Commercialisation of customised pharmaceutical compounded creams and ointments in a community pharmacy setting

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306152

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DECLARATION

I, **Itumeleng Bianca Matulodi**, declare that this business venture proposal is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration in the Graduate School of Business Administration, University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

ITUMELENG BIANCA MATULODI 

Signed at Wits Business School, Johannnesburg.

On the 26th day of February 2023

DEDICATION

This MBA thesis is dedicated to my King, my husband Doomnull Attah Unwuchola, and my dearest mother and Queen of my life Jacqueline “Letau” Matulodi.

ACKNOWLEDGEMENTS

MATULODI "Tuludi etau"-The fearless lion. My family's totem is the lion. A lion always leads and never follows. Like a true lioness, I have fearless courage, ruthless certainty, and the willpower to excel. I am a warrior.

It has been a very challenging journey, but I always excel and never give up. I am forever grateful to God for giving me His grace and protection. To my King, my husband Doomnull Attah Unwuchola for his love, devotion, and support- "whatever happens, don't let go of my hand". Thank you for being my best friend, the best husband, and confidant.

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SUPPLEMENTARY INFORMATION

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ABSTRACT

This research intended to discover and explore a business opportunity for high-quality, cost-effective creams/ointments and the therapeutic benefits to the end-user in a community pharmacy setting. A mixed research method was utilised in the proposed business venture in the form of primary and secondary data collection, solidifying methods in answering the research questions. A random sample size of 120 adults was used for the quantitative survey questions and 80 adults for the qualitative survey. Microsoft Excel spreadsheet was utilised to enter all the data and to make inferences from the primary and secondary data obtained. The Statistical Packages for Social Sciences (SPSS) version 28 was used to code data and run the statistical analysis. The research results revealed that the cream combination may be prescribed by either the GP/Specialist and will not depend on gender, age, the frequency of prescribing, and whether the individual is using it for the first time or more. There was a perfect association between price and cream.

Pharmaceutical compounded creams/ointments have a critical part in providing patient-centric products and services for individuals who may be underserved. This is a business that can be leveraged.

Keywords: Customised creams/ointments, pharmaceutical compounding, patient-centric, value-driven.

Introduction

1. Purpose of the study

The proposed business venture aims to explore the opportunities for a start-up business venture to commercialise affordable pharmaceutical compounded creams/ointments.

1.1. Context- Community pharmacist, pharmacy, and pharmaceutical compounding

Community pharmacists are the most available healthcare providers uniquely positioned to provide patient-centric primary healthcare services to the community (Dalton & Bryne, 2017; Elbeddini et al,.2020). As the custodian of medicine and essential front-line workers, community pharmacists are specifically trained to monitor medication therapy, reduce disease burden and adverse drug interactions and effects, and make recommendations to patients or prescribers regarding pharmacotherapy to achieve a desired clinical therapeutic outcome (Dalton & Bryne, 2017; Watson et al., 2021). In addition, pharmacists are well-positioned to mention generic medicines as alternatives to high-cost branded medicines. Thus, assisting in reducing the cost to both the healthcare system and the patient (Dalton & Bryne, 2017).

The pharmacy profession is prone to disruptions and continuously evolves (Elbeddini et al,.2020). Pharmacists have unique acquaintances and skills that other professions cannot duplicate. Their activities include compounding, clinical therapy, and many other factors integrated to treat the patient holistically (Giam et al., 2011; Masupye, 2015). Compounding in pharmacy is diverse, continues to evolve, and provides pharmacists with a unique opportunity of using their innovative expertise to solve patient problems. Pharmacists can have a proactive role in managing the patient's healthcare needs by providing high-quality patient-centric services (Martin et al., 2009; Masupye, 2015).

Pharmaceutical compounding is the invention of unregistered or unpatented pharmaceutical preparations based on the prescriber's request for a prescription to be made in the pharmacy (Hapsari et al., 2018). Pharmaceutical compounding requires precision and accuracy in weighing the active pharmaceutical ingredient and mixing the constituents into a homogeneous consistency. Compounding has always been a pillar of pharmacy

practice and is a core competency in an undergraduate pharmacy degree (Giam et al., 2011; Hapsari et al., 2017; Martin et al., 2009; Masupye, 2015). By law in South Africa and the South African pharmacy regulatory bodies, pharmacists are required to demonstrate compounding skills before registration and continue to maintain these skills as registered pharmacists (Good Pharmacy Practice in South Africa, 2010). Compounding is vital in offering access to medicines for people with special medical needs, which cannot be commercially available (Hapsari et al., 2017). Compounding pharmacists are adequately trained to prepare these formulations in pharmacy practice and must have the appropriate resources, references, and formulary lists to compound quality medications (Masupye, 2015; Watson et al., 2021). Commercialising these formulations will be a convenient and beneficial solution in terms of patient benefits, saving time and cost, and creating value.

1.2. Pricing

There is a vast prospect for pharmacists to profoundly impact decreasing healthcare costs (Dalton & Bryne, 2017). Pharmacists have the expertise to detect and prevent medication errors and resolve medication-related errors (Dalton & Bryne, 2017; Watson et al., 2021). With their expertise in medicines, pharmacists are essential in helping to reduce healthcare expenses through cost savings on medicines (Dalton & Bryne, 2017). The cost of medicines and managing healthcare problems continue to grow exponentially. Pharmacists are well placed to ensure coherent and cost-effective use of medicines, promote healthy lifestyle choices, and enhance clinical therapeutic outcomes by proactively engaging in direct patient care and cooperating with healthcare practitioners (Dalton & Bryne, 2017; Masupye, 2015; Watson et al., 2021). Hence, pharmacists are portrayed as vital components in providing individualised healthcare treatment that is economical for the patient, prescriber, and the healthcare system through clinical pharmacist interventions (Francis & Abraham, 2014; Masupye, 2015). Pharmacists are uniquely positioned to supply unbiased, updated information on any aspect of medication use by offering information on the availability of drug formulations, strength, cost, brand, and generic (Watson et al., 2021). Equally important is the participation of patient counseling on medication usage and lifestyle modifications, patient or community wellness, education programs, and regular health check-ups.

The contributing factor in prescribing compounded creams/ointments is that the patient's needs for the products are covered by medical insurance and can be purchased in cash if the patient does not have medical insurance (Hapsari et al., 2017). Compounded creams/ointment prescriptions can be attractive financially, and professionally, and may be an effective way of reducing the cost of drug therapy (Dalton & Bryne, 2017). In most cases, it is less expensive for the pharmacist to prepare a specific prescription for the patient, which may entail the difference between the patient getting the medication or not (Dalton & Bryne, 2017; Hapsari et al., 2017). The pricing of the compounded creams/ointments should consider pharmacotherapeutic decision-making, availability of the ingredients, healthcare cost, affordability, and the patient's willingness to pay.

Customer/patient satisfaction depends on numerous factors such as the quality of the product and service, price, experience, and willingness to purchase. Price in the marketing mix is the only variable that generates profit (Kotler et al., 2015; Martini et al., 2019). Price can be used as an effective strategic factor in determining the products and the organisation's success. It can also be established with the aim of maintaining customer loyalty and preventing the entry of competitors (Kotler et al., 2015). There are four criteria that classify price; affordability, competitiveness, compatibility with the product, and compatibility with benefits (Amanah et al., 2017). Customers are willing to purchase a product and service based on these four criteria. Value is synonymous with the price and quality of the product and service and affects customer purchase behaviour (Amanah et al., 2017). Customers' willingness to purchase decisions is motivated by high or low prices. Thus, the better the price strategy, the greater the customer's buying decision (Amanah et al., 2017; Nazelina et al., 2020). Marketing scholars perceive value for money as one of the four indicators used to measure customer value (Martini et al., 2019). Since price is influential on a customer's buying decision, organisations should communicate value to customers through price. Also, organisations should take cognisance of the competitor's price for effective decision-making and sustaining competitive advantage (Amanah et al., 2017; Kotler et al., 2015; Nazelina et al., 2020).

1.3. Market opportunity and analysis

The interprofessional interactions between pharmacists and medical practitioners and the interrelationships between pharmacists and patients support the services provided by compounding pharmacies to have diverse options to enhance the therapeutic outcome of patients (Hapsari et al., 2017; Masupye, 2015). Pharmaceutical compounding is vital in providing care to patients with special needs who may be underserved by certain products that are available in the market (Masupye, 2015). There is a growing need for extemporaneously compounded creams/ointments in the community pharmacy and pharmacists, must find a solution to better the therapeutic outcomes by utilising collaborative patient management with other health professionals.

Several commercially available medications are not manufactured at a large scale in suitable dosage forms, and the non-availability of drug products/combinations for certain patients to meet a desired therapeutic outcome that is beneficial to the patient and healthcare professionals (Masupye, 2015). Most healthcare practitioners prescribe and show the desire to have compounded creams/ointments available to the patients by frequently prescribing the same drug combination (Francis & Abraham, 2014). According to Hapsari et al., (2017), community pharmacists have a more positive trusting relationship with patients receiving compounded creams/ointments than those receiving commercially available medicines. Also, pharmacists consider compounding to strengthen confidence between pharmacists and patients. This may encourage patients to adhere to the treatment and possibly increase patient compliance (Giam et al., 2011; Hapsari et al., 2017). Hence, this has created a business opportunity that can be leveraged.

Pharmaceutical compounding produces a customised product suitable to meet the special requirements of the patient. The pharmacist and prescribing doctor have a duty to add value to the care of the patient. The target product in the proposed study is the commercialisation of customised pharmaceutical compounded creams/ointments. Based on the collective experience of the healthcare practitioners at Platinum Health, North West, Rustenburg; there exists an untapped market demand due to frequent prescribing of the target product and the patients using the product. Therefore, product conceptualisation will require a mixture of marketing experience, manufacturing planning and sourcing of raw

materials, technical know-how, business management skills, and strategies (Bagajewicz, 2007; Ng, 2004).

1.4. Research objective

To understand the intended business venture's target market, cost-effectiveness, and patient benefits.

1.4.1 Research questions

Based on the objective above, the following research questions were developed:

1) What market opportunities exist for compounded creams/ointments to satisfy the patient's needs?
2) What benefits will this have for the patient?
3) What cost implication will the product have on the patient?

The first question will address how the product does not depend on gender, age, and the possibility of the prescribing healthcare practitioner not being only dependent on the specialist. The second question will address how the patient will benefit from using the product by it not dependent on gender and age. The third question will address how the price will determine the affordability of the product.

1.4.2. Delimitations

The scope of this research is limited to studying factors affecting patients' use of creams/ointments at Platinum Health medical centre in the North West Province, Rustenburg as well as prescribing practices of the cream/ointment at the facility. Platinum Health medical centre renders medical services to Platinum Health members who are employees and dependents of the scheme and in specific circumstances cash patients. The population focuses only on patients that consulted at the facility and does not include the quality of consultations. The prescribing medical practitioner, the pharmaceutical representatives involved in the supply chain or the pharmacists, and any other medical professional that may affect the patient's decision-making process of product usage will be excluded.

1.4.3. Assumptions

The assumptions made in this research are that the respondents will answer the survey questions honestly and will not be pressured or coerced into selecting a certain answer set or forced to partake in the research. The research survey questions language and literacy level cater to the research population. The availability of the active pharmaceutical ingredients being researched and the cooperation of the healthcare professionals in giving the correct medication and treatment plan. Also, the population under study will use the correct medication as prescribed, complies, and adheres to the treatment.

Literature Review

2. Introduction

The literature review aims to elaborate further based on the discussions of the previous section and understand the market opportunities of the proposed business venture. An analysis of the business management frameworks (PEST, SWOT analysis) and theories (effectuation theory), strategies, skincare products (cosmeceuticals) industry, and the limitations will be debated and supported by research and literature.

2.1. Background

2.1.1. Skincare products, industry, and pharmacy

The largest organ in the human body is the skin (Boon et al.,2020). The cosmetics industry is rapidly emerging globally, and consumers are conscious of keeping their skin healthy and prefer using natural products. Globally, the industry is considered a supply-driven market with innovation as the main driver of growth (Szutowski and Szułczyńska, 2016). Birsan et al., 2022 emphasise that transactions of compounded pharmaceutical products increased approximately by 4.4% from 2016 to 2020 with the expectation for the global market to increase by 8.3% through 2031.

The growing population, increase in spending, technology, and globalisation are contributing factors to the growth (Boon et al.,2020). According to a study by Mordor Intelligence, the skincare market is expected to be 4,34 % of the CAGR (Compound Annual Growth Rate) for the prediction period 2021-2026 (South Africa Professional skincare product market- 2021-2026). South Africa has a market for low-priced, high-quality skincare products that accommodate the skin types of diverse ethnic groups. The South African skincare market segment is diverse, and competition is fierce with international brands i.e., Unilever, Procter & Gamble (P&G), and Avon Justine dominating the market.

The market segment is further divided into the mass market and the premium segment. The premium segment represents 28% of total sales globally and the mass market accounts for

72% (Szutowski and Szułczyńska, 2016). However, there is an opportunity for local emerging brands with innovative products that cater to the market demand, especially in product repositioning, product line expansion, product improvement, and cost reduction (Szutowski and Szułczyńska, 2016). The market demand supports that skin health practice is based on appearance i.e., nourished, moisturised, and an even skin tone or glowing appearance based on the skincare product. Also, product features were important as consumer preferences may be an attribute of consumer behaviour. This may be linked to the cognitive Theory of Buyer Behaviour and the Consumer Decision Making Model (Bray, 2008).

