensary) should be used to attract attention to the part where prices are not regulated by law (the front shop) and that could possibly be more profitable.

#### **5.2.4 Frequency analysis for assessment of application of VBM**

This part of the questionnaire contains the application of value based management principles at the pharmacies where respondents were employed at the time that the questionnaire was completed.

Fifty three percent of respondents indicated that enough pharmacists were employed, according to the number of prescriptions done at the pharmacy where they were employed. Fifty five percent were convinced that enough pharmacist assistants were employed, according to the number of pharmacy assistants employed at the relevant pharmacies. At these pharmacies, one of the principles of value based management was applied, as an adequate number of employees means that the correct amount is spent on wages.

Seventy nine percent of respondents reported that locum staff were only being used when necessary. This indicates that one of the principles of value based management was applied at these pharmacies, as the cost of wages was being managed.

Sixty four percent of the respondents reported that the pharmacy where they were employed, ordered the majority of stock from suppliers that offer longer than thirty day payment periods. This means that one of the principles of value based management was applied at these pharmacies.

Seventy eight percent of the respondents reported that the pharmacy business where they were employed focussed on selling many products with a low mark-up.

This indicates that one of the principles of value based management was applied at these pharmacies.

Fifty eight percent of respondents reported that the front shop was the most profitable part of the pharmacy business where they were employed. This could be because some of the participating pharmacies only had a dispensary and no front shop.

Sixty eight percent of respondents reported that at the pharmacy business where they were employed, the dispensary was used to draw clients' attention to the front shop. This indicates that one of the principles of value based management was applied at these pharmacies. The least profitable part of these businesses was used to draw attention to the more profitable side.

#### **5.2.5 Comparison of demographic variables**

The responses of respective demographic variables were analysed to establish whether the demographics of respondents influenced their knowledge of value based management and the application of its principles. This was achieved by comparing the effect sizes for the differences in the means for the datasets for each of the constructs across the following demographics: occupation, experience as a registered pharmacist, corporate experience and formal business management training. Some of the more interesting differences in knowledge of value based management and the application of its principles are discussed.

Two practically significant differences were found among the various occupational groups. The first is that participating pharmacy owners generally agreed to a greater extent than locum pharmacists that sales volume in the front shop can be increased by add-on sales. This means that overall, responding pharmacy owners understood these principles of value based management to a greater extent than locum pharmacists. The second significant difference found was that participating pharmacy owners generally agreed to a greater extent than pharmacists that sales growth could be improved by increasing sales volume in the front shop. Responding pharmacy owners, therefore, generally showed a better understanding of this value based management principle.



When the demographic “experience as a registered pharmacist” was analysed, two practically significant differences were found. Firstly, participants with less than five years’ experience generally agreed to a greater extent that sales growth in the dispensary could be improved by the implementation of loyalty programs than ones with more than fifteen years’ experience. Respondents with less than five years’ experience generally understood this value based management better than ones with more than fifteen years’ experience. Secondly, participants with more than fifteen years’ experience were overall more knowledgeable about the cost price of products sold from the front shop than ones with less than five years’ experience. This indicates that participating pharmacists with more than fifteen years’ experience generally understood this value based management principle to a greater extent than ones with less than five years’ experience.

Participants that passed a subject on business management at school level generally showed a greater understanding of ways to improve sales growth in the dispensary of a pharmacy business than ones with a certificate, diploma or degree in business management. This difference was found to be practically significant.

### **5.3 RECOMMENDATIONS**

Based on the conclusions discussed in the sections above, the following recommendations are offered:

- a) Since sales growth in the dispensary cannot be improved by increasing sales prices, it might be wise to explore other possibilities in order to increase sale growth. Offering clinic services might be a solution.
- b) Awareness must be created among registered pharmacists that prices are only regulated for products in the dispensary. Sales growth in the front shop can be improved by increasing sales prices.
- c) It must be brought under attention of registered pharmacists that the cost of wages in the dispensary can be managed by employing half day staff instead of full day staff.
- d) Efforts must be made to apply the principles of value based management regarding sales growth in the front shop.

- e) Efforts must be made to apply the principles of value based management regarding management of the cost of wages.
- f) Registered pharmacists should be made aware of the benefits of ordering front shop items from suppliers that offer longer than thirty day payment periods rather than thirty day periods.
- g) The importance of using the dispensary (the least profitable part of a pharmacy business) to attract attention to the front shop (the more profitable part of a pharmacy business) should be emphasized among all pharmacy employees.
- h) Pharmacy management should focus on implementing the principles of value-based management regarding management of the cost of wages in a pharmacy business.

#### **5.4 VBM AS A MANAGEMENT FRAMEWORK FOR PHARMACIES**

After exploring the components, advantages and key success factors of value based management (chapter 2), identifying key value drivers in a pharmacy business (chapter 3), constructing a questionnaire to determine the application and knowledge of VBM and its principles in participating pharmacies and analysing the results of the study, it becomes clear that a value based management framework can be constructed for pharmacy businesses. The following management framework can be derived from the study and used by pharmacy owners in order to increase value in the business:

1. Identify key value drivers in the pharmacy business (Frigo 2002:6). This was done by a literature study done in Chapter 3.
2. Determine how these drivers must be managed in order to create more value. This will involve breaking the drivers down in actionable steps and activities (Frigo 2002:6). This is what was done in order to construct the questionnaire.
3. Objectively assess to what extent the identified value drivers are being managed and which areas can be improved. This is what the questionnaire assessed.
4. Make management decisions and implement changes in order to maximise value creation (Koller, 1994:96); and

5. Re-evaluate how these management decisions have affected value creation in the business (Koller, 1994:97).

## **5.5 EVALUATION OF THE STUDY**

The evaluation of the success of the study depends on a critical evaluation of the accomplishment of the primary and secondary objectives as detailed in section 1.3 of Chapter 1.

### **5.5.1 Primary objective**

The main objective of the study was to develop a management framework that can be used by pharmacy managers in order to create maximum value and help ensure a pharmacy's survival despite the strict medication pricing regulations in South Africa. The framework was constructed by firstly exploring the sub-objectives. A literature study was done to contextualize the term "value based management". Secondly, key value drivers for a pharmacy business were identified from the literature. Secondly, using the identified value drivers, questions were constructed into a questionnaire to determine the level of understanding of value based management among participants and the application of value based management principles at participating pharmacies. Finally, by using the literature studies and answers to the questionnaire, a value based management framework was constructed and layed out in section 5.4. This framework can be applied in pharmacy businesses in order to help ensure the business's survival despite strict pricing regulations in the country and marks the achievement of the primary objective of the study.

### **5.5.2 Secondary objectives**

The secondary objectives of the study were:

- **To contextualise the term "value based management".**

This contextualisation included a disposition of: reasons why value based management and value creation are important, value based management metrics, the components of value based management; and key success factors for the

implementation of value based management. This objective was achieved by doing a literature study in Chapter 2.

- **To identify the key value drivers in a pharmacy business.**

This section included value drivers in the dispensary as well as value drivers in the front shop. Attention was given to ways to manage sales, cost of sales and operational costs in these areas. The objective was achieved by doing a literature study in Chapter 3 and by constructing a questionnaire to determine the level of knowledge among pharmacists about value based management and the application of its principles in pharmacy businesses.

