

**Clients' expectations, perceptions and knowledge of non-surgical
anti-ageing treatments in the Free State and Northern Cape**

by

Marileen Lombard

Submitted in fulfilment of the requirements for the Degree

Master of Health Sciences in Somatology

Department of Somatology

Faculty of Health and Environmental Sciences

Central University of Technology, Free State

Supervisor: Dr HCL Gleimius

Co-supervisor: Dr J Jonker

BLOEMFONTEIN

November 2025

Declaration

I, Marileen Lombard, ID number _____ and student number _____, do hereby declare that this research project submitted to the Central University of Technology, Free State, for the degree MASTER OF HEALTH SCIENCES IN SOMATOLOGY, is my own independent work. This work follows the Code of Academic Integrity and other relevant policies, procedures, rules, and regulations of the Central University of Technology, Free State. I or anyone else have never submitted it to any institution to fulfil any qualification requirements.

Marileen Lombard

September 2025

I certify that the above statement is correct

Dr HCL Gleimius Supervisor

Dr J Jonker Co-supervisor

Acknowledgements

I wish to express my sincere gratitude to all those who contributed to the successful completion of this research study.

I would like to express my sincere gratitude to my supervisor, Dr Henry Gleimius, for your unwavering support, insightful guidance, and consistent encouragement throughout the research process. Your expertise and generosity in sharing your knowledge were instrumental in shaping this study.

To my co-supervisor, Dr Juanita Jonker, I am truly grateful for your thoughtful feedback and motivating support. Your input played a vital role in refining the direction and quality of this research.

I extend my appreciation to the Central University of Technology, Free State (CUT) Research Development and Postgraduate Studies Unit for the financial support that made this research possible.

A special thank you to Ms Palesa Venda from Library Services for your kind assistance and commitment in sourcing and accessing academic resources. Your support made a significant difference in the research process.

I would also like to thank Dr M. Viljoen for the statistical preparation and analysis of the results. Your contribution was critical to the validity and success of this study.

I am also deeply appreciative of the gatekeepers from various medical and beauty practices in the Free State and Northern Cape who facilitated the ethical distribution of the questionnaire and supported the research process.

Finally, I am immensely grateful to all the participants who took the time to complete the questionnaire. Your honest responses and valuable insights formed the foundation of this study and are truly appreciated.

Abstract

Background:

In recent years, health, youth, and attractiveness have been closely linked, with a significant rise in demand for non-surgical anti-ageing treatments. Ageing is a natural and irreversible process, yet the desire to maintain a youthful appearance has persisted across cultures and throughout history. To address ageing concerns as fine lines, uneven skin tone, and changes in skin texture, many individuals are turning to treatments that avoid the risks and recovery time associated with surgery. This pursuit is reflected in the growing popularity of injectables, chemical peels, microneedling, and laser therapies, which offer clients accessible options for rejuvenation. As aesthetic practices expand in Central South Africa, it becomes increasingly important to understand the expectations, perceptions, and knowledge of clients, since these factors shape decision-making, satisfaction, and overall treatment outcomes. Therefore, this study aimed to determine the expectations, perceptions and knowledge of clients in Free State and the Northern Cape regarding non-surgical anti-ageing treatments.

Methodology:

A quantitative descriptive research design was employed in this study. Data collection was conducted using a newly developed, validated, and reliable questionnaire. Participants were recruited from beauty salons and medical aesthetics practices across the Free State and Northern Cape provinces, following specific inclusion criteria. A total of 154 participants, spanning a wide range of ages, took part in the study. The collected data were accurately captured and subjected to statistical analysis by a qualified statistician.

Results and discussion: The study population was overwhelmingly female, with women comprising 95.5% of respondents and men only 4.5%. Age distribution reflected a client profile for non-surgical anti-ageing treatments, with the largest proportion of respondents between 35 and 44 years, followed by the age range of between 45 and 54 years. Representation declined steadily with advancing age, and only a small number of clients were older than 65 years. The overall participant age ranged from 18 to 85 years, capturing both younger and older clients seeking non-surgical anti-ageing treatments. Geographically, respondents were almost exclusively from the Free State (98.1%), with minimal representation from the Northern Cape (1.9%). In terms of treatment settings, the most frequently reported venues included therapists operating within doctors' practices (25.6%), followed by dermatology clinics (22.7%).

Expectations: Treatment experiences and preferences showed that chemical peels (58.4%), microneedling (44.8%), and Botox (33.1%) were the most tried treatments. When asked to identify the best overall treatment, microneedling emerged as the most preferred option (26.0%). Rankings confirmed microneedling's favourable position, with 28.1% placing it as the top choice. Botox, however, was the most polarising: 23.5% ranked it highest, yet 34.0% ranked it lowest. Perceived effectiveness was the main reason for the preferences, with almost half of the participants identifying this as their primary decision-making factor, followed by combined considerations of cost, comfort, and downtime (25%). Most prominently, outcome expectations focused on visible change, with 42.2% of respondents expecting significant and noticeable improvements, and 38.3% anticipating an overall enhancement in appearance. Longevity expectations varied across treatments. For Botox, one third of the respondents (33.8%) expected results to last six months, while a further 24.7% anticipated it to last one year. The effect of dermal fillers were most often expected to last one year (39.6%). While longevity expectations underscored differences in clients' beliefs about the duration of treatment effects, age-related expectations reflected divergent views on the appropriate timing for initiating non-surgical anti-ageing treatments.

Age-related expectations indicated that 30 years was viewed as the most appropriate age to begin treatment (27.7%). Younger participants (18–24 of age) strongly favoured microneedling (75.0%), whereas older age groups showed greater uncertainty, with 30.2% of those aged 45–54 reporting no clear preference.

Beyond longevity and age, motivations for treatment provided further insight into client expectations. Motivations were multifaceted, with participants most often aiming to address specific skin concerns (22.2%), improve texture (17.0%), or reduce wrinkles and fine lines (12.4%). Finally, the importance of natural outcomes was strongly emphasised, with 61.7% of respondents rating them as extremely important and 32.9% as very important. Collectively, the findings suggest that clients prefer treatments that balance effectiveness, longevity, and affordability with subtle, natural-looking results.

Perceptions: Clients' perceptions revealed how they judged treatment experiences in practice. Trust in professionals was high, with 68.0% of respondents reporting full trust in aesthetic professionals and 32.0% reporting moderate trust. Perceived effectiveness and onset of results varied across treatments: dermal fillers were most often linked to immediate improvement (31.2%), while Botox was associated with faster effects within 24–48 hours (45.4%). In contrast, microneedling and chemical peels were seen as having slower effects, with one week (30.5% and 33.8% respectively) most reported.

Mood responses following treatment were strongly positive, as 46.1% of respondents reported feeling very happy and 40.9% happy, while only 13.0% experienced no change in mood. Safety concerns were moderate overall: 31.8% of respondents expressed moderate concern, 25.8% slight concern, while only 9.3% reported extreme concern and 16.6% reported no concern. Medication disclosure was widely regarded as important. The majority of respondents indicated they would disclose current medication use, most notably before Botox treatment (78.6%), chemical peels (77.9%), and microneedling (77.3%). Even for laser/IPL and dermal fillers, over 70% reported full disclosure. However, between 12.3% and 18.8% of respondents across all modality's believed disclosure was unnecessary.

Treatment perceptions also extended to frequency and sources of influence. The most common selections were bi-annual sessions (29.9%), monthly sessions (28.6%), and sessions conducted every three months (25.3%). Only 11.0% of respondents preferred annual visits, and very few opted for weekly or more-than-once-monthly sessions. Influencing sources reflected a strong reliance on professionals. Doctors (66.2%) and beauty professionals (64.9%) were the most influential, far exceeding family (20.8%), friends (21.4%), or social media (16.9%). Online reviews (37.7%) and before/after photos (51.9%) also played a notable role.

Perceptions of outcomes aligned with a preference for subtlety, as 42.9% of respondents believed results should appear natural and not overdone, while 21.4% viewed treatments as part of a broader skincare routine. Disclosure of treatment choices was common, with 83.1% of participants reporting openness, though 11.0% considered treatment private and 5.8% avoided disclosure to preserve the impression of natural results. Perceptions of boundaries indicated that visible alterations of natural appearance (53.9%) and health risks (33.8%) were regarded as crossing acceptable limits, whereas high costs (9.7%) were less significant. Finally, barriers to treatment centred around cost (38.2%). Supportively, the findings demonstrate strong trust in professional guidance, positive emotional responses, moderate but present safety concerns, and a prevailing desire for natural outcomes delivered through balanced, accessible treatment approaches.

Knowledge: In addition to expectations and perceptions, the study also explored clients' knowledge of non-surgical anti-ageing treatments. Overall awareness was relatively strong, as Botox was most often associated with wrinkle reduction (90.9%) and fine lines (55.8%); dermal fillers with volume loss (79.1%); chemical peels with uneven skin tone (63.6%) and sun damage (58.4%); and IPL/laser treatments with red veins (51.3%) and pigmentation (48.1%). Microneedling was frequently linked as treatment option for wrinkles (56.9%), fine lines (49.0%), and uneven tone (45.1%). However, despite this general awareness, gaps became evident. Almost one third of the respondents with injectable experience (31.2%) could not identify the product name, and some incorrectly cited Juvéderm (3.9%) as Botox.

Sources of information reflected this imbalance, as most respondents relied on beauty professionals (33.1%) or medical professionals (28.6%), followed by medical websites (24.9%), while social influences such as friends (6.9%) and social media (6.5%) played only a minor role. Although many respondents demonstrated accurate knowledge, for example, recognising that Botox is not permanent (81.2%) and distinct from fillers (75.3%), uncertainty persisted, particularly around filler permanence, injection zones, and laser safety, with more than 40% unsure or being misinformed.

Botox-specific knowledge further illustrated this mixture of accuracy and misconception: while nearly half (45.5%) of the respondents rejected the view that Botox gives an unnatural look, over a third (34.4%) agreed and one fifth (20.1%) were unsure. Encouragingly, more than half of the respondents (53.9%) rejected the claim that Botox is toxic and dangerous, and 50.6% disagreed that once Botox treatment is started, it cannot be stopped.

Most participants (77.3%) also recognised that Botox is used beyond cosmetic purposes, and 83.7% understood that it is not restricted to clients over 50 years. The findings suggest that although clients showed strong awareness in some areas, particularly regarding Botox and fillers, persistent misconceptions about treatment permanence, safety, and laser suitability highlight the need for clearer professional education and guidance.

Conclusion:

Client responses showed significant patterns in expectations, perceptions, and knowledge. Clear preferences were expressed for specific treatment types, with impressions shaped by a high trust in skilled professionals. However, uneven understanding and recurring misconceptions underlined persistent ambiguity, highlighting the critical importance of bridging knowledge gaps with reliable information, so that client expectations, perceptions, and choices align with the realities of safe, effective, non-surgical anti-ageing treatments practice.

Keywords: Clients' expectations, perceptions, and knowledge; non-surgical anti-ageing treatments; resurfacing treatments; collagen induction treatments; botulinum toxin; dermal fillers; microneedling; chemical peels; IPL and laser treatments; aesthetic professionals; beauty salons and medical aesthetics practices; Free State and Northern Cape provinces.

Table of Contents

Table of Contents

Declaration	i
Acknowledgements	ii
Abstract	iii
Table of Contents	ix
List of Tables	xvi
List of Figures	xix
List of Appendixes	xx
Abbreviations	xxi
Glossary of Terms	xxiii
Chapter 1.....	1
Introduction.....	1
1.1 Introduction	1
1.2 Problem statement	3
1.2.1 Research questions	3
1.3 Aim of the study	4
1.4 Objectives of the study	4
1.5 Conceptual framework	5
1.6 Significance of the study	5
1.7 Ethical clearance	6
1.8 Layout of thesis	6
Chapter 2.....	8
Literature review	8
2.1 Introduction	8
2.2 Skin ageing process	9
2.2.1 Intrinsic factors	9

2.2.2 Extrinsic factors.....	10
2.2.3 Ageing in the first three layers of skin.....	11
2.2.4 Phenotypical characteristics of skin ageing	13
2.2.4.1 Lack of elasticity.....	13
2.2.4.2 Wrinkles and texture	14
2.2.4.3 Vascular ageing	15
2.2.4.4 Pigmentation irregularities.....	16
2.3 Anti-ageing treatments _____	17
2.3.1 Surgical anti-ageing treatment.....	17
2.3.2 Non-surgical anti-ageing treatment.....	17
2.3.2.1 Resurfacing treatments	20
2.3.2.2 Collagen induction therapy.....	21
2.3.2.3 Light energy-based devices	22
2.3.2.4 Muscle relaxant injections	23
2.3.2.5 Dermal fillers.....	24
2.3.3 Aesthetic professionals	26
2.3.4 The client	27
2.3.4.1 Clients' expectations.....	28
2.3.4.2 Clients' perceptions.....	29
2.3.4.3 Clients' knowledge.....	30
2.4 Conceptual Framework _____	31
2.5 Conclusion _____	32
Chapter 3.....	33
Methodology.....	33
3.1 Introduction _____	33
3.2 Research design and layout _____	33
3.3 Demarcation of the study _____	34
3.4 Ethical considerations and protection of personal information Act (POPIA) _____	35

3.4.1 Ethic clearance from research ethics committee	36
3.4.2 Data management plan	36
3.4.3 Financial implications	37
3.4.4 Withdrawal criteria	37
3.5 Data collection strategy _____	37
3.5.1 The questionnaire	38
3.5.2 The pilot study	38
3.5.3 Study population _____	38
3.5.3.1 Participant criteria	39
Exclusion criteria	40
3.6 Main study _____	40
3.6.1 Gatekeepers in the study	41
3.6.1.1 Selection and responsibilities of gatekeepers	41
3.6.1.2 Exponential non-discriminative snowball sampling	42
3.6.1.3 Questionnaire distribution and administration	43
3.7 Data analysis _____	44
3.7.1 Presentation of results	44
3.8 Conclusion _____	44
Chapter 4.....	45
The Data Collection Tool.....	45
4.1 Introduction _____	45
4.2 The questionnaire development process _____	45
4.2.1 Literature review and online insight review	46
4.2.2 Preliminary questionnaire	48
4.2.2.1 Expectations	48
4.2.2.2 Perceptions	49
4.2.2.3 Knowledge	50
4.2.3 Peer review	51
4.3 Face and content validity _____	52

4.3.1 Face validity	52
4.3.2 Content validity	54
4.4 The pilot study _____	55
4.4.1 Renovated questionnaire themes _____	59
4.5 Reliability _____	63
4.6 The questionnaire _____	65
4.6.1 Questionnaire layout	65
4.6.2 Assembly of questions	67
4.7 Conclusion _____	69
Chapter 5.....	70
Demographics and non-surgical anti-ageing treatments: expectations	70
5.1 Introduction _____	70
5.2 Demographic profile of participants _____	70
5.3 Themes for expectations _____	72
5.3.1. Treatment history of participants	73
5.3.2 Expected best treatment	74
5.3.3 Treatment effectiveness rankings	75
5.3.4 Participant reason for ranking	76
5.3.5 Expected outcome.....	77
5.3.6 Expectations on Longevity	78
5.3.7 Perceived appropriate starting age.....	79
5.3.7.1 Treatment preferences by age group	79
5.3.8 Expectations for treatments.....	80
5.3.9 Importance of natural-looking outcomes	81
5.4 Discussion _____	82
5.4.1 Demographic Profile of Participants	82
5.4.2 Expectations.....	84

5.4.3 Treatment history of participants	85
5.4.4 Expected best treatment	86
5.4.5 Treatment effectiveness rankings	86
5.4.6 Participants' reason for ranking	88
5.4.7 Expected outcomes.....	89
5.4.8 Expectations on longevity.....	90
5.4.9 Perceived appropriate starting age.....	91
5.4.10 Treatment preferences by age group	92
5.4.11 Motivations for treatment.....	93
5.4.12 Importance of natural-looking outcomes	94
Chapter 6.....	89
Non-surgical anti-ageing treatments: Perceptions	89
6.1 Introduction _____	89
6.2 Perception themes _____	89
6.2.1 Trust in a professional's advice	91
6.2.2 Result onset time.....	91
6.2.3 Mood impact perception	92
6.2.4 Concerns about side effects.....	93
6.2.5 Medication disclosure practices	94
Table 6.3: Medication reporting prior to treatments _____	95
6.2.6 Treatment frequency	95
6.2.7 Participant sources of information	96
Table 6.4: Influencing factors on participants' perceptions of anti-ageing treatments _____	96
6.2.8 Perception of treatment outcomes.....	97
6.2.9 Perceptions of disclosure	98
6.2.10 Understanding treatment boundaries	99

6.2.11 Factors limiting treatment	100
6.3 Discussion	101
6.3.1 Perceptions	101
6.3.2 Trust in a professional`s advice.....	102
6.3.3 Result onset time.....	103
6.3.4 Treatment mood impact	104
6.3.5 Concerns about side effects.....	105
6.3.6 Medication disclosure practices	106
6.3.7 Treatment frequency	107
6.3.8 Participant sources of information	108
6.3.9 Perception of treatment outcomes.....	109
6.3.10 Perceptions of disclosure	109
6.3.11 Understanding treatment boundaries	110
6.3.12 Factors limiting treatment	110
Chapter 7.....	113
Non-surgical anti-ageing treatments: Knowledge	113
7. 1 Introduction	113
7.2 Knowledge themes.....	113
7.2.1 Knowledge of treatment indications.....	114
7.2.2 Knowledge of injectable product name.....	116
7.2.3 Sources of treatment information	116
7.2.4 Frequency of information seeking	117
7.2.5 Accuracy of treatment knowledge	118
Table 7.4: Participant accuracy on treatment statements	119
7.2.6 Injectable treatment knowledge: Botox.....	121
Table 7.5: Botox knowledge	122
7.3 Discussion	122

7.3.1 Knowledge	122
7.3.2 Knowledge of treatment indications.....	123
7.3.3 Knowledge of injectable product name.....	125
7.3.4 Sources of information on treatments.....	126
7.3.5 Frequency of information seeking	127
7.3.6 Accuracy of treatment knowledge	128
Table 7.6: Participant knowledge and scientific evidence _____	130
7.3.7 Injectable treatment knowledge: Botox.....	133
Chapter 8.....	136
Conclusions and recommendations.....	136
8.1 Introduction_____	136
8.1.1 Reflection on aims and objectives.....	137
8.2 Final construct outcomes and insights _____	138
8.2.1 Expectations.....	138
8.2.2 Perceptions	140
8.2.3 Knowledge	143
8.2.4 Overlaps and interactions between expectations, perceptions, and knowledge.....	145
8.3 Implications for aesthetic professionals _____	147
8.4 Recommendations _____	149
8.5 Limitations_____	151
8.6 Suggestions for future research _____	152
8.7 Concluding remarks _____	153
References.....	i
Appendix A: Ethical clearance certificate from the University of Free State I	
Appendix B: Confirmation of CUT online platform _____	li
Appendix C: Information letter and consent form for questionnaire in hard copy _____	liii

Information letter and consent form for questionnaire _____	liii
Appendix D: Information letter and consent form for Questionnaire _____	lv
Information letter and consent form for questionnaire _____	lv
Appendix E: Questionnaire _____	lvii
Information letter and consent form for questionnaire _____	lvii
Appendix F: Biostatistician conformation letter _____	lxvii
Appendix G: Language editing conformation letter _____	lxviii
Appendix H: Gatekeepers' consent letters _____	lxix
Appendix I: Gatekeepers' managers' consent letters _____	lxx

List of Tables

Table 2.1	Overview non-surgical anti-ageing treatments attending to skin ageing -symptoms	18
Table 3.1	The study design	33
Table 4.1	Dual-sources foundations for questionnaire development	45
Table 4.2	Themes from the expectations construct	48
Table 4.3	Themes from the perceptions construct	49
Table 4.4	Themes from the knowledge construct	50
Table 4.5	Peer review feedback – face validity	53
Table 4.6	Peer review feedback – content validity	54
Table 4.7	Key changes made to questionnaire from pilot study	57
Table 4.8	Expectations theme adjustments	59
Table 4.9	Renovated themes – Perceptions construct	60
Table 4.10	Renovated themes - knowledge	61
Table 4.11	Approach to ensuring questionnaire reliability	64
Table 4.12	Questionnaire response formats and the purposes	67
Table 5.1	Demographic profile of participants	70
Table 5.2	Mapping of the expectations questionnaire items	72
Table 5.3	Participants' previous non-surgical anti-ageing treatments	73
Table 5.4	Favoured non-surgical anti-ageing treatments	74
Table 5.5	Rankings of non-surgical anti-ageing treatments	75
Table 5.6	Participants expectations for non-surgical anti-ageing treatments	76
Table 5.7	Expected duration of results per treatment	77
Table 5.8	Best treatment preferences by age group	79
Table 5.9	Participants' primary motivation for receiving anti-ageing treatments	80
Table 6.1	Mapping of perceptions questionnaire items	90
Table 6.2	Perceived timeframes for treatment results	92
Table 6.3	Medication reporting prior to treatments	95

Table 6.4	Influencing factors on participants' perceptions of anti-ageing treatments	96
Table 6.5	Participants' perceptions of the nature and purpose of anti-ageing treatments	98
Table 7.1	Mapping of knowledge themes	114
Table 7.2	Participants' knowledge with treatment indications	115
Table 7.3	Participants' sources of treatment information	117
Table 7.4	Participant accuracy on treatment statements	119
Table 7.5	Botox knowledge	122
Table 7.6	Participant knowledge and scientific knowledge	130
Table 8.1	Summary of key findings and practice impactions	147

List of Figures

Figure 5.1	Reasons selected by participants for ranking non-surgical anti-ageing treatments	76
Figure 5.2	Age expectations for beginning non-surgical anti-ageing treatments	78
Figure 5.3	Importance of natural-looking results	81
Figure 6.1	Trust in aesthetic professionals	91
Figure 6.2	Mood after non-surgical anti-ageing treatments	93
Figure 6.3	Levels of concern about treatment side effects	94
Figure 6.4	Treatment frequency perceptions	96
Figure 6.5	Perceptions regarding the disclosure of non-surgical anti-ageing treatments	99
Figure 6.6	Perceptions of treatment overuse	100
Figure 6.7	Factors preventing use of non-surgical anti-ageing treatments	101
Figure 7.1	Knowledge of the product name used	116
Figure 7.2:	Information-seeking frequency regarding non-surgical anti-ageing treatments	117
Figure 8.1	Integrated overview of client expectations, perceptions and knowledge in aesthetic care	146

List of Appendixes

Appendix A: Ethical clearance certificate from the University of the Free State

Appendix B: Confirmation of CUT online platform

Appendix C: Information letter and consent form for questionnaire in hard copy

Appendix D: Information letter and consent form for questionnaire

Appendix E: Questionnaire

Appendix F: Biostatistician conformation letter

Appendix G: Language conformation letter

Appendix H: Gatekeepers consent letters

Appendix I: Gatekeepers managers consent letters

Abbreviations

AHA	Alpha hydroxy acid
AGEs	Advanced glycation end-products
BCE	Before common era
CaHA	Calcium hydroxylapatite ($\text{Ca}_{10}(\text{PO}_4)_6(\text{OH})_2$)
CIT	Collagen Induction Therapy
CUT	Central University of Technology, Free State
DMP	Data management plan
ECM	Extracellular matrix
HA	Hyaluronic acid
HBM	Health Belief Model
HPCSA	Health Professions Council of South Africa
HSREC	Health Science Research Committee
IPL	Intense Pulsed Light
KAP	Knowledge–Attitude–Practice
nm	Nanometres
PLLA	Poly-L-lactic acid

POPIA Protection of Personal Information Act

SA South Africa

UV Ultraviolet

Glossary of Terms

1.1 Aesthetic professionals

Trained individuals, including beauty professionals and medical practitioners, who are qualified to provide non-surgical anti-ageing treatments in beauty salons or medical aesthetics practices.

1.2 Ageing

A natural biological process characterised by progressive structural and functional changes in the skin and body over time. In aesthetic contexts, ageing commonly presents as wrinkles, loss of volume, pigmentation, and reduced elasticity, which non-surgical anti-ageing treatments aim to address.

1.3 Beauty professionals

Practitioners trained in skincare, non-surgical anti-ageing treatments, and client care, typically working in beauty salons or medical aesthetic practices.

1.4 Chemical peels

A resurfacing treatment that uses chemical solutions to exfoliate the outer layers of the skin, improving skin texture, tone, and pigmentation.

1.5 Client

An individual who receives non-surgical anti-ageing treatments from aesthetic professionals.

1.6 Client-facing content

Information about treatments that is presented directly to client through websites, social media, brochures, or promotional materials.

1.7 Collagen induction treatments

Treatments, such as microneedling, that aim to stimulate the body's natural collagen production to improve skin firmness, texture, and elasticity.

1.8 Dermal fillers

Injectable substances, typically hyaluronic acid-based, used to restore volume, smooth wrinkles, and enhance facial contours.

1.9 Intense Pulsed Light (IPL)

A light-based treatment that targets pigmentation, redness, and signs of ageing by delivering multiple wavelengths of light to the skin.

1.10 Gini coefficient

A statistical measure of inequality within a distribution, commonly used to assess income or wealth disparities. It ranges from 0 to 1, where **0** represents perfect equality (everyone has the same amount) and **1** represents maximum inequality (one individual possesses everything, and all others have nothing).

1.11 Medical aesthetics practices

Clinics or facilities where non-surgical anti-ageing– treatments are offered under the supervision of a medical practitioner.

1.12 Medical practitioners

Registered healthcare professionals such as doctors who are qualified to perform or supervise non-surgical anti-ageing treatments.

1.13 Microneedling

A minimally invasive treatment that uses fine needles to create micro-injuries in the skin, promoting collagen production and skin rejuvenation.

1.14 Non-surgical anti-ageing treatments

Aesthetic procedures that do not involve surgery but aim to improve the signs of ageing. These include botulinum toxin, dermal fillers, microneedling, chemical peels, and IPL or laser treatments.

1.15 OnabotulinumtoxinA (Botox®)

A purified neurotoxin derived from *Clostridium botulinum*, used in aesthetic medicine to temporarily relax facial muscles, reducing the appearance of wrinkles and fine lines.

1.16 Provinces (South Africa)

South Africa is divided into nine administrative provinces. In this study, participants were drawn from the Free State and Northern Cape provinces, providing insight into regional perspectives on knowledge, expectations, and perceptions of non-surgical anti-ageing treatments.

1.17 Resurfacing treatments

Procedures such as chemical peels, IPL, or laser therapies designed to improve the texture and appearance of the skin by removing or treating surface layers.

Chapter 1

Introduction

1.1 Introduction

In the 21st century, youthfulness and physical attractiveness have emerged as increasingly salient and socially valued attributes on a global scale (He, Workman, Kenett & Chatterjee, 2021). Nevertheless, ageing is an inevitable biological process that affects the skin's appearance over time, leading to concerns such as wrinkles, loss of elasticity, and pigmentation (Zouboulis, Ganceviciene, Liakou, Theodoridis, Elewa & Makrantonaki, 2019). The aspiration to preserve a young appearance has driven an increasing need for developments in aesthetic technology, in surgical as well as non-surgical anti-ageing treatments, in preserving a youthful appearance (Zachary, 2016).

Technological breakthroughs and the development of more effective surgical and non-surgical anti-ageing treatments have been important in meeting the demand (Bustos, Vyas, Huang, Suchyta, LeBrasseur, Cotofana, Wyles & Mardini, 2024; Zachary, 2016). Therefore, technological breakthroughs have not only enhanced the safety and effectiveness of such treatments but have also increased their accessibility and affordability, contributing to their rising global popularity (Zachary, 2016). Growing emphasis on youthfulness and attractiveness has driven demand for non-surgical anti-ageing treatments. Similarly, the popularity of non-surgical anti-ageing treatments increased in South Africa, where consumer interests and demands continue to rise (MedEsthetics, 2024a; MedEsthetics, 2024b; Chalise, 2019; Honigman & Castle, 2006a).

An escalation in consumer demands has resulted in the transformation of the beauty salons and medical aesthetics practices in South Africa to expand and adapt to increased consumer demands (MedEsthetics, 2024a).

Increased consumer demands shape expectations as clients expect higher quality and service, driving businesses to adapt their offerings. Therefore, 21st-century clients expect non-surgical anti-ageing treatments to be effective, minimally invasive, and capable of delivering noticeable results, with little downtime (Wong, 2021b). The expectations of clients and their overall satisfaction are significantly influenced by how they interpret treatment information, which in turn is affected by the client's perceptions and knowledge (Hemsworth, Hemsworth, & Richmond 2024a).

In the contemporary digital era characterised by the rapid dissemination of information, social trends and extrinsic influences play a pivotal role in shaping clients' expectations, perceptions, and knowledge of non-surgical anti-ageing treatments (Roztock, Soja & Weistoffer, 2019). Clients are increasingly influenced by the pursuit of immediate and visible improvements in skin texture, tone, and overall appearance, which informs their expectations toward such interventions (Wong, 2021a). Moreover, the pervasive influence of social media and fashion trends significantly contributes to the construction of client knowledge by perpetuating idealised standards of youthfulness and attractiveness, thereby reinforcing the cultural valorisation of aesthetic enhancement (Harth, 2017).

Despite insights on the influencers of clients' expectations, perceptions, and knowledge regarding non-surgical anti-ageing treatments, it remains unclear how these factors specifically influence client decision-making regarding non-surgical anti-ageing treatments. The current research study will explore clients' expectations, perceptions, and knowledge of non-surgical anti-ageing treatments. Findings may provide valuable insights for aesthetic professionals to understand their clients' knowledge, endeavour to correct misperceptions, and better align their services with client expectations. It is anticipated that informed clients and improved alignment with their expectations, perceptions, and knowledge may increase client satisfaction and business growth. Additionally, it considers the potential role of social trends and technological influences in shaping client behaviours regarding non-surgical anti-ageing treatments.

1.2 Problem statement

In the current technological age, information about non-surgical anti-ageing treatments is easily and widely accessible (Roztocki et al., 2019). As a result, clients now have immediate access to extensive information, enabling them to educate themselves about non-surgical anti-ageing treatments and to develop their own expectations and perceptions (Roztocki et al., 2019). However, not all sources of information are accurate; many serve as marketing tools aimed at attracting clients (Hernandez, Frech, Mohsin, Dreyfuss & Nouri, 2022; Furnham & Levitas, 2012). Consequently, if clients cannot distinguish between reliable and misleading information, they may develop inaccurate expectations and perceptions and knowledge regarding non-surgical anti-ageing treatments. Therefore, it is crucial for aesthetic professionals, medical practitioners, and beauty professionals to understand the dynamics between clients' expectations, perceptions, knowledge, and their decision-making processes in this rapidly evolving technological aesthetic environment. Medical practitioners and beauty professionals can better guide clients and help them make informed choices about their non-surgical anti-ageing treatments.

1.2.1 Research questions

A research question serves as a key element in any study, guiding the investigation and helping to generate meaningful insights. It defines the focus of the research and ensures that the study remains structured and relevant to its objectives (Korstjens & Moser, 2017).

For this study, the research question is:

What are the expectations, perceptions, and knowledge of clients using non-surgical anti-ageing treatments in the Free State and Northern Cape in South Africa?

1.3 Aim of the study

This study aims to explore the expectations, perceptions and knowledge of clients in the Free State and Northern Cape in South Africa regarding non-surgical anti-ageing treatments.

1.4 Objectives of the study

To achieve the aim of the study, the following objectives were formulated:

- To identify the prevalent expectations of clients regarding the outcomes (incl. effectiveness) and preferences (incl. motivations therefore) of non – surgical anti – ageing treatments.
- To explore the perceptions of clients regarding the outcomes and safety of non-surgical anti-ageing treatments, as well as factors that influenced these perceptions.
- To investigate the level of knowledge (accurate understandings or misconceptions) that clients possess on the types, effect and possible risks of non – surgical anti – ageing treatments, as well as factors that shape this knowledge.
- To determine possible interrelationships between clients' expectations, perceptions, and level of knowledge regarding non-surgical anti-ageing treatments, and how these may influence treatment decisions.

1.5 Conceptual framework

This study is guided by two conceptual frameworks namely: the Knowledge–Attitude–Practice (KAP) model and the Health Belief Model (HBM), similar to a study by Singh, Kumar and Sharma (2025). The two frameworks were adapted and integrated in attempt to explain how clients’ expectations, perceptions, and knowledge may interrelate and/or influence clients’ decisions regarding non-surgical anti-ageing treatments. The KAP framework aligns with the four objectives by linking clients’ expectations, perceptions and knowledge (representing attitudes) to treatment behaviour (referring to practice), while considering perceived benefits and barriers as suggested by the HBM.