There are many skin care products, brands, and formulations on the market that promote a myriad of benefits for many health conditions. Some are effective, some are not, and some are counterfeit. The Medicines and Related Substances Act, of 1965 states "counterfeit medicine" means medicine in respect of which a false representation has been made about its contents, identity, or source by any means, including its labelling and packaging (The Medicines and Related Substances Act, 1965, p51). There is a high prevalence of counterfeit medicine and recent skin-lightening (skin bleaching) formulations that contain toxic banned substances such as mercury and hydroquinone (Davids et al., 2016; Sari et al., 2018).

Skin lighteners have been used for decades and in South Africa, pharmacy has influenced the manufacturing and distribution of these products dating back to the 1970s (Davids et al., 2016). To increase the bottom line, pharmacists often sold various non-medicinal products such as cosmetics, perfumes, and skin lighteners. The most lucrative medicinal and cosmetic products for pharmacists were products manufactured by themselves. Twins Pharmaceutical Holdings became a cosmetic firm with their ‘Super Rose’ skin-lightening cream and became a popular product amongst consumers (Davids et al., 2016, p3).

Good skincare products like most quality products are heavily priced, which may not be attainable to the consumers who need them most (Kamwendo & Maharaj, 2022). Statistics South Africa (2021) retail trade statistics indicated that pharmaceuticals and medical goods, toiletries, and cosmetics were among the most traded goods within the retail industry. The proposed business venture tends to create a high-quality product that solves

skin concerns, and price, is reliable and simple to use, and is commercially available (Kamwendo and Maharaj, 2022). To fulfill the market requirements and expectations it is essential to create a product-specific (brand awareness) that is customer-centric adds value, and solves a problem (Kotler et al., 2015). Aligning the brand with the value proposition and network partners, customer buying power, paying more attention to customer behaviour or attitude, past experience, and the value of money (Kotler et al., 2015; Zeithaml, Berry and Parasuraman, 1996; Zeithaml et al., 2006). The innovative product will have to satisfy the desires of the consumer and develop trust to retain and increase customer loyalty or brand awareness.

There is a growing emphasis on product formulation backed by numerous research topics that have created value in the interest of product innovation, design, and development (Birsan et al., 2022; Carvalho and Almeida, 2022; Florence and Lee, 2011; Markiewicz and Idowu, 2018). However, a knowledge gap exists regarding commercialising customised pharmaceutical creams/ointments, the dynamics of consumer preferences on the product, and its implications. Equally important is the use of customised pharmaceutical creams/ointments on a specific gender, the duration, therapeutic outcomes, and perceptions of the healthcare practitioners as well as the end-user.

2.2. Business management frameworks, theories, and Strategies

2.2.1. Industry Analysis

This analyses the market trends and opportunities of the cosmetic skincare and compounding pharmaceutical dermal products sector. The global cosmetic skincare industry is huge and shows no indications of slow growth (Birsan et al., 2022; Carvalho and Almeida, 2022; Sahrash and Rao, 2022). According to a report conducted by Persistence market research (2023-2033), the global compounding pharmacies market size was approximately US $10.3 billion for 2022, and the projected market value through 2033 US $ 25.4 billion with 8.6% CAGR (Compound Annual Growth Rate). The industry is expanding due to the rise in customer need for commercially available low-cost cream/ointment from a grooming perspective as well as changes in lifestyle habits and demand for better skincare products. There is a desire to understand consumer preference

in the selection of skin care products and pharmaceuticals are the most traded industry (Kamwendo and Maharaj, 2022).

According to study by Mordor intelligence, in South Africa the skin care market is expected to cap $839 million by 2023. South Africa, is the main leader and more established of the markets in Africa, followed by Nigeria, Kenya, Ethiopia, Tanzania, Ghana, and Cameroon (Mordor intelligence, 2023). In the cosmetics industry, the concept of product individualisation must serve one purpose: fulfill the demand for beautification (Birsan et al.,2022; Carvalho and Almeida, 2022; Markiewicz and Idowu, 2018). Product individualisation in cosmeceutical products conferring to the skin type is highly appreciated globally (Birsan et al.,2022). The customisation of cosmetic products permits the consumer to adapt to the product, and to certain qualities that are desired (Carvalho and Almeida, 2022; Markiewicz and Idowu, 2018). This trend is also applicable to compounding pharmaceutical creams/ointment products. They provide a moisturising effect for all skin types, since consumers have a preference for products that can be effortlessly applied and absorbed rapidly (Florence and Lee, 2011; Carvalho and Almeida, 2022; Markiewicz and Idowu, 2018). Park and Yoo, 2018, suggest that a crucial feature by which organisations can succeed in differentiating their products is customisation. They can direct product differentiation according to the desires and preferences of the consumer (Park and Yoo, 2018). Furthermore, the main objective is to produce individualised products with almost mass-production efficiency (Park and Yoo, 2018). Hence, it is necessary that the products can satisfy the consumer's needs by solving certain problems in an untapped market (Carvalho and Almeida, 2022; Markiewicz and Idowu, 2018). Consumers are now aware of the status of cosmeceutical skincare products and their positive effects on improving confidence, self-image, and self-esteem (Birsan et al., 2022; Bryne et al., 2018).

2.2.2. Competitor Analysis

Porter's Five Forces (figure a) will be prominent in the new business venture for understanding the competitors, new entrants to capture the market, and buyer power and bargaining supplier power (Porter, 1980; Porter, 2008). It will assist in evaluating the position of the proposed business venture in relation to the factors affecting the industry

and how to have a distinctively unique, sustainable competitive advantage. Also, it will assist in having an effective strategy to anticipate the competitor's response and improve profitability.

An organisation is thought to have a competitive advantage when its revenue is greater than the average rate in that industry, and to have a sustained competitive advantage when it maintains a high revenue for several years (Ferdinand and Ciptono, 2022; Hosseini et al., 2018). Industry attractiveness and profitability are essential as the basis of strategic planning and decision-making. Industry profitability may also be affected by the organisation's position in the industry, competition level, and competitive advantage in the industry (Hosseini et al., 2018). Competition intensity can be analysed using the Porter Five Forces model (refer to **Figure a**). An organisation's success is not only influenced by the environment but by how the organisation reacts to the dynamic change in the environment (Ferdinand and Ciptono, 2022; Hosseini et al., 2018).

Threat of new entrants: Threats from new entrants are the likelihood of a new player entering the industry (Gebashe et al., 2022; Sivaram et al., 2019). Customised compounding pharmaceutical creams/ointments, in comparison to cosmetic skincare and pharmaceutical sectors, is highly competitive. There are numerous barriers to entry that require substantial capital. These sectors have a tendency of attracting new entrants striving to capture market share, which has high entry costs (Gebashe et al., 2022; Sivaram et al., 2019). These sectors are very dynamic and require huge investments in R&D to meet customers' needs. New entrants interested to enter the market will have to adhere to strict government regulations and have solid access to distribution channels, which may discourage some players due to the current economic instability. As applicable to the proposed business venture. The switching cost for consumers will be high as there are brands that have established a loyal customer base (Gebashe et al., 2022; Sivaram et al., 2019; Wouters et al., 2019).

Bargaining power of buyers: Buyer power denotes the ability of the customer to demand higher quality or lower price with the best customer service (Gebashe et al., 2022; Widyastuti and Hidayat, 2022). In general, the smaller and more influential the customer

base, the higher the bargaining power of the customers (Gebashe et al., 2022; Widyastuti and Hidayat, 2022). Consumers demand customised skincare products as per the purpose of the study. Consumers tend to have the power to influence market prices as opposed to the supplier (Gebashe et al., 2022). The industry is quite attractive with good opportunities, which may enforce the product to be of superior quality at an affordable price. Also, considering the current challenging global and local economic conditions.

Bargaining power of suppliers: The power of suppliers denotes the supplier's capacity to influence the organisation's cost and final product or service by influencing the availability, cost, and quality of raw materials (Ferdinand and Ciptono, 2022; Gebashe et al., 2022; Sivaram et al., 2019; Wouters et al., 2019). There are numerous suppliers in the skincare and pharmaceutical sectors, and suppliers have specialised knowledge of the raw materials which are approved by regulatory bodies. Building an effective and efficient supply chain with numerous suppliers and using product differentiation will give the organisation an edge so that if the price of a certain raw material increases, the organisation can shift to another.

Rivalry among existing competitors: internal rivalry denotes competition intensity in the industry. Competition is fierce and dominated by reputable international brands such as L'oreal, Unilever, and Estée Lauder which have strong brand loyalty (Ferdinand and Ciptono, 2022). Equal to note are health spas which have their beauty products. A small number of profitable organisations that elect to stay are usually eaten up by the profits of the dominant players. Furthermore, the dominant players spend money on R&D, social media, and influencer marketing(Ferdinand and Ciptono, 2022; Hosseini et al., 2018). Hence, customers have a variety of choices available at their disposal and face no switching costs. The exit barrier is high. The aim is to understand the competition and leverage on the purpose of the study.

Threat of substitute of products: Substitution denotes the industry product or service that satisfies the same requirements differently (Hosseini et al., 2018). The threat of a substitute product/service is high if it has a value proposition that is distinctively unique. There is a small number of consumers who use homemade or organic products i.e., Skoon Skin.

However, the proposed business venture aims to be patient-centric. It will aim to improve the quality of the product, maximise value for money and set strong product differentiation.

Porter's Five Forces assist in understanding an industry's attractiveness which aids in better decision-making, creating a strategic organisational structure, and how to manage uncertainty.

Figure a: Porter's Five Forces depicting the proposed study

Source-https://www.business-to-you.com/

2.2.3. Environmental Analysis

This assesses the broad spectrum of the industry with respect to the customer perspective and the uncertain business environment (Siddiqui, 2021). PEST analysis is a framework that strategically evaluates the business performance and operations in terms of political, economic, socio-cultural, and technological issues (Siddiqui, 2021). Political stability contributes to understanding the industry and government structure or influence. Economic positions such as recession, inflation, or interest rates may influence customer experience and purchase behaviour (Lemon and Verhoef, 2016).

The environment can have an important effect on customer experience, customer dynamics, and even customer heterogeneity. Customer experience is integral for the total quality management of the product and service. Customer experience consists of touch points that may be observed through the customer journey, such as service delivery, service encounters, post-service delivery, multicultural service environment and or service interaction, word of mouth as well as customer satisfaction (Kotler et al., 2015; Rust et al., 2006; Zeithaml et al., 2006). Face-to-face interaction creates a lasting experience for the customer and is important for the proposed business venture. Every customer experience is unique, and the general experience will be different for every purchase each time. The more intangible the products and services offered, the more each customer will express the experience differently (Kotler et al., 2015; Lemon and Verhoef, 2016). Lemon and Verhoef (2016) note that customer interaction between touch points is emotionally and functionally different in every customer experience.

Table 2: Depicting PEST analysis for the proposed study

POLITICAL	**ECONOMIC**	**SOCIAL**	**TECHNOLOGY**
• Protection of consumer rights • Trade and pricing regulations • E-commerce regulations and POPI Act • Government/union/labour/ Department of health regulatory bodies • Environmental issues/community awareness campaigns • Fast Moving Consumer Goods (FMCG) sector/Fair trade policies	• Inflation/employment rate/petrol price/economic growth • Consumer confidence/buying power • Tax legislation • Industry laws and policy changes • End-user experience and quality of product • Price transparency	• Lifestyle trends • Consumer perception and expectation • Corporate Social Responsibility (CSR) and animal-tested products • Consumer behaviour intention • Influencer/celebrities and social media presence • Price transparency and quality product	• E-marketing/e-commerce • Information Communication Technology • Intellectual Property • Personalised user-experience

2.2.4. SWOT Analysis

SWOTS (Strengths, Weaknesses, Opportunities, and Threats) analysis is an essential tool used by companies and managers for strategic planning, evaluation, and positioning in decision-making and identifying the company's competencies and inefficiencies both internally (strengths and weaknesses) and externally (opportunities and threats) (Benzaghta et al.2021). It is aligned with the company's strategic vision and mission. Strategic planning is significant in strategic management as it assists the company in improving operational efficiencies and creating a sustainable competitive advantage (Tidor and Morar, 2013).

Table 3: Depicting SWOT analysis

Strength	**Weakness**
• Innovative product that is problem-focused • Strong distribution channel • Build interpersonal relationships with stakeholders • eMarketing to network partners • Integration with medical schemes and the health sector • Affordable pricing strategies • High-quality, reliable, and easily accessible product • Personalised end-user experience	• Lack of capital • Limited experience in large-scale manufacturing • Raw materials may be difficult to obtain due to the slow economic rate • Unstable supply chain • Low market investment and brand awareness/acceptability • Limited marketing to medical personnel and network partnerships • Limited clientele/patient base
Opportunities	**Threats**
• Build a robust supply chain and network partnerships	• Changing customer preference and perceptions

• Increase market demand and growth trend • Availability of the innovative product (commercialisation) • Increase end-user awareness and leverage customer loyalty • Continuous improvement of product/diversified product range (variation) • Advertise/market in medical journals to improve brand awareness and brand positioning • Increase market share	• Competitors i.e., Fargon personalising medicine and Competitor response • Competition on price • Consumer preference for natural products • Stringent political, legal, and government regulations • Economic issues (inflation) • Counterfeit products • Not well-established brand or process (i.e., large scale manufacturing of innovative product) • Stock-outs or limited raw materials/active ingredients

2.2.5. Marketing Mix

The Marketing mix (the 4P's of marketing: Price, Place, Promotion, and Product) is a strategic conceptual framework and fundamental component of marketing for companies to create value, deliver and communicate value for customers as well as capture value and build strong customer relationship management (CRM) (Išoraitė, 2016; Kotler et al., 2015). The marketing mix components are interdependent and are essential for companies to meet their objectives and create value. In order to create value for customers and build customer relationships, companies need to understand the marketplace, the customer's desires and wants, and understand the market segment, target, and positioning (STP) (Smith and Colgate, 2007). As well as design a customer-centric marketing strategy that delivers value for the product and service provided, builds profitable relationships and captures value from customers and customer equity (Kotler et al., 2015; Smith and Colgate, 2007).

a) Product

The product denotes the tangible good or service the proposed business venture will offer. The therapeutic benefit and value-added to the patient to improve quality of life. Essentially the product is the customer value. It may also include the homogeneous consistency of the product, the willingness to buy, the customer/patient's perception and expectation of the product, and the end-user experience (Išoraitė, 2016). The product should focus on efficacy and quality as well as the brand image to enhance the public view and gain customer trust and market positioning (Gebashe et al., 2022; Sivaram et al., 2019; Widyastuti and Hidayat, 2022). Establishing a respectable image plays a crucial role in enhancing customer satisfaction and loyalty and having a competitive advantage.