- **To determine the application of value based management and its principles in retail pharmacies in the North West region and the extent to which the identified critical factors are being managed effectively in these pharmacies.**

This included the measures that can be used for decision-making, the level of exposure to value based management and understanding thereof among retail pharmacists in the North West region, and the extent to which the identified value drivers are being managed in the identified pharmacies. This objective was achieved by conducting an empirical study among pharmacists in the North West region. Results of this study are shown in Chapter 4.

## **5.6 LIMITATIONS OF THE STUDY**

The study had a few limitations. Firstly, not all the distributed questionnaires were retrieved or fully completed. This might affect the validity of the data resulting. Secondly, the study, given the scope and time allowed for a mini-dissertation, was limited to the perceptions of registered pharmacists in the North West region. Results may differ for pharmacists in other regions. Thirdly, the concept of value based management is wide, thus interpretations of the terms used may vary, perhaps leading to questionable results.

## **5.7 SUGGESTIONS FOR FURTHER RESEARCH**

Using this research study as a basis, the following suggestions for further work are made:

- Although possibly beyond the scope of a mini-dissertation, extending the research beyond the North West region would be of interest to registered pharmacists.
- Although this study focussed on value based management and value drivers in the dispensary and front shop of a pharmacy business, it might be of value to also research value based management and the application of its principles in the pharmacy's clinic.
- The research was only conducted among registered pharmacists. It might be of value to also conduct the research among other employees in a pharmacy business.
- Although most of the principles discussed are also applicable to hospital pharmacies, a separate study could be done to investigate the topic in hospital pharmacies.

## **5.7 OVERALL CONCLUSION**

As the primary objective, this study set out to develop a management framework that could be used by pharmacy managers in order to create maximum value and help to ensure a pharmacy's survival despite the strict medication pricing regulations in South Africa. This goal was reached with the aid of secondary objectives. A literature study was done to conceptualise the term "value based management". From the literature, key value drivers for pharmacy businesses were identified. A questionnaire was constructed, testing participants' knowledge of value based management and the application of its principles at the pharmacies where participating pharmacists were employed. Together with the literature studies, this questionnaire was used to construct a management framework that could be used to create value in a pharmacy business, as areas in the front shop and dispensary that is well managed, as well as areas that could be improved in order to create maximum value in a pharmacy business, can be identified when the completed questionnaire is analysed. Using the questionnaire, an empirical study was done among pharmacists in the North West region in order to assess the level of exposure to and knowledge of value based management among participants and the

application of value based management principles at the pharmacy businesses where respondents were employed. The results of the quantitative study highlighted that many respondents lack knowledge regarding the constructs (value drivers) cost price in the dispensary and cost of wages. Constructs (value drivers) that were better understood, included product mix in the front shop and debtors' control. Constructs (value drivers) that were best managed at the pharmacies where participants were employed, were cost price in the front shop and stock control. Constructs (value drivers) that were not as thoroughly managed were sales growth in the front shop and cost of wages. Recommendations were made, based on the study findings in order for pharmacy staff to gain more knowledge about value based management and its principles and the ways in which these principles could be applied in pharmacy businesses, in order to help ensure the business' survival despite strict pricing regulations in the country. The study was evaluated against the primary and secondary objectives set in Chapter 1. Both the primary and secondary objectives were achieved. In the interest of further research work relating to the topic of value based management, its principles and the application thereof in pharmacy businesses, a number of suggestions were made.

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## APPENDIX A: Questionnaire

### QUESTIONNAIRE TO DETERMINE PHARMACISTS' LEVEL OF EXPOSURE TO VALUE BASED MANAGEMENT AND THE APPLICATION THEREOF IN PHARMACY BUSINESSES IN THE NORTH WEST REGION OF SOUTH AFRICA

The principles of value based management might offer solutions for pharmacy businesses to stay profitable despite strict pricing regulations in the country. The purpose of this questionnaire is to determine the extent to which pharmacists in the North West region had been exposed to value based management and its principles. Secondly, this questionnaire aims to determine the extent to which value based management principles are being applied in pharmacy businesses in the mentioned areas.

#### SECTION A

Please complete the questions in this section by marking "X" in the applicable block as in the following example. Mark only one answer per question.

Example:

I am a:

Male		1
Female	X	2

Please mark the applicable answer (only one answer per question).

1. I am a:

Pharmacist		1
Pharmacy manager		2
Pharmacy owner		3
Locum pharmacist		4

2. My experience as a registered pharmacist is:

Less than five years		1
Five to less than ten years		2
Ten to less than fifteen years		3
Fifteen to less than twenty years		4
More than twenty years		5

3. My experience in corporate pharmacy (large pharmacies such as Clicks, DisChem and MediRite) is:

I have never worked in a corporate pharmacy		1
I am currently working in a corporate pharmacy, and have been doing so for less than five years		2
I am currently working in a corporate pharmacy, and have been doing so for more than five years		3
I have worked in a corporate pharmacy before, for less than five years, but no longer do so		4
I have worked in a corporate pharmacy before, for more than five years, but no longer do so		5

4. The highest level of *formal* business management training I have achieved is:

I have no formal business management training		1
I have passed a subject on business management at school level		2
I have formal business management training in the form of a certificate, diploma or degree		3

## SECTION B

Indicate the applicable answer by marking it with an “x”, as in the previous section.

The scale: 1 = I totally disagree with the statement

2 = I disagree to some extent with the statement

3 = I agree to some extent with the statement

4 = I totally agree with the statement

5. Value drivers are variables that influence the value of a business and that can be managed in order to create more value for stakeholders.

I think that the following can be regarded as value drivers...

(Please indicate an answer for the dispensary AND front shop for each question).

Dispensary					Front shop			
1	2	3	4		1	2	3	4
				5.1 Sales growth				
				5.2 Cost of sales				
				5.3 Operating costs (This type of cost remains constant in total regardless of sales volume, for example staff salaries and rent)				
				5.4 Assets (such as cash, accounts receivable, inventory, buildings and vehicles owned by the pharmacy business)				
				5.5 Liabilities (such as accounts payable and mortgages)				

6. I think that sales growth in a pharmacy business can be improved by:  
 (Please indicate an answer for the dispensary AND front shop for each question).

Dispensary					Front shop			
1	2	3	4		1	2	3	4
				6.1 Implementation of loyalty programs				
				6.2 Effectively managing merchandising				
				6.3 Increasing sales prices				
				6.4 Increasing sales volume				
				6.5 Add-on sales				

7. Please mark the applicable answer with regards to the cost price of products sold in the **dispensary**:

	1	2	3	4
7.1 The price that wholesalers charge (the single exit price or SEP) for dispensary products is fixed. It costs the same at all wholesalers.				
7.2 Very little or nothing can be done to reduce the costs of products sold from the dispensary.				

8. Please mark the applicable answer regarding the cost price of products sold in the **front shop**.

	1	2	3	4
8.1 The price that wholesalers charge for front shop products is not fixed. Prices charged by wholesalers may differ.				
8.2 It is possible to reduce the costs of products sold from the front shop.				
8.3 Front shop items must be ordered from the supplier that offers the lowest prices.				
8.3 Front shop items must be ordered from suppliers that offer discount on products.				
8.4 Front shop items must be ordered from suppliers that allow discount on accounts paid in advance.				