1.6 Significance of the study

As a beauty professional working in the field of non-surgical anti-ageing treatments, the researcher has observed the rapid expansion of the beauty industry. Clients are increasingly seeking non-surgical anti-ageing treatments, attracted by promises of rejuvenation and anti-ageing effects (MedEsthetics, 2024). Clients have access to abundant information on non-surgical anti-ageing treatments due to social trends, extrinsic influences, and technological advancements.

The availability of information through such trends, influences, and advancements may contribute to clients' understanding of non-surgical anti-ageing treatments. These trends, influences, and advancements provide clients with increasing exposure to information about non-surgical anti-ageing treatments (Roztock et al., 2019; Research & Markets, 2016). Clients' expectations, perceptions, and knowledge levels noticeably differ despite increased information exposure, often due to incomplete or misleading information. This discrepancy has motivated the present study. This study investigates a possible gap between clients' expectations, perceptions, and knowledge and the actual outcomes of non-surgical anti-ageing treatments.

Understanding expectations, perceptions, and knowledge is crucial for delivering high-quality services and ensuring a positive client experience. Improving communication between professionals and clients and providing accurate information can help clients make informed decisions and contribute to a safer and more effective approach to non-surgical anti-ageing treatments in both beauty salons and medical aesthetics practices.

1.7 Ethical clearance

The Health Sciences Research Ethics Committee (HSREC) at the University of the Free State (UFS) granted ethical clearance for this study (UFS-HSD2024/0281/2307), ensuring compliance with ethical standards, including adherence to the Protection of Personal Information Act (POPIA). Ethical approval from HSREC was sought due to the absence of an institutional ethics committee at the Central University of Technology, Free State (CUT) at the time the study was conducted.

1.8 Layout of thesis

This dissertation is arranged into eight chapters. The layout and content of the chapters are summarised as follows:

Chapter 1: Introduction

This chapter introduces the field of study, identifies the research problem, and outlines the study's aim and objectives. It also addresses ethical considerations.

Chapter 2: Literature review

This chapter explores existing literature on non-surgical anti-ageing treatments, providing context and background information. This review lays the groundwork for understanding the significance and scope of the research.

Chapter 3: Methodology

This chapter discusses the methodology employed in this research project, including the study design, sampling procedures, research setting and data analysis methods.

Chapter 4: The data collection

This chapter outlines the development of the research instrument, specifically the questionnaire. It provides a detailed description of the final questionnaire, including its design and layout. Additionally, the chapter discusses the methods of dispersal, as well as the procedures used to ensure the validity and reliability of the data collection tool.

Chapter 5: Demographics and non-surgical anti-ageing treatments: Expectations

This chapter presents the findings related to participants' demographics and expectations of non-surgical anti-ageing treatments, accompanied by a comprehensive discussion.

Chapter 6: Non-surgical anti-ageing treatments: Perceptions

This chapter presents the findings related to participants' perceptions of non-surgical anti-ageing treatments, accompanied by a comprehensive discussion.

Chapter 7: Non-surgical anti-ageing treatments: Knowledge

This chapter presents the findings related to participants' knowledge of non-surgical anti-ageing treatments, accompanied by a comprehensive discussion.

Chapter 8: Conclusions and recommendations

The final chapter presents the conclusions derived from the study's findings, outlines recommendations for future research, and discusses the limitations encountered. Furthermore, it explores the practical implications and potential applications of the results.

Chapter 2

Literature review

2.1 Introduction

Ageing is a natural biological process and a natural, unavoidable human condition. However, throughout history, there have been numerous attempts to reverse or reduce these effects and signs of ageing, especially the facial skin. Ageing is characterised by a decline in cellular function, reduced regenerative capacity, and weakened immune responses that ultimately lead to the structural and functional deterioration of the skin (Chaudhary, Khan & Gupta, 2020). As scientific knowledge has advanced, technological breakthroughs in the anti-ageing field have progressed as well (Tenchov, Sasso, Wang & Zhou, 2024).

The earliest documented references to anti-ageing enhancement date back to the Egyptian papyri of the 16th century before Christ, where remedies were used to restore facial appearance following the ageing processes (Drozdowski, 2008). Scientific progress has refined the early methods, leading to the development of non-surgical anti-ageing treatments that improve skin appearance without invasive treatments. The transition from traditional cosmetic applications to evidence-based non-surgical treatments reflects the continuous human effort to enhance skin health and combat visible signs of ageing (He, Workman, Kenett & Chatterjee, 2021).

Aesthetic professionals play a crucial role in bridging the gap between scientific innovation and client awareness, ensuring that treatments align with both efficacy and safety standards (Zhang & Duan, 2018). This literature chapter explores the biological mechanisms of skin ageing and the evolution of non-surgical treatments aimed at mitigating its visible effects.

2.2 Skin ageing process

Human skin gradually experiences structural and functional decline as part of the natural ageing process (Zouboulis, Ganceviciene, Liakou, Theodoridis, Elewa & Makrantonaki, 2019). Over time, regenerative capacity diminishes, cellular turnover slows, and immune responses become less effective. Therefore, biological changes contribute to delayed wound healing and increased susceptibility to external damage (Chaudhary, Khan & Gupta, 2020). A key component affected is the extracellular matrix (ECM), where reduced collagen density and disorganised elastin fibres compromise skin elasticity and firmness. This degradation also impairs the skin's ability to retain moisture, leading to dryness, fine lines, and reduced resilience (Zhang & Duan, 2018). As the skin serves as the body's first line of defence against environmental stressors, the combined effects of intrinsic and extrinsic ageing eventually manifest as the visible signs of skin ageing.

2.2.1 Intrinsic factors

Intrinsic ageing refers to continuous, genetically programmed biological changes that occur naturally over time, independent of external influences. This process is governed by internal physiological mechanisms that gradually affect skin structure and function at both cellular and molecular levels (Mora Huertas, Schmelzer, Hoehenwarter, Heyroth & Heinz, 2016; Elsner & Maibach, 2008). As intrinsic ageing progresses, it leads to reduced cellular renewal, compromised repair capacity, and diminished production of key structural components, ultimately affecting the skin's hydration, elasticity, and resilience (Poljšak & Milisav, 2022; Chaudhary, Khan & Gupta, 2020).

Hormonal fluctuations, particularly the decline in oestrogen levels during and after menopause, are a significant intrinsic factor influencing skin health (Thornton, 2022). Oestrogen plays a crucial role in maintaining skin thickness, stimulating collagen production, and supporting moisture retention. (Verdier-Sévrain, Bonté & Gilchrest, 2006).

Genetic factors also regulate the production of collagen and elastin-proteins essential for maintaining skin structure and resilience (Zargaran, Zoller, Zargaran, Weyrich & Mosahebi, 2022a). Individual genetic differences may influence the rate and severity of skin ageing, leading to variations in texture, elasticity, and overall appearance (Puig & Guilabert, 2023). At the molecular level, non-enzymatic glycation contributes to the formation of advanced glycation end-products (AGEs) that bind to collagen and elastin, making them stiff and less functional. This process weakens skin elasticity and structural integrity, thereby accelerating the visible signs of ageing (Dudek, Stachowicz & Juśkiewicz, 2021; Ricard-Blum, 2011). Mitochondrial dysfunction further compounds these effects by reducing the skin's energy production capacity, which limits its ability to repair and regenerate effectively (Stout & Birch-Machin, 2019). In addition, reduced vascular efficiency and oxygenation slow repair processes and diminish tissue vitality (Zhong, Wu & Chen, 2022). Therefore, the skin is more susceptible to external stressors, such as ultraviolet radiation and pollution, which accelerate the onset of extrinsic ageing (Zhang & Duan, 2018).

2.2.2 Extrinsic factors

In contrast to intrinsic ageing, which is biologically determined, and unavoidable, extrinsic ageing is largely driven by external factors and is often preventable through lifestyle and environmental interventions (Chaudhary, Khan & Gupta, 2020). One of the most significant contributors is prolonged exposure to ultraviolet (UV) radiation, which accelerates collagen and elastin breakdown, leading to wrinkles, sagging, and pigmentation irregularities (Farage, Miller, Elsner & Maibach, 2008).

Additionally, air pollution further compromises the skin's structural integrity by inducing oxidative stress, resulting in premature ageing, fine lines, and an uneven skin tone (Zargaran et al., 2022b). The cumulative effects of environmental factors weaken the skin's defence mechanisms, making it more vulnerable to external damage and accelerating visible signs of ageing (Zargaran et al., 2022a).

Moreover, lifestyle choices further contribute to extrinsic ageing, exacerbating the skin's vulnerability to environmental stressors (McDaniel, Farris & Valacchi, 2018). Vaping, smoking and chewing tobacco products introduce free radicals into the body, degrading collagen and elastin while also restricting blood circulation and increasing oxidative stress (Lio & Ahuja, 2023; Papaccio, D'Arino, Caputo & Bellei, 2022). Similarly, excessive alcohol consumption dehydrates the skin, triggers inflammation, and impairs its natural repair processes, making it more susceptible to early ageing signs (Morita, 2007).

Dietary habits also play a pivotal role in skin ageing (McDaniel, Farris & Valacchi, 2018). A diet high in processed foods and sugars accelerates the degradation of collagen through glycation, a process where sugar molecules attach to collagen fibres, making them stiff and less functional (McDaniel et al., 2018). Jointly, the cumulative impact of environmental exposures and lifestyle behaviours intensifies the skin's structural and functional decline. Extrinsic influences, acting alongside intrinsic ageing processes, contribute to the development of the phenotypical characteristics of skin ageing (Vierkötter & Krutmann, 2012).

2.2.3 Ageing in the first three layers of skin

All three skin layers – the epidermis, dermis, and hypodermis – endure progressive structural and functional changes with age. The changes are influenced by both intrinsic and extrinsic factors and collectively contribute to the visible and biological signs of skin ageing, such as wrinkles, sagging, volume loss, and changes in tone and texture (Farage, Miller, Elsner & Maibach, 2008). The epidermis, the most superficial skin layer, becomes markedly thinner over time due to reduced basal cell proliferation. Keratinocyte turnover declines as mitotic activity in the basal layer decreases, producing a dull and uneven skin surface (Chin Yee Ho & Dreesen, 2023; Ghadially, Tong, Man & Elias, 1995). Therefore, the reduction in basal layer activity compromises the skin's protective barrier, increasing susceptibility to environmental damage and slowing wound healing (Farage et al., 2008).

The natural moisturising factors in the stratum corneum, the most outer layer of epidermis, are diminished by age-related changes in amino acid composition, resulting in dryness, rough texture, and impaired hydration (Boireau-Adamezyk, Baillet-Guffroy & Stamatas, 2021). Lipid synthesis and distribution also decline with ageing, further compromising moisture retention, barrier function, and thermoregulation, which may lead to increased sensitivity and flaking (Brown & White, 2019). The cumulative changes in the epidermis adversely affect the underlying dermis by limiting nutrient exchange and biochemical signalling, which are essential for collagen and elastin production (Chang & Lee, 2017).

The dermis, located beneath the epidermis, is the primary structural layer of the skin, providing strength, elasticity, and support (Baroni, Buommino, De Gregorio, Ruocco & Ruocco, 2024). With ageing, this supportive network deteriorates as collagen and elastin synthesis declines, resulting in reduced skin firmness and elasticity (Baunmann, Bernstein, Weiss, Bates, Humphrey, Silberberg & Daniels, 2021; Nguyen & Patel, 2021). Collagen fibres become fragmented and disorganised, weakening the dermal matrix and reducing its mechanical integrity (Brown & Krishnamurthy, 2022). The ageing changes not only contribute to fine lines and sagging but also influence the deeper hypodermal layer amplifying age-related volume loss (Baroni et al., 2024).

The hypodermis, or subcutaneous tissue, undergoes a reduction in fat volume and redistribution with age. This loss of subcutaneous fat leads to decreased facial plumpness and structural support, accentuating the appearance of hollowness and deep wrinkles (Liu, Lu & Feng, 2024; Zhang & Duan, 2018; Coleman & Grover, 2006). In addition, age-related alterations in fibrous septae and adipocyte morphology contribute to the development of cellulite and irregular skin texture (Ou, Zhang, Tan, Zhou & Li, 2022; Taylor & Johnson, 2017). Hypoxia and reduced dermal blood circulation further impair oxygen and nutrient delivery to skin cells, exacerbating the effects of ageing by delaying tissue repair and reducing skin vitality (Ou et al., 2022; Taylor & Johnson, 2017).

Collectively, the skin layers' epidermal, dermal, and hypodermal changes manifest externally as wrinkles, sagging, rough texture, pigmentation irregularities, and decreased resilience (Ye, Lin, Chen, Wu & Zhao, 2024; Zhang & Duan, 2018; Flament, Bazin, Laquieze, Rubert, Simonpietri & Piot, 2013). Impaired cellular energy production further weakens the skin's defence mechanisms, making it more susceptible to external stressors that accelerate extrinsic ageing (Zhang & Duan, 2018).

2.2.4 Phenotypical characteristics of skin ageing

The phenotypical characteristics of skin ageing, such as reduced elasticity, wrinkles, uneven texture, vascular irregularities, and pigmentation irregularities, are the result of changes across all three layers of the skin (Zhang & Duan, 2018). In the epidermis, slowed cell turnover leads to pigmentation issues, while in the dermis, the breakdown of collagen and elastin weakens skin elasticity and structure (Flament et al., 2013). The hypodermis further contributes to these visible signs through the loss and redistribution of subcutaneous fat, diminishing overall skin volume and support (Zhang & Duan, 2018, Flament et al., 2013).

2.2.4.1 Lack of elasticity

A key characteristic of skin ageing is the progressive decline in elasticity. The progressive decline in elasticity compromises the skin's ability to maintain its firmness and structure (Quan, & Fisher, 2015). A reduction in skin elasticity results in sagging of the skin, particularly around the cheeks and jawline (Baumann et al., 2021; Kligman, 1989). Decline in elasticity is primarily due to the weakening of the skin's supportive matrix which consist of collagen, elastin, and glycosaminoglycans (GAGs) (Baumann et al., 2021; Kligman, 1989).

As the production of these critical components decreases with age, the skin's ability to return to its original shape and position after being stretched or compressed diminishes (Quan & Fisher, 2015). The structural integrity provided by collagen and the flexibility offered by elastin are compromised, causing the skin to lose its firmness and resilience (Quan & Fisher, 2015).

Additionally, the breakdown of elastin fibres, exacerbated by environmental factors such as UV radiation and pollution, accelerates the loss of elasticity (Fisher, Varani & Voorhees, 2002).

This degradation is compounded by a reduction in the skin's natural moisturising factors, leading to dryness and further loss of skin elasticity (Fisher et al., 2002). Gravity plays a role, pulling on the weakened skin and contributing to the appearance of sagging (Sherratt, 2009). The combined effects of collagen and elastin degradation reduce hyaluronic acid levels (Pullar, Carr & Vissers, 2017; Quan & Fisher, 2015). Furthermore, other external stressors such as UV exposure result in phenotypical signs of ageing, including sagging, drooping, and a loss of contour in the face (Shin, Lee, Rho & Park, 2023). The lack of elasticity contributes to the weakening of the skin's structural support, reduced firmness, and an inability to maintain shape (Flament, Bazin, Laquieze, Rubert, Simonpietri & Piot, 2013; Baumann, 2007).

As elasticity declines, the skin becomes more prone to the formation of fine lines and deeper wrinkles, further altering its texture (Varani, Dame, Rittie, Fligiel, Kang, Fisher & Voorhees, 2006). This progressive breakdown of collagen and elastin, combined with reduced moisture retention, leads to visible roughness, uneven skin tone, and the characteristic wrinkling associated with aged skin (Rittié & Fisher, 2015).

2.2.4.2 Wrinkles and texture

Several factors lead to the formation of wrinkles and texture issues. Texture issues refer to irregularities in the skin's surface, including roughness, enlarged pores, and uneven tone, which can result from cumulative damage to the epidermis and dermis (Zargaran et al., 2022a). Wrinkles and texture changes are primarily associated with a decline in collagen and elastin production, two essential structural proteins that maintain skin firmness and elasticity (Varani et al., 2018).

Collagen and other proteins play a role in ageing. Collagen provides tensile strength and structural integrity, while elastin allows the skin to return to its original shape following stretching (Quan & Fisher, 2015).

As the skin ages the diminished production of proteins results in thinner, less resilient skin, which is more prone to damage. The structural weakening of ECM leads to a loss of skin support, causing fine lines and deeper wrinkles to form (Al-Nuaimi, Sherratt & Griffiths, 2014).

2.2.4.3 Vascular ageing

Another phenotypical characteristic of ageing is vascular ageing. Vascular ageing becomes more visible as blood vessels appear closer to the skin's surface (Quan, Qin, Xia, Shao, Voorhees & Fisher, 2009). The weakening of capillary walls with age leads to increased fragility and visible vascular changes, including broken capillaries, spider veins, and uneven skin tone. Manifestations result from the deterioration of blood vessel walls and reduced microcirculation, which compromise nutrient and oxygen delivery to the skin (Ono, Egawa & Kabashima, 2017; Quan et al., 2009; Plante, 2003; Braverman, 2000). Prolonged sun exposure and hormonal fluctuations further contribute to vascular ageing by weakening vessel integrity and impairing circulation (Braverman, 2000). A decline in microcirculation efficiency reduces the delivery of oxygen and nutrients to the skin, leading to dullness and pigmentation irregularities (Ono et al., 2017, Plante, 2003).

Weakened blood vessels also affect melanin distribution, causing patchy discoloration, dark spots, and uneven pigmentation, particularly in sun-exposed areas (Kim, Park & Kang, 2022; Flament et al., 2013). As vascular ageing progresses, impaired circulation and nutrient delivery further exacerbate pigmentation irregularities and slow the skin's natural healing and regeneration processes, making age-related changes more pronounced (Ya & Bayraktutan, 2023).

2.2.4.4 Pigmentation irregularities

Pigmentation irregularities are a prominent feature of skin ageing. Pigmentation results in both intrinsic ageing processes and cumulative exposure to extrinsic factors (Kim, Park & Kang, 2022). The changes in pigmentation include age spots, uneven skin tone, and increasing discolouration (Kim, Park & Kang, 2022). With age, the skin's ability to repair and regenerate diminishes, causing existing pigmentation issues to become more pronounced (Kim, Park & Kang, 2022).

Hormonal changes, especially in women, can also contribute to pigmentation disorders such as melasma (Filoni, Mariano & Cameli, 2019). Additionally, oxidative stress from environmental pollutants can damage melanocytes, the cells responsible for producing melanin, leading to uneven pigmentation and discolouration (Choi, Yin, Smuda, Batzer, Hearing & Kolbe, 2017).

Prolonged exposure to sunlight further exacerbates these issues, as UV radiation stimulates an overproduction of melanin, resulting in hyper-pigmented areas known as age spots (Choi, Yin, Smuda, Batzer, Hearing & Kolbe, 2017). Collectively, the factors result in the visible signs of ageing related to pigmentation, which can significantly impact the overall appearance of the skin (Kim, Park & Kang, 2022). Therefore, pigmentation is a colour change which can occur in young and old skin (Lee, 2021). Pigmentation is more visible in older skin due to the hormonal changes often occurring at older age and sun exposure (Zhang & Duan, 2018; Flament et al., 2013).

The phenotypical characteristics of ageing skin, such as wrinkles, loss of elasticity, vascular ageing, and pigmentation irregularities, are common manifestations of the skin ageing process. Current anti-ageing treatments aim to address the phenotypical characteristics. Treatments focus on stimulating collagen production, improving skin hydration, reducing pigmentation, and enhancing vascular health to restore a more youthful appearance (Hartmann, Ruzicka & Gauglitz, 2015).

2.3 Anti-ageing treatments

Anti-ageing treatments aim to mitigate the visible phenotypical characteristics of skin ageing (Hartmann et al., 2015). Despite differences in the mechanisms of action, each anti-ageing treatment targets the phenotypical characteristics of skin ageing signs, offering diverse options for individuals seeking to maintain or restore a youthful appearance (Li, Meng, Li, Tian, Chen, Jia, Cai & Jiang, 2022). Anti-ageing treatments can include both surgical anti-ageing treatment and non-surgical anti-ageing treatment (Li et al., 2022).

2.3.1 Surgical anti-ageing treatment

Surgical anti-ageing treatments involve invasive cosmetic procedures designed to restore, reshape, or enhance the body's appearance by addressing visible signs of ageing (Pearl & Percec, 2019). Surgical anti-ageing treatments typically require anaesthesia, skin incisions, and recovery time. Surgical anti-ageing treatments are a more permanent and transformative approach compared to other aesthetic interventions (Fedorchenko, 2024). The most well-known surgical anti-ageing treatments include facelifts, rhinoplasty (nose reshaping), breast augmentation, and liposuction (American Board of Cosmetic Surgery, 2009-2024). In contrast, non-surgical anti-ageing treatments have gained popularity as alternatives that provide aesthetic enhancements with less downtime and lower risks (Levy & Emer, 2012).

2.3.2 Non-surgical anti-ageing treatment

Non-surgical anti-ageing treatments present several advantages compared to surgical interventions, notably including lower financial costs, diminished risk of adverse complications, and the potential to produce gradual, natural-appearing outcomes (Wong, 2021a). The benefits have contributed to the rising popularity of non-surgical anti-ageing procedures across a wider demographic, encompassing individuals reluctant to pursue surgical options as well as those seeking adjunctive therapies for post-surgical care (Wong, 2021a).

Popular non-surgical approaches include resurfacing treatments, collagen induction therapy, light energy-based devices, and cosmetic injectables, each offering targeted solutions for rejuvenating the skin and addressing the visible signs of ageing (Yip & Lim, 2024). Table 2.1 summarises the main types of non-surgical anti-ageing treatments and their respective functions.

Table 2.1: Overview of non-surgical anti-ageing treatments attending to skin ageing - symptoms

Non-surgical anti-ageing treatments	Aesthetic providers	Skin ageing	References
Resurfacing treatments e.g., chemical peels	Beauty and medical professionals	Fine wrinkles, texture issues & pigmentation changes	HPCSA (2023); Dimitrov & Kroumpouzou (2023); Rajanala, Maymone & Vashi (2017); Wisniewski, Ellis & Lupo (2014); Berson, Cohen, Rendon, Roberts, Starker & Wang (2009); Singh-Behl & Tung (2009); Monheit & Chastain (2001)
Collagen induction treatments such as microneedling	Beauty professionals	Lack of elasticity, fine wrinkles & texture issues	HPCSA (2023); Dermapen (2023); Spataro, Dierks & Carniol (2022); Fabbrocini, De Vita, Pastore, Panariello, Fardella, Sepulveres & Monfrecola (2014); Fernandes (2005); Camirand (1997);

Non-surgical anti-ageing treatments	Aesthetic providers	Skin ageing	References
			Orentreich & Orentreich (1995)
Light energy-based devices including laser and IPL treatments	Beauty professionals	Vascular ageing, pigmentation changes, fine wrinkles & texture issues	Jaiswal & Jawade (2024a); Jaiswal & Jawade (2024b); Verma, Yumeen & Raggio (2023); Chen, Cheng, Watchmaker, Dover & Chung (2022); Husain & Alster (2016); Flament et al. (2013); Haedersdal, Beerwerth & Nash (2011)
Muscle relaxant injections	Only medical professionals	Wrinkles (only expression lines)	Botox (2024); Car, Bogucki, Bonikowski, Dec-Ćwiek & Drużdż (2021); Satriyasa (2019); Urdiales-Gálvez, Martín-Sánchez, Maz-Jiménez, Castellano-Miralla & Lionetti-Leone (2019); Srivastava, Kharbanda, Pal & Shah (2015); Carruthers, Glogau & Blitzler (2008); Dastoor, Misch & Wang (2007)

Non-surgical anti-ageing treatments	Aesthetic providers	Skin ageing	References
Dermal fillers	Only medical professionals	Lack of elasticity, volume loss & deep wrinkles	Aesthetic Doctors (2023); HPCSA (2023); Anido, Fernández, Genol, Ribé & Pérez Sevilla (2021); Kosiński, Jarecki, Przepiórka-Kosińska & Ratajczak (2020); Ballin, Brandt & Cazzaniga (2015); Laurent & Fraser (1992)

2.3.2.1 Resurfacing treatments

Historical practices reflect a long-standing human desire to maintain youthful, radiant skin, and they form the foundation of many modern resurfacing techniques (Dimitrov & Kroumpouzos, 2023). The history of skin resurfacing can be traced back to ancient Egypt, with early documentation found in the Ebers Papyrus, dating to approximately 1550 Before the Common Era (BCE) (Elendu, 2024). Queen Cleopatra famously bathed in sour milk to improve the appearance and texture of her skin, an early form of chemical peeling, as sour milk contains lactic acid, a naturally occurring alpha hydroxy acid (AHA), which is still used today in modern resurfacing treatments (Rajanala & Vashi, 2017). Similarly, the Greeks and Romans applied vinegar, herbal extracts, and even corrosive agents such as limestone to rejuvenate the skin (Rajanala & Vashi, 2017).

Resurfacing treatments typically involve the application of a chemical substance to the skin, which induces controlled destruction of a portion or the entire epidermis (Wisniewski et al., 2014). Resurfacing treatments intentionally induce controlled micro-injuries to the skin to a specified depth to encourage the creation of new skin and improve its appearance and texture, also improving pigmentation (Berson et al., 2009).

Resurfacing treatments are categorised based on their depth of penetration and overall impact on the skin. The categories include very superficial peels (exfoliation), which remove the outermost layer of the epidermis, and superficial peels, which target the deeper layers of the epidermis (Khunger & Chanana, 2022). The primary goal of superficial peels is to treat conditions confined to the epidermis while minimising recovery time and reducing the risk of adverse effects (Lee, Wambier, Soon, Sterling, Landau, Rullan, & Brody, 2019).

Medium-depth peels, which reach the papillary dermis, penetrate beyond the epidermis and cause the outer layers of damaged skin to peel away. Resurfacing treatments promote exfoliation and stimulate the growth of healthier skin layers. (Samargandy & Raggio, 2025; Monheit & Chastain, 2001). While resurfacing treatments are effective on their own, they are often combined with other non-surgical anti-ageing, such as collagen induction therapy, to provide more comprehensive results (Markiewicz-Tomczyk, Kozicka & Chlebus, 2023; Rana, Yadav, Bhalerao & Dogra, 2017).

2.3.2.2 Collagen induction therapy

Collagen induction therapy (CIT) is a treatment that punctures the epidermis using tiny needles often referred to as micro-needling or needling (Dermapen, 2023; Zduńska, Kołodziejczak & Rotsztein, 2018). In contrast to chemical peels, CIT has a more recent history compared to chemical peels but still dates back several decades (Fabbrocini, De Vita, Pastore, Panariello, Fardella, Sepulveres & Monfrecola, 2014).

The concept of microneedling dates to 1995 when Orentreich and Orentreich first described dermal needling in the form of succession for scar treatment (Orentreich & Orentreich, 1995). In 1997, plastic surgeon Camirand independently used tattoo guns without ink to alleviate tension in post-surgical scars (Camirand, 1997). The CIT technique was further shaped in 2000 by German inventor Liebl (Singh & Yadav, 2016), and in 2006, plastic surgeon Dr Fernandes designed a drum-shaped device with multiple fine needles, which he used for CIT (Fernandes, 2005).

In addition to enhancing collagen production in fibroblasts, CIT normalises cell function in keratinocytes and melanocytes. CIT improves the absorption of topical medications and growth factors and can even deliver products directly to the dermis (Spataro, Dierks & Carniol, 2023). Thus, treatment results in micro wounds that promote collagen production and the release of growth factors which will improve the elasticity of the skin (Spataro, Dierks & Carniol, 2023).

While CIT is somewhat invasive, it remains a widely used non-surgical anti-ageing treatment due to its ability to stimulate collagen production and improve skin texture (Spataro, Dierks & Carniol, 2023). Beauty professionals frequently perform CIT for superficial skin rejuvenation, while more advanced applications may offer deeper skin remodelling effects (HPCSA, 2023). Like CIT, non-surgical treatments using light energy devices can also improve skin elasticity (Dermapen, 2023). In addition to CIT, light energy-based treatments have emerged as another widely used approach in non-surgical skin rejuvenation (Jaiswal & Jawade, 2024a).

2.3.2.3 Light energy-based devices

Light energy-based devices are another essential aspect of non-surgical anti-ageing treatments (Haedersdal, Beerwerth & Nash, 2011). The introduction of light energy-based devices in the 1960s marked a significant breakthrough in medical treatments, as light was harnessed to address skin lesions and vascular conditions. Over the following decades, the development of devices that emitted light at various wavelengths expanded the scope of these treatments, allowing for more precise targeting of skin issues such as pigmentation, wrinkles, and vascular ageing (Husain & Alster, 2016).

Although light energy-based devices utilise various methods and target different skin concerns, they are highly effective in enhancing overall facial skin health (Chen, Cheng, Watchmaker, Dover & Chung, 2022). Light energy-based devices provide treatments to reduce visible signs of ageing through the controlled removal of epidermal and superficial dermal layers (Verma, Yumeen & Raggio, 2023). Several light sources are commonly used in non-surgical anti-ageing treatments, including lasers such as the alexandrite laser (755 nm), pulsed diode lasers (800, 810 nm), and Nd:YAG laser (1064 nm), as well as broad-spectrum intense pulsed light (IPL, 590–1200 nm) (Haedersdal, Beerwerth & Nash, 2011).

Additionally, light energy-based technologies function by delivering controlled energy to targeted skin layers, effectively addressing ageing signs such as fine lines, texture irregularities, vascular concerns, and pigmentation changes (Verma et al., 2023; Chen et al., 2022; Flament et al., 2013). As facial ageing involves multiple structural changes, a combination of treatments is often needed for optimal results. While resurfacing treatments, collagen induction therapy (CIT), and light energy-based devices provide effective non-invasive options for superficial rejuvenation, more advanced non-surgical treatments may be required to address deeper skin concerns (Urdiales-Gálvez et al., 2019).

2.3.2.4 Muscle relaxant injections

Muscle relaxant injections are among the most widely used non-surgical anti-ageing treatments for addressing phenotypical characteristics of ageing skin (Urdiales-Gálvez et al., 2019). Muscle relaxant treatments primarily involve OnabotulinumtoxinA (Botox®); Botulinum toxin A, commonly known as Botox, or its generic equivalents (Car et al., 2021). Botulinum toxin, also referred to as botulinum neurotoxin, is a neurotoxic protein produced by the bacterium *Clostridium botulinum* and related groups. It is available in seven serotypes - A, B, C, D, E, F, and G. Toxin A is the most frequently used in cosmetic applications (Car et al., 2021). Initially developed for medical purposes, botulinum toxin was then used in the 1980s to treat conditions such as blepharospasm and strabismus (Mahant, Clouston, Lorentz, 2000; Srivastava et al., 2015).

The transition from a medical treatment to a popular cosmetic therapy highlights its versatility and effectiveness as a muscle relaxant (Botox, 2024; França, Kumar, Fioranelli, Lotti, Tirant & Rocchia, 2017). The Food and Drug Administration (FDA) approved the first form of muscle relaxant injections launched to the market in 2002 as a cosmetic therapy for glabellar frown lines (Satriyasa, 2019). Muscle relaxant injections block the neuromuscular signals that cause facial muscles to move, during facial expressions which in turn prevent wrinkles. Muscle relaxants limit the release of a neurotransmitter acetylcholine, which normally causes the muscle to contract.

Although therapeutic doses of muscle relaxants can effectively reduce the appearance of wrinkles, excessive amounts may result in complete muscle paralysis (França et al., 2017). The lack of muscle contraction decreases wrinkles brought on by muscular movements, such as frowning, while trying to retain natural facial emotions (Dastoor et al., 2007). Even though the working and results of muscle relaxant injections and dermal fillers are different, combining the two injectables can improve a wider variety of noticeable characteristics of skin ageing (Carruthers et al., 2008). The combination of the two injectables is a frequent procedure performed by medical professionals (Carruthers et al., 2008).

2.3.2.5 Dermal fillers

Among injectable treatments, dermal fillers play a central role in restoring volume and contour (Lupo, 2006). As a result, dermal fillers are the most used non-surgical treatments for facial rejuvenation, with hyaluronic acid (HA) being one of the primary substances used in these injectables' formulation (Kablik, Monheit, Yu, Chang & Gershkovich, 2009). HA is a key glycosaminoglycan that was first identified in 1934 by Carl Meyer and John Palmer during their examination of the vitreous body of a bull's eye (Kosiński et al., 2020). Since its discovery, HA has evolved into a vital component in modern non-surgical cosmetic treatments. It is widely used in dermal fillers to address visible signs of ageing, such as volume loss, wrinkles, and facial contour irregularities (Anido, Fernández, Genol, Ribé & Pérez Sevilla, 2021).