Increased stringent laws of regulatory bodies have created an environment in which consumers are aware of quality skincare products. Consumers are interested in skin care products and demand quality yet affordable products that cater to their needs (Gebashe et al., 2022; Sivaram et al., 2019; Wouters et al., 2019). There is a rise of new kinds of products, especially domestic cosmetics brands in improving customer satisfaction that caters to the rising demand of consumers of all age groups having different skin types (Gebashe et al., 2022; Sivaram et al., 2019; Widyastuti and Hidayat, 2022).

The cosmetic industries have developed solutions to deliver skin benefits to a wide range of skin tones in mass-market products (Gebashe et al., 2022; Sivaram et al., 2019). However, consumers demand personalised and differentiated skincare products that will consistently meet their refined requirements.

b) Price

Price is considered to be the most flexible and essential out of the 4P's and may serve as an indicator of product quality, affordability, and production volume, and willingness to purchase. The price is an essential element affecting the consumer's buying power because it assists in understanding the cost of the product and the company's profitability or market share (Išoraitė, 2016). The proposed business venture's value proposition is to make the products/services easily accessible at a lower price.

c) Promotion

It includes how companies communicate, educate and persuade consumers of the benefits of their products and services through advertising, sales promotion, discounts, personal selling, and public relations and loyalty programmes (Išoraitė, 2016). It encourages the consumer to purchase the product, which increases sales (Išoraitė, 2016). The proposed business venture will utilise corporate sales representatives such as pharmaceutical representatives/sales representatives, doctors, pharmacists, and healthcare personnel network partners.

d) Place

The place is concerned with the physical distribution of the products and services as well as the market position of the product (Išoraitė, 2016). The proposed business venture is trying to make the product commercially available, easily accessible, and user-friendly to the end-user. It is trying to create end-user convenience.

2.2.6. Market Attractiveness and Trends

There is a boost in consumer preferences toward natural skincare products, and innovative products are released at lower prices. Consumers are more knowledgeable and brand-aware, and want good value for money on their skincare products (Kamwendo and Maharaj, 2022; Lopaciuk and Loboda, 2013). This market trend is also putting pressure on manufacturers to be agile and adapt to the dynamic changing consumer environment. E-commerce is rapidly developing and is a preferred means of purchase amongst Generation Y (the generation born between the 1980s and 1990s) and when selecting a product, price is a contributing factor (Boon et al., 2020). eMarketing is also an increasing trend, with well-established brands using influencers and celebrity endorsement to capture value and increase brand loyalty. Consumers have also put pressure on manufacturers, for the products to be environmentally safe, dermatologically tested, and not tested on animals (Kamwendo and Maharaj, 2022; Lopaciuk and Loboda, 2013). Also, manufacturing companies should practice good corporate social responsibility (CSR). The demand for skin care products will continue to grow due to technology and the changing environment,

globalisation, increased consumer spending, product variation, and consumer preferences and expectations.

2.2.7. Business Model Canvas

As a starting point, the business model canvas will be critical for understanding the proposed business venture's value proposition, market segment, performance, and key success factors. It will assist in understanding the distinctively unique competitive advantage that the business venture hopes to achieve as well as its core competencies and value capture (Peric et al., 2017). The business model will align with the strategic vision of the proposed business venture. The results of the data analysis will be the guide to the proposed business venture as per the business model canvas. It will be achieved by testing the influence of certain characteristics of the product. This will be in terms of certain factors which include gender, age, purchase area, frequency of prescribing, affordability, texture, and the prescriber.

BUSINESS MODEL CANVAS Adapted from Business Model Canvas (Clark, Osterwalder &Pigneur, 2012)

<table>
<tr>
<td>KEY PARTNERS
Wholesalers and distributors
Pharmaceutical sales representatives, medical personnel, end-user
Corporate Social Responsibility
RSA Government (Department of Trade and Industry (DTI), Department of Health)
Regulatory bodies (South African Pharmacy Council, Pharmaceutical Society of South Africa, SAHPRA)</td>
<td>KEY ACTIVITY
Marketing,promotion, branding, and packaging.
Sourcing and procurement, product quality control
Inventory (stock) management
Customer Support
KEY RESOURCES
Manufacturing/production facilities
Pharmacy premises, equipment, and storage facilities
Tangible and intangible resources,regulatory knowledge and pharmaceutical knowledge</td>
<td>VALUE PROPOSITION
Accessible, cost-effective, affordable high-quality, convenient, and reliable products.
Economical, innovative, and effective formulation that is customer-centric.
Personalised collaborative relations with the end-user.
CUSTOMER RELATIONSHIP
Provides personalised consultations
Ensures availability of product
Offers educational resources and delivers excellent customer service</td>
<td>CUSTOMER SEGMENTS
Caters to both male and female (gender neutral).
Demographics i.e. age 16-80 years
Personalised collaborative relations with the end-user for their skin condition.
CHANNELS
Business website/ online presence
Wholesalers and distributors
Business Journals/networking
Direct and indirect marketing
Word-of-Mouth</td>
</tr>
</table>

	COST STRUCTURE • Prescription-based sales • Product sales • Fixed and variable cost • Personalised skincare consultations		**REVENUE STREAM** • Prescription-based sales • Personalised skincare consultations • Product sale, promotion, and distribution of product

2.2.8. Value chain

The value chain is the set of activities (support and primary activities) involved in delivering value to customers as well as performing different sets of activities. All the competitive advantage dwells in the value chain and strategy are manifested in choices about how activities in the value chain are constructed and linked together (Bustinza et al., 2015; Porter, 1998 & 2001; Ensign; 2001). The value chain allows for strategic positioning and thus has a competitive advantage (Porter, 1998 & 2001). Equally important in the value chain is the margin which transforms into the value of what the customers(patients) are willing to pay (Porter, 1998 & 2001; Ensign; 2001). Thus, Porter's Framework advises that having two ways to compete is through differentiation and low cost, meaning that the proficiency of the low-cost product's price structure permits pricing lower than the average competitor which may place the competitor out of business in the long run. Furthermore, the substitute for the low-cost needs to be a differentiation offering distinctively unique product traits that customers values and are willing to pay a premium (Porter, 1998 & 2001). Porter's Framework emphasises competition and rivalry, and the key message of the value chain is achieving sustainable competitive advantage by beating the opposition in the activities that are critical to the competitor (Porter, 1998 & 2001).

Community pharmacy functions between the healthcare and retail ecosystem. Thus, the attributes of the business market and its strategies must be considered for it to have operational excellence. Its distinctive value chain embodies choices about how the organisation will operate differently to deliver its uniqueness by having trade-offs. Trade-offs create the need for choice and make the organisation's strategy sustainable against imitation (Porter, 1998 & 2001). Porter, 1998 & 2001, describes sustainable advantage as not being able to be imitated and that the primary and secondary activity leverage off each other for continuity and operational effectiveness. Value creation and customer satisfaction are integral factors in business, due to their impact on the business strategy and bottom line (Refer to **Diagram 1**: Porter's value chain for the organisation and proposed business venture).

The objective is to explore and establish a blend that differentiates the supply chain from rivals and a blend that is patient-centric, value-driven, and that patients are willing to pay for (Melnyk et al., 2010). However, blending outcomes requires trade-offs; it is not monolithic and should be tailored for the end-user (Melnyk et al., 2010). This notion ties in with Porter's Framework (Porter, 1998 & 2001). Furthermore, the Delta Model places the customer/patient at the centre of the organisation's strategic management and objectives for continuous improvement, agility, and sustainability (Hax & Wilde II, 2001). The Delta Model integrates Porter's Framework and Resource-Based View of the Firm, for strategic implementation and execution of Total Quality Management (TQM) through the utilisation of The Triangle - Three Distinct Strategic Positions (System Lock-in, Best product, and Total Customer Solutions (TCS) (Hax & Wilde II, 2001). Refer to the Delta Model in **Figure1**. Total Customer Solutions: the research discovered the opportunity to provide a solution of commercialising a customised cream combination, and cooperation is between the triad relationship and the organisation's resources and capabilities, and competencies. The strategic positioning of low-cost products and differentiation is focused on the economics of the product (Hax & Wilde II, 2001). The cornerstone is integration and triangulation of the value chain for patient-centricity and sustainable competitive advantage.

Figure 1: The Delta Model depicting The Triangle with Three Distinct Strategic Positions

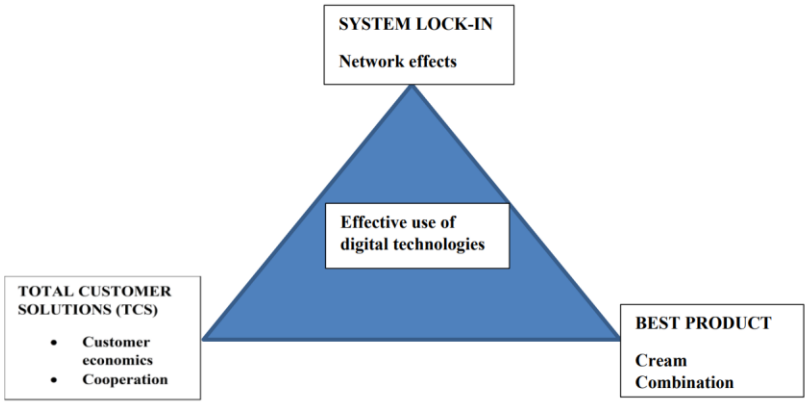
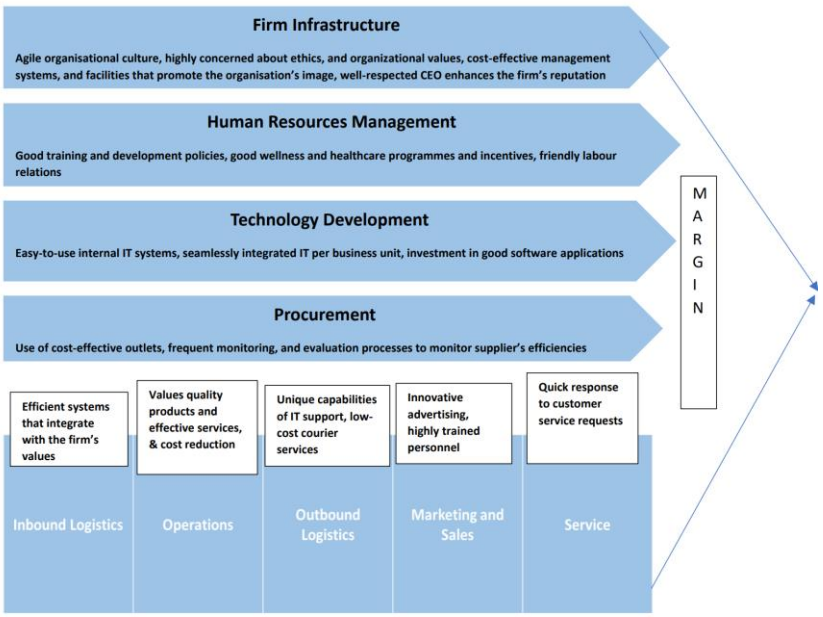


Diagram 1: Porter's value chain for the organisation and proposed business venture.

Adapted from Porter's, V. C. M. (1985), pg2.



2.2.9. Effectuation Theory

Effectuation theory was developed by Saras Sarasvathy (2001) (Matalamäki, 2017; Perry et al., 2012). It is focused on the perception that entrepreneurs do not control or predict the future, but instead can leverage the existing resources and participate in a process of continuous experimentation and adaptation (Perry et al., 2012). The triad relationship will benefit the proposed business venture in that a collaborative partnership exists between healthcare practitioners. The effectuation theory was applied by utilising the unique skills and expertise of the pharmacy staff that can contribute to the marketing, development, and distribution of these products. Equally important was continuously evaluating customer feedback, and preferences and optimising collaborative strategies for suppliers and distributors. Network partnerships will include manufacturers and distributors who can assist in reaching the target market as well as a robust supply chain. A generalised overview of the supply chain process will include the following:

a) Procurement will entail establishing a relationship with dependable suppliers or manufacturers who can constantly provide high-quality products, i.e., Aspen Pharmacare, Adcock Ingram, Mylan South Africa, Pharma-Q, etc.
b) Inventory(stock) levels-the Inventory levels need to be precisely monitored and managed to ensure adequate stock availability. Stock levels will also be based on historical sales data, customer demand, and prescribing frequencies to manage stock efficiently.
c) Storage of product-the cream/ointment will be stored in temperature-controlled environments, to maintain their quality and effectiveness as per the pharmacy regulatory authorities.
d) Order Processing: When a customer requests the product, the processed order involves picking the product from the inventory, packaging it, and preparing it for distribution.
e) Distribution: the product will be distributed directly to the pharmacy.
f) Point of Sale: the product (cream/ointment) is made available to the patient through the pharmacy. The point of sale includes product display, pricing, and interaction with the patient.

g) Customer Relationship Management: the pharmacy provides patients with information on product usage, precautions, support, and feedback.