9. I think that the cost of wages in the **dispensary** can be managed effectively by:

	1	2	3	4
9.1 Employing an adequate number of pharmacists according to the number of prescriptions done				
9.2 Employing an adequate number of pharmacist assistants for the number of pharmacists employed				
9.3 Only using locum staff when necessary				
9.4 Only using locum staff during the busiest trading hours				
9.5 Employing pharmacist interns instead of more pharmacists				
9.6 Employing half day staff instead of full day staff				
9.7 Making enough efforts to retain pharmacy staff				
9.8 Limiting over-time hours claimed by staff				

10. Please indicate the applicable answer regarding the product mix of a pharmacy.

<b>Dispensary</b>					<b>Front shop</b>			
1	2	3	4		1	2	3	4
				10.1 The product mix (sum total of all products that a pharmacy business offers) is very important in the survival of a pharmacy business				
				10.2 The area where the pharmacy is situated (for example: inside a mall, nearby schools or old age homes) should be considered when making decisions about a product mix.				

## SECTION C

Indicate the applicable answer by marking it with an “x”, as in the previous section.

The scale: 1 = I totally disagree with the statement

2 = I disagree to some extent with the statement

3 = I agree to some extent with the statement

4 = I totally agree with the statement

11. I think that stock in the **pharmacy** must be managed by:

	1	2	3	4
11.1 Maintaining minimum stock levels				
11.2 Maintaining re-order levels				
11.3 Doing regular checks to identify excess stock				
11.4 Distributing excess stock to other pharmacies or back to the supplier				
11.5 Doing regular checks to identify expired stock				
11.6 Regular disposing of expired stock				
11.7 Doing mini-stock takes (cycle counts) regularly				
11.8 Doing yearly stock takes				

12. Please mark the applicable answer with regards to the management of debtors.

I think that pharmacy debtors must be managed by:

	1	2	3	4
12.1 Investigating unpaid levies regularly				
12.2 Making efforts to limit unpaid levy amounts				
12.3 Investigating unpaid CODs				
12.4 Making efforts to limit outstanding COD amounts				
12.5 Striving to receive payment on accounts in no more than 30 days after products are sold				

13. Please mark the applicable answer regarding pharmacy creditors (mark only ONE of the two options).

(a) I think it is a good idea to buy the majority of stock from a supplier that offer 30 day accounts OR		1
(b) I think it is a good idea to buy the majority of stock from a supplier that offer <i>longer than</i> 30 day accounts		2

14. Please mark the most applicable answer (only one of the two).

I think that:

(a) A pharmacy business should focus on selling products with a low mark-up, and on selling many of these products (low mark-up but high sales volumes)		1
(b) A pharmacy business should focus on selling products with a high mark-up, and on selling only a few of these products (high mark-up but low sales volumes).		2

15. I think the most profitable part of a pharmacy business is (only one of the two).

(a) The dispensary		1
(b) The front shop		2

16. Please mark the most applicable answer (only one of the two).

I think that:

(a) The dispensary must be used to draw clients' attention to the front shop.		1
(b) The front shop must be used to draw clients' attention to the dispensary.		2

**SECTION D**

Please mark the applicable answer with regards to the pharmacy where you are currently employed at.

- The scale: 1 = I totally disagree with the statement  
 2 = I disagree to some extent with the statement  
 3 = I agree to some extent with the statement  
 4 = I totally agree with the statement

17. At the pharmacy where I am currently employed, sales growth is continually being improved by:

Dispensary					Front shop			
1	2	3	4		1	2	3	4
				17.1 Implementation of loyalty programs				
				17.2 Effectively managing merchandising				
				17.3 Increasing sales prices				
				17.4 Increasing sales volume				
				17.5 Add-on sales				

18. Please mark the applicable answer with regards to the cost price of products sold in the **front shop** at the pharmacy where you are currently employed at.

	1	2	3	4
18.1 Most front shop items are ordered from the supplier that offers the lowest prices.				
18.2 Most front shop items are ordered from suppliers that offer discount on products.				
18.3 Front shop items are ordered from suppliers that allows discounts on accounts paid in advance				

For question 19 to 21, please mark the MOST applicable answer ONLY.

19. I think that:

(a) The pharmacy business needs more pharmacists according to the number of prescriptions done		1
(b) An adequate number of pharmacists are employed according to the number of prescriptions done		2
(c) Too many pharmacists are employed according to the number of prescriptions done		3

20. I think that:

(a) The pharmacy business needs more pharmacist assistants for the number of pharmacists employed		1
(b) An adequate number of pharmacist assistants are employed for the number of pharmacists employed		2
(c) Too many pharmacist assistants are employed for the number of pharmacists employed		3

21. I think that:

(a) Locum staff must be used more often		1
(b) Locum staff are only used when necessary		2
(c) Locum staff are used too often		3

22. I think that:

	1	2	3	4
22.1 Locum staff are only used during the busiest trading hours				
22.2 Pharmacists interns are employed instead of more pharmacists in order to save on the cost of wages				
22.3 Half day staff are employed instead of full day staff				
22.4 Enough efforts are made to retain pharmacy staff				
22.5 Over-time hours claimed by staff are being limited				

23. At the pharmacy where I am currently employed at, stock are being managed by:

	1	2	3	4
23.1 Maintaining minimum stock levels				
23.2 Maintaining re-order levels				
23.3 Doing regular checks to identify excess stock				
23.4 Distributing excess stock to other facilities				
23.5 Doing regular checks to identify expired stock				
23.6 Regular disposing of expired stock				
23.7 Doing mini-stock takes (cycle counts) regularly				
23.8 Doing yearly stock takes				

24. At the pharmacy where I am currently employed at, creditors are being managed by:

	1 I agree	2 I disagree
Buying the majority of stock from a supplier that offer longer than 30 day account payment periods.		

For questions 26 to 28, please mark the most applicable answer (only ONE answer per question).

25. At the pharmacy where I am currently employed at, we focus on selling:

(a) Many products with a low mark-up (low mark-up but high sales volumes) OR		1
(b) A few products with a high mark-up (high mark-up but low sales volumes).		2

26. The most profitable part of the pharmacy business where I am employed at is:

(a) The dispensary		1
(b) The front shop		2

27. Please mark the most applicable answer (only one of the two).

At the pharmacy where I am employed:

(a) The dispensary is used to draw clients' attention to the front shop.		1
(b) The front shop is used to draw clients' attention to the dispensary.		2

28. Please indicate the applicable answer regarding the product mix in the pharmacy where you are currently employed.

I think that:

Dispensary					Front shop			
1	2	3	4		1	2	3	4
				28.1 Enough attention is given to the appropriate product mix in the pharmacy.				
				28.2 The area where the pharmacy is situated (for example: inside a mall, nearby schools or old age homes) is always considered when making decisions about the pharmacy's product mix.				