The mechanism of action of HA-based dermal fillers relies on the hydrophilic nature of HA, which attracts water molecules and creates a volumising effect in the treated area. HA-based fillers are particularly popular due to HA's natural occurrence in the human body, which minimises the risk of adverse reactions (Beleznay, Carruthers, Carruthers & Mummert, 2015). Calcium hydroxylapatite (CaHA) and poly-L-lactic acid (PLLA) are also used as dermal fillers (Yutskovskaya, & Kogan, 2017). Calcium hydroxylapatite (CaHA) and poly-L-lactic acid (PLLA) are both classified as biostimulatory dermal fillers due to their ability to stimulate collagen production in addition to providing volume (Yutskovskaya & Kogan, 2017). CaHA has been shown to significantly increase the synthesis of type I collagen and elastin in the dermis, contributing to long-term improvements in skin firmness and elasticity (Berlin, 2014; Youn, 2024).

On the other hand, PLLA stimulates fibroblasts via the TGF- β /Smad signalling pathway, enhancing the production of collagen types I and III and supporting dermal matrix regeneration (Zhao, Zhang & Chen, 2024; Lee, Jang, Kim & Kim, 2023). The unique properties of dermal fillers allow for their targeted application at varying skin depths, depending on the desired treatment outcome (Beleznay et al., 2015). Dermal fillers are commonly used to restore facial volume, reduce wrinkles, improve contour, and enhance specific features such as the lips (Wongprasert, Dreiss & Murray, 2022). Considering the precision required for safe application, administration is strictly regulated in South Africa (HPCSA, 2023).

Only qualified medical professionals registered with the Health Professions Council of South Africa (HPCSA) and holding a valid medical license are permitted to perform cosmetic injectable treatments (HPCSA, 2023). The professionals must undergo specialised training in cosmetic injections to ensure safety and effectiveness (HPCSA, 2023). Additionally, organisations as the Aesthetic and Anti-Ageing Medicine Society of South Africa enforce stringent guidelines to uphold high standards of practice and patient safety (Aesthetic Doctors, 2023).

2.3.3 Aesthetic professionals

Aesthetic professionals, including medical practitioners and beauty professionals, uphold high standards in their field. They blend medical knowledge with beauty expertise to meet the growing demand for non-surgical anti-ageing treatments (Aesthetic Doctors, 2023; AAMSSA, 2019). Medical practitioners undergo specialised training that enables them to offer both surgical and non-surgical treatments. Furthermore, they perform procedures ranging from facelifts and rhinoplasty to cosmetic injectables, tailoring treatments to individual needs with precision and expertise (American Society of Plastic Surgeons, 2024; APRASSA, 2024). By addressing multiple aspects of skin ageing, they provide comprehensive care that enhances client satisfaction (Zouboulis et al., 2019).

In recent years non-surgical anti-ageing treatments have gained popularity, leading to the expansion of medical aesthetic practices in South Africa (Urdiales-Gálvez et al., 2019). As demand for non-surgical anti-ageing treatments increases, beauty professionals have developed advanced skills to offer specialised treatments, bridging a critical gap in the aesthetic industry (Ambrosio, 2018). The beauty profession has evolved from focusing solely on beauty concerns to a more holistic approach that integrates health and wellness (Wellness Sciences – CPUT, 2023). Traditionally, beauty professionals concentrated on external appearance, but the field now includes treatments that enhance overall well-being.

Beauty professionals work in different settings, each catering to specific client needs:

- **Beauty salons** provide traditional beauty treatments, such as make-up application and basic skincare (Milady, 2016).
- **Spas** focus on wellness, offering body treatments, relaxation therapies, and advanced skincare procedures (Milady, 2016).

- **Medical aesthetic practices** combine beauty and medical expertise, where beauty therapists perform non-surgical anti-ageing treatments and medical professionals administer injectables (Ambrosio, 2018; Resneck & Kimball, 2008). Collaboration between beauty professionals and medical professionals enables integrated treatment plans that enhance results, particularly for clients with advanced signs of ageing (Khumalo, 2016; Campbell, 2013).

2.3.4 The client

Understanding the characteristics and motivations of clients is essential for tailoring effective anti-ageing treatment plans. Clients seeking non-surgical anti-ageing treatments represent a diverse demographic, with demand spanning various age groups; however, the majority are adult women aiming to maintain or enhance a youthful appearance (Swami, Knight, Tovée, Davies & Furnham, 2009a; Swami, Knight, Tovée, Davies & Furnham 2009b).

Participation from younger adults, particularly in the twenties and early thirties, remains more limited, although interest in preventative or “prejuvenation” treatments is steadily increasing within this group (Haykal, Nahai & Cartier, 2023). Socio-economic status plays a significant role in access to non-surgical anti-ageing treatments, which are typically not covered by medical insurance and require a considerable amount of disposable income (ASDS [American Society for Dermatologic Surgery], 2020). Clients who seek non-surgical anti-ageing treatments generally come from middle- to upper-middle-income groups (Ozturk, Oliveira, Teixeira, Wellenbrock, Tav, Kueckelhaus, Wiebringhaus, Hirsch, Aitzetmüller-Klietz & Aitzetmüller-Klietz, 2024). They tend to be appearance-conscious and are willing to invest in procedures aimed at maintaining a youthful appearance (Levy & Emer, 2012).

Media and popular culture further shape the motivations of this client group. Social media platforms, particularly Instagram and TikTok, have amplified ideals of youthfulness and “flawless” skin, contributing to increased aesthetic awareness and normalising cosmetic enhancement (Wilkinson & White, 2022).

The digital cultural influences, combined with the accessibility of minimally invasive procedures, reinforce expectations of quick, natural-looking, and long-lasting results (Hermans, Boerman & Veldhuis, 2022).

Some clients also associate anti-ageing treatments with broader well-being and self-care, believing that aesthetic procedures can positively influence confidence, mood, and overall self-image (Risi, Ramelet & Heinzer, 2019). Together, the demographic, psychological, and social factors help shape the expectations, perceptions, and knowledge clients bring to the treatment experience (Honigman, Phillips & Castle, 2004).

2.3.4.1 Clients' expectations

Expectation refers to a belief or anticipation about future outcomes, often shaped by prior experiences, personal values, and cognitive frameworks (Daryanto & Song, 2021; Kunda, 1999). It is a mental state in which individuals form predictions about what they think will happen in each situation (Henss & Pinguart 2023; Vroom, 1964). In social and behavioural contexts, expectations guide decision-making, behaviour, and emotional responses (Kunda, 1999). In the context of non-surgical anti-ageing treatments, clients often enter the treatment process with a set of clear expectations. These typically include noticeable and lasting improvements in physical appearance, with minimal side effects and limited downtime (Ozturk et al., 2024). The desire to achieve youthful, natural-looking results is central to many clients' motivations, as they often seek subtle enhancements that harmonise with their existing features (Harth, 2017; Furnham & Levitas, 2012).

Beyond aesthetic outcomes, clients also expect a high standard of safety and professionalism, including treatment by qualified, experienced aesthetic practitioners who follow ethical practices and uphold hygiene protocols (Furnham & Levitas, 2012). Cost-effectiveness is another key expectation, as clients seek treatments that offer value for money, balancing affordability with visible, satisfying results (Swami et al., 2009b).

Convenience and accessibility also play an important role, with many clients favouring treatments that fit easily into their daily routines and require minimal recovery (Swami et al., 2009b). Understanding expectations alone, however, is not sufficient; it is equally important to explore how clients perceive their treatment experiences and outcomes, as perceptions ultimately influence satisfaction, trust, and future decision-making (Kotler & Keller, 2016).

2.3.4.2 Clients' perceptions

Perception is the process through which individuals interpret and organise sensory information to make sense of their environment (American Psychological Association, 2023). It is influenced not only by external stimuli but also by cognitive factors such as prior experiences, belief systems, and expectations (Goldstein, 2013). As such, perception plays a critical role in how individuals evaluate and respond to non-surgical aesthetic procedures (Mironica, Popescu, George, Tegzeşiu & Gherman, 2024). Clients' perceptions of safety, effectiveness, and practitioner professionalism significantly influence their decision-making and levels of satisfaction (Harth, 2017).

In practice, clients often hold a range of perceptions about non-surgical anti-ageing treatments, which can be both positive and negative. Positive perceptions typically include confidence in achieving desirable aesthetic results and trust in the expertise of trained professionals (Walker, Krumhuber, Dayan & Furnham, 2021; Harth, 2017). Consequently, perceptions are often shaped by cultural ideals of beauty, personal goals, and exposure to media representations of success. In contrast, negative perceptions may involve concerns about treatment safety, doubts about efficacy, and apprehension regarding side effects or financial cost (Furnham & Levitas, 2012).

Perceptions are closely intertwined with a client's knowledge and understanding of non-surgical treatments. Clients who are well-informed about procedure risks, benefits, and expected outcomes tend to have more realistic outcome views and greater satisfaction levels (Kaminer, 2008a).

In contrast, limited or inaccurate knowledge may contribute to unrealistic expectations or unfounded concerns, further emphasising the need for clear and honest communication by aesthetic professionals.

2.3.4.3 Clients' knowledge

Perception and knowledge, though interconnected, differ in their nature and formation, particularly when it comes to non-surgical anti-ageing treatments (Rock, 1985). Perception is subjective, shaped by individual experiences, emotions, and expectations, which influence how people interpret and respond to such treatments (Audi, 2020; Wiltsher, 2015).

In contrast, knowledge is grounded in objective information, acquired through education and experience, and provides a factual understanding of treatment effectiveness, risks, and potential outcomes (Audi, 2020; Wiltsher, 2015). Knowledge is defined as the information, skills, and understanding individuals acquire through learning, experience, and interaction with their environment (Nonaka & Takeuchi, 1995). Therefore, knowledge is a dynamic resource that evolves through continuous reflection and problem-solving. Knowledge can be both explicit, such as documented facts, and tacit, referring to skills gained through personal experience and practice (Nonaka & Takeuchi, 1995).

Clients possess varying levels of knowledge about non-surgical anti-ageing treatments. This knowledge directly impacts the clients' treatment choices, expectations, and satisfaction. Well-informed clients are more likely to select treatments that align with their aesthetic goals. They tend to understand the benefits and limitations of procedures, allowing them to make realistic decisions and achieve greater satisfaction (Ganceviciene, Liakou, Theodoridis, Makrantonaki & Zouboulis, 2012; Kaminer, 2008).

On the other hand, clients with limited or inaccurate information, often influenced by anecdotal stories, media portrayals, or misinformation, may develop unrealistic expectations or experience anxiety before treatment (Cohen Tijerina, Shah, Amarikwa, & Kossler, 2022).

This highlights the importance of thorough consultations and client education by aesthetic professionals to ensure a comprehensive and realistic understanding of available treatments (Kaminer, 2008).

2.4 Conceptual Framework

The conceptual framework provides the theoretical structure linking the study's aims and objectives to established models (Ravitch & Riggan, 2016). This study integrates an adapted Knowledge–Attitude–Practice (KAP) model with the Health Belief Model (HBM) to explain clients' expectations, perceptions, and knowledge of non-surgical anti-ageing treatments. According to the KAP model, knowledge shapes attitudes, which in turn influence behaviour (Launiala, 2009). In this study, the attitude component has been adapted to encompass expectations and preferences, aligning with the first research objective. Clients' expectations—such as anticipated effectiveness, natural-looking outcomes, or the longevity of results—are thus determined by what they know and believe. The HBM complements this by clarifying how perceptions of benefits, susceptibility, severity, and barriers inform these expectations and guide decision-making (Singh, Kumar & Sharma, 2025).

The second objective focuses on perceptions, which also fall within the “attitude” dimension of the KAP model. The HBM adds further explanatory insight by highlighting how perceived barriers—such as treatment costs or fear of side effects—and cues to action, including professional advice or social media influence, shape perceptions and affect the likelihood of pursuing treatment.

Knowledge, the focus of the third objective, forms the foundation of the KAP sequence. Accurate information regarding treatment options, risks, and expected outcomes fosters realistic expectations and more positive perceptions, whereas misinformation can lead to uncertainty or unrealistic goals (Launiala, 2009). Thus, sources of knowledge—such as aesthetic practitioners, peers, or online content—play a critical role in shaping client beliefs.

Finally, the integrated framework supports the fourth objective by illustrating how knowledge influences attitudes, and how these attitudes subsequently guide behaviour (i.e., treatment choices) within the KAP structure. The HBM further strengthens this understanding by recognising that even when attitudes are favourable, behavioural action may still be inhibited by perceived barriers, whereas strong cues to action can encourage treatment uptake (Singh, Kumar & Sharma, 2025).

2.5 Conclusion

Skin-ageing is driven by intrinsic and extrinsic factors that progressively impact the epidermis, dermis, and hypodermis, resulting in visible signs such as wrinkles, reduced elasticity, and pigmentation changes. The changes associated with skin ageing form the basis of client concerns and drive the demand for non-surgical anti-ageing treatments.

Understanding the biological mechanisms behind these treatments is essential, but equally important is addressing the expectations, perceptions, and knowledge clients bring to these procedures. This literature review highlights the evolving nature of non-surgical anti-ageing treatments and the crucial role of client perspectives, providing a foundation for the methodological approach outlined in the following chapter. Despite the advancements in treatment modalities, limited research has explored clients' expectations, perceptions, and knowledge, an essential gap this study seeks to address.

Chapter 3

Methodology

3.1 Introduction

Non-surgical anti-ageing treatments have gained significant popularity in both beauty salons and medical aesthetics practices (Cohen, Goodman, De Almeida, Jones, Carruthers, Grimes, de Maio, Swift, Solish, Fagien, Carruthers & Sangha, 2023). Therefore, increasing demand highlights the need to understand client expectations, perceptions, and knowledge of non-surgical anti-ageing treatments. This chapter outlines the research methodology used to investigate these aspects, providing a detailed overview of the research design, data collection, and analysis methods. A quantitative approach was employed using a newly constructed questionnaire to obtain valuable insights from a client-centred perspective within beauty salons and medical aesthetics practices.

3.2 Research design and layout

This research study employed a descriptive quantitative research design, offering a systematic and objective means of investigating clients' expectations, perceptions, and knowledge of non-surgical anti-ageing treatments (Babbie, 2020; Creswell, 2014). The design was particularly suited to identifying patterns and trends across a broad participant base, while its structured format supported consistency, reliability, and reduced bias in data collection with a well-designed questionnaire (Ghasemi & Zahediasl, 2012).

A pilot study was conducted to assess the validity and reliability of the research tool. Conducting a pilot study facilitated the testing and refinement of the questionnaire, thereby improving its clarity and ensuring that the final instrument accurately captured the intended data (Van Teijlingen & Hundley, 2001). The study was organised into three distinct phases (Table 3.1), each contributing to achieving the research objectives.

Phase one: Research tool development and pilot study: A research tool was developed in the form of a questionnaire, and a pilot study was conducted to assess its validity and reliability. This preliminary phase helped identify unclear questions, inconsistencies, and potential structural issues. Feedback from the pilot study participants was used to refine the questionnaire, ensuring that the final version effectively captured the intended information, well-suited for the main study.

Phase two: Questionnaire administration and data collection phase: In the second phase, the questionnaire was distributed to participants to collect data. Participants who were not comfortable with electronic formats had the option to complete a hard copy (discussed in Chapter 4). Additionally, the questionnaire was uploaded onto the online survey platform QuestionPro, to facilitate broader accessibility.

Phase three: Data analysis and conclusion drawing: The third phase focused on analysing the data obtained from completed questionnaires. The objective was to derive clear conclusions that could inform industry practices, guide future research and provide actionable recommendations.

Table 3.1: The study design

Phase one	Phase two	Phase three
<ul style="list-style-type: none"> • The construction of a questionnaire • Pilot study 	<ul style="list-style-type: none"> • Administer questionnaire • Capture data 	<ul style="list-style-type: none"> • Analyse data • Reach conclusions and recommendations

3.3 Demarcation of the study

The demarcation of a study defines its boundaries and scope, specifying what is included and excluded to ensure a focused investigation (Creswell, 2014).

This research was conducted in the Free State and Northern Cape provinces of South Africa, targeting beauty salons and medical aesthetic practices that offer non-surgical anti-ageing treatments. The selection of the two provinces ensured access to a diverse range of establishments providing non-surgical anti-ageing treatments.

To maintain a clear focus, specific inclusion criteria were applied when selecting participating establishments. Beauty salons were eligible if they offered at least one of the following non-surgical anti-ageing treatments: resurfacing treatments such as chemical peels, collagen induction treatments such as microneedling, or light energy-based treatments such as intense pulse light or laser treatments.

Medical aesthetic practices were included if they provided any of the above treatments, as well as muscle relaxant injections, such as botulinum toxin and dermal fillers. The selected research establishments were all privately owned practices. The research establishments were all in the Free State and Northern Cape provinces of South Africa. Withholding the names of beauty salons and medical aesthetics practices aligns with best ethical practices to maintain confidentiality and prevent bias in research reporting (Bryman, 2016).

3.4 Ethical considerations and protection of personal information Act (POPIA)

Ethical considerations are paramount in research to ensure the safety, well-being, and informed consent of participants. Before conducting any research, it is essential to seek approval from an ethics committee to verify that the study upholds ethical standards, protects participant rights, and minimises any potential risks, as well as to comply with the South African Protection of Personal Information Act (POPIA).

This approval process not only safeguards participants but also enhances the credibility and integrity of the research (University of the Free State, 2024). Approval from the Provincial Department of Health was not necessary because the salons and medical aesthetic practises were privately owned.

3.4.1 Ethic clearance from research ethics committee

The University of the Free State's (UFS) Health Science Research Ethics Committee (HSREC) provided ethical clearance and approval (UFS-HSD2024/0281/2307, Appendix A). Ethical clearance for this study could not be obtained through the Central University of Technology, Free State, due to the absence of a formally constituted ethics review committee within the relevant faculty at the time of the research.

3.4.2 Data management plan

The study employed a structured data management approach to ensure secure handling of information, participant anonymity, and compliance with ethical and legal standards. Data were collected through both a paper-based questionnaire and an electronic version. The electronic questionnaire was administered anonymously via QuestionPro, an online platform approved by the Central University of Technology, Free State (Appendix B). All electronic data were securely stored within QuestionPro's password-protected system, with access restricted solely to the researcher. To maintain data security, regular downloads of the electronic data were transferred to a password- and firewall-protected Microsoft Excel database.

Gatekeepers were required to sign a formal consent document (Appendix H) to confirm their role in the recruitment process. In instances where access to potential participants required additional authorisation, permission was obtained from the relevant practice manager through a separate consent form (Appendix I). To preserve participant anonymity, gatekeepers responsible for questionnaire distribution within beauty salons and medical aesthetic practices did not have access to any completed responses or identifying participant details.

Upon completing the questionnaire, participants sealed their responses in an envelope and returned it to the gatekeeper.

The sealed envelopes were later collected by the researcher and securely stored in a locked facility until digitisation. Informed consent was obtained from all participants prior to questionnaire completion. Participants either signed a hard copy consent form or indicated agreement by selecting “I agree” in the online version of the survey.

3.4.3 Financial implications

Participants in the research study were not provided with any form of monetary compensation for their involvement. Additionally, no fees or payments were required from participants to take part in the study. This ensured that participation was entirely voluntary and free of financial influence, allowing for unbiased and genuine responses.

3.4.4 Withdrawal criteria

Participation in the research project was voluntary, and participants were assured that they could withdraw from the study at any time, without consequence and without any obligation to provide a reason.

3.5 Data collection strategy

This study employed a newly developed data collection tool in the form of a structured, self-administered questionnaire, specifically designed to assess clients' expectations, perceptions, and knowledge of non-surgical anti-ageing treatments. The questionnaire was developed to ensure standardisation, reliability, and ease of use, in alignment with the study's objectives.

Both an expert peer review and the participants of the pilot study evaluated face and content validity, while the pilot study focused on assessing face validity and content validity. The steps are further detailed in Chapter 4.

3.5.1 The questionnaire

The questionnaire was developed based on insights from an extensive literature review, ensuring alignment with non-surgical anti-ageing treatments and focusing on clients' expectations, perceptions, and knowledge. For purposes of enhanced clarity, relevance, and validity, a peer review process was conducted, incorporating expert feedback (Scott, Ummer & LeFevre, 2021; Ryan, Gannon-Slater & Culbertson, 2012).

3.5.2 The pilot study

A pilot study was conducted prior to the main data collection to evaluate face and content validity to ensure the clarity, structure, and overall effectiveness of the questionnaire. The purpose of the pilot phase was to test whether the data collection tool was well-suited for the target population and to identify any issues related to comprehension, question flow, and response formatting. A total of 20 participants were selected using the same inclusion criteria applied in the main study. The pilot study participants were not included in the final sample. Feedback gathered during the pilot study informed several refinements to the questionnaire.

3.5.3 Study population

Participants included in the study were selected from the population of clients visiting beauty salons and medical aesthetic practices in the Free State and Northern Cape provinces of South Africa.

To ensure the research captured relevant and meaningful data, participants were required to have first-hand experience with non-surgical anti-ageing treatments. The study aimed to explore expectations, perceptions, and knowledge regarding non-surgical anti-ageing treatments.

3.5.3.1 Participant criteria

To ensure a representative sample, participants had to meet specific inclusion and exclusion criteria. These criteria ensured that the individuals selected could provide insightful and relevant responses related to non-surgical anti-ageing treatments.

Participants were required to meet the following criteria:

- A participant must have experienced at least one non-surgical anti-ageing treatment.
- Individuals of all genders and cultural backgrounds were eligible.
- Proficiency in English was required.
- Participants had to be between 18 and 85 years of age.

The age categories were specifically selected to reflect distinct patterns in how individuals typically engage with non-surgical anti-ageing treatments throughout adulthood. The groups - 18–30, 31–45, 46–60, and 61–85 years - were chosen based on observed behavioural and clinical trends.

Adults aged 18–30 increasingly adopt “prejuvenation” strategies, which involve preventative interventions such as early neurotoxin use, light-based therapies, and skincare regimens. This trend is strongly associated with heightened awareness and the influence of social media (Hamilton Fraser, 2023; Rieder, Zubek & Tamaro, 2021).

Adults between 31 and 45 years of age tend to seek subtle corrective treatments aimed at addressing the initial visible signs of ageing (American Society of Plastic Surgeons, 2023). Individuals aged 46–60 often pursue combined or more intensive corrective approaches - such as injectables alongside resurfacing techniques -to target more pronounced ageing effects (Goldie, 2022).

Finally, the 61–85 years age group generally prioritises maintenance treatments, opting for gentle or non-invasive procedures designed to preserve skin health and support graceful ageing (Ogbechie-Godec & Elbuluk, 2020).

Exclusion criteria

The following individuals were excluded from the study:

- Individuals who had never received a non-surgical anti-ageing treatment.
- Individuals younger than 18 and older than 85 years.
- Non-South African citizens.
- Individuals not proficient in English.

The questionnaire was administered in English to ensure clarity and consistency in responses. Using a single language aligned with global research standards and helped maintain data accuracy (Grigoryeva & Zakirova, 2022). Participants who did not meet this requirement were excluded to prevent misinterpretation of questionnaire items. By defining clear inclusion and exclusion criteria, the study enhanced internal validity by ensuring that responses were relevant, meaningful, and reflective of individuals who had direct experience with non-surgical anti-ageing treatments, thereby strengthening the representativeness of the data within the defined target population (Patino & Ferreira, 2018).

3.6 Main study

This section outlines the methods used to gather the data necessary for the study. A combination of gatekeepers' involvement and the use of questionnaires ensured a structured and effective approach to collecting relevant information. Gatekeepers played a crucial role in facilitating access to participants, while questionnaires served as the primary tool for gathering data on clients' expectations, perceptions, and knowledge of non-surgical anti-ageing treatments.

Together, the processes helped ensure that the data collection was thorough and aligned with the study's objectives.

3.6.1 Gatekeepers in the study

Gatekeepers played a vital role in facilitating access to potential participants and ensuring the smooth execution of the study. The term “gatekeeper” refers to individuals who control access to participants or resources necessary for research and can provide entry to a community or organisation (Creswell & Poth, 2018). Gatekeepers perform various functions, including granting access to research sites, facilitating participant recruitment, and providing contextual information that aids the research process (Singh & Wassenaar, 2016).

3.6.1.1 Selection and responsibilities of gatekeepers

The use of known gatekeepers is a recognised and practical strategy for improving access and trust in studies involving hard-to-reach populations, particularly when employing non-probability sampling methods (Babbie, 2020). This approach is further supported in applied research contexts, where existing professional relationships can facilitate ethical and effective recruitment, provided that appropriate boundaries are upheld (Creswell & Creswell, 2018).

Gatekeepers played a pivotal role the distribution of the questionnaire. Gatekeepers were identified and recruited by the researcher in the various beauty salons and medical aesthetic practices, based on their established professional roles and trusted networks within the beauty and medical aesthetics industries. The gatekeepers were recruited with the consent of the various beauty salons and medical aesthetic practices managers (Appendix I).

The gatekeepers' responsibilities included informing clients about the study, distributing the questionnaire link, and ensuring that participation remained entirely voluntary and free from coercion.

Before assuming their roles, all gatekeepers received formal training on their responsibilities and the ethical considerations relevant to the study. The training was conducted via a group electronic meeting and email correspondence.

3.6.1.2 Exponential non-discriminative snowball sampling

This study employed an exponential non-discriminative snowball sampling approach, a technique commonly used to expand participant networks through referrals without restricting eligibility to any specific subgroup (Nikolopoulou, 2023). To maintain the integrity and representativeness of the sample, strategies such as monitoring, randomisation, transparent recruitment, and gatekeeper training were implemented. The following bias-mitigation strategies were applied:

- **Ongoing monitoring:** The researcher maintained regular contact with all gatekeepers to ensure that recruitment procedures were followed consistently and ethically across all participating sites. Continuous oversight helps reduce inconsistencies and supports adherence to ethical recruitment standards (Clark, 2011).
- **Randomisation:** To avoid the overrepresentation of certain demographic groups, referrals from gatekeepers were reviewed and balanced according to demographic data. Randomisation techniques contribute to the representativeness of the sample and reduce unintentional bias in non-probability sampling (Battaglia, 2008).
- **Transparent recruitment:** Gatekeepers were instructed to communicate clearly and uniformly with clients using standardised study information sheets. All clients were informed that participation was voluntary and anonymous, and that declining would not affect their service. Transparent communication promotes ethical integrity in snowball sampling (Sadler, Lee, Lim & Fullerton, 2010).

- **Gatekeeper training:** Each gatekeeper received a structured briefing, either individually or in small groups via Microsoft Teams. The briefing included an explanation of their role, ethical expectations, and participant confidentiality. Supplementary materials were also sent via email to reinforce training. Training gatekeepers in ethical recruitment practices helps ensure neutrality and protects against coercion or bias (Clark, 2011).

3.6.1.3 Questionnaire distribution and administration

Identified gatekeepers in beauty salons and medical aesthetic practices distributed the questionnaires to participants using both online and paper-based formats. The online version of the questionnaire was uploaded to QuestionPro, a secure and password-protected platform designed to ensure participant privacy. Gatekeepers assisted in distributing the link and password to potential participants via email, allowing them to complete the questionnaire on their own personal devices, such as laptops or mobile phones. Participation remained entirely voluntary, with individuals having the option to withdraw at any time without penalty. Only participants who signed the informed consent form were included in the study, ensuring adherence to ethical research standards (Appendices C & D).

For participants who preferred not to complete the questionnaire electronically, a paper-based questionnaire was made available in a sealed envelope. Participants were instructed to return the completed questionnaire in a similarly sealed envelope, which was then stored securely by the gatekeeper in a locked cabinet. The researcher later retrieved the sealed envelopes once notified by the gatekeepers. Upon retrieval, all hard-copy questionnaires were stored securely. The researcher was responsible for enforcing the inclusion and exclusion criteria upon receiving the completed questionnaires.

3.7 Data analysis

The questionnaire data were evaluated with the assistance of a qualified Biostatistician (Appendix F). Responses collected electronically via QuestionPro were automatically recorded, while hard-copy responses were manually entered and integrated into a consolidated dataset. A comprehensive statistical evaluation was undertaken to ensure accuracy, consistency, and data integrity. Descriptive statistics were conducted using IBM SPSS Statistics version 29 to summarise and analyse the dataset. Frequencies and percentages were calculated to present the distribution of demographic variables and participants' responses regarding their expectations, perceptions, and knowledge of non-surgical anti-ageing treatments.

3.7.1 Presentation of results

The results are presented through a combination of tables, charts, and graphs to effectively communicate the findings. The data were organised to provide an overview before delving into specific trends or correlations that align with the study's objectives. Each visual aid supports the narrative, making it easier to interpret and understand the key outcomes of the research.

3.8 Conclusion

Chapter three outlined the methodological framework adopted to explore clients' expectations, perceptions, and knowledge of non-surgical anti-ageing treatments. A descriptive quantitative design was employed, supported by a carefully developed and pilot-tested questionnaire. Ethical clearance, rigorous sampling through exponential snowballing, and gatekeeper involvement ensured methodological integrity and participant protection. The multi-phase approach, comprising questionnaire development, data collection, and statistical analysis, provided a robust structure for generating reliable data. Therefore, the methodology established a solid foundation for presenting, interpreting and critically engaging with the results in the subsequent chapters.

Chapter 4

The Data Collection Tool

4.1 Introduction

A data collection tool enables researchers to systematically gather empirical information relevant to a study theme, facilitating organised data collection and insightful findings (Mazhar, Anjum, Anwar & Khan, 2021). During the initial phase of this study, various methods were considered, including surveys, questionnaires, interviews, and focus groups (Mazhar et al., 2021). However, questionnaires are the most widely used method in health and beauty research (McKenna, Meads, Doward, Twiss, Pokrzywinski, Revicki & Glendenning, 2011). Furthermore, questionnaires effectively collect data on facts, challenges, behaviours, attitudes, and opinions, making them a reliable method for capturing diverse perspectives (Ranganathan & Caduff, 2023). After careful evaluation, a questionnaire was selected as the data collection tool due to its frequent use and proven efficacy in health research (McKenna et al., 2011). However, a standardised, validated questionnaire covering all the relevant research aims could not be identified for this study. Therefore, a new research questionnaire was developed to explore clients' expectations, perceptions, and knowledge regarding non-surgical anti-ageing treatments. This chapter discusses the questionnaire's design, construction and its validity and reliability, highlighting the measures taken to ensure consistent and trustworthy responses (Ranganathan & Caduff, 2023).

4.2 The questionnaire development process

Creating an effective questionnaire is a critical step in collecting reliable and relevant data for a study (Ranganathan & Caduff, 2023). This requires aligning the questions with the study's aims and objectives and ensuring they are appropriate for the target population.

To guide the development process, a thorough review of existing literature was conducted, complemented by consultations with subject matter experts (Ranganathan & Caduff, 2023; Yaddanapudi & Yaddanapudi, 2019). Key concepts were drawn from both the beauty and medical fields, enriched by practical insights from industry experience (Creswell & Creswell, 2018). The following section describes how the data collection tool was developed specifically for this study, including the identification of relevant constructs and themes, and the formulation of questionnaire items.

4.2.1 Literature review and online insight review

The first step in developing the questionnaire involved conducting a literature review. Scientific search engines such as Google Scholar and Pub Med were used to access peer-reviewed studies (Table 4.1). In addition, general Google searches and client-focused blogs were included to capture questions and concerns most encountered by clients (Table 4.1). While academic sources provide validated theoretical perspectives, client-facing platforms such as blogs, social media, and search engines are frequently consulted by clients when making decisions about non-surgical anti-ageing treatments (Alzghaibi, 2023; Jia, Pang & Liu, 2021). This dual-sourced approach offered a broader and more practical understanding of the research population and consequent formulating of the constructs and themes.