When applying the Effectuation theory to the proposed business venture, available resources will be leveraged, opportunities created, and the ability to adapt to uncertainty (Matalamäki, 2017; Perry et al., 2012). It is important to note that effectuation is an iterative and dynamic process (Perry et al., 2012). It will involve constant experimentation, monitoring market trends, customer feedback, and collaboration with stakeholders to create value and make informed marketing strategies (Matalamäki, 2017; Perry et al., 2012). Opportunities leveraged include the existing infrastructure, customer base, and relationships with suppliers. The co-creation and partnerships involve collaborating with suppliers, and distributors to establish a robust supply chain as well as engaging with customers through surveys to provide valuable insights and enhance customer satisfaction.

Research Methodology

3.1. Introduction

This section elaborates on how the data was collected and analysed, including the proposed business venture's reliability, validity, and paradigm. The limitations and ethical issues of the research were considered during the data collection and analysis process.

3.2. Research approach- Mixed Method

A mixed research method was utilised in the proposed business venture in the form of primary and secondary data collection, solidifying both methods in answering the research questions. Mixed method research has with bothered research discipline seen prevalent in other research disciplines, especially social sciences, and has been expanding in recognition among healthcare professionals (Wasti et al, 2022). Its popularity is due to using qualitative and quantitative data in a single study which gives better inference than using either method alone (Wasti et al, 2022). According to Wasti et al, 2022, quantitative research is supported by positivism, and qualitative research is naturally based on the idea that we all encounter the world in different ways. Hence, the duty of qualitative research is to analyse the people's explanations in the sample (Wasti et al, 2022).

Mixed-methods research takes questions from two different viewpoints into the third research path, the paradigm or the third methodology movement and pragmatism (Wasti et al, 2022). The two paradigms differ in the fundamental ideas that eventually lead to preferences in research methodology and often give depth and breadth by solving complex research questions (Wasti et al, 2022). Mixed-method research gives clarity in understanding the meaning, situation, norms, and values within a research question which combines the strength of two different methods and offers several objectives of looking at the research question(s) (Wasti et al, 2022). However, Creswell and Plano Clark (2011), argue that mixed-method has its own theoretical assumptions and methods of analysis. Bryman (2012), the most prevalent research paradigm is positivism, and it objectively verifies facts by post-positivism means, it may also shift post-positivism to constructivism theoretical assumption. Nevertheless, pragmatism embraces both points of view of positivism and constructivism (Bryman, 2012; Teddlie and Tashakkari, 2009). Wilkinson

and Staley (2019), elaborate that explanatory sequential mixed-method is appropriate when the researcher and research problem are quantitatively oriented, and the researcher has identified a variable to measure and access the participant's qualitative data collection.

The explanatory sequential design is prevalent among researchers, where the researcher first collects quantitative data followed by qualitative data and integrates both data to get a conclusion (Teddlie and Tashakkari, 2009). The integration and triangulation of the data combine quantitative results and qualitative findings, which supports an in-depth understanding of the data and strengthens the value of the mixed method. Findings from the qualitative phase explained and provided a comprehensive contextualisation of results and interpretations drawn from the quantitative phase. The results obtained formed the conclusion and further recommendations.

3.3. Research design

The mixed-method research approach is a research design that combines both qualitative and quantitative methods within research sequentially (Creswell and Plano Clark 2011; Teddlie and Tashakkari, 2009; Wasti et al, 2022). It encompasses conducting one phase of data collection and analysis, followed by another phase that builds upon the research findings of the previous phase. Qualitative data denotes non-numerical data collected and analysed to comprehensively understand the research questions (Creswell and Plano Clark 2011). In the quantitative phase, data collection methods include surveys, experiments, or measurements (Creswell and Plano Clark 2011). The data collected in this phase aims to validate the findings from the qualitative phase and provide numerical evidence. Data analysis used statistical analysis techniques, such as descriptive statistics, and inferential statistics to find correlations or relationships between variables as well as test the hypotheses or research questions(Creswell and Plano Clark 2011). Triangulation or integration of the findings was done by combining qualitative and quantitative data, to verify and corroborate findings, and enhance the validity and reliability of the results (Creswell and Plano Clark 2011).

3.4. Data collection

In this research, a mixed-method explanatory sequential design using, primary data refers to the data collected by the researcher specific to the study (Creswell and Plano Clark 2011). Primary data is gathered directly from participants through the use of a survey. In the context of an explanatory sequential design, primary data is collected in the study's qualitative and quantitative phases (Creswell and Plano Clark 2011; Teddlie and Tashakkari, 2009; Wasti et al, 2022). In the qualitative phase of the explanatory sequential design, primary data typically consisted of an open-ended survey for a deeper understanding of the experiences and contexts of the participants and to create rich qualitative results (Creswell and Plano Clark 2011). In the quantitative phase, primary data usually consists of quantitative data, such as structured surveys and questionnaires, or measurements to allow the researcher to collect numerical data on variables, correlations, or relationships, and test the hypotheses or research questions using statistical analysis (Creswell and Plano Clark 2011; Teddlie and Tashakkari, 2009; Wasti et al, 2022). The primary data collected in each phase of the explanatory sequential design supports specific purposes (Teddlie and Tashakkari, 2009; Wasti et al, 2022). In the qualitative phase, primary data assists researchers in developing theories, generate hypotheses, explore concepts, and give a rich descriptive understanding of the research topic (Teddlie and Tashakkari, 2009; Wasti et al, 2022). In the quantitative phase, primary data aids researchers in validating the findings from the qualitative phase and establish statistical evidence or draw conclusions (Creswell and Plano Clark 2011; Teddlie and Tashakkari, 2009; Wasti et al, 2022).

In a mixed-method explanatory sequential design, the secondary data refers to current data that was collected for a different purpose by someone other than the researcher conducting the study (Creswell and Plano Clark 2011; Teddlie and Tashakkari, 2009; Wasti et al, 2022). The secondary data was collected from the employer, Platinum Health in North West, Rustenburg. A survey was used as primary data, and secondary data was information gathered from the employer. A survey is inexpensive, anonymous, and specific about the sampled population, the market, and the implications that can be interpreted. The measures used in the qualitative phase were document analysis using coding schemes to guide the

analysis and identify relevant patterns in the data (Saunders et al.,2015). The quantitative phase used survey questionnaires comprising rating scales and existing datasets from the employer relevant to the research questions. The existing datasets contained variables and measures collected for other purposes, which were used to address the specific research objectives. The measures used were reliable, valid, and appropriate for the proposed research.

In the quantitative phase, secondary data may consist of existing datasets, statistical reports, surveys, or numerical data collected for purposes other than the current research (Creswell and Plano Clark 2011; Teddlie and Tashakkari). Researchers can use secondary quantitative data to complement or supplement the primary quantitative data collected in the study. The rationale is that the organisation has an already established product and service market. It has a holistic business approach and database in which there is an integration of its products and services which can be obtained and utilised onsite in its facilities. The data assisted in answering the research questions that defined the product's place in the market, and customer's perception and expectation, and implications thereof. The mixed-method explanatory sequential design permits a comprehensive understanding of the research question by integrating qualitative and quantitative approaches.

3.5. Population size

According to Williams et al., 2022, in order for quantitative research to be testable to a larger population, a probability sampling method must be utilised. In this research, the population was 120 adults, with an age range of 16-80 for the quantitative survey questions. The population was South African men and women of all races, age groups, educational statuses, and socio-economic statuses, who utilised the healthcare services of Platinum Health. The population included patients, doctors, and pharmacists of Platinum Health, North West Rustenburg.

3.6. Sample size

A sample is a subgroup of a population selected to participate in the research. It is a fraction of the whole, chosen to participate in the research project (Anas et al., 2022; Boddy, 2016; Williams et al., 2022). The sample size in qualitative research is naturally smaller and is

influenced by data saturation (Creswell and Plano Clark 2011; Teddlie and Tashakkari). In this research, the second connection was the qualitative data of a sample size of 80 randomly selected adults, the age range of 16-80, who utilised the healthcare services from Platinum Health. The sample size covered only the patients serviced by the organisation i.e., medical aid members or cash payment members and Platinum Health's prescribing doctors. The sample size was collected from the organisation with permission from the business unit manager and using all company policies, resources, and protocols.

The population and sample size in both phases of the study were carefully considered to ensure the appropriateness of the research questions, and the statistical analysis techniques employed. They contributed to the reliability, and validity of the research findings.

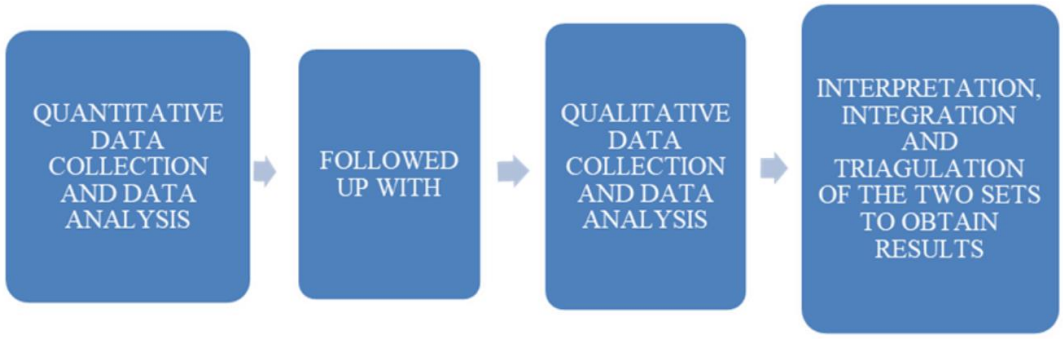
The descriptive analysis examined the demographic data obtained from the secondary source, i.e., data from the organisation Platinum Health such as age, gender, first-time user of the cream/ointment in the study, and a number of doctors prescribing the cream/ointment. The data collected was from batches of prescriptions obtained during the year to determine and verify the frequency of prescribing, the extent of compounding the cream/ointment, patient benefits, and the duration of using the product (Brion et al., 2003; Gross, 2005; Schultz, 2007).

The secondary data comprised a qualitative survey with the prescribing doctors and pharmacists (refer to Appendix Pharmacist and doctors qualitative survey). The personnel was randomly selected to collect information for Quality Assurance (QA) characterisation for compounding practices, frequency, processes, and therapeutic benefits. Transferability of the qualitative data was through the in-depth description and content analysis of the sample size, the data collection and data analysis, evaluation, and interpretation of the results. Qualitative data was essential for further exploring the effects and unintentional consequences of the research. Each phase was analysed and evaluated by combining quantitative and qualitative results for a broader understanding and complementarity. The rationale is a rich data set, and the availability of longitudinal data; however, the amount of data collection is overwhelming (Fischer et al., 2022; Schultz et al., 2005). Conclusions drawn were from the combined methods and, data which addressed research processes such

as ethics, written permission and consent, voluntary participation and withdrawal, anonymity and confidentiality as well as validity and credibility.

The research aimed to discover and explore a business opportunity for high-quality, cost-effective creams/ointments and patient benefits. An explanatory mixed methods design was adopted in the research, starting with a quantitative and followed by a qualitative data phase (Creswell, 2015; Creswell & Plano Clark, 2011). Quantitative and qualitative data were collected, analysed, and then integrated during the research process (Creswell, 2015; Creswell & Plano Clark, 2011). Refer to **Figure 1** below.

Figure 1: Methodology of the proposed business



Hence, combining primary and secondary data outcomes from different sources was utilised to increase the validity and reliability of the results and strengthen the decision-making and conclusions (Golafshani, 2003). Data triangulation evaluated and validated the perceptions found from both data sources to limit the risk of false interpretation and errors (Creswell, 2015; Creswell & Plano Clark, 2011).

3.7. Data Analysis

Microsoft Excel spreadsheet was utilised to enter all the data and to make inferences from the primary and secondary data obtained. The Statistical Packages for Social Sciences (SPSS) version 28 was used to code data and run the statistical analysis. SPSS appeared robust to studying multiple constructs and was ideal for the population and sample size. Nominal variables in SPSS are measurement levels and qualitative variables that do

not represent any inherent ranking, i.e., gender, or race. The variables in the research for both the population size and sample size were nominal variables.

Crosstabulation, i.e. Crosstabs (contingency or bivariate tables), was used to examine the association between nominal variables. It illustrates whether being in one category of the predictor (independent variable) makes a case more likely to be in a certain category of the outcome (dependent variable) (Aspelmeier and Pierce, 2009; Hair, 2009; Hair et al.,2009). The patterns of association were examined by comparing the observed frequencies across the table (putting the independent variable in a row and the dependent variable in a column). The Crosstabs procedure forms two-way and multi-way tables through layers (layers help categorise the output) (Aspelmeier and Pierce, 2009; Hair, 2009; Hair et al.,2009). Numerous measures exist in SPSS that allowed for further evaluation of the strength of the association between two nominal variables (Hair, 2009; Hair et al.,2009). Such measures are comparable to Pearson's correlation in that they have exact boundaries within which they fall and provide a standardised representation of the strength of the association between two nominal variables (Aspelmeier and Pierce, 2009; Hair, 2009; Hair et al.,2009). Lambda is a measure of association between two nominal variables in SPSS. It ranges between zero to one; zero indicates no association between variables and one indicates a strong/perfect association (Aspelmeier and Pierce, 2009; Hair, 2009; Hair et al.,2009). It is also called Proportional Reduction of Error (PRE) which is a measure that is interpreted as the quantity of variance described in predicting the dependent variable that can be recognised by the independent variable (Aspelmeier and Pierce, 2009; Hair, 2009; Hair et al.,2009). Lambda (PRE) is a directional measure in that the calculation changes based on which variable is treated as the predictor i.e. Lambda can be calculated in both directions, treating each variable as independent (Lambda returns both symmetric and asymmetric outputs) and is represented as a percentage (Aspelmeier and Pierce, 2009; Hair, 2009; Hair et al.,2009).