## APPENDIX B: Coding of Questionnaire

		<b>Coding</b>	<b>Description</b>
<b>Q1</b>	<b>Occupation</b>	1	Pharmacist
		2	Pharmacy manager
		3	Pharmacy owner
		4	Locum pharmacist
<b>Q2</b>	<b>Experience as a registered pharmacist</b>	1	Less than five years
		2	Five to less than ten years
		3	Ten to less than fifteen years
		4	Fifteen to less than twenty years
		5	More than twenty years
<b>Q3</b>	<b>Experience in corporate pharmacy</b>	1	No corporate experience
		2	Less than five years
		3	More than five years
<b>Q4</b>	<b>Level of formal business management training</b>	1	No formal business management training
		2	Passed a subject on business management
		3	Certificate, diploma/ degree in business management
<b>Q5-12; Q17&amp;18; Q22&amp;23; Q28</b>	<b>Questions</b>	1	I totally disagree
		2	I disagree to some extent
		3	I agree to some extent
		4	I totally agree
<b>Q13</b>		1	It is a good idea to buy the majority of stock from a supplier that offer 30 day accounts
		2	It is a good idea to buy the majority of stock from a supplier that offer longer than 30 day accounts
<b>Q14</b>		1	A pharmacy should focus on low mark-up but high sales volumes
		2	A pharmacy should focus on high mark-up but low sales volumes
<b>Q15</b>		1	The dispensary
		2	The front shop
<b>Q16</b>		1	Dispensary must draw attention to the front shop
		2	Front shop must draw attention to the dispensary



		<b>Coding</b>	<b>Description</b>
<b>Q19</b>		1	The pharmacy needs more pharmacists
		2	An adequate number of pharmacists are employed
		3	Too many pharmacists are employed
<b>Q20</b>		1	The pharmacy needs more pharmacist assistants
		2	An adequate number of pharmacist assistants are employed
		3	Too many pharmacist assistants are employed
<b>Q21</b>		1	Locum staff must be used more often
		2	Locum staff are only used when necessary
		3	Locum staff are used too often
<b>Q24</b>		1	I agree
		2	I disagree
<b>Q26</b>		1	The dispensary
		2	The front shop
<b>Q27</b>		1	The dispensary draws attention to the front shop
		2	The front shop draws attention to the dispensary

## APPENDIX C: Constructs

Construct	Construct name	Question number	Topic Related to
C1	Value drivers dispensary	5	Knowledge of value drivers in the front shop
C2	Value drivers front shop	5	Knowledge of value drivers in the front shop
C3	Sales growth dispensary	6	Knowledge of sales growth as a value driver in the dispensary
C4	Sales growth front shop	6	Knowledge of sales growth as a value driver in the front shop
C5	Cost price dispensary	7	Knowledge of cost price as a value driver in the dispensary
C6	Cost price front shop	8	Knowledge of cost price as a value driver in the front shop
C7	Cost of wages dispensary	9	Knowledge of cost of wages as a value driver
C8	Product mix dispensary	10	Knowledge of product mix as a value driver in the dispensary
C9	Product mix front shop	10	Knowledge of product mix as a value driver in the front shop
C10	Stock pharmacy	11	Knowledge of stock control as a value driver
C11	Debtors' Pharmacy	12	Knowledge of debtors' control as a value driver

<b>Construct</b>	<b>Construct name</b>	<b>Question number</b>	<b>Topic Related to</b>
C12	Sales growth current dispensary	17	Management of sales growth in the dispensary
C13	Sales growth current front shop	17	Management of sales growth in the front shop
C14	Cost price current front shop	18	Management of cost price in the front shop
C15	Staff	22	Management of staff cost
C16	Stock management current	23	Management of stock
C17	Product mix current dispensary	28	Management of product mix in the dispensary
C18	Product mix current front shop	28	Management of product mix in the front shop

## APPENDIX D: Frequency Analysis, Descriptive Statistics

### Questions to determine knowledge of VBM

Questions to determine knowledge of VBM		1	2	3	4	Total	Mean Score	Std. Dev.
		Totally disagree	Disagree to some extent	Agree to some extent	Totally agree			
D5N1	Sales growth is a value driver in the dispensary	1.09%	2.17%	38.04%	58.70%	92	3.54	0.60
D5N2	Cost of sales is a value driver in the dispensary	7.61%	8.70%	40.22%	43.48%	92	3.20	0.89
D5N3	Operating costs is a value driver in the dispensary	7.61%	10.87%	39.13%	42.39%	92	3.16	0.91
D5N4	Assets is a value driver in the dispensary	4.35%	13.04%	40.22%	42.39%	92	3.20	0.83
D5N5	Liabilities is a value driver in the dispensary	10.87%	17.39%	30.43%	41.30%	92	3.02	1.02
F5N1	Sales growth is a value driver in the front shop	1.10%	0.00%	35.16%	63.74%	91	3.62	0.55
F5N2	Cost of sales is a value driver in the front shop	4.40%	4.40%	41.76%	49.45%	91	3.36	0.77
F5N3	Operating costs is a value driver in the front shop	6.59%	10.99%	41.76%	40.66%	91	3.16	0.87
F5N4	Assets is a value driver in the front shop	4.40%	14.29%	37.36%	43.96%	91	3.21	0.85
F5N5	Liabilities is a value driver in the front shop	9.89%	19.78%	32.97%	37.36%	91	2.98	0.99
D6N1	Sales growth in the dispensary can be improved by implementation of loyalty programs	12.36%	14.61%	31.46%	41.57%	89	3.02	1.03
D6N2	Sales growth in the dispensary can be improved by effectively managing merchandising	2.17%	6.52%	32.61%	58.70%	92	3.47	0.72
D6N3	Sales growth in the dispensary can be improved by increasing sales prices	53.26%	28.26%	15.22%	3.26%	92	1.68	0.85
D6N4	Sales growth in the dispensary can be improved by increasing sales volume	4.35%	8.70%	31.52%	55.43%	92	3.38	0.82

Questions to determine knowledge of VBM		1	2	3	4	Total	Mean Score	Std. Dev.
		Totally disagree	Disagree to some extent	Agree to some extent	Totally agree			
D6N5	Sales growth in the dispensary can be improved by increasing add-on sales	5.43%	7.61%	32.61%	54.35%	92	3.36	0.85
F6N1	Sales growth in the front shop can be improved by implementation of loyalty programs	5.56%	6.67%	32.22%	55.56%	90	3.38	0.84
F6N2	Sales growth in the front shop can be improved by effectively managing merchandising	0.00%	3.30%	36.26%	60.44%	91	3.57	0.56
F6N3	Sales growth in the front shop can be improved by increasing sales prices	24.44%	32.22%	23.33%	20.00%	90	2.39	1.07
F6N4	Sales growth in the front shop can be improved by increasing sales volume	0.00%	6.67%	35.56%	57.78%	90	3.51	0.62
F6N5	Sales growth in the front shop can be improved by add-on sales	0.00%	9.89%	26.37%	63.74%	91	3.54	0.67
Q7N1	The price wholesalers charge for dispensary products is fixed. It costs the same at all wholesalers	17.58%	13.19%	24.18%	45.05%	91	2.97	1.14
Q7N2	Very little or nothing can be done to reduce the cost of products sold from the dispensary	6.59%	19.78%	34.07%	39.56%	91	3.07	0.93
Q8N1	The price that wholesalers charge for front shop products is not fixed. Prices charged by wholesalers may differ.	1.11%	1.11%	2.22%	75.56%	90	3.72	0.54
Q8N2	It is possible to reduce the costs of products sold from the front shop	7.78%	5.56%	31.11%	55.56%	90	3.34	0.90
Q8N3A	Front shop items must be ordered from the supplier that offers the lowest prices	1.11%	5.56%	20.00%	73.33%	90	3.66	0.63
Q8N3B	Front shop items must be ordered from suppliers that offer discount on products	0.00%	5.56%	21.11%	73.33%	90	3.68	0.58
Q8N4	Front shop items must be ordered from suppliers that allow discount on accounts paid in advance	1.11%	6.67%	21.11%	71.11%	90	3.62	0.66
Q9N1	Cost of wages in the dispensary can be managed by employing an adequate number of pharmacists according to the number of prescriptions done	2.17%	9.78%	31.52%	56.52%	92	3.42	0.76