Table 4.1: Dual-source foundations for questionnaire development

Section	Purpose	Academic references	Client-facing online platforms
Expectations	Understand client motivations, aesthetic goals, influences shaping decisions (e.g., cost, media, safety), and anticipated satisfaction.	Jaiswal & Jawade (2024a); Ozturk et al. (2024); Guo (2023); Farber (2020); Wright (2018); Singh & Yadav (2016); Kotler & Keller (2016); Flynn, (2010)	AAD (2024); ASPS (2023); Glow Theory (2023); Mayo Clinic (2023); ASDS (2023); Cleveland Clinic (2023); Skin Renewal (2022); Th�erapie Clinic

Section	Purpose	Academic references	Client-facing online platforms
			(2021); Cutis Laser Clinics (2021); Dr H Consult (2021)
Perceptions	Explore beliefs about treatment outcomes, including effectiveness, safety, emotional response, and value.	Jaiswal & Jawade (2024b); Ramirez, Scherz & Smith (2022); McDonald, Hart, Liew & Heydenrych (2022c); Pearl & Percec (2019); Honigman & Castle (2006a)	Skinstitut (2024); Aesthetica Med Spa (2023); Glow Theory (2022); Skin Renewal (2022); Th�rapie Clinic (2021); Dr H Consult (2021); Cutis Laser Clinics (2021)
Knowledge	Measure clients' awareness, misconceptions, and understanding of non-surgical anti-ageing treatments and procedures.	Chen et al. (2022). Ogbecchie-Godec & Elbuluk (2020); Urdiales-G�lvez et al. (2019); Sarkar, Ghunawat & Garg (2019b) Dover, Monheir, Greener & Pickett (2018); Khumalo (2016); Lee, Daniels & Roth (2016); Dastoor et al. (2007)	Botox, (2024). Dermapen (2023); Aesthetica Med Spa (2023); Skin Renewal (2022); Youthology SA (2022); Th�rapie Clinic (2021)

Section	Purpose	Academic references	Client-facing online platforms
---------	---------	---------------------	--------------------------------

4.2.2 Preliminary questionnaire

The preliminary questionnaire was developed following the completion of the literature review and was designed to reflect the theoretical framework underpinning this study. The formulation was directly aligned with the study's aim: to explore clients' expectations, perceptions, and knowledge regarding non-surgical anti-ageing treatments. Accordingly, the questionnaire was structured around three central constructs - expectations, perceptions, and knowledge. The development of the constructs and their associated items were guided not only by theoretical insights from scholarly literature but also by an understanding of client behaviour and inquiries commonly reflected in informal platforms, thereby enhancing the tool's relevance to both academic inquiry and real-world practice (Raman & Sambamoorthy, 2023).

Each construct was further subdivided into key themes that represent important aspects of client experiences and treatment-related concerns. The themes served as an organisational framework for developing questionnaire items, thereby ensuring that the data collection tool addressed the study's objectives in a structured and comprehensive manner. The following sections introduce each construct, along with its respective themes, related questionnaire items, and examples of relevant non-surgical treatment modalities.

4.2.2.1 Expectations

Clients' expectations are shaped by a combination of social, cultural, and media influences, including prevailing beauty standards, marketing narratives, and idealised portrayals of non-surgical anti-ageing treatments (Wong, 2021a; Kunda, 1999).

Expectations commonly include desires to enhance physical appearance, restore a youthful look, and reduce phenotypical characteristics of skin ageing (Li et al., 2022). In addition to appearance-related goals expectations, clients often prioritise other factors such as treatment safety, the expertise of the practitioner, cost-effectiveness, and convenience (Wong, 2021a; Harth, 2017). By investigating the expectations, the questionnaire aimed to uncover potential discrepancies between clients' goals and the realistic outcomes that aesthetic professionals can achieve (Table 4.2).

Table 4.2: Themes from the expectations construct

Theme	Question	Relevant treatment modalities
Treatment goals	What is your primary expectation when seeking non-surgical anti-ageing treatments?	Botox; Dermal fillers; Chemical peels; IPL; Microneedling
Perceived appearance outcomes	How important is achieving a more youthful appearance because of the treatment?	Botox; Dermal fillers; Chemical peels; IPL; Microneedling
Safety and professionalism	Do you believe these treatments should only be administered by qualified aesthetic professionals?	Botox; Dermal fillers; Chemical peels; IPL; Microneedling
Affordability and value	How important is cost-effectiveness when considering a non-surgical treatment?	Botox; Dermal fillers; Chemical peels; IPL; Microneedling
Convenience and accessibility	Do you prefer treatments that involve minimal downtime and easily fit into your lifestyle?	Botox; Dermal fillers; Chemical peels; IPL; Microneedling

4.2.2.2 Perceptions

The perceptions construct captured clients' perceptions toward non-surgical anti-ageing treatments, including both favourable and unfavourable views (Sethi, Singh & Goodman, 2024). Positive perceptions may include trust in the qualifications of practitioners and confidence in treatment outcomes, contributing to client satisfaction and repeat patronage (Harth, 2017).

In contrast, negative perceptions may involve apprehensions about safety, doubts about efficacy, and concerns over side effects or financial cost (Roztock et al., 2019). By assessing the perceptions (Table 4.3), the questionnaire aimed to uncover the psychological and emotional dimensions that influence clients' willingness to pursue and continue with non-surgical anti-ageing treatments (Levy & Emer, 2012).

Table 4.3: Themes from the perceptions construct

Theme	Questionnaire Item	Relevant treatment modalities
Trust in professionals	Do you trust aesthetic professionals to deliver safe and effective treatments?	Botox; Chemical peels; IPL; Dermal fillers
Confidence in outcomes	Do you believe non-surgical treatments can achieve your desired results?	Botox; Dermal fillers; Microneedling
Concerns about safety	Are you concerned about potential side effects of non-surgical treatments?	IPL; Laser; Dermal fillers
Perceived value	Do you think the benefits of treatment outweigh the costs?	Botox; Dermal fillers; IPL
Influence of public opinion	Have you heard others speak negatively about these treatments?	Microneedling; Chemical peels; IPL

4.2.2.3 Knowledge

The knowledge construct assessed participants' awareness and understanding of non-surgical anti-ageing treatments, including familiarity with different treatment types, their potential benefits and limitations, and factors that may influence effectiveness. Evaluating clients' knowledge enabled the identification of information gaps or misconceptions that could hinder informed consent and create unrealistic expectations.

Recognising where clients are well-informed or misinformed supports improved communication between professionals and clients, ultimately promoting more realistic treatment expectations (Castleberry & Nolen, 2018). This construct formed an essential part of the preliminary questionnaire, which was designed as a structured and accessible data collection tool grounded in current literature and aligned with the study's objectives (Table 4.4).

Table 4.4: Themes from the knowledge construct

Theme	Question	Relevant treatment modalities
Treatment awareness	Which of the following treatments have you heard of?	Botox; Chemical peels; Microneedling; IPL
Procedure familiarity	How familiar are you with the steps involved in non-surgical treatment?	Microneedling; IPL; Dermal fillers
Effectiveness understanding	Do you know how long the effects of treatments like Botox or fillers typically last?	Botox; Fillers; Chemical peels
Source of knowledge	Where did you learn about non-surgical anti-ageing treatments?	IPL; Dermal fillers
Misconceptions	Do you believe non-surgical treatments can permanently stop ageing?	Botox; Chemical peels; IPL

4.2.3 Peer review

Peer review is a quality assurance process that involves obtaining feedback from subject-matter experts to improve the validity, clarity, and applicability of research instruments (Scott et al., 2021; Ryan et al., 2012). To verify that the preliminary questionnaire was unbiased and grounded in both academic literature and professional practice, a peer review was conducted.

Experts in medical aesthetics and professional beauty therapy participated in the review process. The experts consisted of experienced beauty therapy educators, practising beauty professionals, and medical doctors specialising in aesthetic medicine.

Individual experts in medical aesthetics and professional beauty therapy participated in the review process of the questionnaire (Olson, 2010). The experts consisted of experienced beauty therapy educators, practising beauty professionals, and medical doctors specialising in aesthetic medicine with a specific focus on non-surgical anti-ageing treatments. Their diverse professional backgrounds allowed them to evaluate the questionnaire from both clinical and client-centred perspectives, thereby enhancing its clarity, conceptual alignment, and real-world applicability.

4.3 Face and content validity

Face and content validity are essential for establishing the quality and trustworthiness of a data collection tool. Face validity refers to the extent to which the questionnaire appears, on the surface, to measure what it is intended to measure, particularly in terms of clarity, formatting, and ease of understanding (Del Greco, Walop & McCarthy, 1987). Content validity is defined as the degree to which the questionnaire items comprehensively represent the full conceptual domain of the constructs under investigation.

4.3.1 Face validity

Rather than relying solely on whether the questionnaire appeared suitable at face value, this study assessed face validity through structured expert feedback. Individual reviewers considered whether the tool was clear, professionally presented, and appropriate for the intended client population.

Their insights led to several refinements that improved the readability, flow, and perceived relevance of the questionnaire.

Several individual reviewers made comments on the face validity of the questionnaire. Reviewers A, F and B had no relevant comment on face validity. However, reviewer D recommended grouping associated questions together to improve the logical flow of the questionnaire and reduce the potential for response fatigue. This suggestion enhanced the overall readability and structure of the tool, ensuring that participants could navigate through the items more easily.

Reviewer E advised simplifying complex questions to enhance clarity and prevent misunderstandings. This change directly contributed to the tool's face validity by improving the precision and accessibility of the language used. Reviewers C and G commented on the professional appearance of the questionnaire and its potential practical value in a salon setting. Their feedback confirmed that the questionnaire not only appeared relevant and credible but also had practical utility, reinforcing its alignment with professional standards in the beauty and medical aesthetics industries.

Lastly, Reviewer H highlighted the educational value of the questionnaire, noting that it introduced new concepts and increased awareness among potential users. This insight supported the questionnaire's perceived usefulness and accessibility, particularly for clients with limited prior knowledge of non-surgical anti-ageing treatments. Reviewer insights provided valuable guidance in assessing the questionnaire's face validity, leading to refinements that improved clarity, flow, and practical relevance. The following table summarises the key feedback points and how they contributed to enhancing face validity. This feedback ensured that the questionnaire would be perceived as clear, professional, and aligned with industry standards, supporting its acceptance as a credible data collection instrument in both academic and practice settings.

Table 4.5: Peer review feedback - face validity

Reviewer(s)	Summary of feedback	Aspect of face validity
D	Grouped similar questions to improve flow and reduce response fatigue.	Readability and structure
E	Simplify complex wording to avoid misunderstandings.	Clarity of language
C, G	Highlighted the practical utility of the questionnaire for salon use and client interaction.	Professional appearance and relevance
H	Recognised the educational value of the questionnaire and its potential to introduce new concepts.	Perceived usefulness and accessibility

4.3.2 Content validity

Content validity concerns whether the questionnaire sufficiently captures the full range of information related to the constructs under investigation, in this case, clients' expectations, perceptions, and knowledge of non-surgical anti-ageing treatments (Ranganathan & Caduff, 2023; DeVon, Block, Moyle-Wright, Ernst, Hayden, Lazzara, Savoy & Kostas-Polston, 2007).

Peer reviewers' contributions strengthened the overall coverage and relevance of the instrument. Reviewer A recommended adding questions on treatment side effects and medication use, which expanded the questionnaire's focus to better reflect concerns around client safety and real-world experiences.

Reviewer B advised incorporating additional knowledge-based items to assess participants' understanding of treatment types and procedures. This led to more detailed and targeted questions, enhancing the depth of information collected. Reviewer I proposed the inclusion of a question addressing the effectiveness of specific treatments for distinct signs of ageing, ensuring more accurate representation of treatment outcomes.

Lastly, reviewer F suggested to include an item on whether clients typically access non-surgical anti-ageing treatments, which broadened the contextual insight into consumer behaviour and accessibility. Collectively, the content-focused enhancements ensured that the questionnaire comprehensively addressed the study's core constructs, grounding its design in both literature and practical client experience (Table 4.6).

Table 4.6: Peer review feedback – content validity

Reviewer(s)	Summary of feedback	Support for content validity
A	Add questions on side effects and medication.	Expanded scope of treatment impact
B	Include more knowledge-based questions to assess understanding.	Improved depth and coverage of information-related content
I	Add question on treatment effectiveness for specific ageing signs.	Enhanced representation of treatment outcomes
F	Include question about treatment access points.	Broadened context of client experience and accessibility

4.4 The pilot study

A pilot study is a small-scale preliminary investigation conducted before the main research to assess the feasibility, timing, and effectiveness of data collection methods (Teresi, Yu, Stewart & Hays, 2022). In this study, the pilot phase served as a fundamental step in evaluating the validity and reliability of the questionnaire prior to its full-scale distribution.

Pilot testing was conducted with 20 participants who met the same inclusion criteria as the main study. The individuals were randomly selected and represented the study's target population. To ensure ethical integrity and avoid familiarity bias, responses from the pilot study were excluded from the main dataset, and participants were not included in the main study. The purpose of the pilot was strictly to evaluate the data collection tool, not to generate research data.

The pilot version of the questionnaire was distributed in hard-copy format and included space for participants to provide written feedback. Participants were asked to assess the clarity of questions, the appropriateness of the response scaling, and the overall ease of completion. The feedback was reviewed thematically to identify common concerns and suggestions for improvement.

The pilot study directly contributed to improving both face validity and content validity of the questionnaire:

- **Face validity:** Participants suggested simplifying complex language to enhance clarity and understanding, improving the logical sequencing of questions, and avoiding double-barrelled or leading questions that could bias responses. Participants also reported that the knowledge section was too lengthy and recommended grouping similar questions to reduce completion time without omitting key content. Therefore, the suggestions enhanced the questionnaire usability and helped ensure that it appeared credible and appropriate to the target population.
- **Content validity:** Several participants expressed confusion over the terminology used for non-surgical anti-ageing treatments. Although the literature review grouped treatments into clinical categories, such as resurfacing treatments (e.g., chemical peels), collagen induction therapy (e.g., microneedling), light-based therapies (e.g., IPL and laser), dermal fillers, and muscle relaxants, the terms were not always familiar to participants. Instead, the participants preferred more recognisable terminology drawn from advertisements and everyday usage.

As a result, the questionnaire was revised to include widely recognised terms such as Botox, dermal fillers, chemical peels, microneedling, and IPL/laser. While terminology was simplified for accessibility, it remained conceptually aligned with the clinical groupings in the literature to ensure consistency between the theoretical framework and the questionnaire.

Based on this feedback, several refinements were made to improve the clarity, structure, and overall accessibility of the questionnaire. The revised questionnaire was more user-friendly and logically structured, especially for individuals with limited familiarity with clinical or technical language. Moreover, the improvements ensured strong alignment with the study's three main constructs: expectations, perceptions, and knowledge of non-surgical anti-ageing treatments.

Revisions included adjustments to question phrasing, thematic organisation, and overall layout to enhance comprehension and support more accurate responses. Although the constructs were central to the final questionnaire structure, it is important to note that the pilot study did not categorise items under the constructs of expectations, perceptions, or knowledge. The pilot study's objective was to assess the usability and quality of the data collection tool rather than evaluate construct-based responses. The grouping of items under the study's core constructs was finalised only after the pilot study, informed by literature support and expert review.

The pilot study confirmed the overall relevance and appropriateness of the questionnaire content, while the revisions that followed laid a strong foundation for valid and reliable data collection. Table 4.7 presents a summary of the key changes made to the data collection tool based on participant feedback, including the rationale and how each issue was addressed.

Table 4.7: Key changes made to questionnaire from the pilot study

Question description	Change type	Reason for change and how it was rectified
Complex terminology used for treatment names	Language simplified	Participants found clinical terms confusing. Familiar terms like "Botox" and "chemical peel" were used instead.
Questions with complex phrasing	Reworded for clarity	Language was simplified to enhance participant understanding and reduce misinterpretation.

Question description	Change type	Reason for change and how it was rectified
Questions presented in a less logical sequence	Restructured	Thematic flow of questions was revised to improve logical sequencing and ease of completion.
Double-barrelled or leading questions	Revised or separated	Items were rephrased to ensure neutrality and clarity; double ideas were separated into single-focus questions.
Overly long knowledge section	Regrouped and reduced	Similar items were grouped together; unnecessary repetition was removed to shorten completion time.
Closed-ended age question	Changed to open-ended	Participants preferred to self-identify age in their own words; format revised for flexibility and comfort.

The pilot study and peer review process led to significant refinements in the perception construct. The table below presents the restructured themes, revised questionnaire items, and their underlying rationale, illustrating how the construct evolved to better capture clients' nuanced views of non-surgical anti-ageing treatments. By restructuring the perceptions construct, the questionnaire now more effectively captures clients' trust, risk concerns, emotional responses, and barriers to treatment, ensuring a comprehensive assessment of the factors that shape perceptions. The feedback received was thematically analysed and used to refine the questionnaire.

Based on the findings from the pilot study, the original theme structure was revised to ensure alignment with the final version of the questionnaire, as presented in the following section.

4.4.1 Renovated questionnaire themes

Following the pilot study, several refinements were made to the questionnaire to ensure validity and reliability. Feedback from participants and expert reviewers highlighted the need to simplify terminology, reduce redundancy, and re-frame certain items to reflect the constructs of expectations, perceptions, and knowledge more accurately. As a result, the thematic structure that originally guided the development of each construct was revised. While many original themes remained valid, some were broadened or repositioned to reflect the final version of the questionnaire more accurately.

In particular, the theme “Safety and Professionalism”, originally grouped under Expectations, was reclassified under Perceptions due to its alignment with client trust and ethical considerations. Furthermore, new themes emerged during the pilot phase, such as “Barriers to Treatment”, “Product Identification and Differentiation”, and “Disclosure Comfort and Stigma”. The additional themes reflected key areas of knowledge, perception, and behaviour that were not initially anticipated but became evident through pilot feedback. The table below presents the renovated themes for each construct and their corresponding questionnaire items (Table 4.8). The pilot study and peer review process led to significant refinements in the Perceptions construct.

Table 4.8 below presents the restructured themes, revised questionnaire items, and their underlying rationale, illustrating how the construct evolved to better capture clients’ nuanced views of non-surgical anti-ageing treatments. By restructuring the Perceptions construct, the questionnaire more effectively captured clients’ trust, risk concerns, emotional responses, and barriers to treatment, ensuring a comprehensive assessment of the factors that shape perceptions.

Table 4.8: Expectations theme adjustments

Original theme (pre-pilot)	Revised theme (post-pilot)	Mapped questions	Comments
Treatment goals	Treatment experience and preferences	B1–B4	Expanded into multiple questions.
Perceived appearance outcomes	Outcome expectations	B8	Now includes expected changes and goals.
Safety and professionalism	Moved to perceptions	—	No longer part of the Expectations section.
Affordability and value	Treatment experience and preferences	B4	Cost now included as a reason.
Convenience and accessibility	Natural look preference	B9	Natural look linked to ease and preference.
—	Expected longevity of results	B5	The new theme is based on duration expectations.
—	Age expectations	B6	New theme from pilot insights.
—	Motivation for treatment	B7	Motivations now clearly separate from goals.

The themes under the construct Perceptions underwent a significant restructuring after the pilot study. Most notably, the theme Safety and Professionalism, initially part of Expectations, was relocated here and reframed as Professional Integrity and Ethical Confidence.

Existing themes, such as Confidence in Outcomes and Concerns about Safety, were broadened to include emotional and risk-based factors. New themes related to Stigma and Access Barriers were added based on participant responses, further enhancing the depth and relevance of this construct (Table 4.9).

Table 4.9: Renovated themes – perceptions construct

Original theme (pre-pilot)	Renovated theme (post-pilot)	Mapped questions	Explanation
Trust in professionals	Trust in professionals and advisors	D2, D3	Expanded to include communication of medical info and trust in both professionals.
Confidence in outcomes	Perceived effectiveness and mood Impact	C1, C2, C6	Broadened to include emotional impact and overall beliefs about effectiveness.
Concerns about safety	Perceived risk and safety concerns	C3, C5, C7	Safety concerns now include side effects, frequency, cost, and health implications.
Safety and Professionalism (from Expectations)	Professional integrity and ethical confidence	D2, D3	Now placed under Perceptions, it includes trust in advice and safety practice.
Perceived value	Treatment value and access	C4, C5, D5	Includes cost-related perceptions and treatment access preferences.
Influence of public opinion	Social and media influence	D1, D4	Expanded to include social media, family, and societal views.

Original theme (pre-pilot)	Renovated theme (post-pilot)	Mapped questions	Explanation
—	Disclosure comfort and stigma	D1	New theme: whether participants feel comfortable sharing their treatment choices.
—	Barriers to treatment	C7	New theme: reasons for avoidance (cost, fear, time, etc.).

The updated themes for the Knowledge construct following the pilot study.

While all original themes remained conceptually strong, the pilot study revealed the need to expand the scope of several, particularly by introducing additional questions that differentiate between myths and facts. A new theme: Product Identification and Differentiation - was introduced to assess participant awareness of specific injectable products such as Botox, Dysport, and Juvéderm. This strengthened the constructs' ability to measure the depth and accuracy of client knowledge in the context of non-surgical anti-ageing treatments (Table 4.10).

Table 4.10: Renovated themes - knowledge

Original theme (pre-pilot)	Renovated theme (post-pilot)	Mapped questions	Explanation
Treatment awareness	Treatment Recognition and Awareness	E1, E2	Broadened to include both general awareness and specific treatment purposes.
Procedure familiarity	Familiarity with Procedures and Products	E2, E5	Expanded to include product names and intended effects.

Original theme (pre-pilot)	Renovated theme (post-pilot)	Mapped questions	Explanation
Effectiveness understanding	Understanding of treatment duration and effects	E6	Focuses on myths/facts around results, downtime, and permanence.
Source of knowledge	Information sources and research habits	E3, E4	Combines frequency of research and ability to distinguish fact from fiction.
Misconceptions	Common myths and misbeliefs	E1, E6	Directly addressed through true/false questions and product myths.
—	Product identification and differentiation	E5	New theme: awareness of brands/products used in treatments.

In summary, the thematic refinements made following the pilot study were essential to ensuring that the questionnaire accurately measured clients' expectations, perceptions, and knowledge of non-surgical anti-ageing treatments. The reclassification, expansion, and addition of themes enhanced the instrument's relevance, improved question clarity, and aligned the constructs more closely with both literature and participant feedback. Therefore, the renovations both face and content validity and usability of the questionnaire in the main study and ensure that the data collected reflect clients' real-world experiences and understanding.

4.5 Reliability

Reliability refers to the degree of consistency with which a data collection tool measures a specific construct, ensuring that results are dependable and reproducible across different contexts and respondent groups (Creswell & Creswell, 2018).

While statistical measures such as Cronbach's Alpha were not applied in this study, reliability was established through a systematic, multi-step development process grounded in principles of procedural reliability and design-based validation (Ranganathan & Caduff, 2023).

The first step involved the theoretical structuring of the questionnaire. Items were aligned with the study's three core constructs expectations, perceptions, and knowledge related to non-surgical anti-ageing treatments. This ensured internal coherence and thematic consistency across sections. Secondly, the questionnaire was reviewed by peer reviewers with expertise in aesthetics and research methodology. They assessed the questionnaire for clarity, alignment with the study constructs, and overall relevance. Their feedback led to targeted revisions that enhanced the conceptual coherence and structure of the tool. Peer review is recognised in the research literature as an effective non-statistical method to strengthen both content validity and procedural reliability, particularly during early stages of instrument development (DeVon et al., 2007).

Thirdly, pilot testing was conducted with a sample drawn from the target population. Participants were asked to identify any items that were unclear or difficult to interpret. Based on their feedback, the wording, layout, and flow of the questionnaire were refined to enhance usability. Language was revised to minimise ambiguity, eliminate technical jargon, and avoid double-barrelled questions. Standardised response formats, such as 5-point Likert-type scales and true/false options, were consistently applied to support reliable interpretation. Furthermore, the refinements, grounded in direct participant input, further contributed to procedural reliability by improving clarity and reducing variability (Creswell & Creswell, 2018).

This iterative, three-step approach comprising construct alignment, peer review, and pilot testing with language refinement reflects established best practices in the procedural validation of self-administered instruments (Table 4.11). Such strategies provide a credible and rigorous alternative to statistical reliability testing in exploratory research (Ranganathan & Caduff, 2023).

Table 4.11: Approach to ensuring questionnaire reliability

Steps	Reliability strategy applied	Supporting source(s)
Step 1: Theoretical structuring	Grouped items by construct for internal consistency	Creswell & Creswell (2018)
Step 2: Peer review	Validated by experts for clarity and relevance	DeVon et al. (2007)
Step 3: Pilot testing & refinement	Refined language, layout, and formats based on participant feedback	Ranganathan & Caduff (2023); Creswell & Creswell (2018)

4.6 The questionnaire

The questionnaire (Appendix E) used in this study was designed to explore clients' expectations, perceptions, and knowledge regarding non-surgical anti-ageing treatments. It was structured into distinct sections, beginning with demographic information, followed by items grouped according to the key constructs and themes identified in the literature. Each section aimed to capture detailed insights aligned with the study's objectives, ensuring the tool was comprehensive, user-friendly, and relevant to the target population.

4.6.1 Questionnaire layout

The questionnaire was structured as follows:

- **Section A: Demographic information**

The demographic information of each participant involved gender, age, and province. Collecting this demographic data is crucial for understanding the context of clients' responses and ensuring the results are representative of the broader population (De Vaus, 2014).

- **Section B: Expectations and preferences regarding anti-ageing treatments**

This section explores participants' expectations and preferences when it comes to anti-ageing treatments, aiming to gather insights into their desired outcomes and treatment choices.

- **Section C: Effects/results and risks of anti-ageing treatments**

This section investigates participants' perceptions of the effects and results of anti-ageing treatments, as well as their awareness of any potential risks or dangers associated with such procedures.

- **Section D: Stakeholders and influences on treatment decisions**

This section examines the role of various stakeholders, such as medical professionals, beauty therapists, and influencers in shaping participants' decisions about anti-ageing treatments. It also explores external factors such as social media and advertising that may influence their choices.

- **Section E: Knowledge about anti-ageing treatments**

This section assesses participants' knowledge of different anti-ageing treatments, including their understanding of the procedures, outcomes, and potential risks. It also evaluates how well-informed they are about the available treatment options.

4.6.2 Assembly of questions

The questionnaire was designed to assess participants' expectations, perceptions, and knowledge of non-surgical anti-ageing treatments through a combination of closed-ended, Likert scale, multiple-choice, ranking, and open-ended questions. It comprises five main sections, including demographics, treatment expectations, perceived effects, external influences, and treatment knowledge. To ensure that responses reflect direct experience, the questionnaire begins with a screening question asking participants to indicate which non-surgical anti-ageing treatments they have previously received. This step ensured that only eligible participants proceeded with the full questionnaire.

Expectations were explored through Likert-type questions, including time-based items measuring how long participants anticipated treatment results to last. Perceptions were captured through ranking tasks and agreement scales covering motivations, concerns, and views on natural outcomes. Knowledge was assessed using a True/False/Do Not Know format, as well as matching treatments to their intended uses. Open-ended questions invited participants to elaborate on personal beliefs, such as the appropriate age to begin treatment (Table 4.12).

To promote completion and engagement, the questionnaire was designed to be concise and easy to navigate, with clear instructions provided at the outset and an estimated completion time of approximately 30 minutes. By integrating diverse question types and ethical design considerations, the tool ensures both academic rigour and real-world relevance.

Table 4.12: Questionnaire response formats and the purposes

Question type	Response format	Purpose and justification
Screening question	Multiple-choice (select all that apply)	To identify participants who have undergone non-surgical anti-ageing treatments.
Expectation duration	Matrix-style Likert scale (time-based)	To measure how long participants expect treatment results to last.
Treatment preferences	Ranking (1–5)	To assess personal preference order among common treatments.
Motivations and beliefs	Multiple-choice (select one)	To understand the primary reasons clients pursue treatments.
Treatment perceptions	Likert scale (importance, agreement)	To assess attitudes, beliefs, and feelings toward outcomes and risks.
Open-ended insight	Open-ended	To gather qualitative views on when clients believe treatment should start.
Knowledge statements	True/false/do not know	To evaluate factual knowledge about treatment outcomes, safety, and uses.
Matching Treatments to Concerns	Multiple-response matrix	To test understanding which treatments address specific skin concerns.
Frequency of Information Seeking	Multiple-choice	To assess how regularly participants inform themselves on anti-ageing treatments.
Information Sources	Multiple response	To understand how participants distinguish between myths and facts.

4.7 Conclusion

This chapter outlined how the data collection tool was developed to explore client expectations, perceptions, and knowledge of non-surgical anti-ageing treatments. A step-by-step process was followed, including a literature review, expert peer input, and a pilot study, to ensure that the data collection tool is valid and reliable. The questionnaire included a variety of question types designed to collect meaningful insights.



Chapter 5

Demographics and non-surgical anti-ageing treatments: expectations

5.1 Introduction

The findings related to participant demographics and participants' expectations of non-surgical anti-ageing treatments are presented and discussed in this chapter. Quantitative results are structured according to the themes identified in the questionnaire and are aligned with the objectives of the study. Each theme is supported by descriptive statistics and followed by a discussion that incorporates relevant literature or studies to contextualise the expectations of clients in the Free State and Northern Cape provinces.

The presentation of results aligns with the clinical categories outlined in the literature review (Chapter 2), namely resurfacing treatments (e.g., chemical peels), collagen induction therapy (e.g., microneedling), light-based treatments (e.g., IPL and laser), dermal fillers, and muscle relaxants. Although the literature review grouped treatments into clinical categories, such as resurfacing treatments (e.g., chemical peels), collagen induction therapy (e.g., microneedling), light-based therapies (e.g., IPL and laser), dermal fillers, and muscle relaxants, the questionnaire used more commonly recognised terminology to ensure that participants could identify and differentiate between treatments with ease.

5.2 Demographic profile of participants

A total of 154 participants completed the questionnaire. Most participants were female, comprising 95.5% of the sample, while males accounted for 4.5%. Most participants were aged between 35 and 44 years, followed by participants in the 45 to 54 age group.



The smallest proportion of participants fell within the 65 years and older category. The youngest participant fell within the 18–24 age category, while the oldest belonged to the 75–85 age category. In terms of geographical distribution, the majority of participants (98.1%) were from the Free State province, whereas only 1.9% were from the Northern Cape.

In addition to demographic characteristics, participants were asked where they typically go for non-surgical anti-ageing treatments. The most reported locations included therapists at doctors' practices (25.6%), dermatology clinics (22.7%), aesthetic clinics (22.2%), and beauty salons (19.7%). Notably, 7.9% of participants indicated that they visit plastic surgeons for non-surgical anti-ageing treatments. The demographic distribution of participants is summarised in Table 5.1.

Table 5.1: Demographic profile of participants

Variable	Category	Percentage (%)
Gender	Female	95.5
	Male	4.5
Age Group	18–24 years	2.6
	25–34 years	13.6
	35–44 years	28.6
	45–54 years	27.9
	55–64 years	21.4
	65–74 years	5.2
	75–85 years	0.6
Province	Free State	98.1
	Northern Cape	1.9
Treatment Location	Therapist at doctor's practice	25.6
	Dermatology clinic / skin doctor	22.7



Variable	Category	Percentage (%)
	Aesthetic clinic	22.2
	Beauty salon	19.7
	Plastic surgeon	7.9
	Other	2.0

5.3 Themes for expectations

The following segment presents the results related to participants' expectations, based on their responses to the questionnaire. The results are structured according to the key themes explored in the study: Treatment Experiences and Preferences, Outcome Expectations, Preference for Natural-looking Results, Expected Longevity of Results, Age-related Expectations, and Motivations for Seeking Non-surgical Anti-ageing Treatments. The Treatment Experiences and Preferences theme include information about participants' previous treatments, their most preferred treatment, and the reasons behind their choices. Outcome expectations reflect anticipated results, improvements in appearance, and perceived treatment effectiveness. Preference for natural-looking results addresses the importance participants place on achieving subtle and realistic outcomes.

The theme Expected Longevity examined how long participants believe the effects of treatment should last. Age-related expectations explore opinions on the ideal age to begin non-surgical anti-ageing treatments. Finally, expectations for seeking treatment include personal, aesthetic, and emotional reasons for undergoing such procedures.

Each theme corresponds to specific items in the questionnaire, allowing for a focused and coherent analysis of clients' expectations. The mapping of these items to their respective themes is presented in Table 5.2, which guides the structure of the results that follow.

**Table 5.2:** Mapping of expectations questionnaire items

Theme	Mapped questions	Questionnaire items
Treatment Experience and Preferences	B1–B4	Received treatment, Preferred treatment, Ranking, reasons
Outcome Expectations	B8	Outcome expectations
Expected Longevity of Results	B5	Expected duration of results
Age Expectations	B6	Perceived appropriate starting age, Treatment Preferences by age group
Motivation for Treatment	B7	Motivations for treatment
Preference for Natural Look	B9	Importance of natural-looking outcomes

5.3.1. Treatment history of participants

Participants' previous experiences with non-surgical anti-ageing treatments, as well as their treatment preferences, are presented under this theme. This section explored the types of treatments participants received, their preferred treatment, rankings of specific modalities, and the reasons for the choices. Most participants reported having received chemical peels (58%), followed by microneedling (44.8%) and IPL/laser treatments (32.5%). Additionally, 6.5% indicated that they had received all the listed treatments. The full distribution of responses is presented in Table 5.3.