A contingency Coefficient like Lambda is a PRE and measures the strength of association between two nominal variables. The measures range between zero to one; zero indicates no association between variables, and one indicates a total dependence of one variable/strong association. Equally important is the Uncertainty Coefficient (Entropy

Coefficient) is a measure of association between two nominal variables and is used when hypothesising one variable is the predictor and the other is the outcome (Aspelmeier and Pierce, 2009; Hair, 2009; Hair et al.,2009).

3.8. Reliability Analysis

Cronbach's alpha is a measure of reliability or internal consistency. Internal consistency reflects the extent to which items within the instrument measure numerous characteristics or the same construct (Aspelmeier and Pierce, 2009; Hair et al.,2009). Cronbach alpha (α) scale runs between zero and one (Hair, 2009; Hair et al.,2009). A construct is reliable if the Cronbach alpha value is close to 1, indicating good, anything above .65 is acceptable and anything below .65 is considered questionable with the reliability of the scale (Hair, 2009; Hair et al.,2009).

3.9. Validity Analysis

Correlation is a measure of the association between two variables, and it is widely used in statistics and business (Aspelmeier and Pierce, 2009; Hair, 2009; Hair et al.,2009). The analysis of the association between two variables is called correlation analysis. Correlation analysis describes the direction and strength of the linear relationship between two variables (Aspelmeier and Pierce, 2009; Hair, 2009; Hair et al.,2009). There are a number of various statistics available from SPSS depending on the level of measurement and, the nature of the research data. For the purpose of this research, Pearson's Correlation coefficient (r) was more applicable than Spearman correlation (rho). Pearson's Correlation coefficient (r) was ideal as the data was nominal and had a normal distribution, whereas Spearman correlation (rho), a non-parametric measures ordinal and ranked data (Aspelmeier and Pierce, 2009; Hair, 2009; Hair et al.,2009).

Pearson's Correlation coefficient (r) was used to assess the significance and strength of the variables in the data and is reported as a decimal number between positive and negative. The positive sign indicates that with an increase in one variable, the other increases also, and the negative sign indicates that with an increase in one variable, the other decreases (Aspelmeier and Pierce, 2009; Hair, 2009; Hair et al.,2009). Nevertheless, the value itself is an indication of the strength of the association. A perfect correlation of a positive or a

negative one can be determined exactly by knowing the value of the other variable, and zero indicates no association between the two variables (Aspelmeier and Pierce, 2009; Hair, 2009; Hair et al.,2009). It is essential to understand that correlation does not provide information about cause and effect i.e. correlation is not equal to causation (Aspelmeier and Pierce, 2009).

Construct validity concerns the extent to which the research measures what it claims to measure. The research aims to discover and explore a business opportunity for high-quality, cost-effective creams/ointments and the therapeutic benefits to the end-user. Equally, Factor analysis in SPSS could also be used for validity (Aspelmeier and Pierce, 2009; Hair, 2009; Hair et al.,2009). Correlation analysis was conducted on the validity of the sample size of 80 using Critical Values Pearson's Correlation coefficient (r) with the obtained value outlined in Table: 6 Obtained values as compared with the critical value of the Pearson's Correlation coefficient (r) (Aspelmeier, 2005).

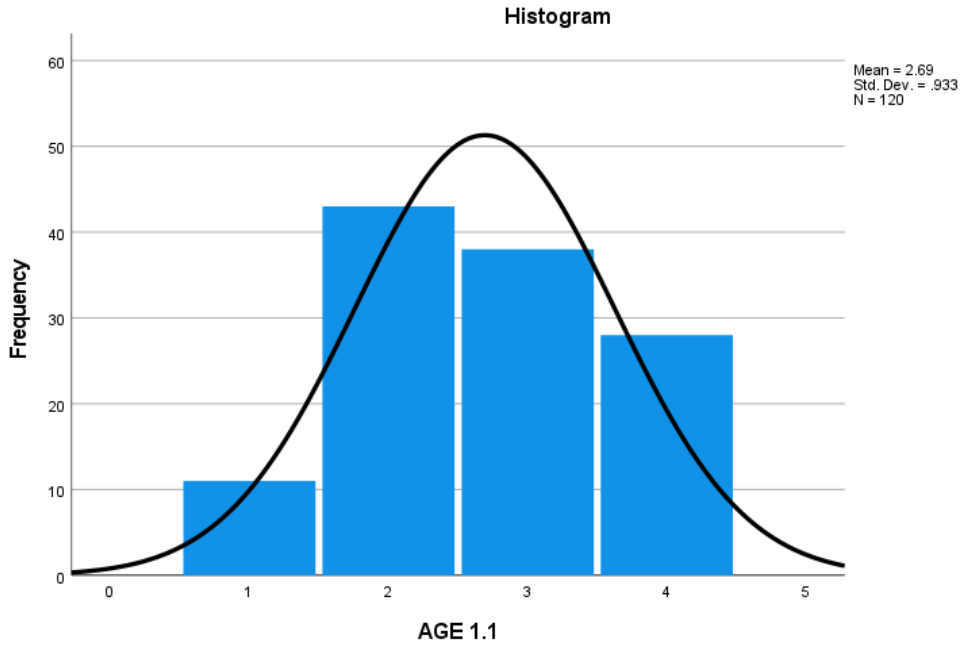
The research focused on using these forms of analysis for reliability and validity as they were more appropriate and befitting the purpose of the research.

3.10. Findings of the research question

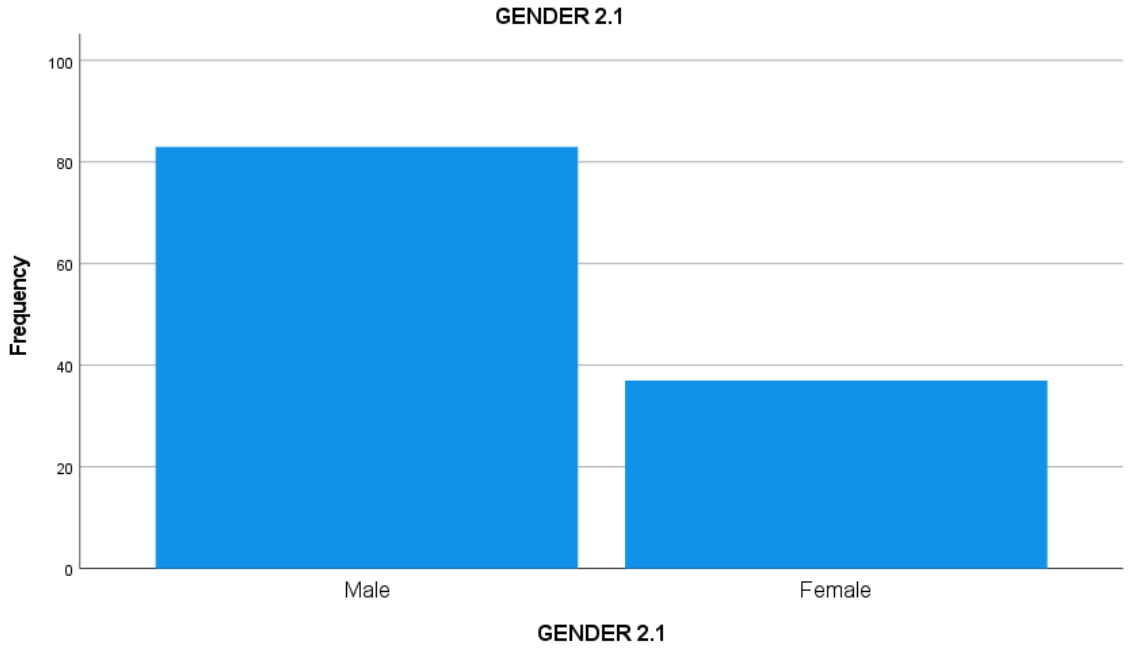
3.10.1. Descriptive Analysis: Frequency

The population consisted of 83(69,2%) male and 37(30.8%) female adults aged 16-80. The mean (**M=2,69**) of the respondents with a standard deviation **(SD=.933)**. Refer to **Graph 1** and **Graph 2.**

Graph 1: Histogram showing the normal distribution of age of the population size.

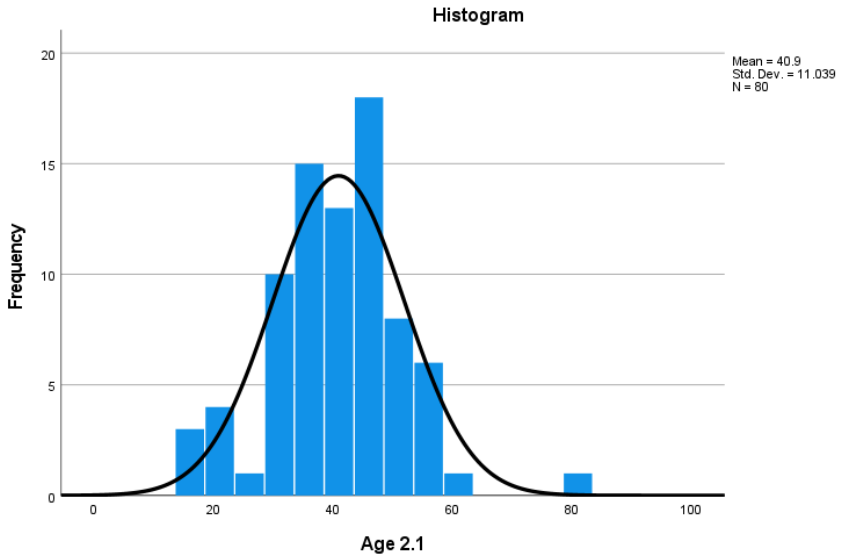


Graph 2: Bar showing the gender distribution of the population size.

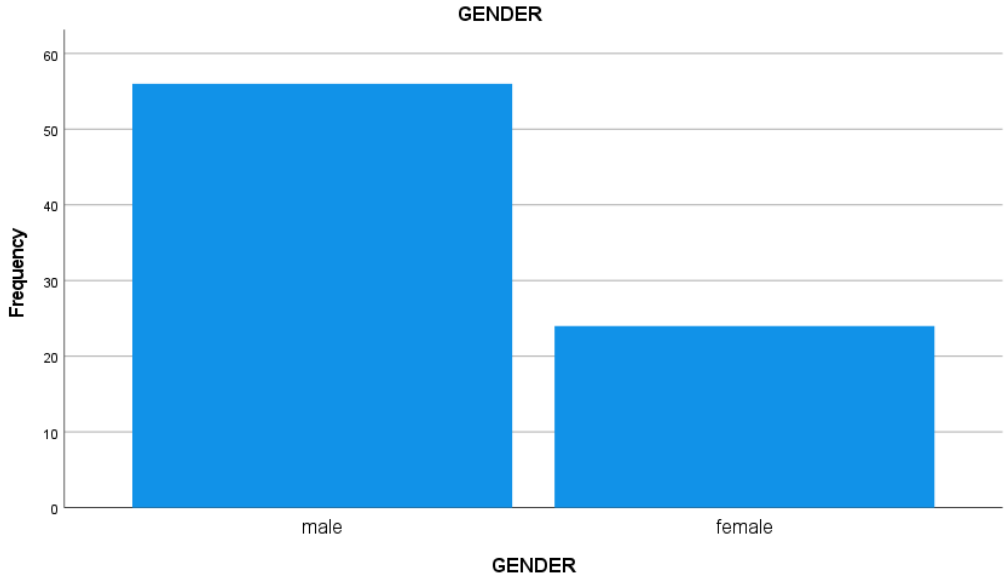


The sample consisted of 56 (70%) male and 24 (30%) female adults with ages ranging from 16-80. The mean **(M=40,90)** of the respondents with a standard deviation **(SD=11.039)**. Refer to **Graph 3** and **Graph 4**.

Graph 3: Histogram showing the normal distribution of age of the sample size.



Graph 4: Bar showing the gender distribution of the sample size.



3.10.2. Reliability Analysis

The outcome of the validity analysis was used to justify the chosen constructs to address the research questions. The constructs: (a) concern for skin, (b) reason for using the product, (c) recommend product, (d) notice changes constitute the market opportunity of the research question directly. The constructs: (a) reason for using product (b) concern for skin directly constitute the patient benefits of the research question. The constructs: (a) importance of product (b) waiting period for preparation constitutes the affordability of the research question directly.

3.10.3. Validity Analysis

Validity is defined as the degree of fact or deceptiveness of the data obtained using the research instrument (Mack, 2005). In order to check the validity of the questions (survey) on the sample size of 80, a validity test was done on SPSS using Critical Values of Pearson's Correlation coefficient (r). This was achieved by comparing the values of the individual questions compared to the critical value of the sample (N=80), degree of freedom (df= N-2) {80-2=78}at a significant level of 0.01(2-tailed). This was outlined in Table: 4 Obtained values as compared with a critical value of Pearson's Correlation coefficient (r) (Aspelmeier, 2005).

The survey questions on product formulation (question 1), frequency of use (question 5), texture importance (question 8), and purchase area (question 12) do not have a tabulated value for validity. This is because they are interpreted as a constant, which means the market demand for the product to have these characteristics. The following survey questions on concern for skin (question 3), reason for using the product (question 4), notice changes (question 6), recommthe end product (question 7), importance of product (question 9), product usage (question 10), waiting time for prep (question 13), had Pearson's Correlation coefficient obtained values greater than the critical value (~ 0.284) at a significant level of 0.01(2-tailed) and hence are valid (Aspelmeier, 2005; Aspelmeier & Pierce, 2009).