Questions to determine knowledge of VBM		1	2	3	4	Total	Mean Score	Std. Dev.
		Totally disagree	Disagree to some extent	Agree to some extent	Totally agree			
Q9N2	Cost of wages in the dispensary can be managed by employing an adequate number of pharmacist assistants according to the number of pharmacists employed	1.09%	8.70%	35.87%	54.35%	92	3.43	0.70
Q9N3	Cost of wages in the dispensary can be managed by only using locum staff when necessary	5.56%	4.44%	23.33%	66.67%	90	3.51	0.82
Q9N4	Cost of wages in the dispensary can be managed by using locum staff during the busiest trading hours	16.30%	13.04%	27.17%	43.48%	92	2.98	1.11
Q9N5	Cost of wages in the dispensary can be managed by employing pharmacist interns instead of more pharmacists	11.96%	18.48%	35.87%	33.70%	92	2.91	1.00
Q9N6	Cost of wages in the dispensary can be managed by employing half day staff instead of full day staff	20.65%	26.09%	31.52%	21.74%	92	2.54	1.05
Q9N7	Cost of wages in the dispensary can be managed by making enough effort to retain pharmacy staff	0.00%	2.20%	30.77%	67.03%	91	3.65	0.52
Q9N8	Cost of wages in the dispensary can be managed by limiting over-time hours claimed by staff	7.69%	6.59%	30.77%	54.95%	91	3.33	0.91
D10N1	The product mix in the dispensary is very important in the survival of a pharmacy business	1.09%	2.17%	39.13%	57.61%	92	3.53	0.60
D10N2	The area where the pharmacy is situated should be considered when making decisions about a dispensary's product mix	1.09%	0.00%	31.52%	67.39%	92	3.65	0.54
F10N1	The product mix in the front shop is very important in the survival of a pharmacy business	0.00%	4.40%	26.37%	69.23%	91	3.65	0.57
F10N2	The area where the pharmacy is situated should be considered when making decisions about a front shop's product mix	0.00%	1.10%	18.68%	80.22%	91	3.79	0.44

## APPENDIX E: Demographic differences

### Demographic differences: occupation

Question/ Construct	Occupational groups involved	Mean difference	Std Dev difference	Cohen's <i>d</i> Effect size
D6N1	Pharmacist-pharmacy manager	-0.02	0.02	0.02
	Pharmacist-pharmacy owner	0.65	-0.23	0.54
	Pharmacist-locum pharmacist	0.04	-0.16	-0.03
	Pharmacy manager-pharmacy owner	0.67	-0.25	0.55
	Pharmacy manager-locum pharmacist	0.05	-0.18	0.05
	Pharmacy owner-locum pharmacist	0.67	0.07	0.51
D6N2	Pharmacist-pharmacy manager	0.25	-0.21	0.31
	Pharmacist-pharmacy owner	0.20	-0.45	0.19
	Pharmacist-locum pharmacist	0.06	-0.27	0.07
	Pharmacy manager-pharmacy owner	-0.05	-0.24	0.05
	Pharmacy manager-locum pharmacist	-0.19	-0.06	0.22
	Pharmacy owner-locum pharmacist	-0.14	0.18	0.13
D6N3	Pharmacist-pharmacy manager	0.07	0.10	0.08
	Pharmacist-pharmacy owner	0.31	-0.04	0.33
	Pharmacist-locum pharmacist	0.12	0.15	0.13
	Pharmacy manager-pharmacy owner	0.23	-0.14	0.25
	Pharmacy manager-locum pharmacist	0.05	0.05	0.06
	Pharmacy owner-locum pharmacist	-0.19	0.19	0.20

<b>Question/ Construct</b>	<b>Occupational group involved</b>	<b>Mean difference</b>	<b>Std Dev difference</b>	<b>Cohen's d Effect size</b>
D6N4	Pharmacist-pharmacy manager	-0.14	0.07	0.17
	Pharmacist-pharmacy owner	-0.28	-0.12	0.30
	Pharmacist-locum pharmacist	0.22	-0.15	0.23
	Pharmacy manager-pharmacy owner	-0.14	-0.19	0.15
	Pharmacy manager-locum pharmacist	0.36	-0.22	0.38
	Pharmacy owner-locum pharmacist	0.49	-0.03	0.52
D6N5	Pharmacist-pharmacy manager	-0.45	0.29	0.50
	Pharmacist-pharmacy owner	-0.03	-0.12	0.03
	Pharmacist-locum pharmacist	-0.26	0.13	0.29
	Pharmacy manager-pharmacy owner	0.41	-0.41	0.41
	Pharmacy manager-locum pharmacist	0.19	-0.16	0.25
	Pharmacy owner-locum pharmacist	-0.23	0.25	0.23
F6N1	Pharmacist-pharmacy manager	-0.05	-0.02	0.06
	Pharmacist-pharmacy owner	0.29	-0.50	0.22
	Pharmacist-locum pharmacist	-0.11	0.03	0.14
	Pharmacy manager-pharmacy owner	0.34	-0.48	0.26
	Pharmacy manager-locum pharmacist	-0.06	0.05	0.08
	Pharmacy owner-locum pharmacist	-0.40	0.53	0.31
F6N2	Pharmacist-pharmacy manager	-0.13	0.11	0.20
	Pharmacist-pharmacy owner	-0.30	0.19	0.49
	Pharmacist-locum pharmacist	-0.14	0.11	0.23
	Pharmacy manager-pharmacy owner	-0.18	0.08	0.35
	Pharmacy manager-locum pharmacist	-0.02	0.00	0.04
	Pharmacy owner-locum pharmacist	0.16	-0.08	0.32



<b>Question/ Construct</b>	<b>Occupational groups involved</b>	<b>Mean difference</b>	<b>Std Dev difference</b>	<b>Cohen's d Effect size</b>
F6N3	Pharmacist-pharmacy manager	-0.01	0.89	0.01
	Pharmacist-pharmacy owner	0.17	-0.50	0.11
	Pharmacist-locum pharmacist	-0.35	0.14	0.33
	Pharmacy manager-pharmacy owner	0.18	-0.66	0.11
	Pharmacy manager-locum pharmacist	-0.34	-0.02	0.37
	Pharmacy owner-locum pharmacist	-0.51	0.64	0.33
F6N4	Pharmacist-pharmacy manager	-0.07	-0.19	0.10
	Pharmacist-pharmacy owner	-0.51	0.54	0.94
	Pharmacist-locum pharmacist	0.28	-0.26	0.34
	Pharmacy manager-pharmacy owner	-0.44	0.73	0.60
	Pharmacy manager-locum pharmacist	0.35	-0.07	0.43
	Pharmacy owner-locum pharmacist	0.79	-0.80	0.98 *
C1	Pharmacist-pharmacy manager	-0.02	-0.14	0.03
	Pharmacist-pharmacy owner	-0.29	-0.01	0.55
	Pharmacist-locum pharmacist	-0.05	-0.1	0.08
	Pharmacy manager-pharmacy owner	-0.27	0.13	0.41
	Pharmacy manager-locum pharmacist	0.07	0.04	0.10
	Pharmacy owner-locum pharmacist	0.33	-0.09	0.54
C2	Pharmacist-pharmacy manager	0.01	-0.10	0.02
	Pharmacist-pharmacy owner	-0.34	0.13	0.66
	Pharmacist-locum pharmacist	-0.01	-0.01	0.01
	Pharmacy manager-pharmacy owner	-0.36	0.23	0.57
	Pharmacy manager-locum pharmacist	-0.02	0.09	0.03
	Pharmacy owner-locum pharmacist	0.34	-0.14	0.63