**Table 5.3:** Participants' previous non-surgical anti-ageing treatments

Treatment	Percentage (%)
Chemical peels	58.4
Microneedling	44.8
Botox	33.1
IPL/laser	32.5
Fillers	15.6
All the above	6.5

5.3.2 Expected best treatment

Participants had different opinions regarding the best treatment option for anti-ageing. Notably, 27.9% of participants expressed uncertainty about their preferred treatment. However, microneedling (26%) was a popular treatment option among participants, followed by chemical peels (12.3%). Several of the participants (12.3%) selected all the treatment options. An overview of the responses is provided in Table 5.4.

**Table 5.4:** Favoured non-surgical anti-ageing treatments

Treatment	Percentage (%)
Microneedling	26.0
Chemical peels	12.3
All the above	12.3
Botox	9.7
Laser/IPL	4.5
Dermal fillers	2.6
Not sure	27.9
None	1.9
Other	1.9

5.3.3 Treatment effectiveness rankings

Participants ranked five non-surgical anti-ageing treatments from most preferred (Rank 1) to least preferred (Rank 5). Microneedling received the highest number of Rank 1 responses (28.1%). Botox was most frequently assigned Rank 5 (34.0%) but was also placed at Rank 1 by 23.5% of the participants. The full distribution of rankings is shown in Table 5.5.

**Table 5.5:** Rankings of non-surgical anti-ageing treatments

Treatment	Rank 5 (%)	Rank 4 (%)	Rank 3 (%)	Rank 2 (%)	Rank 1 (%)	Rank 00 (%)
Botox	34.0	12.4	10.5	11.1	23.5	8.5
Fillers	28.8	27.5	12.4	13.1	7.2	11.1
IPL/Laser	7.8	21.6	28.1	19.6	15.7	7.2
Chemical peels	12.4	12.4	20.3	26.8	22.2	5.9
Microneedling	9.2	15.7	19.0	19.6	28.1	8.5

5.3.4 Participant reason for ranking

Perceived effectiveness was identified as the primary motivation for selecting a specific non-surgical anti-ageing treatment, with nearly 50% of participants citing it as the most influential factor. Notably, approximately 25% of participants indicated that all the listed factors, effectiveness, cost, and minimal discomfort, played a role in their decision-making process when choosing a non-surgical anti-ageing treatment. Other considerations included cost affordability (9.7%) and the preference for a painless procedure with no downtime (6.5%) (Figure 5.1).

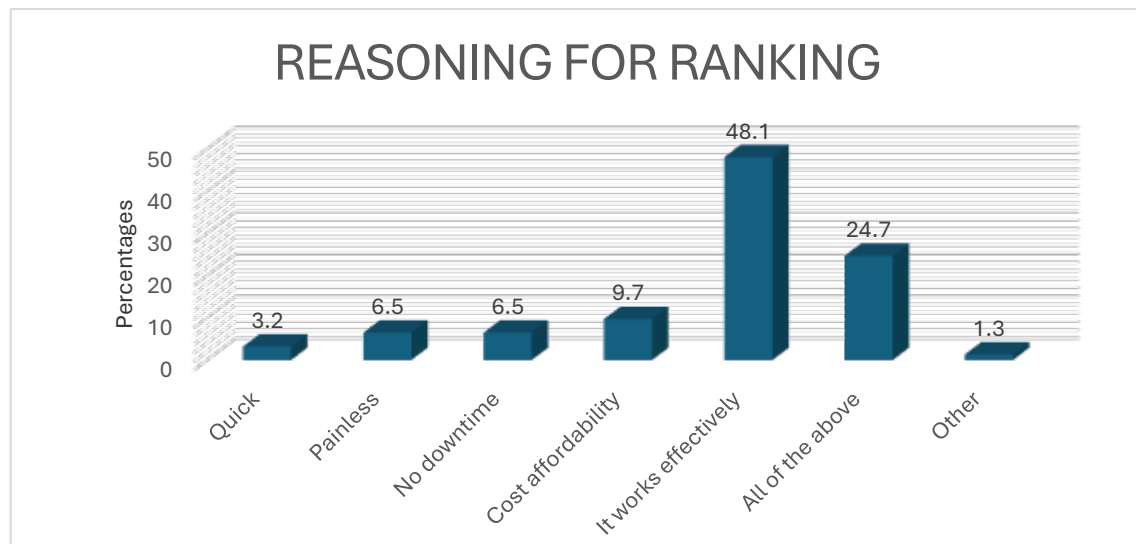


Figure 5.1: Reasons selected by participants for ranking non-surgical anti-ageing treatments

5.3.5 Expected outcome

Participants selected outcomes related to visible change as their primary expectation from non-surgical anti-ageing treatments. In total, 42.2% of participants indicated they expected noticeable differences, followed by 38.3% who expected an improvement in appearance. Only a small number of selected expectations related to duration or medical reasons, or ethical concerns. The distribution of responses is presented in Table 5.6.

Table 5.6: Participants' expectations for non-surgical anti-ageing treatments

Statement of expectation	Percentage (%)
I expect anti-ageing treatments to make significant and noticeable differences	42.2
I expect anti-ageing treatments to improve my appearance	38.3
I expect non-surgical anti-ageing treatments to improve my results to last for a longer time	16.2



Statement of expectation	Percentage (%)
I avoid anti-ageing treatments for ethical reasons	1.9
I expect anti-ageing treatments to be painless	0.6
I consider anti-ageing treatments only for medical reasons	0.6

5.3.6 Expectations on Longevity

Participants' expectations regarding the longevity of non-surgical anti-ageing treatments varied by procedure type. For Botox, 33.8% of respondents expected the effects to last approximately six months, while 24.7% anticipated a duration of up to one year. Dermal fillers were most frequently associated with a one-year duration, selected by 44.2% of participants. In relation to IPL / laser treatments, 24.7% expected results to persist for six months to one year. For chemical peels, 34.4% of participants expected the effects to last between one and three months. For microneedling, 44.2% believed the results should be maintained for at least three months. Expectations for additional duration categories are included in Table 5.7.

Table 5.7: Expected duration of results per treatment

Treatment	One week (%)	One month (%)	Three months (%)	Six months (%)	One year (%)	Forever (%)
Botox	0.6	3.9	30.5	33.8	24.7	6.5
Fillers	2.6	3.2	17.5	29.2	39.6	7.8
IPL/laser	1.9	14.3	16.9	25.3	25.3	16.2
Chemical peel	3.9	27.3	26.0	20.1	14.3	8.4
Microneedling	1.3	13.0	30.5	21.4	23.4	10.4

5.3.7 Perceived appropriate starting age

Participants' expectations regarding the appropriate age to begin non-surgical anti-ageing treatments were explored. Responses ranged from as early as 10 years to as late as 50 years. The generally selected age was 30 years (27.7%), followed by 40 years (16.9%). The full distribution of responses is shown in Figure 5.2.

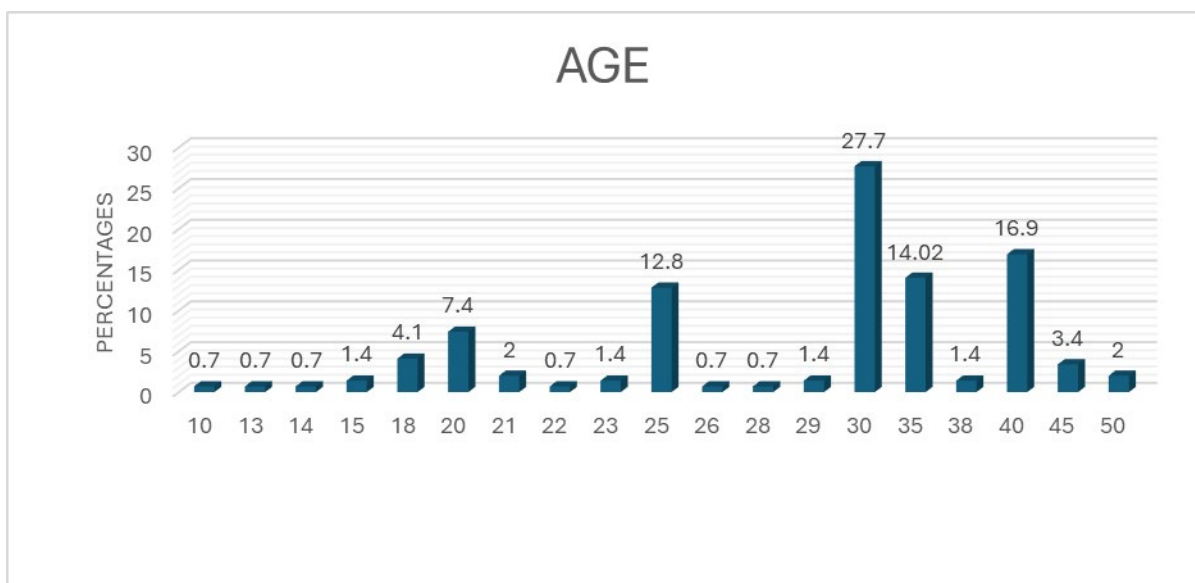


Figure 5.2: Age expectations for beginning non-surgical anti-ageing treatments

5.3.7.1 Treatment preferences by age group

To explore whether treatment preferences varied by age, participants' responses regarding preferred non-surgical anti-ageing treatments were analysed across different age groups. In the 18–24 age category, 75.0% selected microneedling, while 25.0% chose Botox as their preferred treatment. Among participants aged 25–34, 28.6% selected microneedling, and an equal proportion (28.6%) indicated they were unsure about their preferred treatment. In the 35–44 age group, 27.3% of participants preferred microneedling. In the 45–54 age group, the most frequent response was uncertainty regarding treatment preference (30.2%), followed by a preference for microneedling (20.9%).



A similar pattern was observed among participants aged 55–64. In the 65–74 age group, 37.5% of participants reported being unsure about specific treatment choices. The findings are summarised in Table 5.8.

Table 5.8: Best treatment preferences by age group

Age group	Most Preferred treatment	%	Second preferred treatment	%
18–24	Microneedling	75.0	Botox	25.0
25–34	Microneedling / Not sure (tie)	28.6	Botox	19.0
35–44	Microneedling	27.3	Chemical Peel	18.2
45–54	Not sure	30.2	Microneedling	20.9
55–64	Not sure	30.3	Microneedling	27.3
65–74	Not sure	37.5	All the above	25.0
75–85	Laser/IPL	1		

5.3.8 Expectations for treatments

As part of the Expectations for Treatment theme, participants were asked to indicate their primary reason for considering non-surgical anti-ageing treatments. The most frequently selected response was non-specified (24.8%); and participants did not indicate a reason for their response. Other common expectations included improving specific skin concerns (22.2%) and texture (17%) as well as enhancing the appearance of wrinkles and fine lines (12.4%). The results are summarised in Table 5.9.

**Table 5.9:** Participants' primary motivation for receiving anti-ageing treatments

Expectations	Percentage (%)
Boosting confidence	3.3
Enhancing overall appearance	2.0
Improving skin texture	17.0
Reducing the appearance of wrinkles and fine lines	12.4
Addressing specific skin concerns (e.g. pigmentation)	22.2
Feeling more attractive	11.1
Keeping up with societal or professional expectations	0.7
Following recommendations from friends or family	5.9
All of the above	0.7
Other	24.8

5.3.9 Importance of natural-looking outcomes

As part of the Expectations theme, participants were asked to consider the importance of maintaining a natural-looking result following non-surgical anti-ageing treatments. Overall, 61.7% of participants regarded this as extremely important, and 32,9% viewed it as very important. In comparison, only 3.9% considered it moderately important, and 1.3% slightly important. The findings are illustrated in Figure 5.3.

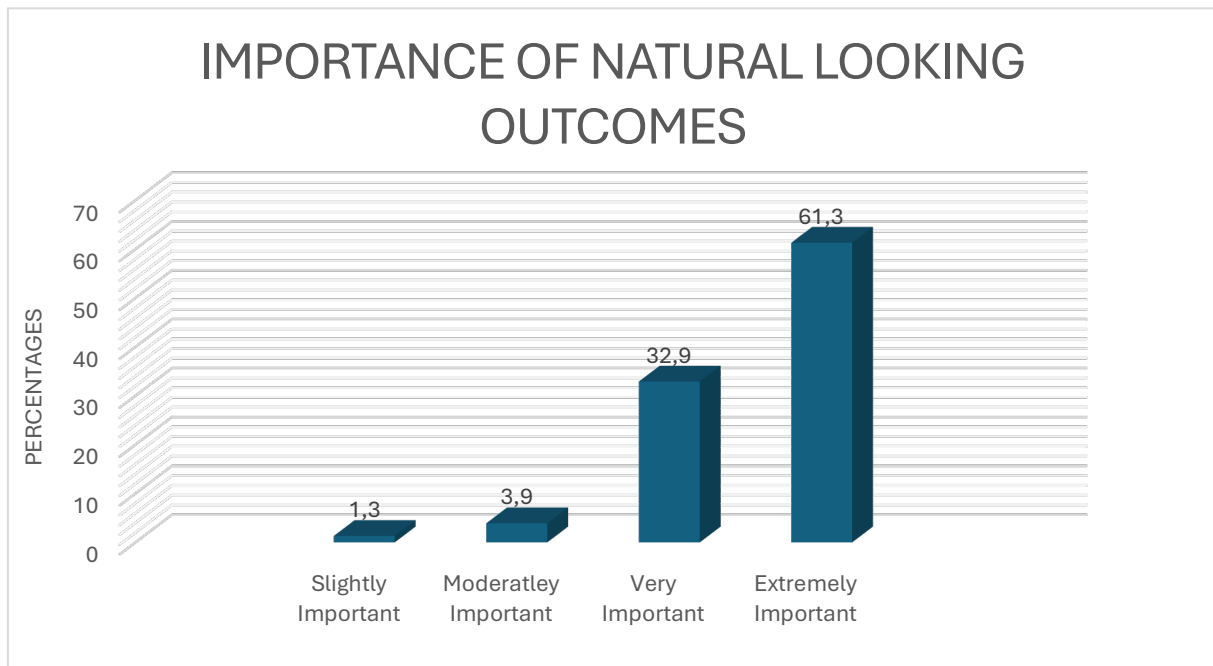


Figure 5.3: Importances of natural-looking results

5.4 Discussion

5.4.1 Demographic Profile of Participants

Understanding the demographic profile of participants is essential for contextualising the expectations participants hold regarding non-surgical anti-ageing treatments (Syed & Juan, 2016). Demographic factors such as gender, age, and geographic location can influence treatment preferences, perceived needs, and access to beauty salons and medical aesthetic practices (Furler, Magin, Pirotta & Van Driel, 2012). Offering a clear description of the study population enables researchers to frame the findings within an appropriate context, thereby enhancing the credibility and relevance of the research (Capili, 2021).

The participant group in this study consisted predominantly of female clients, a trend that aligns with international research indicating that women continue to represent most clients seeking non-surgical anti-ageing treatments (Triana, Palacios Huatuco & Campilgio, 2024; ASPS, 2023).



Female clients are often more inclined to pursue non-surgical intervention that address phenotypical signs of skin ageing (Zouboulis et al., 2019).

While this trend is well established in global studies, limited research has explored gender-based participation within the South African context. Localised studies, such as Hirschfeld (2019), confirm the predominance of female clients in the South African market. Describing gender patterns is therefore important for contextualising findings and ensuring their relevance to the broader population (Ogbechie-Godec & Elbuluk, 2020; Hirschfeld, 2019).

The age distribution of participants also aligned with global trends, with the majority being midlife adults. The largest group of participants were between 35 and 44 years of age, followed by those aged 45 to 54. A considerable proportion also fell within the 55 to 64 age group, underscoring the sustained interest in non-surgical anti-ageing treatments beyond midlife.

The findings are consistent with expectations outlined in the study design, which anticipated greater engagement from midlife adults, as this life stage is typically associated with the visible onset of ageing concerns such as fine lines, wrinkles, and pigmentation (Zouboulis *et al.*, 2019; Honigman & Castle, 2006). International data further supports this pattern, with the ASDS (2023) reporting that individuals in their forties and fifties are most likely to pursue non-surgical anti-ageing treatments (ASDS, 2023). Participation from younger adults, particularly in their twenties and early thirties, was more limited, although global research indicates a growing interest in preventative or “prejuvenation” treatments among this age group (Haykal, Nahai & Cartier, 2023).

The geographic distribution revealed a strong concentration of participants residing in the Free State, with limited representation from the Northern Cape. According to Statistics South Africa (2023), the Free State has a higher population density compared to the Northern Cape, which is the least populated province. Moreover, access to professionals and clients in the Free State was more feasible during data collection, which likely contributed to the higher number of participants from this province.



Additionally, factors such as the availability of treatment providers, population density, and the presence of professional networks in the region may have influenced participation (Kopczewska, Kubara & Kopyt, 2024).

Furthermore, participants reported receiving their non-surgical anti-ageing treatments in treatment rooms shared by medical practitioners and beauty professionals. This setting, often located within medical aesthetics practices, appears to offer clients a balance of clinical credibility and aesthetic expertise (Fabi, Alexia, Chatrah, Colucci, Herber, Heydenrych, Jagdeo, Dayan, Swift, Chantry, Stevens & Sangha, 2022). Recent reports in Professional Beauty South Africa (2024) highlight a growing industry trend in which beauty professionals are increasingly collaborating with medical practitioners to deliver treatments that meet both safety and performance expectations. Hemsworth, Hemsworth, and Richmond (2024) further support this preference, indicating that clients are more likely to favour non-surgical anti-ageing treatments when these are conducted in medically supervised environments.

5.4.2 Expectations

Expectations are defined as the anticipated outcomes, perceived benefits, and assumptions clients hold about various treatments (Oliver, 1980). A thorough understanding of these expectations provides essential insight for aesthetic professionals, as it supports effective client consultations, realistic goal setting, and improved satisfaction with treatment outcomes (ASDS, 2021).

The themes discussed in this section correspond to the constructs and questions included in the data collection tool, offering a structured analysis of participants' expectations. Each theme is critically examined with reference to the findings of the current study and is supported by both international and South African literature to provide a balanced interpretation and highlight key considerations for aesthetic professionals. The discussion of findings begins with an exploration of clients' demographic profile regarding non-surgical anti-ageing treatments.



5.4.3 Treatment history of participants

Establishing context participants provided background information about the history of non-surgical anti-ageing treatments they had previously received. The most frequently reported treatments were chemical peels and microneedling. Microneedling and chemical peels appear to be increasingly in demand, reflecting a growing preference for treatments that produce visible yet natural-looking results (Klassen, Cano, Mansouri, Poulsen, Rae, Kaur, Dayan, Tsangaris, Amstrong, Klok, Santosa & Pusic, 2024).

This study findings are consistent with literature indicating that chemical peels and microneedling are widely used to enhance skin texture and reduce visible signs of ageing (Spataro et al., 2023; Singh & Yadav, 2016). Similarly, studies have highlighted that chemical peels are often introduced early in non-surgical anti-ageing treatment plans because of their affordability and availability in beauty therapy settings, making them an accessible option for a broad client base (Monheit & Chastain, 2001; Berson, Cohen & Rendon, 2009). Microneedling has also gained increased recognition for its effectiveness in stimulating collagen production and addressing concerns such as fine lines, uneven skin tone, and textural irregularities, which supports its growing popularity among consumers (Fernandes, 2005; Spataro et al., 2023; Jaiswal & Jawade, 2024a; Jaiswal & Jawade, 2024b). In contrast, fewer participants in the current study reported having received injectables such as dermal fillers or muscle relaxants. This may be due to regulatory frameworks in South Africa, where such procedures can only be administered by qualified medical practitioners in accordance with legal guidelines (HPCSA, 2023).

Although international research has noted increasing global demand for cosmetic injectables (Liao, Zhu, Xiao, Zhu, Liu & Xiao, 2024), the lower uptake observed in this study could also reflect local concerns regarding treatment cost, invasiveness, and potential long-term outcomes. This interpretation aligns with local media forecasts: a recent News24 report (2024) projected a 14% annual growth in South Africa's non-surgical anti-ageing market through 2026, driven largely by demand for affordable and non-invasive treatments that can be accessed through beauty therapy settings.



5.4.4 Expected best treatment

Participants identified microneedling as the best non-surgical anti-ageing treatment. The high expectation placed on microneedling may be attributed to its strong presence on consumer facing platforms such as Skin Renewal (Skin Renewal, 2024; Joshi, Korrapatei, Reji, Hasan & Kurudamannil, 2022). Furthermore, the public narratives are supported by academic literature, which confirms that microneedling stimulates neo-collagenases (the formation of new collagen) and improves skin texture when performed correctly (Jaiswal & Jawade, 2024a).

In contrast, a notable number of participants did not identify a specific treatment as the best treatment. This absence of a clear selection may reflect the widespread influence of promotional or inconsistent information within the public domain (Prabhu, Khetpal, Jain & Vardanian, 2025). Research shows that beauty-related content on social media and lifestyle platforms often combines advertising with personal opinion, making it difficult for clients to evaluate treatment claims objectively (Thompson & Schaefer, 2019; Swami et al., 2009a).

Local platforms such as Glamour South Africa, Cosmetify, and Beauty South Africa frequently present overlapping messages about rejuvenation, radiance, and tightening across multiple treatment types, which may lead to blurred or inflated expectations (Glamour South Africa, 2023; Cosmetify, 2024; Professional Beauty South Africa, 2024). This finding suggests a need for more structured, evidence-based client education within beauty salons and medical aesthetics practices.

5.4.5 Treatment effectiveness rankings

Expectations regarding non-surgical anti-ageing treatments varied noticeably across the five treatment types included in the ranking activity. Consistent with the previous section, microneedling was again expected by participants to be the most effective treatment, reinforcing the strong expectations participants held for this specific non-surgical anti-ageing treatment.



This finding aligns with broader international trends, where microneedling is increasingly favoured for its versatility, minimal invasiveness, and ability to address multiple skin concerns with relatively low risk (Dermapen, 2023 Tehrani, Tashjian & Mayrovitz, 2025; ASDS, 2023; Cleveland Clinic, 2024).

A particularly significant finding was the division in expectations surrounding Botox. While some participants expected it to be the most effective treatment, others ranked it lowest (Mayo Clinic, 2023; Camargo, Xia, Costa, Gemperli, Tatini, Bulsara & Riera, 2021). This disparity in expectations may reflect a broader tension between Botox's well-established clinical outcomes and the expectations shaped by public messaging. On official platforms such as Botox.com, the treatment is presented as a safe, medically approved solution for softening expression lines and achieving natural-looking results when performed by qualified professionals (Botox, 2024; Dayan, 2024; Joshi et al., 2022; Carruthers & Carruthers, 2003). In contrast, expectations may also be influenced by magazine articles, beauty blogs, and personal accounts that highlight undesirable outcomes, including overdone results or loss of facial movement. Articles published on platforms such as Healthline and Allure often detail user regrets or fears around injectables, potentially contributing to cautious or negative expectations among clients (Allure, 2024; Joshi et al., 2022). The conflicting sources of information may explain the split in expectations seen in this study, where some participants expressed confidence in Botox, while others were more hesitant about its effectiveness.

However, the lower expectations surrounding dermal fillers and IPL/laser stand in contrast to international usage statistics, where such treatments remain widely popular (ASPS, 2023). This discrepancy in expectations may suggest that clients are more likely to trust treatments that are seen as approachable and integrated into everyday beauty salons and medical aesthetics practices (McDonald & Heydenrych, 2022).

Non-surgical anti-ageing treatments such as microneedling and chemical peels are often available in familiar beauty salons and medical aesthetics practices and are associated with gradual, natural-looking improvements. (Samargandy & Raggio, 2025; Ablon, 2018).



As a result, they may be perceived as safer and more controllable, leading to higher expectations of success. In contrast, injectables such as Botox and dermal fillers may be viewed as more clinical or invasive, contributing to lower expectations of effectiveness. This may be reinforced by limited exposure to medical aesthetic services and the influence of local media narratives that emphasise negative or exaggerated outcomes when such treatments are misused (Healthline, 2023; Allure, 2022; Cutis Laser Clinics, 2021).

5.4.6 Participants' reason for ranking

Participants' responses show that treatment expectations are shaped by a blend of clinical efficacy and practical, experiential factors (Basedow, Fischer, Benson, Bingel, Brassens, Büchel, Engler, Mueller, Schedlowski & Rief, 2023; Octaviani, Octaviani & Sunaryo, 2023). Although effectiveness remained the most frequently cited reason for selecting a non-surgical anti-ageing treatment, it was rarely the sole consideration. Participants commonly paired efficacy with cost, comfort, and convenience, echoing recent findings that modern clients appraise treatments holistically rather than in isolation (American Academy of Facial Plastic and Reconstructive Surgery, 2024).

The emphasis on pain-free procedures with minimal downtime aligns with recent research on patient motivations. An analysis of cosmetic consultation records found that the desire to avoid disruptions to daily routine was one of the strongest predictors of interest in non-surgical anti - ageing treatments (Corduff, 2023).

The global “tweakment” trend, as identified in Vogue Business’s 2025 Future of Appearance survey, reflects a growing preference for subtle, progressive enhancements rather than rapid, dramatic change (Vogue Business, 2025). Increased engagement with image-centred social media platforms has also been linked to greater interest in non-surgical anti-ageing treatments, particularly those that deliver natural, “selfie-ready” results (Rajanala et al., 2024).

5.4.7 Expected outcomes

Many participants in this study expected treatment outcomes that were both noticeable and significant, reflecting a strongly outcome-oriented mindset among clients. This finding reinforces the growing relevance of non-surgical anti-ageing treatments in the local context, where individuals actively pursue visible results that enhance skin quality and appearance. Similar trends have been reported internationally, where clients often seek measurable improvements through non-surgical anti-ageing treatment (Li et al., 2022). Remarkably, while participants desired visible improvements, most also preferred subtle enhancements rather than dramatic changes - reflecting the international preference for natural-looking results that has been reported in both clinical research and consumer discourse (Dermatology Times, 2024; Haykal et al., 2023). This aligns with the global trend towards “tweakments”, minimally non-surgical anti-ageing treatments that maintain natural features while gently refining appearance (Dermatology Times, 2024; Haykal et al., 2023a).

Although most participants expected visible improvements, only a small number anticipated long-lasting outcomes. This suggests a desire for durability and value, even while recognising the inherently temporary nature of non-surgical anti-ageing interventions (Li et al., 2022). Some participants expected completely painless procedures or raised concerns about ethics, underscoring the need for open and transparent consultations. Ethical practice entailing accurate information, realistic expectations, and fully informed consent is critical in managing client hopes and fears (Margara, Arrigoni, Bartoletti, Cavalieri, Fraone, Mariotti, Tamburlin, Tanzini, Trocchi & Spagnolo, 2025).

Importantly, while much of the literature originates from global sources, findings from this study demonstrate that South African clients also prioritise, and trust in practitioners, and financial accessibility (Harris, Goudge, Ataguba, McIntyre, Nxumalo, Jikwana & Chersich, 2011).



Lastly, the influence of consumer facing platforms should not be underestimated. Publications such as A2 Aesthetic and Anti-Ageing Magazine and Skin Renewal frequently shape public understanding through seasonal advice, product comparisons, and client experiences. As such, participants' expectations in this study centred on visibility, subtlety, and lasting results, highlighting the critical role of personalised, evidence-based consultations in delivering ethical and client-centred care.

5.4.8 Expectations on longevity

The outcome from this study highlights the varied expectations participants hold regarding the longevity of non-surgical anti-ageing treatments. Expectations around Botox reflected general accuracy, with most participants indicating a treatment effect lasting between three and six months. This parallels with international clinical guidelines, which report that botulinum toxin typically remains effective for three to four months (Carruthers & Carruthers, 2001).

Similarly, expectations that dermal fillers would remain effective for approximately one year is consistent with published findings showing that hyaluronic acid-based fillers may last between six and eighteen months depending on the product type and treatment area (Sundaram & Cassuto, 2013). Participants' expectations suggest that injectable treatments were generally realistic and well aligned with global best practice (Carruthers, Carruthers & Monheit, 2013; Sundaram & Cassuto, 2013). In contrast, expectations related to microneedling and IPL/laser treatments were more variable. While some participants expected results lasting three to six months, others anticipated indefinite effects.

Although both treatment types are supported by evidence showing improvements in skin tone, texture, and pigmentation, they are not permanent and typically require multiple sessions and ongoing maintenance to sustain visible improvements (El-Domyati Medhat, Abdel-Wahab, Moftah, Nasif & Hosam, 2018).



Expectations around chemical peels were more realistic. Most participants believed the effects would last between one and three months, which aligns with clinical evidence confirming that superficial peels provide short-term improvements and must be repeated regularly for ongoing benefit (Sharad, 2013). The responses suggest that participants may have a better understanding of the temporary nature of chemical peels, possibly due to their wider availability and established use in dermatology (Soleymani, Lanoue & Rahman, 2018) and their frequent mention in consumer magazines and beauty platforms (MD Cosmetic Dermatology, 2025; Allure, 2024).

Lemena (2023) reported that South African clients often hope for longer-lasting results due to the financial investment required for private aesthetic services - particularly in areas where access is limited, and public-sector alternatives are unavailable. Geographic and economic constraints may reinforce the belief that treatments should offer more enduring outcomes, especially when clients must travel long distances or budget carefully for care.

Participants had accurate expectations for some non-surgical anti-ageing treatments, such as Botox and chemical peels, there are important misconceptions regarding the durability of results for treatments like microneedling and IPL. The findings emphasise the need for clear, practitioner-led education that addresses treatment longevity and supports realistic planning for repeat sessions.

5.4.9 Perceived appropriate starting age

A key expectation that emerged from the study relates to the age at which individuals should begin non-surgical anti-ageing treatments. A significant proportion of participants believed the ideal starting age to be around 30 years, followed by 35 and 40 years. This reflects a common belief that age-related changes become noticeable in the early thirties, prompting a perceived need for intervention (Croda Beauty, 2025a; Haykal et al., 2023a). Notably, a smaller group of participants indicated that treatment should begin as early as between the age of 20 to 25 years, likely reflecting the influence of global “prejuvenation” trends (Haykal et al., 2023a).



This preventative mindset encourages the use of non-surgical anti-ageing treatments by younger adults to maintain skin quality and delay visible signs of ageing (Croda Beauty, 2025a; Haykal et al., 2023a). Internationally, the industry has increasingly promoted early use of non-surgical anti-ageing treatments such as injectables, microneedling, and advanced skincare to clients in their twenties. These messages frame early treatment as a long-term investment in youthful skin rather than as a corrective measure (Croda Beauty, 2025a; Haykal et al., 2023a).

5.4.10 Treatment preferences by age group

The findings of this study demonstrate that treatment expectations varied across age groups. Among the youngest participants (18–24 years), microneedling emerged as the most frequently selected option. This preference reflects a broader trend in younger individuals seeking treatments that stimulate collagen production with minimal downtime and fewer perceived risks compared to injectables. Clinical studies confirm this pattern, noting microneedling's popularity among younger adults due to its effectiveness in improving skin texture and addressing early signs of ageing (Alster & Graham, 2018; El-Domyati et al., 2018).

In the 25–34 and 35–44 age categories, microneedling remained a leading choice, although participants in these groups also showed increased interest in chemical peels and injectables such as Botox. This aligns with international findings that adults in early to mid-adulthood often combine non-surgical interventions for both preventative and corrective purposes (Narurkar, Shamban, Sissins, Stonehouse & Gallagher, 2015).

The growing use of Botox within these age groups has been linked to “prejuvenation” strategies, particularly among millennials seeking to delay the onset of visible ageing signs (Wong, 2021b). Among participants aged 45 and above, uncertainty about preferred treatment types became more prevalent. A tendency to indicate uncertainty regarding treatment preferences was most observed among individuals aged 55 and older.



Therefore, uncertainty may reflect limited exposure to aesthetic information or concerns about safety and suitability of non-surgical treatments later in life. Previous research supports this interpretation, suggesting that older adults may require more detailed consultations to make informed decision (Izadi-Avanji, Alavi, Namnabati, Mohammadi & Khoshkesht, 2024; Cohen, 2023).

Some participants in the 65 and older age category selected an inclusive response, indicating openness to all treatment types listed in the questionnaire. This suggests a more exploratory or comprehensive approach to ageing management.