3.10.4. Correlation Analysis

Analysis was conducted on the population size of 120 and further analysis on the sample size of 80 using the correlation matrix outlined in Table: 3 and Table 4, respectively.

3.10.5. Crosstabs

The following hypotheses were constructed with respect to the research questions for the population N=120.

H1: Market Opportunities

(a) **There is no significant association between gender and frequency of prescribing.**

H1 is supported. The Lambda association between gender(predictor) and frequency of prescribing (outcome) had no association of 0.0% (.000). The same applied to the Contingency coefficient of 33% and Uncertainty coefficient of 4.8%, which had an approximate significance of .021 with the likelihood ratio chi-square probability.

(b)**There is no significant association between age and frequency of prescribing.**

H1 is supported. The Lambda association between age (predictor) and frequency of prescribing (outcome) had no association of 0.0% (.000). The same applied to the Contingency coefficient of 42.8% and Uncertainty coefficient of 9.9%, which had an approximate significance of .039 with the likelihood ratio chi-square probability.

(c) **There is a significant association between GP/Specialist and cream.**

H1 is supported. The Lambda association between GP/Specialist (predictor) and cream (outcome) is an association of 52.5% (.525). The same applied to the Contingency coefficient of 48% and Uncertainty coefficient of 23.2%, which had an approximate significance of < .001 with the likelihood ratio chi-square probability.

(d) **There is no significant association between User number (first-time user/second-time user) and cream.**

H1 is supported. The Lambda association between User number (predictor) and cream (outcome) had no association of 3.4% (.034). The same applied to the Contingency

coefficient of 7.1% and Uncertainty coefficient of 0.4%, which had an approximate significance of .433 with the likelihood ratio chi-square probability.

H2: Patient Benefits

(a) **There is no significant association between gender and cream.**

H2 is supported. The Lambda association between gender (predictor) and cream (outcome) had no association of 5.1% (.051). The same applied to the Contingency coefficient of 7.9% and Uncertainty coefficient of 0.5%, which had an approximate significance of .386 with the likelihood ratio chi-square probability.

(b) **There is no significant association between age and cream.**

H2 is supported. The Lambda association between age (predictor) and cream (outcome) had no association of 8.5% (.085). The same applied to the Contingency coefficient of 1.17% and Uncertainty coefficient of 1.0%, which had an approximate significance of .644 with the likelihood ratio chi-square probability.

H3: Affordability

(a) **There is a significant association between price and cream.**

H3 is supported. The Lambda association between price (predictor) and cream (outcome) had an association of 100.0% (1.00). The same applied to the Contingency coefficient of 70.7% and Uncertainty coefficient of 100.0%, which had an approximate significance of < .001 with the likelihood ratio chi-square probability.

3.11. Limitations of the study

Several methods for qualitative data collection were used in the research, due to the diversity of the information required. The research survey question was restricted to participants of the research, i.e., the users of the cream/ointment. The respondents to the research survey questions were not pressured or coerced into selecting a certain answer set or participating in the research. The research survey questions language and literacy level catered for the study population. Secondary data may be biased to a certain extent and may not be appropriate for the intended research. The results may not be relevant to the

methodology and scientific journals to be used in the survey. Hence, only data sources close to the context of the research were used.

3.12. Ethical considerations

Ethical standards encourage values that are critical to collaborative work, mutual respect, trust, and accountability. The informed consent was written in language the participants understand and minimised undue influence and coercion. The participants were given time to consider participation (Manti and Licari, 2018).

The informed consent was documented, and the information presented enabled the participants to voluntarily decide whether to participate or not and voluntary withdrawal at any time. The researcher always acted in the participant's best interest, respected the participants' decision-making, and not interfering with their judgments, and maintain anonymity and confidentiality (Manti and Licari, 2018). The researcher assured the participant that the information collected was not to be shared with third parties. The information presented explained the purpose of the research, expected duration, and information processes ensuring data protection, privacy, and confidentiality per the organisation's policy, regulatory laws, and research ethics. Data protection was stored in a password-protected file only known by the researcher and included the duration of storage of personal data for five years, and or reference contacts for any questions pertaining to the participant's rights and any information that seems necessary for an informed decision to be taken (Manti & Licari, 2018). Once informed consent was obtained, it was documented and stored in the participant's research file. Anonymity was maintained by changing the participant's identity and disguising it with codes or pseudonyms only known to the researcher. This amplified the protection of the participant's identities and the integrity of the data (Saunders et al.,2015).

The business unit manager granted permission with detailed information about the research and its conduct. Data privacy laws (POPI Act) and confidentiality were strictly adhered to. The University of Witwatersrand's guidelines on research ethics were strictly followed and ethics approval granted by the ethics committee protocol number: WBS/BA306152/790.

Results

4.1. Introduction

The findings are discussed in accordance with the research questions of the study.

4.2. Findings

The secondary data was collected from the employer Platinum Health in the North West Province (Rustenburg) assisted in answering the research questions. Platinum Health offers restrictive health services to staff and their dependants in the platinum mining sector. It has four qualified general practitioners (GP/ doctors) and one specialist dermatologist with experience greater than ten years. A population size of 120 adults, an age range of 16-80 years for the quantitative survey questions, and the second connection was the qualitative data sample of 80 adults were analysed, observed, and correlated using IBM SPSS version 28. The collection of data on the frequency of doctors' prescriptions was analysed according to daily and monthly prescriptions, the demographic profile of the patients, therapeutic outcomes, specialisations of prescribing doctors, cream combination, and pricing.

4.2.1. Findings of research questions

4.2.1.1. Descriptive Analysis: Frequency

The population consisted of 83(69,2%) male and 37(30.8%) female adults aged 16-80. The mean (**M=2,69**) of the respondents with a standard deviation **(SD=.933)**.

The sample consisted of 56 (70%) male and 24 (30%) female adults aged 16-80. The mean **(M=40,90)** of the respondents with a standard deviation **(SD=11.039)**.

4.2.2. Reliability Analysis

Reliability is the measure of the internal consistency of the construct in the research. The construct reliability was assessed using Cronbach Alpha (α). The results of reliability analysis revealed acceptable reliability of Cronbach Alpha greater than (.65) for each of the constructs in the research (Hair, 2009; Hair et al.,2009). The constructs: (a) concern for

skin, (b) reason for using the product, (c) recommend product, (d) notice changes constitute directly the market opportunity of the research question. The constructs: (a) reason for using product (b) concern for skin directly constitute the patient benefits of the research question. The constructs: (a) importance of product (b) waiting period for preparation constitutes the affordability of the research question directly. Results are summarised in **Table 5**.

Table 5: Reliability Analysis showing constructs described above.

CONSTRUCT	NO OF ITEMS	ALPHA
Market opportunity	4	.696
Patient benefits	2	.682
Affordability	2	.683

4.2.3. Validity Analysis

In order to check the validity of the questions (survey) on the sample size of 80 a validity test was done on SPSS using Critical Values of Pearson's Correlation coefficient (r). This was achieved by comparing the values of the individual questions compared to the critical value of the sample (N=80), degree of freedom (df= N-2) {80-2=78}at a significant level of 0.01(2-tailed). This was outlined in **Table: 6**.

Table: 6 Obtained values as compared with a critical value of Pearson's Correlation coefficient (r) (Aspelmeier, 2005).

Pearson's correlation obtained values for validity analysis

	1	2	3	4	5	6	7	8	9	10	11	12	13	Total
Product formulation	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]
Period	.[a]	1	-.078	-.229*	.[a]	-.593**	-.557**	.[a]	-.175	.032	.105	.[a]	-.029	-.225*
Concern for skin	.[a]	-.078	1	.519**	.[a]	.373**	.239*	.[a]	.104	.313**	.126	.[a]	.065	.776**
Reason for using product	.[a]	-.229*	.519**	1	.[a]	.361**	.171	.[a]	-.216	.114	.031	.[a]	-.101	.530**
Frequency of use	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]
Notice changes	.[a]	-.593**	.373**	.361**	.[a]	1	.544**	.[a]	.183	.084	.035	.[a]	.074	.615**
Recommend product	.[a]	-.557**	.239*	.171	.[a]	.544**	1	.[a]	.370**	-.046	-.120	.[a]	.133	.506**
Texture importance	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]
Importance of product	.[a]	-.175	.104	-.216	.[a]	.183	.370**	.[a]	1	.130	-.280*	.[a]	.518**	.452**
Product usage in 2months	.[a]	.032	.313**	.114	.[a]	.084	-.046	.[a]	.130	1	-.241*	.[a]	.303**	.475**
Willing to pay	.[a]	.105	.126	.031	.[a]	.035	-.120	.[a]	-.280*	-.241*	1	.[a]	-.513**	-.066
Purchase area	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]	.[a]
Waiting period for prep	.[a]	-.029	.065	-.101	.[a]	.074	.133	.[a]	.518**	.303**	-.513**	.[a]	1	.429**
Total	.[a]	-.225*	.776**	.530**	.[a]	.615**	.506**	.[a]	.452**	.475**	-.066	.[a]	.429**	1

*. Correlation is significant at the .05 level (2-tailed).

**. Correlation is significant at the .01 level (2-tailed).

a. Cannot be computed because at least one of the variables is constant.

4.2.4. Correlation Analysis

Additional analysis was conducted on the population size of 120 and further analysis on the sample size of 80 using the correlation matrix outlined in **Table: 3** and **Table 4,** respectively.

Table: 3 Correlation analysis of population size of 120

Correlation Matrix of population size 120

		1	2	3	4	5	6		7
1	AGE 1.1	--							
2	GENDER 2.1	-.050	--						
3	CREAM COMB 3.1	-.068	-.079	--					
4	NO. PRESCRIBING DR 4.1	.017	.039	.071	--				
5	FREQUENCY OF PRESCRIBING	.131	.012	.292**	.355**	--			
6	Price range	-.068	-.079	1.000**	.071	.292**	--		
7	GP/SPECIALIST 1	.101	-.045	.508**	.448**	.530**	.508**	--	

**. Correlation is significant at the 0.01 level (2-tailed).

Table: 4 Correlation analysis of sample size of 80.

Correlation Matrix of sample size of 80

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Product formulation	.a															
2	Period	.a	--														
3	Concern for skin	.a	-.078	--													
4	Reason for using product	.a	-.229*	.519**	--												
5	Frequency of use	.a	.a	.a	.a	.a											
6	Notice changes	.a	-.593**	.373**	.361**	.a	--										
7	Recommend product	.a	-.557**	.239*	.171	.a	.544**	--									
8	Texture importance	.a	.a	.a	.a	.a	.a	.a	.a								
9	Importance of product	.a	-.175	.104	-.216	.a	.183	.370**	.a	--							
10	Product usage in 2months	.a	.032	.313**	.114	.a	.084	-.046	.a	.130	--						
11	Willing to pay	.a	.105	.126	.031	.a	.035	-.120	.a	-.280*	-.241*	--					
12	Purchase area	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a	.a				
13	Waiting period for prep	.a	-.029	.065	-.101	.a	.074	.133	.a	.518**	.303**	-.513**	.a	--			
14	GENDER	.a	.135	-.028	.116	.a	-.076	-.006	.a	-.015	.128	.018	.a	.161	--		
15	GP/SPECIALIST	.a	.413**	-.089	-.036	.a	-.225*	-.335**	.a	-.132	.084	.082	.a	.032	-.044	--	
16	CREAM COMB 3.1	.a	-.093	-.048	.050	.a	.110	.097	.a	-.011	.003	-.084	.a	-.077	.180	-.048	--

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

a. Cannot be computed because at least one of the variables is constant.

4.2.5. Crosstabs

Market Opportunities

H1: There is a relationship between frequency of prescribing and age and gender

H1 (a) **There is no significant association between gender and frequency of prescribing.**

H1 is supported. The Lambda association between gender(predictor) and frequency of prescribing (outcome) had no association of 0.0% (.000). This implies that gender does not influence the frequency of prescribing.

H1 (b) **There is no significant association between age and frequency of prescribing.**

H1 is supported. The Lambda association between age (predictor) and frequency of prescribing (outcome) had no association of 0.0% (.000). This means that age does not have an impact on the frequency of prescribing.

H2 There is a relationship between cream and GP/Specialisation and user.

H2(a) **There is a significant association between GP/Specialist and cream.**

H2 is supported. The Lambda association between GP/Specialist (predictor) and cream (outcome) is an association of 52.5% (.525). This implies that knowing compared to not having the knowledge improves Special’st'scialist ability to predict the correct outcome by 52.5%.

H2(b) **There is no significant association between User number (first-time user/second-time user) and cream.**

H2 is supported. The Lambda association between User number (predictor) and cream (outcome) had no association of 3.4% (.034). This implies that being a first-time or second-time user had no significant influence on using the cream.

Patient Benefits

H3: There is a relationship between cream and age and gender

H3 (a) **There is no significant association between gender and cream.**

H3 is supported. The Lambda association between gender (predictor) and cream (outcome) had no association of 5.1% (.051). This means that gender had no significant influence on using the cream.

H3 (b) **There is no significant association between age and cream.**

H3 is supported. The Lambda association between age (predictor) and cream (outcome) had no association of 8.5% (.085). This implies that age had no significant influence on using the cream.

Affordability

H4 There is a relationship between affordability and cream

H4 There is a significant association between price and cream

H4 is supported. The Lambda association between price (predictor) and cream (outcome) had an association of 100.0% (1.00). This implies that there is a perfect association between price and cream.

Discussion

5.1. Introduction

As mentioned, the research aims to discover and explore a business opportunity for high-quality, cost-effective creams/ointment and the patient benefits to the end-user. This chapter discusses the findings of the study and its recommendations.