<b>Question/ Construct</b>	<b>Occupational groups involved</b>	<b>Mean difference</b>	<b>Std Dev difference</b>	<b>Cohen's d Effect size</b>
C5	Pharmacist-pharmacy manager	-0.01	0.01	0.09
	Pharmacist-pharmacy owner	-0.13	0.13	0.23
	Pharmacist-locum pharmacist	-0.08	0.08	0.2
	Pharmacy manager-pharmacy owner	-0.12	0.12	0.14
	Pharmacy manager-locum pharmacist	-0.07	0.07	0.11
	Pharmacy owner-locum pharmacist	0.06	-0.05	0.01
C6	Pharmacist-pharmacy manager	-0.18	0.16	0.35
	Pharmacist-pharmacy owner	-0.33	0.23	0.62
	Pharmacist-locum pharmacist	-0.23	0.16	0.45
	Pharmacy manager-pharmacy owner	-0.14	0.07	0.40
	Pharmacy manager-locum pharmacist	-0.05	0.00	0.15
	Pharmacy owner-locum pharmacist	0.09	-0.07	0.25
C7	Pharmacist-pharmacy manager	0.07	-0.11	0.11
	Pharmacist-pharmacy owner	-0.08	-0.23	0.11
	Pharmacist-locum pharmacist	-0.29	0.02	0.57
	Pharmacy manager-pharmacy owner	-0.14	-0.12	0.20
	Pharmacy manager-locum pharmacist	-0.35	0.13	0.58
	Pharmacy owner-locum pharmacist	-0.21	0.25	0.29
C8	Pharmacist-pharmacy manager	-0.17	0.03	0.38
	Pharmacist-pharmacy owner	0.03	0.02	0.08
	Pharmacist-locum pharmacist	0.12	-0.38	0.14
	Pharmacy manager-pharmacy owner	0.20	-0.01	0.49
	Pharmacy manager-locum pharmacist	0.29	-0.41	0.35
	Pharmacy owner-locum pharmacist	0.08	-0.40	0.10

<b>Question/ Construct</b>	<b>Occupational groups involved</b>	<b>Mean difference</b>	<b>Std Dev difference</b>	<b>Cohen's <i>d</i> Effect size</b>
C9	Pharmacist-pharmacy manager	-0.11	0.00	0.25
	Pharmacist-pharmacy owner	-0.05	0.18	0.11
	Pharmacist-locum pharmacist	0.06	-0.02	0.13
	Pharmacy manager-pharmacy owner	0.06	0.18	0.14
	Pharmacy manager-locum pharmacist	0.17	-0.02	0.37
	Pharmacy owner-locum pharmacist	0.11	-0.20	0.23
C10	Pharmacist-pharmacy manager	-0.17	0.12	0.37
	Pharmacist-pharmacy owner	0.18	-0.27	0.24
	Pharmacist-locum pharmacist	0.06	-0.02	0.12
	Pharmacy manager-pharmacy owner	0.34	-0.39	0.47
	Pharmacy manager-locum pharmacist	0.22	-0.14	0.47
	Pharmacy owner-locum pharmacist	-0.12	0.25	0.17
C11	Pharmacist-pharmacy manager	-0.23	0.22	0.48
	Pharmacist-pharmacy owner	-0.30	0.42	0.62
	Pharmacist-locum pharmacist	-0.19	0.18	0.39
	Pharmacy manager-pharmacy owner	-0.07	0.2	0.26
	Pharmacy manager-locum pharmacist	0.04	-0.04	0.14
	Pharmacy owner-locum pharmacist	0.11	-0.24	0.37
C12	Pharmacist-pharmacy manager	0.14	-0.04	0.18
	Pharmacist-pharmacy owner	0.06	0.21	0.08
	Pharmacist-locum pharmacist	0.18	-0.01	0.25
	Pharmacy manager-pharmacy owner	-0.08	0.25	0.10
	Pharmacy manager-locum pharmacist	0.04	0.03	0.05
	Pharmacy owner-locum pharmacist	0.12	-0.22	0.17

<b>Question/ Construct</b>	<b>Occupational groups involved</b>	<b>Mean difference</b>	<b>Std Dev difference</b>	<b>Cohen's d Effect size</b>
C13	Pharmacist-pharmacy manager	0.15	-0.09	0.18
	Pharmacist-pharmacy owner	0.13	0.25	0.18
	Pharmacist-locum pharmacist	0.08	0.23	0.11
	Pharmacy manager-pharmacy owner	-0.02	0.34	0.03
	Pharmacy manager-locum pharmacist	-0.07	0.32	0.09
	Pharmacy owner-locum pharmacist	-0.05	-0.02	0.11
C14	Pharmacist-pharmacy manager	-0.05	-0.22	0.05
	Pharmacist-pharmacy owner	-0.35	0.04	0.62
	Pharmacist-locum pharmacist	-0.17	0.00	0.31
	Pharmacy manager-pharmacy owner	-0.30	0.26	0.39
	Pharmacy manager-locum pharmacist	-0.12	0.22	0.17
	Pharmacy owner-locum pharmacist	0.18	-0.04	0.32
C15	Pharmacist-pharmacy manager	0.06	0.10	0.10
	Pharmacist-pharmacy owner	0.19	-0.04	0.32
	Pharmacist-locum pharmacist	0.32	-0.32	0.37
	Pharmacy manager-pharmacy owner	0.13	-0.14	0.23
	Pharmacy manager-locum pharmacist	0.27	-0.42	0.31
	Pharmacy owner-locum pharmacist	0.13	-0.28	0.15
C16	Pharmacist-pharmacy manager	-0.18	0.09	0.36
	Pharmacist-pharmacy owner	0.07	-0.24	0.09
	Pharmacist-locum pharmacist	0.07	-0.12	0.11
	Pharmacy manager-pharmacy owner	0.25	-0.33	0.33
	Pharmacy manager-locum pharmacist	0.25	-0.21	0.40
	Pharmacy owner-locum pharmacist	0.00	0.12	0.00