Although less frequently reported, one participant in the 75–85 age group selected laser or IPL treatment. While less common in this demographic, literature confirms that such therapies can be safe and effective when used with appropriate settings and caution (Kerscher, Volkenandt, Reuther, Bayrhammer, Reuther & Altmeyer, 2008)

5.4.11 Motivations for treatment

Participant responses in this study revealed that the primary motivation for seeking non-surgical anti-ageing treatments was the desire to improve overall skin quality and appearance. Rather than aiming for dramatic transformation, many participants expressed expectations for smoother, healthier-looking skin. Aligning with international literature indicating that aesthetic clients are increasingly driven by enhancement goals, focusing on subtle improvements that preserve natural features (Montemurro, Porcnik & Hedén, 2015; Swami et al., 2009).

Emotional well-being and improved self-image also emerged as key motivations among participants. Some believed that non-surgical anti-ageing treatments could reduce visible signs of tiredness, restore a more rested appearance, and improve confidence in both personal and professional settings. The patterns are consistent with Honigman, Phillips & Castle (2004), who found that non-surgical anti-ageing treatment are often pursued for their psychosocial benefits rather than purely physical changes.



Additionally, several participants expressed preventative motivations, expecting non-surgical anti-ageing treatments to delay the visible signs of ageing. This reflects the increasing popularity of “prejuvenation,” particularly among younger clients, who engage in early interventions to maintain long-term skin health (Haykal et al., 2023a).

Ellen (2024) also notes that many clients view these treatments as part of a holistic wellness routine, combining physical improvements with emotional upliftment. Overall, the study findings indicate that participants are motivated by a combination of physical, emotional, and preventative expectations when engaging with non-surgical anti-ageing treatments. These insights mirror broader global trends while underscoring the importance of culturally sensitive consultations. Aesthetic professionals must carefully explore and align treatment plans with individual client expectations to ensure satisfying outcomes.

5.4.12 Importance of natural-looking outcomes

The expectation for natural-looking results emerged as a prominent theme among participants. Most respondents expressed a clear preference for non-surgical anti-ageing treatments that subtly enhance appearance while preserving natural facial features. This preference supports international trends toward so-called “tweakments”, which aim to avoid exaggerated changes and maintain a natural-looking facial appearance (New York Post, 2025; Ellen, 2024;). The term “tweakments” has become widely used in Western media to describe subtle, non-surgical anti - ageing that offer visible yet natural-looking improvements (Ellen, 2024; New York Post, 2025).

Swami et al. (2009c) and Levy and Emer (2012) report that satisfaction is generally higher when treatment outcomes remain balanced and undetectable. Similarly, the American Society for Dermatologic Surgery (ASDS, 2023) notes that achieving natural-looking results is a key concern raised during consultations, reinforcing the importance of precision and clear communication (Levy and Emer 2012, and Swami, Furnham & Joshi, 2009, and ASDS, 2023).



Furthermore, Montemurro et al. (2015) added that many clients value authenticity in appearance, aiming to avoid the stigma of over-treated or artificial results (Montemurro et al., 2015).

In the local Free State and Northern Cape explored in this study, participants' expectations regarding non-surgical anti-ageing treatments emphasised the importance of achieving natural-looking outcomes. Most clients preferred subtle enhancements that preserve facial authenticity rather than dramatic or artificial changes. While international terminology such as "*tweakments*" is often used to describe this trend toward understated, the underlying preference is equally reflected in the local context. South African publications, including the ISAPS (2023) report and IOL (2025), indicate a growing interest in treatments that improve skin appearance without compromising individual identity. These expectations highlight the need for aesthetic professionals to consider cultural nuances, access to care, and the influence of social messaging when designing treatment plans that meet client goals while maintaining authenticity.

Chapter 6

Non-surgical anti-ageing treatments: Perceptions

6.1 Introduction

This chapter presents the findings related to participants' perceptions of non-surgical anti-ageing treatments. Perceptions are shaped by a range of factors, including individual beliefs, trust in professionals, social influences, and personal experiences (Pickens, 2005). Trust in aesthetic practitioners and the credibility of information sources significantly influence how clients evaluate non-surgical anti-ageing treatments (Papadopoulos, Shipman & Tewari, 2020). Social factors, including family and peer influence, also play a crucial role in the acceptability of these treatments (Haykal, et al., 2023b). The data collected via the questionnaire offers insight into how participants view the effectiveness and risks of non-surgical anti-ageing treatments, what they consider excessive, and how open these participants are to discussing their treatment choices with others. Participants may experience stigma or hesitation when disclosing their use of non-surgical anti-ageing treatments due to societal judgments and fear of criticism (Hurd Clarke, Repta & Griffin, 2007). Additional aspects explored include the level of trust placed in beauty and medical professionals, as well as the influence of external sources such as family and social media (Papadopoulos et al., 2020).

6.2 Perception themes

The Perception themes investigated how participants interpret various aspects of non-surgical anti-ageing treatments, particularly in relation to safety, effectiveness, and trust in professionals. The perception section further examines the emotional responses experienced after treatment, as well as participants' perceptions of value for money, accessibility, and ideal treatment frequency.

In addition, this section considers the influence of external factors such as social media, family, and broader societal expectations. Lastly, participants' comfort in disclosing their treatment choices and the extent to which they perceive stigma are also investigated. Understanding the perceptions assist to contextualise client decision-making and support ethical, informed and client-centred practices within beauty salons and medical aesthetics clinics in the Free State and Northern Cape. The themes are summarised in Table 6.1.

Table 6.1: Mapping of perceptions questionnaire items

Theme	Mapped questions	Questionnaire items
Trust in Professionals and Advisors	D2	Trust in a Professionals Advice
Perceived Effectiveness and Mood Impact	C1, C2,	Result Onset Time, Mood Impact
Perceived Risk and Safety Concerns	C3	Concerns about Side Effects
Professional Integrity and Ethical Confidence	D3	Medication Disclosure Practices
Treatment Value and Access	C4	Treatment Frequency Perceptions
Social and Media Influence	D1	Influencing Sources
Disclosure Comfort and Stigma	D1, D4	Perception on Treatment Outcomes, Perception of Disclosure
Barriers to Treatment	C7,C5	Understanding Treatment Boundaries, Factors Limiting Treatment

6.2.1 Trust in a professional's advice

A total of 68% of participants reported that they trust aesthetic professionals who perform non-surgical anti-ageing treatments, while 32% indicated a moderate level of trust. The distribution of responses is presented in Figure 6.1.

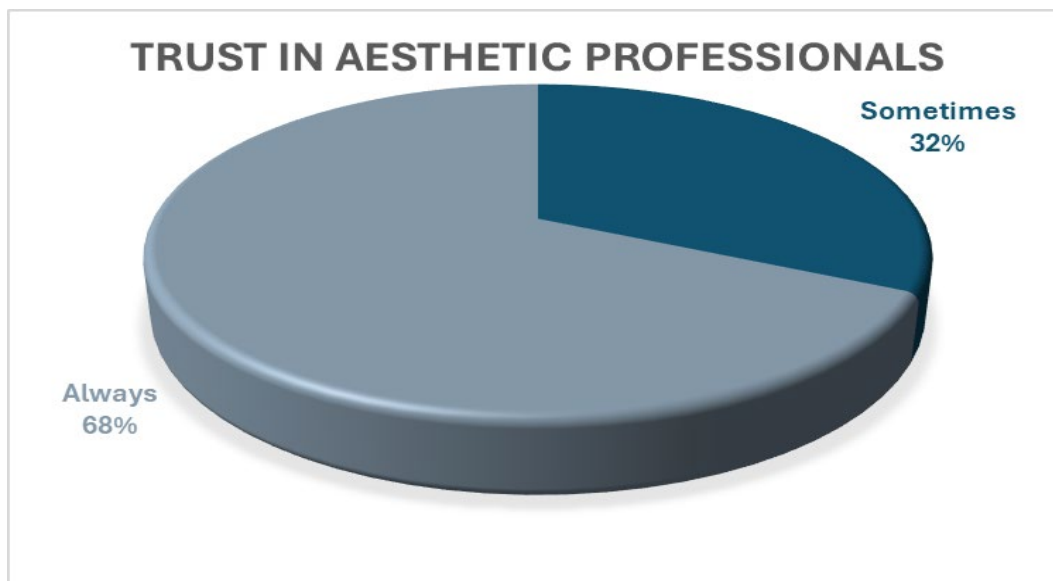


Figure 6.1: Trust in aesthetic professionals

6.2.2 Result onset time

Participants' perceptions of the rate at which results become visible differed across treatment types. Dermal fillers were mostly associated with immediate results by 31,2 % of participants. Similarly, Botox was typically linked to a 48-hour timeframe (24.0%), followed by 24 hours (21.4%) and immediate effects (15.6%). Contrastingly, microneedling was viewed as a slower treatment, with 30.5% selecting one week and 21.4% selecting two weeks. Similar to microneedling, chemical peels were also perceived as slower acting, with one week being the most common response (33.8%).

Perceptions of IPL and laser treatments were more varied, with one week (21.4%) and 48 hours (18.2%) being the most frequent selections. Table 6.2 provides a summary of responses.

Table 6.2: Perceived timeframes for treatment results

Treatment	Immediately (%)	24 H* (%)	48 H* (%)	One W** (%)	Two W** (%)	Longer (%)
Botox	15.6	21.4	24.0	18.2	16.2	4.5
Fillers	31.2	25.3	21.4	14.3	5.2	2.6
Chemical peel	11.0	20.1	18.8	33.8	12.3	3.9
Laser/IPL	11.7	16.9	18.2	21.4	16.9	14.9
Microneedling	8.4	16.9	16.9	30.5	21.4	5.8

* H=Hour. **W=Week/s

6.2.3 Mood impact perception

Participants had varying perceptions of how non-surgical anti-ageing treatments affected their mood. The highest number of participants (46.1%) reported feeling very happy and just happy (40.9%) after receiving non-surgical anti-ageing treatments. The lowest response indicated no change in mood, experienced by 13.0% of participants. The mood impact responses are presented in Figure 6.2.

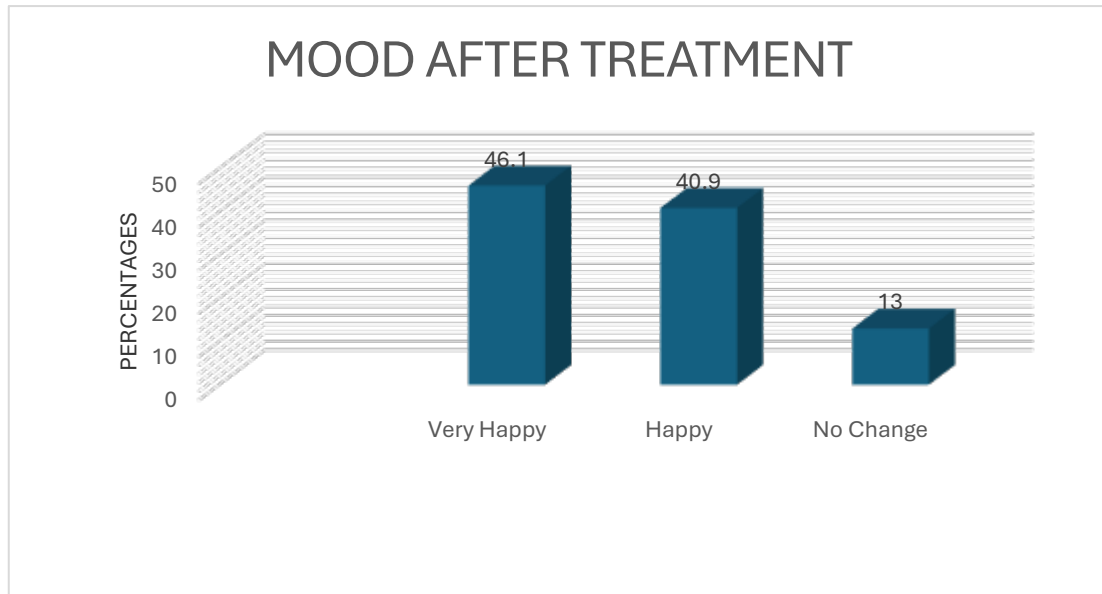


Figure 6.2: Mood after non-surgical anti-ageing treatments

6.2.4 Concerns about side effects

Participants had different perceptions regarding the possible dangers or adverse effects of non-surgical anti-ageing treatments. Only 9.3% of participants expressed extreme concern, and in contrast 16.6% of participants were not concerned about the dangers and adverse effects of non-surgical anti-ageing treatments. The most common response was moderate concern expressed by 31.8% of respondents, followed by slightly concerned (25.8%). All findings are illustrated in Figure 6.3.

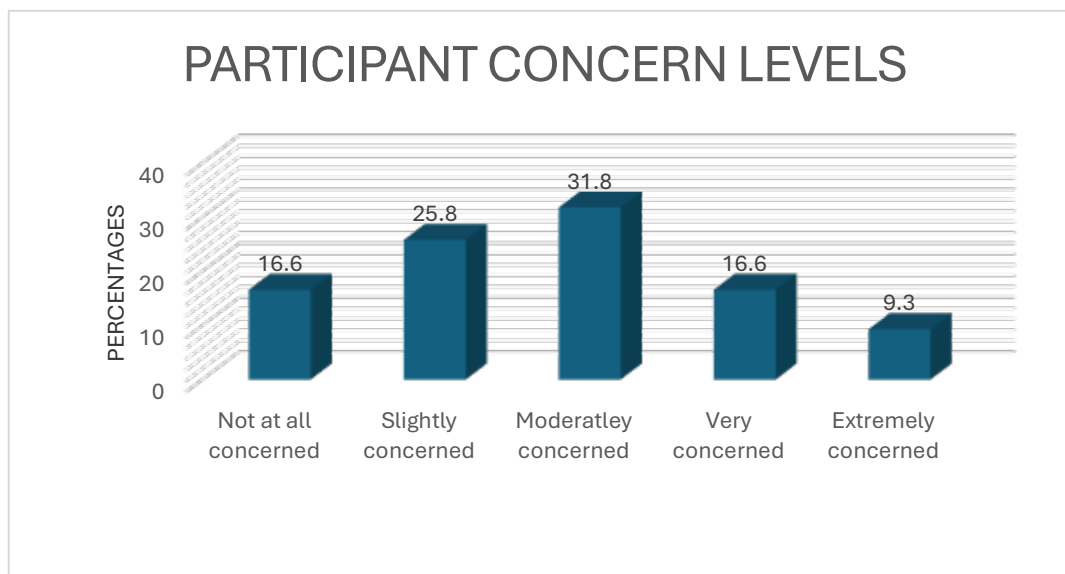


Figure 6.3: Levels of concern about treatment side effects

6.2.5 Medication disclosure practices

Participants had varied perceptions regarding the disclosure of current medicine intake to the aesthetic professionals, although they generally reported high levels of disclosure regarding their current medication use before receiving non-surgical anti-ageing treatments. The highest rate of disclosure was noted for Botox treatment, with 78.6% of participants indicating they will inform the aesthetic professionals, followed closely by chemical peels (77.9%) and microneedling (77.3%). IPL or laser treatments and dermal fillers both reflected the lowest but still relatively strong disclosure rates, at 72.7%. However, between 12.3% and 18.8% of respondents across all treatment groups expressed the belief that aesthetic practitioners do not need to be informed about the medications they are currently taking. The responses are captured in Table 6.3.

Table 6.3: Medication reporting prior to treatments

Treatment	Yes (%)	No (%)	Sometimes (%)	Rarely (%)
Botox	78.6	12.3	5.8	3.2
IPL/laser	72.7	18.2	4.5	4.5
Dermal fillers	72.7	18.8	3.9	4.5
Microneedling	77.3	14.9	3.9	3.9
Chemical peels	77.9	13.6	4.5	3.9

6.2.6 Treatment frequency

Participants demonstrated a clear preference for non-surgical anti-ageing treatments that are consistent yet moderately spaced. The most selected treatment frequency was bi-annually (every six months) at 29.9%, followed closely by monthly (28.6%) and every three months (25.3%). Only 11% of respondents preferred annual treatments. Notably, few participants selected more frequent options, with 2.6% choosing more than once a month and 1.3% weekly. These perceptions regarding treatment frequencies are presented in Figure 6.4.

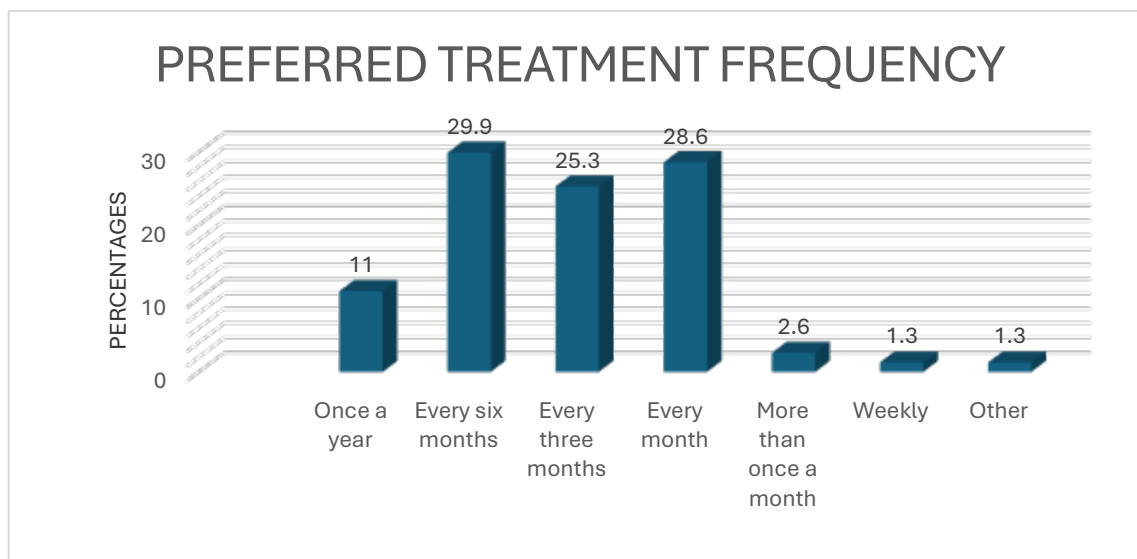


Figure 6.4: Treatment frequency perceptions

6.2.7 Participant sources of information

Participant's perceptions regarding non-surgical anti-aging treatments were influenced by different sources. Doctors (66.2%) and beauty experts (64.9%) were identified as the most influential sources shaping participants' perceptions of non-surgical anti-ageing treatments. In contrast, social sources such as family (20.8%), friends (21.4%), and social media (16.9%) were reported as influencing sources though less frequently. The distribution of responses is presented in Table 6.4.

Table 6.4: Influencing factors on participants' perceptions of anti-ageing treatments

Influencing Factor	Yes (%)	No (%)	Sometimes (%)	Rarely (%)
Doctor	66.2	13.6	16.2	3.9
Beauty expert	64.9	11.7	20.1	3.2
Before/after photos	51.9	20.8	20.8	6.5
Online reviews	37.7	26.6	27.3	8.4

Influencing Factor	Yes (%)	No (%)	Sometimes (%)	Rarely (%)
Pamphlet/brochure	31.8%	26.0	35.7	6.5
Friends	21.4	42.9	28.6	7.1
Family	20.8	45.5	29.2	4.5
Social media	16.9	41.6	33.1	8.4
Society	14.9	55.8	16.9	12.3
Celebrity	10.4	58.4	16.2	14.9

6.2.8 Perception of treatment outcomes

The respondents had varying perceptions regarding the outcomes of non-surgical anti-ageing treatments. The most common perception among participants (42.9%) was that non-surgical anti-ageing treatments should look natural. A further 21.4% viewed these treatments as part of a broader skincare and wellness routine, while 17.5% believed they help maintain a youthful appearance. Less common responses included improved self-confidence and views linking treatments to exclusivity or risk. An overview of the range of perceptions is presented in Table 6.5.

Table 6.5: Participants' perceptions of the nature and purpose of anti-ageing treatments

Perception Statement	Percentage (%)
Results should appear natural and not overdone	42.9
Being valuable part of a broader skincare and wellness routine	21.4
Effective way to maintain a youthful appearance	17.5
Boosting self-esteem and confidence	13.0
Accessible only to the wealthy	3.0
Risky to the client	0.6
Undergoing treatment is an empowering experience	0.6

6.2.9 Perceptions of disclosure

Most of the respondents had the perception that there should be disclosure about their non-surgical antiaging treatments. Disclosure of treatment was reported by 83.1% of participants. Moreover, 11.0% of participants indicated that they regarded their treatment a private matter, while 5.8% chose not to disclose it to maintain the perception of a natural appearance. The findings are presented in Figure 6.5.

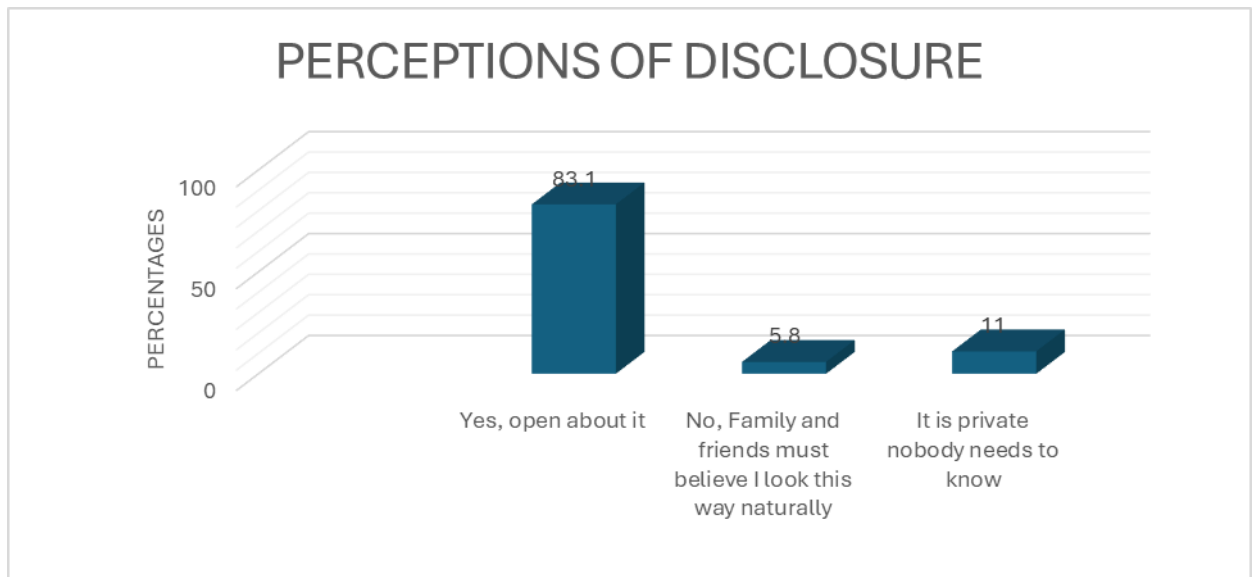


Figure 6.5: Perceptions regarding the disclosure of non-surgical anti-ageing treatments

6.2.10 Understanding treatment boundaries

Various trends emerged from participant responses concerning what was perceived as a non-surgical anti-ageing treatments outcomes. The majority (53.9%) of participants indicated that visible changes to one's natural appearance crossed the threshold. A further 33.8% identified potential health risks as a point of excess. Notably, only 9.7% regarded high treatment costs as a concern. The findings are illustrated in Figure 6.6.

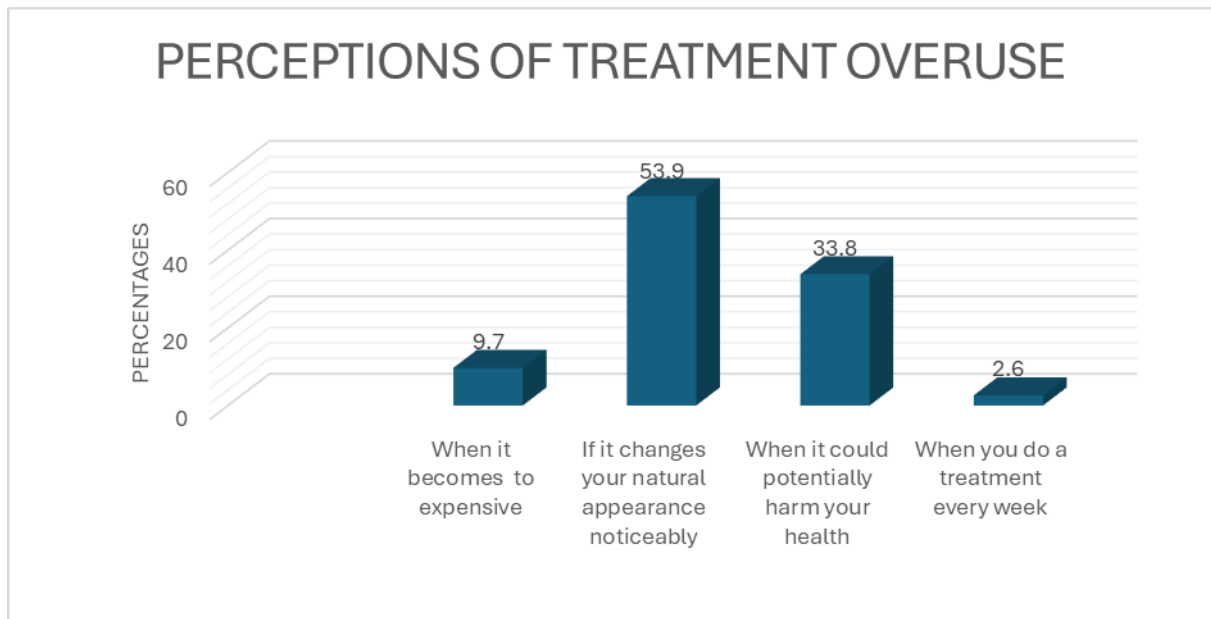


Figure 6.6: Perceptions of treatment overuse

6.2.11 Factors limiting treatment

Respondents identified various factors perceived as limiting access to non-surgical anti-ageing treatments. Financial cost and safety concerns were the most frequently reported barriers. Therefore, cost emerged as the primary barrier, accounting for 38.2% of all responses. Additionally, 11.6% of respondents indicated that multiple concerns influenced their access. A summary of the responses is presented in Figure 6.7.

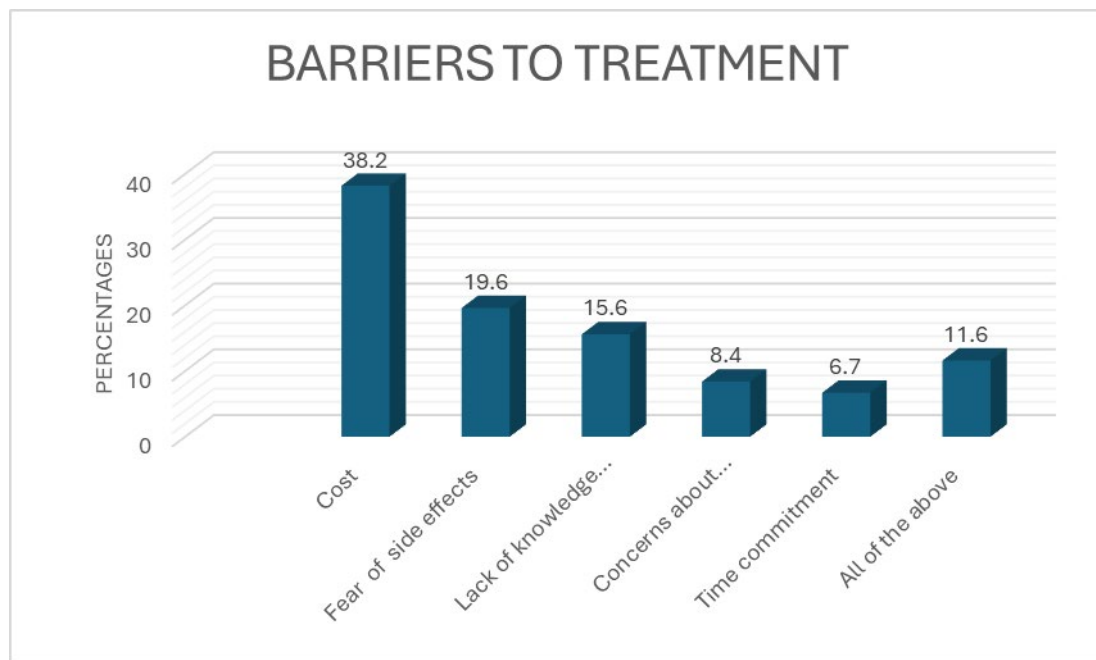


Figure 6.7: Factors preventing use of non-surgical anti-ageing treatments

6.3 Discussion

6.3.1 Perceptions

Perception refers to the way individuals interpret and make sense of information based on both external influences and internal cognitive factors such as prior experiences, beliefs, and expectations (Goldstein, 2013). Within the context of non-surgical anti-ageing treatments, perceptions influence how clients evaluate treatment safety, effectiveness, value, and the credibility of aesthetic professionals (APA, 2025; Harth & Hermes, 2007).

The findings presented in this chapter highlight the complex and multifaceted nature of client perceptions in the context of non-surgical anti-ageing treatments. Participants' responses were structured according to several key themes: Trust in Aesthetic Professionals and Advisors; Perceived Effectiveness and Emotional Impact; Safety Concerns and Professional Ethics; Perceptions of Value and Accessibility; Social and Media Influence; Comfort with Disclosure; and Perceived Barriers to Treatment.

Each of these themes provides valuable insight into how clients make aesthetic decisions and engage with non-surgical interventions in everyday life. Therefore, these themes not only reflect client attitudes but also inform practitioner approaches to consultation and treatment planning.

6.3.2 Trust in a professional`s advice

A strong perception of trust in aesthetic professionals emerged across the participant group. This consistently positive pattern reinforces the credibility of aesthetic professionals operating within beauty salons and medical aesthetics practices. International literature likewise underscores the pivotal role of trust in fostering client engagement with non-surgical anti-ageing treatments. McDonald and Heydenrych (2022) assert that confidence in aesthetic professionals enhances both treatment uptake and client satisfaction, particularly when ethical conduct, transparency, and clinical competence are demonstrated. Globally, there is a growing emphasis on open communication, safety, and competence within both beauty salons and medical aesthetics practices (da Prato, Cartier, Margara, Molina, Tateo, Grimolizzi & Spagnolo, 2024).

However, although South African literature has explored trust within broader healthcare contexts (Gilson, Palmer & Schneider, 2005) limited academic work addresses trust specifically in the context of aesthetic professionals delivering non-surgical anti-ageing treatments. The current study therefore contributes meaningfully to local knowledge, particularly in regions where aesthetic professionals form part of the growing non-surgical anti-ageing treatments. Furthermore, client-facing content platforms, such as the Aesthetic & Anti-Ageing Medicine Society of South Africa and the Aesthetic Appointment Journal, play a visible role in shaping perceptions by promoting qualified providers and advocating for safe, ethical practice (AAMSSA,2024). Together, the perceptions reinforce the value of aesthetic professionals – client relationships in supporting safe, client-centred care within the context of non-surgical anti-ageing treatments.

6.3.3 Result onset time

Participants' perceptions of how quickly results appear varied depending on the type of non-surgical anti-ageing treatment. For dermal fillers, most clients expected immediate results, which aligns with clinical evidence showing that fillers typically provide instant volumising and contouring effects at the time of injection (American Society of Plastic Surgeons, 2023). By contrast, perceptions of Botox showed some variation, with many participants expecting results within 48 hours. Clinically, Botox usually begins to take effect between 2 to 5 days, with full results visible in 7 to 14 days (Carruthers & Carruthers, 2003). Although the perceptions largely align with the real timeframe, some participants expected quicker results than are typically possible, which could lead to dissatisfaction if expectations are not managed.

Perceptions of microneedling and chemical peels reflected some misunderstanding. Most participants believed that results appear within one week, which may oversimplify the true timeline. In clinical practice, the treatments require a longer period to stimulate collagen or complete skin renewal (Singh & Yadav, 2016). Visible improvement from microneedling often becomes noticeable after two weeks or more, as the skin regenerates and collagen build gradually ((Singh & Yadav, 2016).

Chemical peels vary depending on depth, but even superficial peels usually require five to ten days of recovery and cell turnover before visible improvement is noted (O'Connor, Lowe, Shumack & Lim, 2018). The shorter expectations noted among participants highlight a need for clearer pre-treatment communication. (Brackenbury, 2018).

Aimed at IPL and laser treatments, participant responses ranged from two days to one week. This diversity may reflect the wide variety of devices and skin conditions treated with light-based therapies (Garg, Vashisht, Garg, Oberoi & Sharma, 2024). Although some superficial laser treatments can produce rapid results, others, particularly those targeting pigmentation or collagen, may require multiple sessions with cumulative effects over several weeks (Gold, 2007; Tierney, Hanke, Petersen & Bartley, 2012).