The pharmaceutical industry needs help to meet the demand for certain medicines, and there is a shortage or temporarily unavailable commercial medicines (Carvalho and Almeida, 2022; Litman, 2019). Carvalho and Almeida, 2022 argue that the role of pharmaceutical compounding in supporting adherence to medication needs to be explained. As a result, patients may no longer have access to important commercial medicines that can improve their quality of life. Therefore, the proposed business venture seeks to offer cost-effective, high-quality creams/ointments that are commercially available. It will capture patient value by offering a new product with a standardised dose of commercially available medicine and a convenient delivery solution for compliance, quality of life, and better therapeutic outcomes. The opportunity is that customised dosage forms often produce better outcomes (Birsan et al., 2022). Product differentiation offers a diverse variety of high-quality cream/ointment that is unique from the competitors. Customised cream/ointment attracts patients/customers who want personalised solutions for their skincare needs and applies to the study's target market (Birsan et al., 2022). Customer retention is guaranteed as the target market will utilise Platinum Health facilities and health professionals. The patients/customers will have expert and professional personalised skincare treatment. Hence, a loyal customer base is established, and repeat business that boosts revenue is certain and may also strengthen competitive advantage.

5.2. Target Market, Marketing, and Sales Strategies

The target market is men and women of all races, age groups, educational statuses, and socio-economic statuses, who utilised the healthcare services of Platinum Health in North West, Rustenburg. Platinum Health offers restrictive health services to staff and their dependants in the platinum mining sector. Hence, the target market will be Platinum Health members who are employees and dependents of the scheme and in specific circumstances,

cash patients. The target market prefers products that can be effortlessly applied and rapidly absorbed into the skin. They also prefer a quality product that saves time, and money and is accessible. The unique feature and benefits of the cream/ointment are customised to the patient's requirements and desires. Hence, the product will satisfy the patient's needs by solving the above-mentioned criteria in an untapped market. The market demand supports that skin health practice is based on nourished, moisturised, and an even skin tone or glowing appearance (Florence and Lee, 2011; Carvalho and Almeida, 2022; Markiewicz and Idowu, 2018). This relates to the target market's preference for moisturised skin. Patient/customer engagement in marketing the product will entail educational brochures, how-to guides, skincare and product usage videos, in-store promotions, and collaborations with healthcare professionals. The opportunity of the product is that it caters to individuals who are underserved by the products available in the market. Consumers are conscious of keeping their skin healthy and prefer using products that are easily absorbed into the skin and have good value for money. Hence, the need to fill the gap in the market by offering customised cream/ointment.

The current market trend is the rising demand for personalised skincare products or solutions (Birsan et al., 2022; Carvalho and Almeida, 2022; Litman, 2019). Consumers desire products that cater to their concerns, and preferences. Also, there is an increasing demand for natural and organic skincare products (South Africa Professional skincare product market- 2021-2026). Consumers are conscious of their skincare products and focus on eco-friendly products. Equally important are digital platforms such as E-commerce, online influencers, and social media play a vital role in consumer engagement and purchase decisions (Amanah et al., 2017; Arnould and Thompson, 2005; Bray, 2008).

The marketing and sales strategies will be continuously evaluated based on patient/customer feedback or experience, and the product's performance. Building a strong reputation for quality, efficacy, and customer satisfaction to enhance competitiveness and adapt to the patient's needs.

5.3. Operational Strategies

The implementation of operational strategies will focus on efficiency, quality of the product, and customer satisfaction. The following will be considered:

1. Effective Inventory (stock) Management: a robust stock management system must be implemented to ensure optimal stock levels of cream/ointment. This will entail monitoring product demand patterns, sales data, and or market trends to accurately forecast demand and avoid stockouts (Friendli et al., 2013; Jeong and Philips, 2001). Equally important will be to establish a good rapport with suppliers to ensure timely replenishment and lessen lead times.
2. Quality Control and Regulatory Compliance: adhering to strict quality control measures and being updated with regulatory requirements or standard operating procedures (SOPs) to maintain product quality. Equally important is the storage and handling of the product to maintain its stability, prevent degradation and minimise the risk of product damage (Friendli et al., 2013).
3. Streamlined Order Processes: implementing efficient order processing and procedures to guarantee timely delivery of products. This can be achieved by using barcode scanning, picking, packing, and order tracking systems for efficiency and to reduce errors (Friendli et al., 2013; Jeong and Philips, 2001).
4. Customer Service Excellence: train pharmacy staff to provide exceptional customer services, such as product knowledge and usage, addressing customer feedback to gather perceptions and continuously improve the customer's experience and expectations.
5. Continuous Improvement: regularly assessing operational performance metrics, such as inventory turnover, order waiting time to replenish inventory, and customer satisfaction (Friendli et al., 2013; Jeong and Philips, 2001). Staying updated with emerging technologies, and industry advancement practices in offering innovative products as well as encouraging employees to provide suggestions for operational excellence and efficiency.

Optimisation of the systems and processes in efficient and effective inventory management, quality control, and streamlined operations, can enhance customer-centricity and contribute to a successful and sustainable business operation.

5.4. Market opportunities

H1 (a) This implies that gender does not influence the frequency of prescribing.

H1 (b) This means that age does not have an impact on the frequency of prescribing.

H2 (a) This implies that having the knowledge compared to not having the knowledge improves the GP/Specialist's ability to predict the correct outcome by 52.5%.

H2 (b) This implies that being a first-time user or second-time user had no significant influence on using the cream.

The cream combination may be prescribed by either the GP (doctor) or specialist (dermatologist). It will not depend on gender, age, the frequency of prescribing, and whether the individual is using it for the first time or more. Even though the dominant gender was 70% male, it could indicate that society's expectations of how men should look; are changing with the advent of skincare products targeted toward beauty and improving self-image for men (Bryne et al., 2018).

5.5. Patient Benefits

H3 (a) This means that gender had no significant influence on using the cream.

H3 (b) This implies that age had no significant influence on using the cream.

The appearance of personal skincare is gender-neutral. This may be perceived as a societal change that may dominate urban, suburban, and rural provinces (Bryne et al., 2018; Thota et al.,2014). This concept may be applied to our research sample size 80 and patient benefits. It could also be due to factors, such as individuals preferring moisturised skin to improve personal appearance.

5.6. Affordability

H4 This implies that there is a perfect association between price and cream. Consumers purchase products that relate in a way that is suitable to their ideal self-image (Bryne et al., 2018; Thota et al.,2014). This could also imply being conscious of beauty through skincare creams and may have a positive psychological influence on some patients who comply with the treatment if they know that it has been prescribed specially for them. Bryne et al., 2018 projected that healthy-looking skin resulting from using skincare products might enhance communication, relationships, and occupations. However, this can be debated upon the duration and skin care product, individual's perception and expectations, affordability of the product, and societal expectations.

The validity of the questions (survey) on the sample size of 80 was achieved by comparing the values of the individual questions to the critical value of the sample (N=80). This indicated that the questions were ideal for the purpose of the research in addressing the research objectives. This correlated with the reliability analysis results, which revealed acceptable reliability of Cronbach Alpha greater than (.65) for each of the constructs in the research (Hair, 2009; Hair et al.,2009).

System Lock-in is a holistic integration of the organisation's resources and capabilities, strategic objectives, and network effects, etc. According to Hax & Wilde II, 2001, the engine is the system of economics. In our research, the organisation offers restrictive and exclusive healthcare services to staff and their dependants in the platinum mining sector. Hence the proposed business venture considers this System Lock-in, as the customer(patient) will utilise the healthcare practitioners (doctors, specialists, pharmacists, etc.) for the best product cream combination using the organisation's resources and capabilities.

As in the research, the consumer culture is entrenched in offering solutions to problems. In view of the Consumer Culture Theory (CCT), defines a social arrangement and interconnected network between the consumer, economy, symbolism, global connections, and cultural dimensions of consumption (Arnould and Thompson, 2005; Arnould et al.,2014; Bryne et al., 2018; Miles et al.,2002). Consumerism delivers a form of

representation to an individual, such as symbolism or prestige expressed by buying (Arnould and Thompson, 2005). Kozinets, 2001 suggests that the consumer culture theory discovers how consumers are able to change symbolic connotations hidden in advertisements, material goods, or brands to identify with social, personal, and lifestyle objectives explicitly. In view of this, the market also gives consumers diverse products to choose from and constructs individual and social characteristics (Bryne et al., 2018; Jensen and Gilly, 2003).

Community pharmacies are businesses, and they operate in a commercial/retail setting with the aim of making revenue. It is vital to understand the internal and external economic environment in which the business operates and the company's resources and capabilities to identify the areas of focus that create value for customers. Pharmaceutical compounding has improved the procedure of patient centricity and allowed professionals to collaborate in designing, implementing, and monitoring treatment outcomes (Giam et al., 2012; Kristina et al., 2017). Research has shown that pharmacists have a rapport with patients getting compounded cream and ointments than with patients obtaining only available products in the market (Kristina et al., 2017; McPherson et al., 2006; McPherson & Fontane, 2010). There is a high possibility of a follow-up with patients, and doctors prefer therapy with the pharmaceutical compounded creams and ointments due to product combination and suitable product dosage forms not being available in the market as per our findings. The pharmacist questionnaire was not utilised in this research as it is mandatory to provide compounding at the facility. Patients value that community pharmacists are the most accessible healthcare professionals, and this can be leveraged in a variety of ways to enhance business strategy.

5.7. Business venture proposal based on the research findings

The business model canvas is based on the research findings (refer to **Diagram A:** Business Model Canvas Proposal).

Diagram A: Business Model Canvas Proposal

<table>
<tr>
<td rowspan="2">KEY PARTNERS
Regulatory bodies (South African Pharmacy Council, Pharmaceutical Society of South Africa, SAHPRA).
Pharmaceutical wholesalers and distributors
Pharmaceutical sales representatives
Healthcare practitioners, and end-users</td>
<td>KEY ACTIVITIES
Providing affordable, high-quality products (pharmaceutical compounded cream combination)
Through a triad relationship (doctor-patient–pharmacist)</td>
<td rowspan="2">VALUE PROPOSITION
Patient/customer-centric and system lock-in
Triad relationship (personalised collaborative relations with the end-user).
Affordable, high-quality product (pharmaceutical compounded cream combination)</td>
<td>CUSTOMER RELATIONSHIPS
System lock-in
Triad relationship</td>
<td rowspan="2">CUSTOMER SEGMENTS
Patients/customers only utilising the healthcare facility.</td>
</tr>
<tr>
<td>KEY RESOURCES
Regulatory bodies (South African Pharmacy Council, Pharmaceutical Society of South Africa, SAHPRA)
Healthcare practitioners</td>
<td>CHANNELS
Word-of-Mouth
Face-to-face
Business website/ online presence</td>
</tr>
</table>

	• Pharmaceutical wholesalers/distributors			
COST STRUCTURE • Value-driven (customised cream combination)			**REVENUE STREAMS** • Medical aid and cash patients (only utilising the healthcare facility)	

5.8. Financial Projections

Platinum Health is in a good financial position per the organisation's annual financial statements. Thus, the financial projections are estimates of the proposed start-up business venture to commercialise affordable pharmaceutical compounded creams/ointments without considering annual inflation and interest rate increases. However, an annual 10% price increase was considered from Year 0 to Year 3 to cover up uncertainties.

The financial startup cost for the first three years is projected below.

The start-up cost for the proposed business venture to commercialise affordable pharmaceutical compounded creams/ointments				
	Year 0	**Year 1**	**Year 2**	**Year 3**
Product Development Costs				
Research and development of creams/ointment formulation	R100 000	R110 000	R121 000	R133 100
Testing and quality control	R50 000	R55 000	R60 500	R66 550
Packaging and labeling design	R20 000	R22 000	R24 200	R26 620
Manufacturing and Inventory Costs				
Initial product manufacturing	R200 000	R220 000	R242 000	R266 200
Raw material and ingredient procurement	R80 000	R88 000	R96 800	R106 480
Packaging materials and labeling	R40 000	R44 000	R48 400	R53 240
Initial inventory buildup:	R100 000	R110 000	R121 000	R133 100
Marketing and Promotion Costs				
Branding and logo design	R20 000	R22 000	R24 200	R26 620
Website development and maintenance	R30 000	R33 000	R36 300	R39 930
Digital marketing campaigns	R50 000	R55 000	R60 500	R66 550
Print materials (brochures, flyers)	R10 000	R11 000	R12 100	R13 310
Launch event or promotional activities	R20 000	R22 000	R24 200	R26 620
Operational Costs				
Pharmacy premises rent and setup	R150 000	R165 000	R181 500	R199 650
Equipment and fixtures	R100 000	R110 000	R121 000	R133 100
Staff recruitment and training	R50 000	R55 000	R60 500	R66 550
Utilities and office supplies	R30 000	R33 000	R36 300	R39 930
Regulatory and Legal Costs				
Compliance with pharmaceutical regulations	R70 000	R77 000	R84 700	R93 170
Licensing and permits	R30 000	R33 000	R36 300	R39 930
Legal consultation	R20 000	R22 000	R24 200	R26 620
Miscellaneous Costs				
Insurance coverage	R20 000	R22 000	R24 200	R26 620
Contingency fund	R50 000	R55 000	R60 500	R66 550
Total Startup Financial Cost	**R1 060 000**	**R1 364 000**	R1 500 400	R1 650 080

5.9. Recommendations

Pharmaceutical compounding produces a customised product suitable to meet the patient's special requirements. Patients/consumers demand customised skincare products as per the purpose of the study. The distinct benefits that set the products apart from the competitors and resonate with the study's target market are as follows:

a) High-Quality Product -that adheres to strict quality control standards and regulatory laws in addressing skincare needs.
b) Professional and Expert Advice- highly qualified healthcare professionals, including dermatologists, who offer personalised consultations, individualised skincare treatment, and recommendations to address the patient's concerns and

provide accurate information. Dermatologists recommend and prescribe the cream/ointment and hence it is credible.

c) Convenience and Accessibility- the convenience of purchasing cream/ointment at the facility using your Platinum Health medical aid.
d) Customer Education and Support Systems- patients are provided with in-person consultations and educational brochures to educate them on the product's benefits, skincare concerns, and the next review appointment to monitor compliance.