<b>Question/ Construct</b>	<b>Occupational groups involved</b>	<b>Mean difference</b>	<b>Std Dev difference</b>	<b>Cohen's d Effect size</b>
C17	Pharmacist-pharmacy manager	-0.13	-0.06	0.20
	Pharmacist-pharmacy owner	-0.20	-0.15	0.26
	Pharmacist-locum pharmacist	0.10	-0.06	0.15
	Pharmacy manager-pharmacy owner	-0.07	-0.09	0.09
	Pharmacy manager-locum pharmacist	0.24	0.00	0.35
	Pharmacy owner-locum pharmacist	0.30	0.09	0.39
C18	Pharmacist-pharmacy manager	-0.23	0.07	0.36
	Pharmacist-pharmacy owner	-0.08	-0.13	0.11
	Pharmacist-locum pharmacist	0.16	-0.16	0.19
	Pharmacy manager-pharmacy owner	0.15	-0.20	0.19
	Pharmacy manager-locum pharmacist	0.39	-0.23	0.48
	Pharmacy owner-locum pharmacist	0.24	-0.03	0.30

\*Statistically significant on a 0.05 level ( $p < 0.05$ )

## Demographic differences: experience as a registered pharmacist

Question/ Construct		Mean difference	Std Dev difference	Cohen's d Effect size
D6N1	Less than 5 years - 5 to less than 15 years	0.48	-0.48	0.43
	Less than 5 years – more than 15 years	0.77	-0.37	0.77*
	Five to less than 15 years– more than 15 years	0.30	0.11	0.27
D6N2	Less than 5 years - 5 to less than 15 years	0.18	-0.26	0.22
	Less than 5 years – more than 15 years	0.14	-0.25	0.18
	Five to less than 15 years– more than 15 years	-0.03	0.01	0.04
D6N3	Less than 5 years - 5 to less than 15 years	0.02	-0.03	0.02
	Less than 5 years – more than 15 years	0.29	0.07	0.33
	Five to less than 15 years– more than 15 years	0.27	0.10	0.31
D6N4	Less than 5 years - 5 to less than 15 years	0.05	-0.21	0.05
	Less than 5 years – more than 15 years	-0.04	0.02	0.05
	Five to less than 15 years– more than 15 years	-0.08	0.23	0.09
D6N5	Less than 5 years - 5 to less than 15 years	-0.22	-0.04	0.26
	Less than 5 years – more than 15 years	0.01	-0.08	0.01
	Five to less than 15 years– more than 15 years	0.23	-0.04	0.26
F6N1	Less than 5 years - 5 to less than 15 years	0.21	-0.11	0.25
	Less than 5 years – more than 15 years	0.18	-0.15	0.20
	Five to less than 15 years– more than 15 years	-0.03	-0.04	0.03
F6N2	Less than 5 years - 5 to less than 15 years	-0.23	0.08	0.35
	Less than 5 years – more than 15 years	-0.21	0.08	0.32
	Five to less than 15 years– more than 15 years	0.02	0.00	0.03
F6N3	Less than 5 years - 5 to less than 15 years	-0.34	-0.01	0.34
	Less than 5 years – more than 15 years	-0.12	-0.13	0.10
	Five to less than 15 years– more than 15 years	0.22	-0.12	0.20

Question/ Construct		Mean difference	Std Dev difference	Cohen's d Effect size
F6N4	Less than 5 years - 5 to less than 15 years	0.05	-0.17	0.07
	Less than 5 years – more than 15 years	0.01	-0.08	0.01
	Five to less than 15 years– more than 15 years	-0.04	0.09	0.06
F6N5	Less than 5 years - 5 to less than 15 years	-0.01	-0.09	0.01
	Less than 5 years – more than 15 years	0.01	-0.01	0.01
	Five to less than 15 years– more than 15 years	0.01	0.08	0.02
C1	Less than 5 years - 5 to less than 15 years	-0.02	0.04	0.03
	Less than 5 years – more than 15 years	-0.07	0.02	0.13
	Five to less than 15 years– more than 15 years	-0.06	-0.02	0.10
C2	Less than 5 years - 5 to less than 15 years	0.01	0.08	0.01
	Less than 5 years – more than 15 years	-0.11	0.1	0.19
	Five to less than 15 years– more than 15 years	-0.13	0.02	0.24
C5	Less than 5 years - 5 to less than 15 years	-0.18	-0.01	0.22
	Less than 5 years – more than 15 years	-0.07	-0.12	0.08
	Five to less than 15 years– more than 15 years	0.11	-0.11	0.11
C6	Less than 5 years - 5 to less than 15 years	-0.31	-0.03	0.67
	Less than 5 years – more than 15 years	-0.37	-0.02	0.81*
	Five to less than 15 years– more than 15 years	-0.06	0.01	0.13
C7	Less than 5 years - 5 to less than 15 years	0.07	-0.07	0.12
	Less than 5 years – more than 15 years	0.03	-0.11	0.06
	Five to less than 15 years– more than 15 years	-0.03	-0.04	0.06
C8	Less than 5 years - 5 to less than 15 years	0.05	-0.18	0.08
	Less than 5 years – more than 15 years	0.03	-0.01	0.06
	Five to less than 15 years– more than 15 years	-0.07	0.17	0.12
C9	Less than 5 years - 5 to less than 15 years	0.06	-0.06	0.15
	Less than 5 years – more than 15 years	0.12	-0.17	0.24
	Five to less than 15 years– more than 15 years	0.06	-0.11	0.12

Question/ Construct		Mean difference	Std Dev difference	Cohen's d Effect size
C10	Less than 5 years - 5 to less than 15 years	0.00	0.06	0.00
	Less than 5 years – more than 15 years	-0.01	-0.12	0.03
	Five to less than 15 years– more than 15 years	-0.01	-0.18	0.02
C11	Less than 5 years - 5 to less than 15 years	-0.13	0.12	0.31
	Less than 5 years – more than 15 years	-0.03	-0.05	0.07
	Five to less than 15 years– more than 15 years	0.10	-0.17	0.21
C12	Less than 5 years - 5 to less than 15 years	0.30	-0.24	0.42
	Less than 5 years – more than 15 years	0.43	-0.21	0.62
	Five to less than 15 years– more than 15 years	0.13	0.03	0.18
C13	Less than 5 years - 5 to less than 15 years	0.06	-0.14	0.08
	Less than 5 years – more than 15 years	0.39	-0.13	0.57
	Five to less than 15 years– more than 15 years	0.34	0.01	0.48
C14	Less than 5 years - 5 to less than 15 years	-0.38	0.07	0.65
	Less than 5 years – more than 15 years	-0.20	-0.06	0.31
	Five to less than 15 years– more than 15 years	0.18	-0.13	0.27
C15	Less than 5 years - 5 to less than 15 years	0.11	-0.19	0.18
	Less than 5 years – more than 15 years	0.17	-0.16	0.29
	Five to less than 15 years– more than 15 years	0.06	0.03	0.10
C16	Less than 5 years - 5 to less than 15 years	-0.22	0.01	0.46
	Less than 5 years – more than 15 years	-0.10	-0.14	0.16
	Five to less than 15 years– more than 15 years	0.13	-0.15	0.20
C17	Less than 5 years - 5 to less than 15 years	0.16	-0.18	0.25
	Less than 5 years – more than 15 years	0.29	-0.27	0.40
	Five to less than 15 years– more than 15 years	0.13	-0.09	0.18
C18	Less than 5 years - 5 to less than 15 years	0.31	-0.13	0.43
	Less than 5 years – more than 15 years	0.39	-0.12	0.55
	Five to less than 15 years– more than 15 years	0.08	0.01	0.11

\*Statistically significant on a 0.05 level ( $p < 0.05$ ).