The inconsistency in perceptions suggests that clients may not always understand the specific device or treatment plan being used (Clementi, Cannarozzo, Amato, Zappia, Bennardo, Michelini, Morini, Sannino, Longo & Nistico, 2024). This highlights the need for practitioners to manage expectations and perceptions through pre-treatment education.

6.3.4 Treatment mood impact

The positive mood responses reported by participants in this study align with international findings on the psychological impact of non-surgical anti-ageing treatments. Nearly half of the participants indicated that they felt very happy and just happy after receiving a non-surgical anti-ageing treatment. International studies support this trend. Hoffman and Fabi (2022) found that non-surgical anti-ageing treatments significantly enhanced psychosocial well-being. Clients in their study reported increased self-confidence, reduced social anxiety, and a greater sense of emotional stability following treatment. Similarly, Hemsworth, Hemsworth, and Richmond (2024) observed significant improvements in quality of life and psychosocial functioning after aesthetic interventions, while McKeown (2021) noted that women who underwent non-surgical anti-ageing treatments experienced greater self-esteem and reduced anxiety during social interactions. Although academic research in South Africa on this specific topic remains limited, local professional bodies have recognised the psychological benefits of aesthetic treatments.

The Aesthetic and Anti-Ageing Medicine Society of South Africa (AAMSSA, 2024b) highlights that non-surgical anti-ageing treatments may enhance confidence, self-esteem, and mental well-being, especially when delivered by qualified practitioners. In addition, Psychology Today South Africa reported that Botox treatments were associated with significantly lower levels of anxiety, supporting the view that non-surgical anti-ageing treatments may have beneficial emotional outcomes, even when not medically necessary (Psychology Today, 2022).

The predominance of female participants in the current study may partially explain the strong mood-related responses observed. Previous research has shown that women are more likely to report emotional benefits from aesthetic treatments, including enhanced self-perception and improved confidence in social settings (Ashley, 2024). The results of the current study suggest that the value of non-surgical anti-ageing treatments lies not only in visible aesthetic improvements but also in their potential to enhance emotional wellness. This finding contributes to the growing body of international and emerging local evidence highlighting the psychological and emotional relevance of non-surgical anti-ageing treatment.

6.3.5 Concerns about side effects

Overall, the results suggest that participants held relatively low to moderate levels of concern, with few expressing strong apprehension. This indicates that many individuals may prioritise the perceived benefits of achieving a youthful appearance over potential risks, particularly when procedures are minimally invasive and widely regarded as safe (Ramirez et al., 2021). Furthermore, the mindset appears to apply not only to injectables but also to treatments such as chemical peels, laser resurfacing, and microdermabrasion, which are often viewed as surface-level interventions with manageable risk (Clarke, Repta & Griffin, 2007).

This perception is supported by international research showing that aesthetic clients often value outcome satisfaction and convenience, even when mild side effects occur. Samizadeh and De Boulle (2023) noted that most adverse effects from injectables are temporary and tend to be less concerning when treatments are performed by qualified professionals. Similarly, Funt and Pavicic (2013) reported that patients are generally willing to tolerate side effects such as bruising or redness if the expected aesthetic results are achieved.

In South Africa, the increasing demand for aesthetic treatments such as botulinum toxin and dermal fillers, particularly in urban areas, reflects a growing perception of safety and trust in providers.

De Lange (2025) observed that clients in Cape Town continue to pursue non-surgical anti-ageing treatments with confidence when procedures are administered by trained practitioners. This supports the idea that decisions are shaped more by trust, aesthetic goals, and perceived benefits rather than by fear of complications (Ramirez et al., 2021).

The findings of this study reinforce the notion that clients' choices are not solely based on medical risk assessment. Social expectations, internalised beauty norms, and emotional motivations play a significant role (Triana et al., 2024). Previous studies have shown that individuals may undergo repeated procedures despite known side effects, motivated by a desire to maintain relevance, boost confidence, or meet perceived beauty standards (Clarke & Griffin, 2007). According to (Sobanko, Taglienti, Wilson, Sarwer & Percec, 2018) many clients willingly accept discomfort, downtime, or financial cost to achieve visible anti-ageing results and sustain self-confidence.

6.3.6 Medication disclosure practices

Participants generally reported high levels of disclosure regarding their current medication use prior to receiving non-surgical anti-ageing treatments (72- 78%). Disclosure was most evident for botulinum toxin, chemical peels, and microneedling, with slightly lower yet still strong disclosure reported for IPL or laser and dermal fillers. These findings suggest a positive perception among clients about the importance of sharing relevant medical information, which remains critical to ensuring safe treatment outcomes.

This pattern aligns with international safety protocols, which emphasise that full disclosure of medications - particularly anticoagulants, corticosteroids, retinoids, and immunosuppressants - is essential in preventing adverse reactions such as bruising, delayed healing, or hypersensitivity (Funt & Pavicic, 2013; De Boulle & Heydenrych, 2015).

Despite this encouraging trend, a notable proportion of participants (12.3 -18.8%) across the different treatment procedures indicated that they do not disclose their medication use. Levy, Scherer, Zikmund-Fisher, Larkin, Barnes & Fagerlin (2018) reported that clients often withhold medical information due to misunderstanding its relevance, feelings of embarrassment, or assumptions that the practitioner will not need such details. Even when unintentional, non-disclosure may compromise client safety, particularly when receiving injectables or energy-based treatments that can interact adversely with certain medications (Carruthers, Fagien, Joseph, Humphrey, Biesman, Sundaram, Rzany, Flynn, Maas, Monheit, Kane, Owsley & Carruthers, 2013; Gold, 2007).

Hirschfeld (2019) highlights the importance of the consultation experience itself. Clients who perceive their aesthetic professional as trustworthy, competent, and thorough are more likely to be transparent about their health status. These findings reinforce the need for structured consultation protocols (including standardised disclosure forms) and client education (Hirschfeld, 2019). High-risk procedures such as dermal fillers or IPL treatments may benefit from mandatory disclosure forms and clearer communication to reduce the risk of complications linked to undisclosed medication use (Samizadeh & De Boule, 2023).

6.3.7 Treatment frequency

Participants showed a clear preference for consistent but moderately spaced non-surgical anti-ageing treatments. The most frequently selected option was every six months, followed closely by monthly and every three months intervals. Annual treatments were less commonly preferred, and very few participants indicated a preference for more frequent sessions such as weekly or multiple times per month. Internationally, similar patterns have been noted: patients often prefer treatments that offer noticeable results without requiring overly frequent visits (Fabi & Sundaram, 2014; American Society for Dermatologic Surgery, 2023).

The findings reinforce the growing appeal of non-surgical anti-ageing treatments that offer longer-lasting effects and minimal downtime - features commonly associated with dermal fillers, microneedling, and light-based therapies. In the South African context, this may also reflect economic constraints and lifestyle considerations, where moderate treatment intervals are more manageable and financially sustainable (De Lange, 2025). Understanding frequency preferences can assist professionals in designing sustainable treatment plans.

6.3.8 Participant sources of information

The current study revealed a strong preference for professional guidance when making decisions about non-surgical anti-ageing treatments. The most frequently selected sources of influence were medical practitioners and beauty professionals far ahead of social sources such as friends, family and social media. This result stands in contrast to international literature, which often highlights the growing influence of digital platforms and celebrity culture in aesthetic decision-making, particularly among younger users (Cohen et al., 2022; Dhir, Talwar, Karu & Budhiraja, 2021; Swami, Taylor & Carvalhoo, 2009d).

Unlike global trends where social media plays a dominant role, participants in this study relied more on professional advice (Boen & Jerdan, 2022; Joshi et al., 2022). The low influence of social media and celebrity endorsements in this study suggests that participants - especially in Free State and Northern Cape - may rely more heavily on trusted in-person relationships with professionals than on online messaging.

This finding aligns with local research by Dollie (2023), who highlights the role of ethical practice and client education in fostering trust. Similarly, AAMSSA (2024a) observed that patients in South African aesthetic clinics often prioritise direct communication, professionalism, and practitioner reputation over marketing claims or influence appeal.

6.3.9 Perception of treatment outcomes

The findings reveal that most participants associate non-surgical anti-ageing treatments with achieving a natural appearance. This preference suggests that individuals are not seeking dramatic transformations but rather subtle enhancements that maintain their facial identity. Such a perspective aligns with contemporary aesthetic trends that emphasise proportion, balance, and authenticity - sometimes referred to as the “tweakment” movement (Levy & Emer, 2012; Swami et al., 2009). Marketing strategies should reflect this preference for natural outcomes to align with client expectations.

Treatments are increasingly seen not as corrective measures, but as part of an ongoing skincare and wellness strategy, where prevention and self-maintenance are prioritised over visible alteration (Goldie, Peeters, Alghoul, Avram, Benedetto, Cohen & Van Loghem, 2019). Participants also viewed these procedures as tools to preserve a youthful appearance, reflecting a broader societal focus on longevity and vitality. However, a smaller proportion of participants linked these treatments to exclusivity or safety risk, suggesting that while public acceptance is increasing, some individuals still perceive barriers related to accessibility, affordability, or safety.

This dual perception echoes the findings of Clarke and Korotchenko (2011), who observed that aesthetic enhancement is often situated between self-care and social scrutiny. The results from this study affirm that perceptions toward non-surgical anti-ageing treatments are evolving and nuanced, shaped by both personal goals and cultural narratives.

6.3.10 Perceptions of disclosure

The current study found that a large proportion of participants were open about discussing their non-surgical anti-ageing treatments with family and friends. This openness may reflect a combination of increased public acceptance, cultural influences, and a growing familiarity with aesthetic procedures.

Goldstein (2013) explained that perception is shaped by prior experiences and cognitive frameworks, suggesting that participants who view these treatments positively are more likely to share their experiences openly. Furthermore, participants' perceptions may have been influenced by trusted professionals, as previous research indicates that views on safety and effectiveness improve when clients receive accurate information from qualified practitioners (Harth, 2017; Kaminer, 2008a).

6.3.11 Understanding treatment boundaries

Participants' responses revealed nuanced views on what constitutes excess in non-surgical anti-ageing treatments. Most participants believed that treatments become excessive when they visibly alter a person's natural appearance. Therefore, the finding reflects a broader preference for subtle, natural-looking outcomes, which aligns with current aesthetic trends favouring "tweakments" over transformation (Levy & Emer, 2012).

6.3.12 Factors limiting treatment

A smaller proportion of participants regarded potential health risks as the main boundary of excess, while only a minimal number considered high cost to be a decisive factor. The low prioritisation of cost is noteworthy. As Sobanko et al. (2018) observed, the desire to preserve youth and self-confidence often outweighs concerns about financial burden, side effects, or downtime. When clients place high levels of trust in their aesthetic professionals and value the social and emotional benefits of looking younger, the threshold for what is considered "excessive" shifts away from cost and toward appearance-related outcomes (Ramirez et al., 2021).

The present findings indicate that, although cost remains a barrier for some, many clients are prepared to make significant financial investments to achieve or maintain a youthful appearance. This aligns with broader international research showing that visible results and psychological satisfaction are frequently prioritised over financial considerations (Cash, Phillips & Santos, 2007).

A notable portion of participants also indicated that multiple concerns simultaneously contributed to their decision not to pursue treatment.

According to the American Society for Aesthetic Plastic Surgery (2021), common barriers include cost, pain-related fears, and access to trusted providers. Similarly, Manav et al. (2022) found that socio-economic pressures can influence patients to opt for lower-cost providers, potentially increasing the risk of suboptimal outcomes.

In the South African context, economic disparities present a particularly significant challenge. The country's high Gini coefficient reflects substantial inequality in income and access to private healthcare services (Stats SA, 2023). While demand for non-surgical anti-ageing treatments appears to be growing among middle- and upper-income individuals, large segments of the population remain excluded from such treatments due to affordability (Psychology Today, 2023). Studies examining access to surgical and aesthetic care in South Africa also highlight the influence of geographic, infrastructural, and informational constraints, which apply not only to surgical interventions but also to non-surgical anti-ageing treatments (Coetzee & Viviers, 2017; Harris et al., 2011).

Perceptions of access barriers related to non-surgical anti-ageing treatments, as expressed by participants' responses align with multi-dimensional access frameworks, including the Three-Delays model by Thaddeus and Maine (1994) and the Four-Delays model developed by Levesque, Harris, and Russell (2013), which conceptualise healthcare access as shaped by structural, personal, and informational barriers. These frameworks have been widely applied to understand how cost, perceived safety, knowledge limitations, and time constraints influence healthcare decisions (Storeng, Béhague, Koblinsky, Kumar & Calhoun, 2012; Peters, Garg, Bloom, Walker, Brieger & Rahman, 2008).

In the present study, the selection of multiple barriers suggests that participants' decisions not to pursue treatment were rarely based on a single factor. Rather, their perceptions of affordability, treatment safety, and lack of information combined to shape a more complex decision-making process. This highlights the importance of targeted outreach and patient education to reduce misinformation and improve perceptions of safety and accessibility, particularly among economically marginalised groups (Naidu & Prose, 2018).

Chapter 7

Non-surgical anti-ageing treatments: Knowledge

7.1 Introduction

Chapter seven presents the findings related to participants' knowledge of non-surgical anti-ageing treatments. The findings presented in this chapter assists to identify areas where participants demonstrate accurate knowledge, as well as areas of limited understanding or misconceptions. Therefore, the findings contribute to a broader understanding of how informed clients are when engaging with non-surgical anti-ageing treatments and support the overall aim of the study in exploring clients' expectations, perceptions, and knowledge. Furthermore, findings are presented according to key knowledge themes, each of which reflects a specific aspect of participants' understanding of non-surgical anti-ageing treatments.

7.2 Knowledge themes

Providing a clear and structured analysis of participants knowledge of non-surgical anti-ageing treatments, this chapter presents six interrelated knowledge themes. Although the themes are discussed separately for ease of presentation, some questionnaire items contributed to more than one theme. This is due to the overlapping nature of knowledge, where a single response can reflect multiple dimensions such as awareness, engagement, and belief (Coane, Cipollini, Barrett, Kavalier & Umanath, 2023). This overlap enhances analytical depth to the analysis and allows for a more accurate and holistic understanding of how clients acquire and apply knowledge (Coane et al., 2023). Therefore, this chapter explores not just what participants know, but also how their knowledge is shaped, expressed, and occasionally misunderstood (Table 7.1).

Table 7.1: Mapping of knowledge themes

Theme	Mapped questions	Questionnaire items
Treatment recognition and awareness	E1, E2	Knowledge of the actual target
Product identification and differentiation	E1, E6	Knowledge of product type used during Botox treatment
Information sources and research habits	E3, E4	Source of information
Participants seeking knowledge	E3, E4	Participants seeking knowledge
Common myths and misbeliefs	E6	Response to true or false
Familiarity with procedures and products	E5	Knowledge focused on Botox

7.2.1 Knowledge of treatment indications

Participants associated Botox with wrinkle (90.9%) and fine line treatments (55.8%), while dermal fillers were linked to volume loss (79.1%). Chemical peels were associated with uneven skin tone treatment (63.6%) and sun damage (58.4%). IPL/laser treatments were recognised primarily for red veins (51.3%), pigmentation (48.1%), and sun damage (48.1%). Microneedling was linked to wrinkle (56.9%), fine lines (49.0%), and uneven skin tone (45.1%). treatment. The distribution of selected targets for each treatment is summarised in Table 7.2.

Table 7.2: Participants' knowledge with treatment indications

Target Concern	Botox (%)	Fillers (%)	Chemical Peel (%)	IPL /Laser (%)	Microneedling (%)
Wrinkles	90.9	45.8	32.5	37.0	56.9
Loss of volume in face	28.6	79.1	5.8	13.0	23.5
Red veins	4.5	4.6	18.2	51.3	20.3
Enlarged pores	5.2	5.9	42.2	34.4	40.5
Loss of skin elasticity	18.2	27.5	21.4	22.1	43.1
Brown spots	3.9	3.3	51.3	48.1	27.5
Uneven skin tone	5.8	5.9	63.6	39.0	45.1
Sun damage	3.9	3.3	58.4	48.1	35.9
Dull skin texture	7.8	6.5	50.0	31.2	41.8
Fine lines	55.8	28.1	44.2	33.1	49.0

7.2.2 Knowledge of injectable product name

Attention is directed to participants' knowledge of product-specific terminology, assessing whether they could accurately identify the botulinum toxin brand received during treatment. A total of 46.1% reported not having received Botox. Among those who had, 31.2% indicated that they were unsure of the product name. Some participants identified Dysport (6.5%) and Juvéderm (3.9%) as the product name (Figure 7.1).

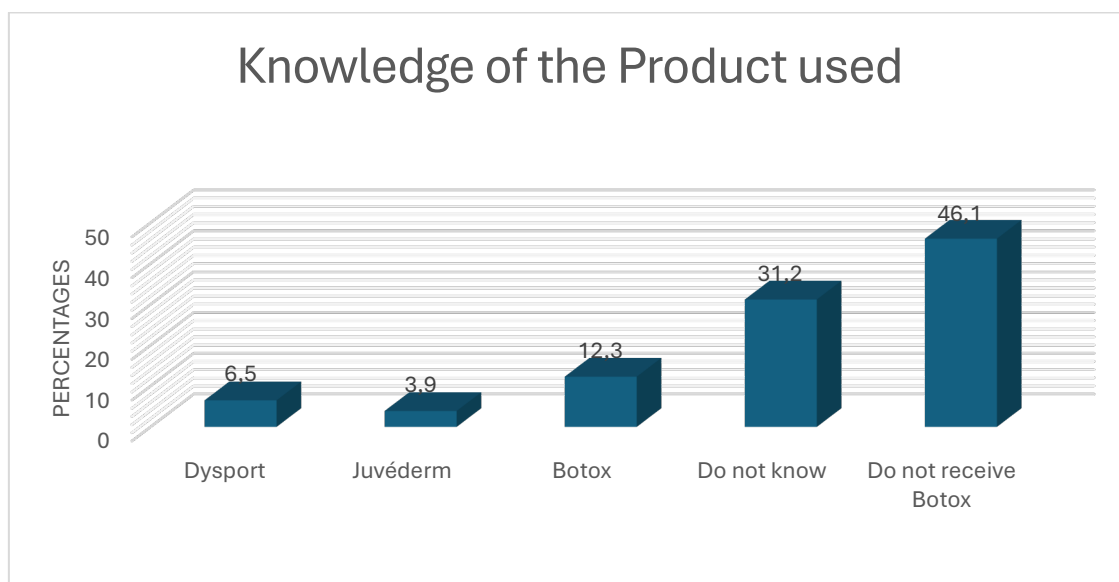


Figure 7.1: Knowledge of the product name used

7.2.3 Sources of treatment information

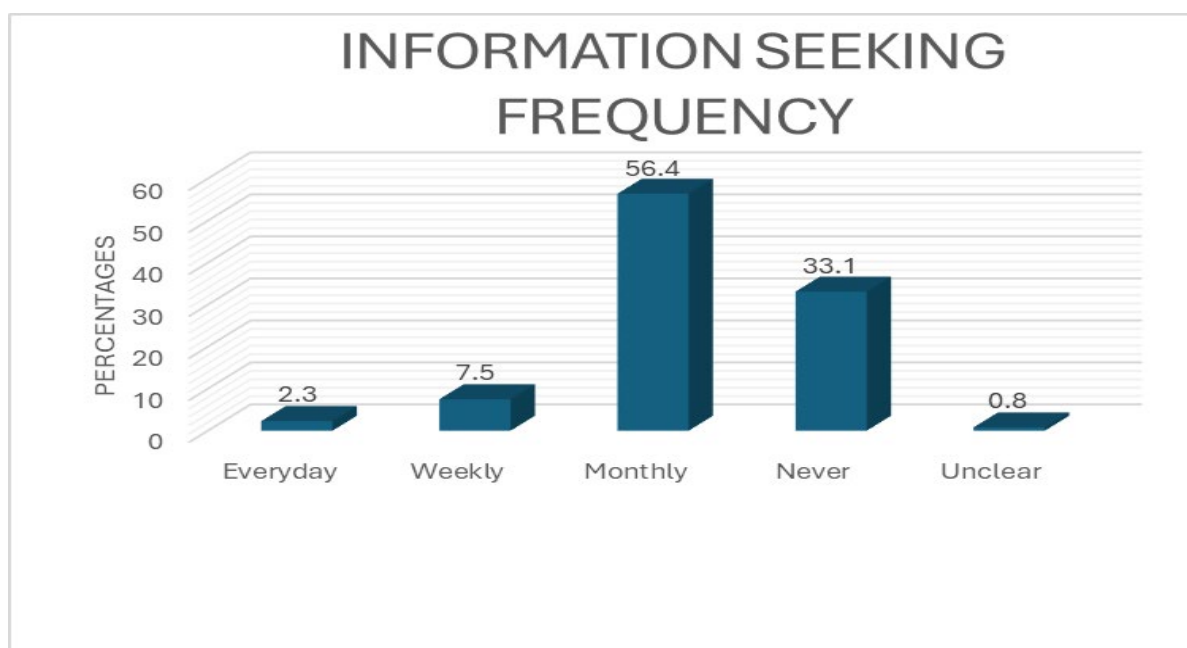
Participants reported using a variety of sources to obtain information about non-surgical anti-ageing treatments. The most frequently cited source was consultation with beauty professionals (33.1%), followed by medical professionals (28.6%). Additionally, 24.9% of participants referred to medical websites or reputable publications. Recommendations from friends or family accounted for 6.9% of responses, while social media was used by 6.5% of participants. The results are summarised in Table 7.3.

Table 7.3: Participants' sources of treatment information

Source of Information	Percentage (%)
Obtain answers through digital and social media sources	6.5
Consult with beauty professionals for guidance	33.1
Rely on recommendations by friends or family	6.9
Seek information from sources perceived as trustworthy	24.9
Consult with medical professionals for advice and clarification	28.6

7.2.4 Frequency of information seeking

The frequency with which participants engage in seeking information about non-surgical anti-ageing treatments varied. Monthly engagement was most frequently reported (56.4%), followed by participants who indicated that they never seek information (33.1%). A smaller proportion reported seeking information weekly (7.5%). Figure 7.2 illustrates the frequency of information-seeking behaviour.

**Figure 7.2:** Information-seeking frequency regarding non-surgical anti-ageing treatments

7.2.5 Accuracy of treatment knowledge

Participant responses to 19 statements assessing knowledge of aesthetic treatments are summarised in Table 7.4. Results indicate variability in public understanding, with some areas demonstrating high awareness and others reflecting significant uncertainty or misinformation.

A large majority of participants (81.2%) correctly identified that Botox is not permanent, while only 3.9% incorrectly believed it is, and 14.9% reported uncertainty. Similarly, 81.8% of respondents correctly recognised that chemical peels can be used to treat acne scars, with only 3.9% disagreeing and 14.3% unsure. In contrast, substantial uncertainty was observed regarding the statement that dermal fillers are used solely for cosmetic purposes, with 40.9% selecting “do not know,” 38.3% correctly identifying the statement as false, and 20.8% agreeing with it. Likewise, 33.1% were uncertain about the permanence of dermal fillers, although 60.4% correctly indicated they are not permanent.

Regarding treatment recovery, 51.3% of participants acknowledged that chemical peels require downtime, while 38.3% disagreed. For Botox, 57.1% correctly indicated that it does not require recovery time, although 26.0% remained unsure. Participants demonstrated strong awareness that dermal fillers can enhance lip volume (76.6% true), and 53.9% recognised that microneedling can treat stretch marks. However, understanding of treatment permanence was more limited: only 47.4% correctly identified that laser treatments are not permanent, while 31.8% were uncertain and 20.8% believed they are.

Knowledge was particularly inconsistent regarding microneedling results, with 48.7% correctly identifying that results are not immediate, 27.9% unsure, and 23.4% responding incorrectly. Additionally, laser safety across all skin tones was poorly understood: 41.6% reported uncertainty, 35.1% correctly selected false, and 23.4% incorrectly believed lasers are universally safe.

Participants were divided on whether microneedling is suitable for deep wrinkles (40.9% true, 34.4% unsure), and whether chemical peels are suitable for all skin types (40.9% true, 31.2% unsure). A similar split was seen regarding the pain associated with chemical peels, with 46.1% describing them as typically painless, and 35.7% disagreeing. Regarding maintenance and risks, 51.3% correctly stated that dermal fillers require frequent touch-up sessions, but 41.6% remained unsure. The belief that fillers stretch the skin revealed a knowledge gap: 27.3% agreed, 21.4% disagreed, and a majority (51.3%) indicated uncertainty.

Most participants (75.3%) accurately stated that Botox and fillers are not the same, though 18.8% expressed uncertainty. Knowledge of injection zones for Botox and fillers was limited. Only 40.9% correctly disagreed that Botox can be injected everywhere on the face, while 41.6% were unsure. Similarly, half of the participants (50.0%) were unsure whether fillers can be injected everywhere, and just 33.1% correctly disagreed. Table 7.4 presents the findings on participants' knowledge of non-surgical anti-ageing treatments.

Table 7.4: Participant accuracy on treatment statements

Statement	True (%)	False (%)	Do not know (%)
Botox is permanent	3.9	81.2	14.9
Dermal fillers are only used for cosmetic purposes	20.8	38.3	40.9
Chemical peels can treat acne scars	81.8	3.9	14.3
Chemical peels require downtime for recovery	51.3	38.3	10.4

Statement	True (%)	False (%)	Do not know (%)
Dermal fillers are permanent	6.5	60.4	33.1
Botox requires downtime for recovery	16.9	57.1	26.0
Dermal fillers can be used to enhance lip volume	76.6	1.3	22.1
Microneedling can be used to treat stretch marks	53.9	11.0	35.1
Laser treatments are permanent solutions	20.8	47.4	31.8
Microneedling results are immediate	23.4	48.7	27.9
Laser treatments are safe for all skin tones	23.4	35.1	41.6
Microneedling is suitable for deep wrinkles	40.9	24.7	34.4
Chemical peels are suitable for all skin types	40.9	27.9	31.2

Statement	True (%)	False (%)	Do not know (%)
Chemical peels are typically painless	46.1	35.7	18.2
Dermal fillers require frequent touch-up sessions	51.3	7.1	41.6
Fillers stretch the skin	27.3	21.4	51.3
Botox and fillers are the same	5.8	75.3	18.8
Botox can be injected everywhere on face	17.5	40.9	41.6
Fillers can be injected everywhere on face	16.9	33.1	50.0

7.2.6 Injectable treatment knowledge: Botox

Among the Botox-related statements, 45.5% rejected the idea that Botox results in an unnatural appearance, while 34.4% agreed and 20.1% indicated that they do not know. For the statement that Botox is toxic and dangerous, 53.9% responded with “false”, 18.8% “true”, and 27.3% selected “do not know”. The misconception that individuals cannot stop once they start using Botox was rejected by 50.6% of participants. Interestingly, 77.3% understood that Botox is used for more than cosmetic purposes, and 83.7% recognised that it is not limited to those over 50 years of age. Full response patterns are presented in Table 7.5.

Table 7.5: Botox knowledge

Statement	True (%)	False (%)	Do not know (%)
Botox gives an unnatural look	34.4	45.5	20.1
Botox is toxic and dangerous	18.8	53.9	27.3
Once you start Botox, you cannot stop	26.0	50.6	23.4
Botox can only be used for cosmetic purposes	7.8	77.3	14.9
Botox is only for persons over 50 years	7.2	83.7	9.2
Botox is painful	18.2	50.6	31.2

7.3 Discussion

7.3.1 Knowledge

In this study, participants' knowledge of non-surgical anti-ageing treatments was explored through their ability to evaluate treatment-related statements, their familiarity with procedures such as Botox, dermal fillers, chemical peels, microneedling, and IPL/laser, and the frequency with which they sought information related to these treatments. The findings reveal both areas of accurate understanding and instances of uncertainty or misconception. To interpret the responses meaningfully, it is essential to establish how knowledge is understood within this research context.

Knowledge refers to the information, skills, and understanding individuals acquire through learning, experience, and interaction (APA, 2025). It includes both explicit knowledge such as documented facts and tacit knowledge gained through personal experience and practice (Nonaka & Takeuchi, 1995). Participants' responses were analysed across selected themes.

7.3.2 Knowledge of treatment indications

This section examines participants' ability to recognise the specific treatment indications of commonly performed non-surgical anti-ageing treatment. Accurate understanding of treatment targets, associating Botox with wrinkle reduction, dermal fillers with volume restoration, chemical peels with pigmentation and texture improvement, and IPL/laser with vascular or pigmented lesions, is fundamental to making informed treatment decisions (American Society for Dermatologic Surgery, 2024; Mayo Clinic, 2024b; Hexsel, Hexsel, Dal'Forno, Porto & Siega, 2022; Iriarte, Awosika, Rengifo-Pardo & Ehrlich, 2017a). This study therefore explored participants' knowledge of the primary purposes of treatment for concerns including wrinkles, pigmentation, sun damage, and volume loss (Sethi et al., 2024).

Understanding the target concerns addressed by various non-surgical anti-ageing treatments is essential to making informed treatment choices (Botox, 2025; Juvederm, 2025). This study further explored participants' knowledge of the actual treatment purposes for concerns such as wrinkles, pigmentation, sun damage, and volume loss (Sethi et al., 2024). Participants in this study generally demonstrated an accurate understanding of the target concerns addressed by commonly performed non-surgical anti-ageing treatments.

Botox was most often linked to wrinkles, and dermal fillers to volume loss. The findings are consistent with previous studies, such as Carruthers and Carruthers (2003), who described similar levels of public awareness for core treatment purposes (Carruthers, & Carruthers, 2003). Likewise, Small and Hoang (2014) confirmed that patients often correctly associate fillers with facial volume restoration (Small & Hoang, 2014).

Chemical peels were frequently selected by participants for concerns related to uneven skin tone and sun damage. Aligning with the findings of Monheit and Chastain (2001), who highlighted the exfoliative and pigment-regulating effects of chemical peels (Monheit & Chastain, 2001). Similarly, IPL and laser were commonly associated with pigmentation and red veins, suggesting that participants understood their role in targeting vascular and melanin-rich lesions through the principle of selective photo thermolysis (Tierney, Hanke, & Goldman, 2012). This pattern of recognition is consistent with foundational knowledge reported in international studies and contributes new insight by reflecting how this understanding presents within the South African population.

However, this study also identified specific areas of misunderstanding. A notable number of participants incorrectly selected microneedling for vascular concerns and Botox for volume loss. Inaccuracies are not unique to misunderstandings of non-surgical anti-ageing treatments, as Spalding and Sadick (2018) similarly found that clients often confuse treatment mechanisms, particularly when influenced by broad promotional claims. While international data supports the existence of partial understanding (Tenchov et al., 2024), the present study contributes new insight by quantifying gaps among Central South African participants, suggesting a need for more targeted client education in this context.

One potential contributor to these misunderstandings, such as associating microneedling with vascular concerns, is possible exposure to non-academic online content. This observation aligns with broader academic findings. Spalding and Sadick (2018) reported that aesthetic clients often misunderstand treatment mechanisms, particularly when exposed to oversimplified or promotional claims. Tiggemann and Zinoviev (2019) found that frequent exposure to beauty-related content on social media contributes to increased interest in cosmetic treatments and body dissatisfaction.

Kleemans, Daalmans, Carbaat and Anschutz (2018) highlighted that edited beauty images significantly impact appearance satisfaction and reinforce unrealistic ideals. Taken together, the findings suggest that misinformation whether via blogs, social media, or aesthetic influencers can shape clients' knowledge of treatment effects (Kleemans et al., 2018). The present study contributes to this conversation by illustrating how such misconceptions manifest within the Central South African context, where limited access to medically verified information and reliance on informal sources may shape client understanding.

7.3.3 Knowledge of injectable product name

This segment explored participants' ability to identify the specific product name used during non-surgical anti-ageing treatment namely Botox. Although several participants had previously undergone injectable treatments, only a small proportion were able to correctly name the product as Botox. A larger group expressed uncertainty, while others misidentified the product by selecting options such as Juvéderm, a dermal filler that differs significantly from Botox in both composition and clinical use (Small & Hoang, 2014; Juvéderm, 2025). The misidentification of a filler as a neuromodulator highlights an evident lack of product-specific knowledge. This confusion between volumising agents and neuromodulators suggests that several participants may not have received sufficient information during consultations (Di Santis, Hirata, Di Santis & Yarak, 2021). Carruthers and Carruthers (2021) emphasise that understanding the exact product used is a critical component of informed consent.