The research discovered the opportunity to provide a solution of commercialising a customised cream combination, and cooperation is between the triad relationship (doctor–patient–pharmacist) and the organisation's resources, capabilities, and competencies. A culture of continuous improvement will be critical in encouraging employees to provide suggestions for operational excellence and efficiency as well as keeping abreast with the latest industry trends.

Conclusion

The community pharmacy functions across several markets, and on the peripheries of the sector are other health specialists and beauty retailers. In this chapter conclusions from the findings of our study are illustrated and highlight the limitations of the study. This is summarised in **Table 7**.

Our findings revealed the value that commercialisation of pharmaceutical compounded creams and ointments has a critical part in providing patient-centric products and services for individuals who may be underserved by alternative products that are available in the market. It is evident that users of the cream combination prefer a quality product that saves time and financial costs. The proposed business venture presents meaningful opportunities for business sustainability, patient-centricity, and customer satisfaction. By leveraging the supply chain, pharmacies can ensure a steady and streamlined of products, collaborating with dependable suppliers to maintain product quality and availability (Park and Yoo, 2018).

The integration of effectuation theory can facilitate adaptation to market dynamics, foster entrepreneurial decision-making, and take advantage of emerging trends, (Matalamäki, 2017; Perry et al., 2012). The unique value proposition of the cream/ointment combination lies in its capability to address various skincare concerns and provide therapeutic benefits. Through effective target market analysis, marketing and sales strategies, operational efficiency, financial projections, and target market analysis, pharmacies can successfully present and promote the product to their patients/customers. Implementing strategies such as product differentiation, customer relationship management, and effective branding. Staying informed about the dynamic market shifts, customer preferences, and industry innovations is critical for long-term success. The proposed business venture is viable and lucrative, per our research findings.

6.1. Limitations

The findings from the study need to constitute a larger sample to draw a final conclusion.

Table 7: The table of hypotheses showing the summary of the research findings

Hypotheses	Findings
Market Opportunities **H1: There is a relationship between the frequency of prescribing and age and gender.** **H1** (a) **There is no significant association between gender and frequency of prescribing.**	H1 is supported. The Lambda association between gender(predictor) and frequency of prescribing (outcome) had no association of 0.0% (.000). This implies that gender does not influence the frequency of prescribing.
H1 (b) **There is no significant association between age and frequency of prescribing.**	H1 is supported. The Lambda association between age (predictor) and frequency of prescribing (outcome) had no association of 0.0% (.000). This means that age does not have an impact on the frequency of prescribing.
H2 There is a relationship between cream and GP/Specialisation and user. **H2**(a) **There is a significant association between GP/Specialist and cream.**	H2 is supported. The Lambda association between GP/Specialist (predictor) and cream (outcome) is an association of 52.5% (.525). This implies that having the knowledge compared to not having the knowledge improves the GP/Specialist ability to predict the correct outcome by 52.5%.
H2(b) **There is no significant association between User number (first-time user/second-time user) and cream.**	H2 is supported. The Lambda association between User number (predictor) and cream (outcome) had no association of 3.4% (.034). This implies that being a first-time user or the second-time user had no significant influence on using the cream.

Patient Benefits **H3: There is a relationship between cream and age and gender.** H3 (a) **There is no significant association between gender and cream.**	H3 is supported. The Lambda association between gender (predictor) and cream (outcome) had no association of 5.1% (.051). This means that gender had no significant influence on using the cream.
H3 (b) **There is no significant association between age and cream.**	H3 is supported. The Lambda association between age (predictor) and cream (outcome) had no association of 8.5% (.085). This implies that age had no significant influence on using the cream.
Affordability **H4: There is a relationship between affordability and cream.** **H4 There is a significant association between price and cream.**	H4 is supported. The Lambda association between price (predictor) and cream (outcome) had an association of 100.0% (1.00). This implies that there is a perfect association between the price and cream.

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Appendix A

Research survey questions

1) What product formulation (cream/ointment) are you currently using?

a) Cream	b) Ointment	c) Lotion	d) Other

2) When did you start using the product?

a) 1 day ago	b) 1 week ago	c) 1 month ago	d) 1 year ago

3) What is the main concern of your skin?

a) Dryness	b) Oily	c) Redness	d) Other

4) Why are you using the product?

a) Beauty	b) Redness	c) Dryness	d) Other

5) How often do you use it? (Everyday, once a week, once a month)

a) Everyday	b) Once a week	c) Once a month	d) Other

6) What changes have you noticed since using the product?

a) Clear skin	b) Moisturised skin	c) Even skin tone	d) Other

7) Would you recommend the product?

a) Yes	b) No	c) Maybe

8) How important is the texture of the product?

a) Smooth	b) Coarse	c) Other

9) What aspect of the product is important to you? (The packaging, colour/appearance of the product/quality)

a) Packaging (shape of the container)	b) Colour	c) Name of the product	d) Other

10) Which skincare product have you used in the last 2 months?

a) Lotion	b) Cream	c) Ointment	d) Other

11) How much are you willing to pay for the product?

a) R50-R100	b) R100-R150	c) R150-R200	d) Greater than R200

12) Where do you buy the product?

a) Pharmacy	b) Retail stores	c) Other

13) How long do you have to wait to get the product to be prepared?

a) 30 minutes	b) 1 Hour	c) Days	d) Other

Appendix B

Pharmacists and doctors qualitative survey

DEMOGRAPHIC DATA (questions 1-2 only)

1) What is your age range?

a) 20-30 years	b) 31-40 years	c) 41-50years	d) Other (please specify)

2) How many years of qualification experience?

a) 5 years	b) 10 years	c) 20 years	d) More than 20 years

3) **Only doctors must answer.** How many compounding creams/ointments prescriptions do you prescribe?

Daily prescriptions	**Weekly prescriptions**	**Monthly prescriptions**
a) 1-10	a) 1-10	a) 1-10
b) 11-20	b) 11-20	b) 11-20
c) More than 20	c) More than 20	c) More than 20

4) **Only doctors must answer.** What is the reason for prescribing the compounded creams/ointments?

a) Product combination not available	b) Suitable product dosage form not available	c) Cost-effective	d) Easy and suitable to use	e) Other (please specify)

5) **Only pharmacists must answer.** What compounding challenges do you face in your pharmacy?

a) No availability of the product on the market	b) No availability of a suitable dosage form of the product	c) Time to prepare the product	d) Other (please specify)

6) **Only pharmacists must answer.** What is the reason for compounding the creams/ointments?

a) Product combination not available on the market	b) Suitable product dosage form not available	c) Following the prescription	d) Other (please specify)

7) What resources do use for compounding the creams/ointments?

a) In-house medical scheme formulary list	b) Doctor's prescription	c) Published medical literature	d) Other (please specify)

8) **Only pharmacists must answer** How often do you prepare the compounded creams/ointments?

Daily	**Weekly**	**Monthly prescriptions**
a) 1-10	a) 1-10	a) 1-10
b) 11-20	b) 11-20	b) 11-20
c) More than 20	c) More than 20	c) More than 20

9) What is the preferred method of payment for your patients?

a) Medical aid 1) Are they the main member? Y/N 2) Are they dependent on the main member? Y/N	b) Cash	c) Contractual trial-basis with prescribing doctor	d) Other (please specify)

10) What benefits do you hope to achieve for the individual using the compounded creams/ointments?

a) Even skin tone	b) Moisturised skin	c) Clear skin	d) Other

11) How long do you hope to achieve the results for the individual using the compounded creams/ointments?

a) 1 week	b) 1 month	c) 1year	d) More than 1 year

Appendix C: Permission Letter

PLATINUM HEALTH

25th April 2022

To the Registrar – University of Witwatersrand

Re : Permission to conduct research – Itumeleng B Matulodi – ID No : 890302 0315 088

Dear Sir Madam

This seeks to inform that the above- mentioned Student has been granted permission to conduct research at the Platinum Health Pharmacy in Rustenburg where she is employed as a Pharmacist.

The topic for research is Commercialisation of cost effective, affordable pharmaceutical compounded creams/ointments in a Community Pharmacy setting.

Sincerely

Gwendoline Dodo Ramatlo
BUSINESS UNIT MANAGER

Gwendoline.Ramatlo@platinumhealth.co.za

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Appendix D

Pearson's Significance Table 1/2

df \ α	0,2	0,1	0,05	0,02	0,01	0,001
1	0,951057	0,987688	0,996917	0,999507	0,999877	0,999999
2	0,800000	0,900000	0,950000	0,980000	0,990000	0,999000
3	0,687049	0,805384	0,878339	0,934333	0,958735	0,991139
4	0,608400	0,729299	0,811401	0,882194	0,917200	0,974068
5	0,550863	0,669439	0,754492	0,832874	0,874526	0,950883
6	0,506727	0,621489	0,706734	0,788720	0,834342	0,924904
7	0,471589	0,582206	0,666384	0,749776	0,797681	0,898260
8	0,442796	0,549357	0,631897	0,715459	0,764592	0,872115
9	0,418662	0,521404	0,602069	0,685095	0,734786	0,847047
10	0,398062	0,497265	0,575983	0,658070	0,707888	0,823305
11	0,380216	0,476156	0,552943	0,633863	0,683528	0,800962
12	0,364562	0,457500	0,532413	0,612047	0,661376	0,779998
13	0,350688	0,440861	0,513977	0,592270	0,641145	0,760351
14	0,338282	0,425902	0,497309	0,574245	0,622591	0,741934
15	0,327101	0,412360	0,482146	0,557737	0,605506	0,724657
16	0,316958	0,400027	0,468277	0,542548	0,589714	0,708429
17	0,307702	0,388733	0,455531	0,528517	0,575067	0,693163
18	0,299210	0,378341	0,443763	0,515505	0,561435	0,678781
19	0,291384	0,368737	0,432858	0,503397	0,548711	0,665208
20	0,284140	0,359827	0,422714	0,492094	0,536800	0,652378
21	0,277411	0,351531	0,413247	0,481512	0,525620	0,640230
22	0,271137	0,343783	0,404386	0,471579	0,515101	0,628710
23	0,265270	0,336524	0,396070	0,462231	0,505182	0,617768
24	0,259768	0,329705	0,388244	0,453413	0,495808	0,607360
25	0,254594	0,323283	0,380863	0,445078	0,486932	0,597446
26	0,249717	0,317223	0,373886	0,437184	0,478511	0,587988
27	0,245110	0,311490	0,367278	0,429693	0,470509	0,578956
28	0,240749	0,306057	0,361007	0,422572	0,462892	0,570317
29	0,236612	0,300898	0,355046	0,415792	0,455631	0,562047
30	0,232681	0,295991	0,349370	0,409327	0,448699	0,554119

The table contains critical values for 2-tail tests. For 1-tail tests, divide α by 2.
Aspelmeier, J. (2005) Table of critical values for Pearson's r

Pearson's Significance Table 2/2

df \ α	0,2	0,1	0,05	0,02	0,01	0,001
35	0,215598	0,274611	0,324573	0,380976	0,418211	0,518898
40	0,201796	0,257278	0,304396	0,357787	0,393174	0,489570
45	0,190345	0,242859	0,287563	0,338367	0,372142	0,464673
50	0,180644	0,230620	0,273243	0,321796	0,354153	0,443201
60	0,164997	0,210832	0,250035	0,294846	0,324818	0,407865
70	0,152818	0,195394	0,231883	0,273695	0,301734	0,379799
80	0,142990	0,182916	0,217185	0,256525	0,282958	0,356816
90	0,134844	0,172558	0,204968	0,242227	0,267298	0,337549
100	0,127947	0,163782	0,194604	0,230079	0,253979	0,321095
125	0,114477	0,146617	0,174308	0,206245	0,227807	0,288602
150	0,104525	0,133919	0,159273	0,188552	0,208349	0,264316
175	0,096787	0,124036	0,147558	0,174749	0,193153	0,245280
200	0,090546	0,116060	0,138098	0,163592	0,180860	0,229840
250	0,081000	0,103852	0,123607	0,146483	0,161994	0,206079
300	0,073951	0,094831	0,112891	0,133819	0,148019	0,188431
350	0,068470	0,087814	0,104552	0,123957	0,137131	0,174657
400	0,064052	0,082155	0,097824	0,115997	0,128339	0,163520
450	0,060391	0,077466	0,092248	0,109397	0,121046	0,154273
500	0,057294	0,073497	0,087528	0,103808	0,114870	0,146436
600	0,052305	0,067103	0,079920	0,094798	0,104911	0,133787
700	0,048427	0,062132	0,074004	0,087789	0,097161	0,123935
800	0,045301	0,058123	0,069234	0,082135	0,090909	0,115981
900	0,042711	0,054802	0,065281	0,077450	0,085727	0,109385
1000	0,040520	0,051993	0,061935	0,073484	0,081340	0,103800
1500	0,033086	0,042458	0,050582	0,060022	0,066445	0,084822
2000	0,028654	0,036772	0,043811	0,051990	0,057557	0,073488
3000	0,023397	0,030027	0,035775	0,042457	0,047006	0,060027
4000	0,020262	0,026005	0,030984	0,036773	0,040713	0,051996
5000	0,018123	0,023260	0,027714	0,032892	0,036417	0,046512

The table contains critical values for 2-tail tests. For 1-tail tests, divide α by 2.
Aspelmeier, J. (2005) Table of critical values for Pearson's r