## Demographic differences: corporate experience

Question no		Mean difference	Std Dev difference	Cohen's d Effect size
D6N1	No experience – corporate experience	-0.68	0.33	0.58*
D6N2	No experience – corporate experience	-0.16	0.07	0.22
D6N3	No experience – corporate experience	-0.38	-0.29	0.41*
D6N4	No experience – corporate experience	0.28	-0.20	0.32
D6N5	No experience – corporate experience	-0.24	0.12	0.25
F6N1	No experience – corporate experience	-0.15	0.24	0.15
F6N2	No experience – corporate experience	-0.03	0.01	0.05
F6N3	No experience – corporate experience	-0.22	0.17	0.18
F6N4	No experience – corporate experience	0.22	-0.19	0.32
F6N5	No experience – corporate experience	-0.08	0.02	0.12
C1	No experience – corporate experience	0.08	0.01	0.14
C2	No experience – corporate experience	0.08	0.02	0.15
C5	No experience – corporate experience	0.45	0.02	0.51*
C6	No experience – corporate experience	0.10	-0.12	0.19
C7	No experience – corporate experience	-0.14	0.06	0.24
C8	No experience – corporate experience	0.01	-0.10	0.02
C9	No experience – corporate experience	-0.24	-0.08	0.07
C10	No experience – corporate experience	-0.21	0.11	0.40
C11	No experience – corporate experience	-0.03	-0.01	0.09
C12	No experience – corporate experience	0.01	-0.36	0.01
C13	No experience – corporate experience	-0.04	-0.34	0.05
C14	No experience – corporate experience	-0.02	-0.02	0.03
C15	No experience – corporate experience	0.00	0.14	0.00
C16	No experience – corporate experience	-0.02	0.01	0.04
C17	No experience – corporate experience	0.14	-0.14	0.19
C18	No experience – corporate experience	0.08	-0.10	0.11

\*Statistically significant on a 0.05 level ( $p < 0.05$ ).

## Demographic differences: business management training

Question/ Construct		Mean difference	Std Dev difference	Cohen's <i>d</i> Effect size
D6N1	None - school level	-0.09	0.19	0.08
	None - certificate, diploma/degree	0.00	0.09	0.00
	School level – certificate, diploma/degree	0.09	-0.1	0.09
D6N2	None - school level	0.06	0.11	0.10
	None - certificate, diploma/degree	0.29	-0.41	0.28
	School level – certificate, diploma/degree	0.23	-0.52	0.22
D6N3	None - school level	-0.02	-0.06	0.02
	None - certificate, diploma/degree	0.12	-0.09	0.13
	School level – certificate, diploma/degree	0.14	-0.03	0.15
D6N4	None - school level	0.01	0.15	0.01
	None - certificate, diploma/degree	0.14	-0.16	0.15
	School level – certificate, diploma/degree	0.14	-0.31	0.14
D6N5	None - school level	-0.01	0.08	0.01
	None - certificate, diploma/degree	-0.01	-0.24	0.01
	School level – certificate, diploma/degree	0.00	-0.32	0.00
F6N1	None - school level	-0.11	0.25	0.12
	None - certificate, diploma/degree	-0.02	0.07	0.02
	School level – certificate, diploma/degree	0.09	-0.18	0.11
F6N2	None - school level	0.12	-0.02	0.20
	None - certificate, diploma/degree	-0.11	0.10	0.18
	School level – certificate, diploma/degree	-0.23	0.12	0.38
F6N3	None - school level	0.00	0.15	0.00
	None - certificate, diploma/degree	-0.03	-0.15	0.02
	School level – certificate, diploma/degree	-0.03	-0.30	0.02

<b>Question/ Construct</b>		<b>Mean difference</b>	<b>Std Dev difference</b>	<b>Cohen's <i>d</i> Effect size</b>
F6N4	None - school level	0.08	0.11	0.12
	None - certificate, diploma/degree	0.10	-0.12	0.13
	School level – certificate, diploma/degree	0.02	-0.23	0.03
F6N5	None - school level	0.05	0.05	0.08
	None - certificate, diploma/degree	0.01	-0.15	0.01
	School level – certificate, diploma/degree	-0.05	-0.20	0.06
C1	None - school level	-0.09	0.19	0.15
	None - certificate, diploma/degree	-0.05	-0.05	0.08
	School level – certificate, diploma/degree	0.04	0.19	0.06
C2	None - school level	-0.09	0.16	0.16
	None - certificate, diploma/degree	-0.06	-0.01	0.11
	School level – certificate, diploma/degree	0.03	-0.17	0.05
C5	None - school level	0.22	-0.05	0.25
	None - certificate, diploma/degree	0.52	-0.04	0.59
	School level – certificate, diploma/degree	0.30	0.01	0.33
C6	None - school level	0.00	0.11	0.01
	None - certificate, diploma/degree	-0.14	0.15	0.27
	School level – certificate, diploma/degree	-0.14	0.04	0.34
C7	None - school level	0.15	-0.09	0.29
	None - certificate, diploma/degree	0.26	-0.30	0.35
	School level – certificate, diploma/degree	0.11	-0.09	0.15
C8	None - school level	0.06	0.02	0.13
	None - certificate, diploma/degree	0.08	-0.27	0.11
	School level – certificate, diploma/degree	0.02	-0.29	0.03
C9	None - school level	0.10	-0.11	0.19
	None - certificate, diploma/degree	0.05	-0.04	0.12
	School level – certificate, diploma/degree	-0.05	0.07	0.09

Question/ Construct		Mean difference	Std Dev difference	Cohen's <i>d</i> Effect size
C10	None - school level	0.07	0.03	0.15
	None - certificate, diploma/degree	-0.06	-0.05	0.13
	School level – certificate, diploma/degree	-0.14	-0.02	0.27
C11	None - school level	0.21	0.10	0.37
	None - certificate, diploma/degree	0.01	-0.02	0.02
	School level – certificate, diploma/degree	-0.20	0.21	0.36
C12	None - school level	-0.02	0.17	0.03
	None - certificate, diploma/degree	0.49	0.03	0.70*
	School level – certificate, diploma/degree	0.51	-0.14	0.76*
C13	None - school level	-0.13	0.13	0.18
	None - certificate, diploma/degree	0.21	-0.03	0.29
	School level – certificate, diploma/degree	0.34	0.18	0.46
C14	None - school level	0.29	-0.14	0.43
	None - certificate, diploma/degree	0.15	-0.03	0.27
	School level – certificate, diploma/degree	-0.14	0.11	0.20
C15	None - school level	0.07	0.03	0.11
	None - certificate, diploma/degree	0.07	0.23	0.11
	School level – certificate, diploma/degree	0.00	0.20	0.00
C16	None - school level	0.19	-0.04	0.37
	None - certificate, diploma/degree	-0.04	-0.15	0.07
	School level – certificate, diploma/degree	-0.24	-0.11	0.37
C17	None - school level	0.04	0.01	0.06
	None - certificate, diploma/degree	-0.05	-0.11	0.07
	School level – certificate, diploma/degree	-0.09	-0.12	0.12
C18	None - school level	-0.19	0.05	0.27
	None - certificate, diploma/degree	-0.01	-0.14	0.02
	School level – certificate, diploma/degree	0.17	-0.19	0.21

\*Statistically significant on a 0.05 level ( $p < 0.05$ ).