Without this knowledge, clients may be less equipped to anticipate treatment outcomes, recognise side effects, or share accurate medical histories with other professionals (Carruthers, & Carruthers, 2001). A lack of product awareness can also lead to duplication of treatments or missed contraindications, particularly when individuals consult multiple medical practitioners over time (Alenezi, Hamayun, Agarwal, Alanazi, Alruwaili, Alenezi & Alanazi, 2024).

Therefore, this study findings support previous research by Spalding and Sadick (2018), who noted that many individuals receiving non-surgical anti-ageing treatments are more familiar with broad terms such as “Botox” or “fillers” than with the specific names of the products administered. Additionally, further complicated by the influence of social media, where injectable treatments are often generalised or misrepresented (Nestor, Ablon & Pickett, 2017). Greater emphasis on product-specific education during consultations may enhance ethical standards, foster client trust, and lead to improved satisfaction with long-term treatment outcomes (Nestor et al., 2017).

7.3.4 Sources of information on treatments

Participants reported varying sources of information when researching non-surgical anti-ageing treatments. The most frequently selected source was consultation with a beauty professional, followed closely by consultation with a medical professional. A smaller proportion of participants preferred to seek information from trusted platforms, while even fewer relied on recommendations from friends or family or turned to online or social media sources. This pattern suggests that professional consultation remains the preferred route for clients, particularly during the early stages of decision-making (Humphrey et al., 2024).

Fewer participants selected options such as seeking information from trusted sources, which may reflect gaps in health literacy or limited awareness of reliable websites and scientific publications. According to Statistics South Africa (2024) digital health literacy remains uneven across socio-economic groups in South Africa, potentially limiting access to verified online information.

The low selection of sources such as online platforms and recommendations from friends or family contrasts with international literature, where social media frequently plays a prominent role in shaping treatment perceptions (Tiggemann & Zinoviev, 2019). Supporting this concern, a study of nursing students in Gauteng found that while internet use was high, many lacked confidences in identifying reliable health information sources (Lekalakala-Mokgele, Lowane, & Mogale, 2023).

Although this population differs from clients in beauty salons and medical aesthetics practices, the findings suggest that similar challenges in recognising trustworthy sources may also affect clients seeking information on non-surgical anti-ageing treatments.

7.3.5 Frequency of information seeking

The occurrence with which participants seek knowledge about non-surgical anti-ageing treatments varied. Most indicated that they access information monthly, reflecting moderate and consistent engagement with treatment-related content. Smaller groups reported weekly or daily efforts to seek knowledge. However, a significant portion of participants stated that they never actively seek information, and one individual selected an unclear or unspecified option.

International studies support the importance of information-seeking behaviour in influencing treatment decisions. For example, a study published by the Mian, Ghani & Mian (2021) showed that while clients valued the expertise of professionals, many still relied heavily on self-directed research and informal sources such as blogs and social media. This mixed approach to knowledge acquisition often results in clients holding both accurate and misleading beliefs simultaneously (Mian, Ghani & Mian, 2021; Sorice, Li, Gilstrap, Canales & Furnas, 2017; Nkwanyana, 2015).

Market growth supports the notion that public interest in non-surgical anti-ageing treatments is on the rise according to the International Society of Aesthetic Plastic Surgery (2023). This highlights a critical imbalance: while the demand for non-surgical anti-ageing treatments is expanding, knowledge acquisition remains inconsistent. Without regular, reliable education, clients may fall prey to marketing hype or unrealistic expectation (Alenezi et al., 2024). The current study's findings support this concern, particularly given the number of participants who reported never seeking information.

7.3.6 Accuracy of treatment knowledge

This theme explores the extent to which participants could distinguish between factual and inaccurate information about non-surgical anti-ageing treatments. The results of this study reveal that while participants understood certain aspects of these treatments, multiple misconceptions were identified. Such misconceptions mainly included confusion about treatment permanence, the safety of laser and peels across all skin types, suitable treatment zones, and the differences between cosmetic injectables such as Botox and dermal fillers. Participants demonstrated familiarity with popular outcomes, Botox not being permanent and fillers enhancing lip volume. However, confusion remained regarding product distinction and application areas. For instance, a minority of participants believed Botox and fillers were the same, but this is not the case (Di Santis, Hirata, Di Santis & Yarak, 2021).

Additional participants were divided in their understanding, with several incorrectly believing that Botox and dermal fillers can be administered universally across the entire face, while others expressed uncertainty. This is in contrast with clinical guidance, which specifies that Botox is typically used in targeted facial muscles to reduce dynamic wrinkles, while fillers restore volume in specific areas (Sundaram & Signorini, 2016).

Misunderstandings were also apparent in knowledge about treatment recovery. A smaller portion of participants incorrectly expected downtime following Botox or believed that chemical peels are entirely painless, indicating specific gaps in treatment understanding (Meretsky, Umali & Schiuma, 2024; Nikalji, Godse, Sakhiya, Patil & Nadkarni, 2012).

Literature shows that Botox typically requires no recovery time and that chemical peels - depending on their depth - may involve temporary discomfort and a period of healing (Wu, Liew, Chan, Ho, Supapannachart, Lee, Prasetyo, Yu & Rogers, 2016; Rendon, Berson, Cohen, Roberts, Starker & Wang, 2010).

In addition, the belief that dermal fillers stretch the skin reflects a common myth not supported by clinical evidence, which indicates that fillers are designed to restore, not stretch, volume (Arsiwala, 2018).

Participants' knowledge about microneedling was similarly varied. While many participants knew that the results are not immediate, others anticipated instant improvements. A better understanding was evident in responses about microneedling for stretch marks, which aligns with literature confirming its role in stimulating collagen and skin remodelling (Lima & Lima, 2019; Aust, Knobloch, Reimers, Redeker, Ipaktchi, Altintas & Vogt, 2008). Participants also demonstrated uncertainty regarding laser and chemical peel safety. A substantial number assumed that both treatments are suitable for all skin tones, which contradicts guidelines cautioning that certain devices and deeper peels may pose risks to darker skin types (Sarkar, 2013; Battle, 2007).

Overall, the findings show that while awareness of non-surgical anti-ageing treatments exists, participants' knowledge was inconsistent and often shaped by misinformation or oversimplified messages. This conclusion is further supported by evidence showing that public knowledge of aesthetic procedures is frequently shaped by sources outside clinical practice. The tendency to use "Botox" as a generic label for all injectable treatments illustrates a common knowledge gap, as it blurs the distinction between neuromodulators and dermal fillers. This confusion has been noted in aesthetic practice literature (Wong, Damavandi, Richards, Danpanichkul, Adegboye, Faderani, Kanapathy & Mosahebi, 2025). An expanded review of current literature incorporating knowledge can be seen in Table 7.6.

Table 7.6: Participant knowledge and scientific evidence

Knowledge statement	Correct answer & scientific explanation	Reference
Botox is permanent	False. Botox is temporary, typically lasting 3–6 months.	Carruthers & Carruthers, 2010
Dermal fillers are only used for cosmetic purposes	False. Fillers are also used medically (e.g., lipoatrophy correction).	Small & Hoang, 2014
Chemical peels can treat acne scars	True. Medium and deep chemical peels can effectively treat acne scars.	Monheit & Chastain, 2001
Chemical peels require downtime for recovery	True. Recovery depends on peel depth and may range from days to weeks.	Brody, 2005
Dermal fillers are permanent	False. Most fillers are temporary, lasting 6–24 months.	Carruthers, Carruthers & Humphrey, 2015
Botox requires downtime for recovery	False. Botox generally requires no downtime.	Sundaram, 2015

Knowledge statement	Correct answer & scientific explanation	Reference
Dermal fillers can be used to enhance lip volume	True. Hyaluronic acid fillers are commonly used for lip augmentation.	Czumbel, Farkasdi, Gede, Mikó, Csupor, Lukács, Gaál, Kiss, Hegyi & Varga, 2021
Microneedling can be used to treat stretch marks	True. Microneedling stimulates collagen and reduces stretch marks.	Aust et al., 2008
Laser treatments are permanent solutions	False. Lasers offer long-term but not always permanent results.	Alexiades-Armenakas, Dover & Arndt 2008
Microneedling results are immediate	False. Results develop from week to months as collagen forms.	Lima & Lima, 2019
Laser treatments are safe for all skin tones	False. Certain lasers can cause pigmentation issues in darker skin tones.	Battle, 2007
Microneedling is suitable for deep wrinkles	True. Microneedling improves skin texture and elasticity.	Fernandes, 2008

Knowledge statement	Correct answer & scientific explanation	Reference
Chemical peels are suitable for all skin types	False. Deeper peels may not be safe for darker skin types.	Sarkar, 2013
Chemical peels are typically painless	False. Some discomfort or burning may be experienced.	Rendon, et al., 2010
Dermal fillers require frequent touch-up sessions	True. Results fade over time and require maintenance.	Sundaram et al., 2011
Fillers stretch the skin	False. Fillers enhance volume but do not permanently stretch skin.	Narins, 2006
Botox and Fillers are the same	False. Botox relaxes muscles; fillers restore volume.	Carruthers & Carruthers, 2010
Botox can be injected everywhere on face	False. Botox is used in specific areas, not the entire face.	Alam, Dover, Klein & Arndt, 2002

Knowledge statement	Correct answer & scientific explanation	Reference
Fillers can be injected everywhere on face	False. Filler use depends on anatomy and desired outcome.	Goodman, Magnusson, Callan, Roberts, Hart, Lin, Rahman, McDonald, Liew, Porter, Corduff & Clague, 2022

7.3.7 Injectable treatment knowledge: Botox

The results of this study revealed that participants possessed varying levels of knowledge about Botox, including both accurate information and misconceptions. Although responses demonstrated familiarity with the purpose, safety, and effects of the treatment, several myths were evident. Therefore, findings underscore the importance of accurate client education and challenge assumptions that general exposure to non-surgical anti-ageing treatments results in reliable knowledge.

A considerable number of participants rejected the belief that Botox produces an unnatural appearance, indicating a degree of awareness that outcomes can appear subtle when properly administered. This suggests growing familiarity with the concept of natural-looking results, which reflects current aesthetic practice where the aim is often to preserve facial expression while reducing dynamic lines (Klassen et al., 2024). Nevertheless, a sizeable minority of participants still viewed Botox as unnatural, highlighting that concerns about appearance remain. Such concerns have been documented internationally and are often shaped by media portrayals of exaggerated or poorly executed results (Joshi et al., 2022).

The belief that Botox is toxic and dangerous was rejected by just over half of the participants, but a significant proportion either believed it to be unsafe or expressed uncertainty. This points to a lingering fear about the pharmacological origin of Botulinum toxin, despite its long-standing use in both medical and aesthetic contexts (Hexsel, Brum & Porto, 2015; Naumann & Jankovic, 2004).

Clinically, Botox is considered safe when administered in controlled doses by trained professionals (Carruthers & Carruthers, 2010). The persistence of this misconception in the current study suggests that safety concerns remain a barrier to informed acceptance among clients in the South African context (Nkwanyana, 2015). Participants were also divided on the belief that Botox use must continue indefinitely once started. While most disagreed, many were unsure, revealing a knowledge gap regarding the reversible nature of the treatment. Stopping Botox treatments does not worsen facial lines, as muscles gradually regain their function and lines return to their pre-treatment appearance (Alam, Dover, Klein & Arndt, 2002).

Most participants correctly recognised that Botox is not limited to cosmetic use. This indicates a broader understanding of the treatment's therapeutic applications, including the management of hyperhidrosis, chronic migraines, and muscle spasticity (Small & Hoang, 2014). Similarly, the widespread rejection of the belief that Botox is only suitable for individuals over the age of 50 suggests that participants were aware of its preventive and corrective roles across age groups. This reflects a shift in public awareness and align with current practice, where younger adults increasingly seek Botox to manage early signs of ageing (Wu, Liew, Chan, Ho, Supapannachart, Lee, Prasetyo, Yu & Rogers, 2016).

However, participant responses regarding the pain associated with Botox were less consistent. While many disagreed with the belief that Botox is painful, a substantial number of participants either believed it to be uncomfortable or were unsure. Clinically, Botox is associated with minimal discomfort and is often described as well-tolerated (Lowe, Maxwell & Patnaik, 2005).

In summary, while participants demonstrated accurate knowledge in key areas such as the therapeutic uses and age range for Botox, several misconceptions persisted. Concerns about unnatural outcomes, long-term dependency, toxicity, and pain were raised. The results suggest that although exposure to non-surgical anti-ageing treatments is increasing, this does not automatically translate into accurate knowledge.



Chapter 8

Conclusions and recommendations

8.1 Introduction

Chapter 8 draws together the key findings of the study and evaluates the relevance for beauty salons and medical aesthetics practices, client education, and future research. More specifically, the study explored three consistent constructs: expectations, perceptions, and knowledge. In the context of the study, expectations refer to the outcomes that clients hope to achieve through non-surgical anti-ageing treatments, such as looking younger or improving self-confidence (Harth, 2017; Furnham & Levitas, 2012; Swami, Knight, Tovée, Davies, & Furnham, 2009c).

Perceptions are shaped by emotional and social influences, including fear of pain, the impact of media, and prevailing beauty standards (Walker, Thornton, Coroneos, Phan, & Wallace, 2021; Harth, 2017; Sarwer, Magee & Crerand, 2005). Contrastingly, knowledge reflects clients' factual understanding of non-surgical anti-ageing treatments, including the mechanisms, safety considerations, and limitations (Ganceviciene et al., 2012; Kaminer, 2008).

While, expectations and perceptions are largely subjective, knowledge is grounded in objective awareness acquired through consultation with medical practitioners and beauty professionals, as well as through self-directed learning (Ganceviciene et al., 2012; Kaminer, 2008). Collectively, the constructs offer aesthetic professionals a deeper understanding of how clients' approach and experience non-surgical anti-ageing treatment care.



8.1.1 Reflection on aims and objectives

This study aimed to explore the expectations, perceptions, and knowledge of clients in the Free State and Northern Cape provinces of South Africa regarding non-surgical anti-ageing treatments. The research was motivated by the increasing accessibility of aesthetic information, a substantial portion of which is commercially driven and potentially misleading (Ramirez, Cullen, Ahdoot & Scherz, 2024; Zargarán, Zoller, Zargarán, Weyrich & Mosahebi, 2022b; Holland & Tiggemann, 2016). In response to this, the study sought to generate evidence-based insight that could support informed decision-making within beauty salons and medical aesthetics practices. In addressing the research questions and research aim, the study was guided by specific objectives designed to support and operationalise its central focus.

A newly formulated research tool was constructed, reviewed by aesthetic professionals in the field of antiaging treatments. Further validation and reliability were established by a pilot study during which the research tool was administered to clients in the Free State and Northern Cape provinces salons and aesthetic practices. This was accomplished through a structured, self-administered data collection process. A broad and diverse sample of clients who had received non-surgical anti-ageing treatments was accessed via gatekeepers operating across both provinces, facilitating participant recruitment. Data were captured and meaningful patterns in client expectations, perceptions, and knowledge was noted and analysed.

As a result, the study not only addressed its initial objectives but also enhanced the understanding of client engagement with non-surgical anti-ageing treatments in the Free State and Northern Cape. To contextualise these regional findings within the broader South African landscape, it is notable that 48,486 non-surgical aesthetic procedures were performed nationally in 2023 (ISAPS, 2023). This national context underscores the relevance of the study and allows for comparison between regional client behaviours and broader aesthetic trends across South Africa.



8.2 Final construct outcomes and insights

This chapter provides a critical reflection on the three primary constructs investigated in this study: expectations, perceptions, and knowledge. Drawing on the research findings, it offers a thematic synthesis of how the constructs were expressed. The discussion focuses on what the findings reveal about client engagement with non-surgical anti-ageing treatments, particularly within the contextual realities of beauty salons and medical aesthetics practices. Each subsection of the discussion synthesises key patterns, tensions, and implications. Furthermore, the discussion considers the overlap between constructs, illustrating how expectations, perceptions, and knowledge collectively influence decision-making, treatment satisfaction, and long-term aesthetic planning.

8.2.1 Expectations

This section explores the expectations clients hold regarding non-surgical anti-ageing treatments, as revealed through their responses. These expectations encompass desired outcomes, treatment preferences, perceived effectiveness, and motivations (Hemsworth et al., 2024; Harth & Hermes, 2017; Furnham & Levitas, 2012). Each paragraph below highlights a distinct expectation that shaped client decision-making and engagement with non-surgical anti-ageing treatments.

Clients expected microneedling to provide the most effective and accessible results. This expectation was reinforced by their treatment experiences, with microneedling and chemical peels mentioned most frequently. Microneedling was most often anticipated to deliver the best overall results, attributed to its perceived effectiveness, procedural comfort, minimal downtime, and cost accessibility (Jaiswal & Jawade, 2024b).



Moreover, participants expected non-surgical anti-ageing treatments to yield noticeable improvements in skin appearance. This expectation was notably high, aligning with international trends and supported by the present study's findings. Clinical evidence confirms microneedling's ability to improve skin texture, laxity, and wrinkle severity (Iriarte, Awosika, Rengifo-Pardo, & Ehrlich, 2017a), and broader literature identifies it as a leading minimally invasive anti-ageing modality (Business Insider, 2025; Cleveland Clinic, 2024).

However, expectations regarding treatment longevity varied, with some inconsistencies compared to established clinical timelines. In summary, clients expected long-lasting or even permanent results with minimal effort. Botox treatment expected to last six months to one year, despite clinical guidance indicating effects typically last three to six months (American Academy of Dermatology Association, 2024). Similarly, dermal fillers were often anticipated to provide one year of improvement, aligning only partly with professional timelines of six months to over a year depending on filler type (American Society of Plastic Surgeons, 2024). In contrast, expectations for chemical peels, IPL/laser treatments, and microneedling more closely matched clinical guidance (American Society for Dermatologic Surgery, 2024; Cleveland Clinic, 2024; Mayo Clinic, 2024). Hence, the results highlight how outcome longevity expectations are shaped by both treatment-specific knowledge and broader assumptions about what these procedures can achieve. Consequently, referencing evidence-based timelines during consultations can help align client perceptions with realistic outcomes, enhancing satisfaction and supporting informed decision-making.

In terms of age and motivation, participants expected to begin treatments around mid-life, viewing them as maintenance rather than early intervention. Most of the participants were aged between 33 and 55 years and considered 30 years to be the optimal age to begin non-surgical anti-ageing treatments. This starting point is later than the younger initiation ages reported internationally (Croda Beauty, 2025a; Croda Beauty, 2025b; Haykal et al., 2023; American Society of Plastic Surgeons, 2023).



Suggesting that in this region, non-surgical anti-ageing treatments are more often introduced as part of mid-life skin maintenance rather than early intervention.

Additionally, clients expected treatments to enhance self-confidence and preserve a natural, youthful appearance. The motivations for this expectation aligned with existing literature, centring on enhancing self-confidence and maintaining a youthful appearance, and preventing visible signs of ageing while maintaining a natural look (American Academy of Dermatology Association, 2025; Hoffman, Janik, O'Shaughnessy, & Kerscher, 2022). The desire to look younger is well established as a primary driver of cosmetic treatment uptake (Sobanko, Taglienti, Wilson, Sarwer, Margolis, Dai & Percec, 2015) and the psychological benefits of increased confidence and self-esteem are widely recognised (American Society for Dermatologic Surgery, 2018).

Overall, the findings suggest that in this context, treatments are most often pursued in the fourth and fifth decades of life, motivated by both appearance goals and psychological benefits. Recognising these age-related patterns and motivations enables aesthetic professionals to tailor consultation strategies, ensuring recommendations are appropriate to the client's life stage and desired outcomes. Across all themes, there was a clear preference for natural results over dramatic changes, highlighting the value of aligning marketing and consultation approaches with enhancement-focused goals to meet both immediate desires and longer-term expectations.

8.2.2 Perceptions

This section outlines the key perceptions held by clients regarding non-surgical anti-ageing treatments, based on participant responses from the Free State and Northern Cape. These perceptions were shaped by trust in professionals, emotional and psychological outcomes, treatment safety, and social influences (Ramirez et al., 2024; Hoffmann et al., 2022; Harth & Hermes, 2017; Holland & Tiggemann, 2016). Each paragraph below highlights a distinct perception that influenced how clients engaged with and evaluated aesthetic procedures.



Clients perceived medical and beauty professionals as the most trustworthy sources of information. It was evident that participants' perceptions were strongly shaped by trust in professionals, particularly medical practitioners and beauty specialists. These professionals were regarded as the most reliable and influential sources of information. This trust far outweighed the impact of family, friends, or social media; a finding consistent with international research emphasising the critical role of practitioner credibility in aesthetic decision-making (McDonald & Heydenrych, 2022). In this study, participants' perceptions may have been formed after visiting beauty salons and aesthetic practices. However, it is important to note that client perceptions are also heavily influenced by social media, which plays a significant role in shaping consumer attitudes and expectations in the aesthetic industry (Sijabat & Mandagi, 2022; Waworuntu, Mandagi & Pangemanan, 2022; Holland & Tiggemann, 2016).

Clients perceived subtle, natural-looking results as more emotionally beneficial than dramatic changes. Building on this perception, they expressed a clear preference for treatments that deliver visible yet natural improvements, enhancing self-confidence while preserving personal identity. This reflects a broader shift towards subtle, well-managed results that avoid overt transformation, a trend reported across contemporary aesthetic practice. Studies show that clients who undergo subtle, natural-looking aesthetic enhancements tend to experience greater satisfaction and emotional well-being. This underscores the psychological benefits associated with conservative treatment approaches, particularly when compared to more dramatic aesthetic interventions (Dayan, Ogilvie, Boyd, De Boule, Cavallini, Garcia & Musumeci, 2024).

Additionally, clients perceived some treatment outcomes inaccurately, particularly regarding onset and longevity. While many participants accurately associated dermal fillers with immediate results, they displayed misconceptions about the onset time of Botox, which typically requires several days to reach full effect.

Similar discrepancies between perception and clinical reality have been noted in other aesthetic patient groups, highlighting the importance of clear, evidence-based consultation to prevent dissatisfaction (Sethi, Kaur & Al-Nuaimi, 2021; Hexsel, Dal’Forno, & Hexsel, 2011; Carruthers & Carruthers, 2001)

Moreover, clients perceived treatment risks as moderate and trusted practitioners to ensure safety. Most participants expressed a balanced view of potential side effects, with few reporting significant apprehension. This balanced view likely reflects the high levels of professional integrity and ethical confidence participants attributed to their chosen practitioners (Ramirez et al., 2024).

Encouraging, clients perceived aesthetic care as a collaborative process requiring transparency and regular maintenance. Most participants reported openly disclosing medications prior to treatment, suggesting a willingness to engage in transparent, medically informed care, an attitude aligned with global calls for patient-practitioner collaboration in aesthetic medicine (Ramirez, Cullen, Ahdoot & Scherz, 2024). Regarding treatment value and access, participants tended to view non-surgical anti-ageing treatments as worthwhile lifestyle investments, though financial cost and perceived safety risks were identified as barriers. Preferred treatment frequency was typically every six months, indicating a perception of these interventions as part of regular maintenance rather than once-off procedures, a pattern consistent with maintenance-based aesthetic care models (Alam, Gladstone, Kramer, Murphy, Nouri, Neuhaus, Spencer, Spenceri, Van Dyke, Ceilley, Lee, Menaker, Monheit, Orentreich, Raab, Smith & Solish, 2008; American Society for Dermatologic Surgery, 2008).

Clients in this study perceived social and media influence as secondary but still relevant to treatment attitudes, while professional advice remained the dominant influence, social and media sources continued to shape perceptions to a lesser extent; however, the influence of social media is well established in forming perceptions in clients (Boen & Jerdan, 2022). Some participants felt comfortable sharing their treatment experiences, whereas others expressed concern about potential judgement.



These attitudes, combined with practical barriers to treatment, reinforce the need for aesthetic professionals to combine ethical guidance, accurate information, and trust-building strategies to shape informed, realistic, and confidence-enhancing perceptions (McDonald & Heydenrych, 2022).

8.2.3 Knowledge

Knowledge findings revealed a blend of accurate understanding and persistent misconceptions, shaped by treatment experience, product awareness, information sources, and consultation quality. Each paragraph below highlights a distinct knowledge point that influenced how clients interpreted and engaged with aesthetic procedures.

Clients showed mixed understanding of treatment mechanisms, with some notable misconceptions. Participants' knowledge of non-surgical anti-ageing treatments reflected a mixture of accurate understanding and persistent misconceptions. Many participants correctly associated common treatments with their primary indications. Botox treatment was correctly associated with wrinkle reduction and chemical peels with improved skin texture and pigmentation. However, confusion was evident in several areas, with some participants incorrectly identifying microneedling as a treatment for vascular concerns or associating Botox with volume restoration. Similar patterns of misunderstanding regarding treatment mechanisms have been reported internationally, underscoring the need for clear client education before treatment selection (Dover & Dover, 2017). Additionally, structured consultations play a critical role in bridging these misconceptions and knowledge gaps, as they allow aesthetic professionals to uncover client motivations, clarify misconceptions, and align expectations with realistic treatment outcomes (Bawa, 2022).

Notably, one of the most significant knowledge gaps identified was regarding product-specific knowledge, where injectables were often misidentified. Although many had undergone injectable procedures, only a minority could accurately identify Botox by name, with others mislabelling it as a dermal filler such as Juvéderm.



This inability to distinguish between neuromodulators and volumising agents challenges the assumption that treatment experience automatically leads to informed knowledge. As highlighted by Ramirez et al., (2024), gaps have ethical implications, as clients who do not know what products have been used on them may be unable to give fully informed consent or recognise adverse effects in future treatments.

Clients relied primarily on professional sources for information, but their engagement levels varied. Beauty professionals were the most frequently consulted, followed by medical practitioners. In contrast, social media, friends, and family played a minimal role in shaping client knowledge. While this demonstrates a high level of trust in professional advice, it also places a substantial responsibility on practitioners to ensure accuracy and clarity in client-facing communication (Sharkiya, 2023). Furthermore, frequency of information seeking varied, with the majority engaging on a monthly basis and a smaller group conducting weekly or daily searches (Li, Li, Zhai, Lin & Cao, 2025).

A notable proportion of participants reported never actively seeking information, indicating reliance on incidental or treatment-based (passive) learning rather than active research. Responses to treatment-related statements revealed further insight into areas of misunderstanding. Common myths persisted regarding safety, longevity, and treatment zones, such as the belief that laser and chemical peels are universally safe for all skin tones, or that Botox and dermal fillers can be injected into the same areas. Therefore, gaps reflect similar findings in other aesthetic populations, where passive exposure to marketing or treatments does not guarantee accurate knowledge (Murphrey, Cullen, Ahdoot, Reece, Shah, Patel & Sung, 2023; Humphrey, Bertucci, Heydenrych, Ogilvie, Safa & de la Guardia, 2024; Weinkle & Lupo, 2010).

Finally, clients showed partial awareness of Botox treatment outcomes, but misconceptions about its effects remained significant. The knowledge items specific to Botox indicated some encouraging awareness, with many rejecting the myth that it inevitably results in an unnatural appearance, acknowledging that natural results are possible when the treatment is performed correctly.



However, misconceptions around onset time and long-term effects remained. Overall, these findings highlight the importance of targeted, evidence-based client consultation to address persistent misunderstandings (Humphrey et al., 2024). Whether in beauty salons or medical aesthetics practices, aesthetic professionals must prioritise clear, consistent, and accurate communication to empower clients to make safe, informed, and confident treatment decisions (Mykytyn, 2006).

8.2.4 Overlaps and interactions between expectations, perceptions, and knowledge

Although expectations, perceptions, and knowledge were examined as separate constructs, the findings revealed meaningful areas of overlap (Figure 8.1.) Clients' expectations of long-lasting and natural results were closely linked to their perceptions of treatment value and emotional benefit. However, the expectations were not always supported by accurate knowledge of treatment timelines or limitations.

Similar discrepancies have been reported elsewhere, where unrealistic expectations were shown to interact with limited knowledge, shaping overall perceptions of satisfaction with treatment outcomes (Hexsel et al., 2022). Additionally, trust in professionals also played a dual role. Professionals established positive perceptions of safety while simultaneously reinforcing reliance on practitioner-provided knowledge. Moreover, this overlap reflects international evidence that expectations and perceptions cannot be understood in isolation, as both are mediated by the accuracy and clarity of knowledge communicated during consultation (Humphrey et al., 2024).

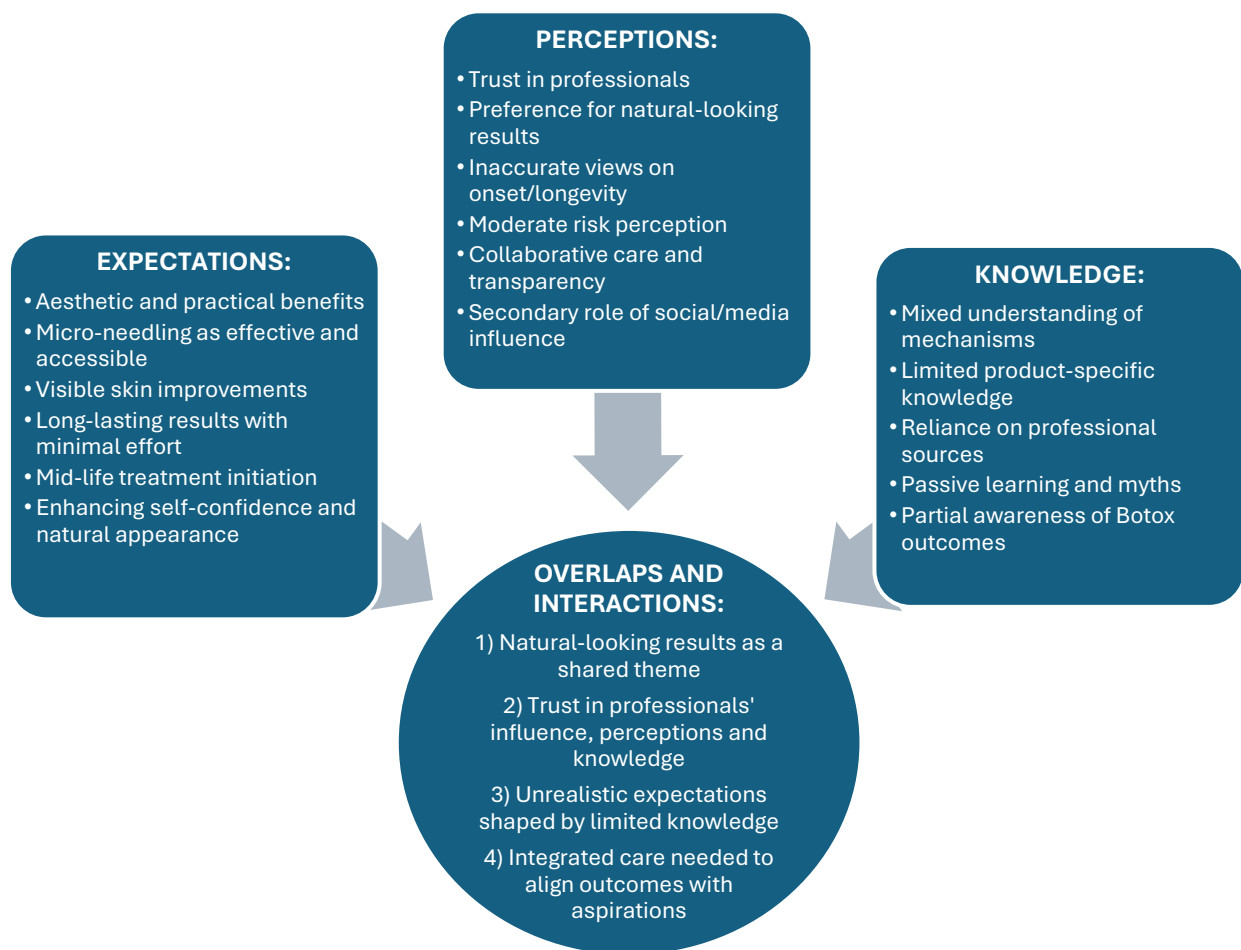


Figure 8.1: Integrated overview of client expectations, perceptions, and knowledge in aesthetic care (Author created)

Consistently, across all three constructs, a recurring theme was the desire for natural-looking results. Furthermore, expectations, perceptions, and knowledge converged around enhancement that preserves authenticity rather than dramatic transformation. At the same time, inconsistencies persisted. While knowledge of procedural mechanisms was sometimes limited, positive perceptions of practitioner integrity often emerged, sustaining confidence in treatment outcomes. Ultimately, the overlap between expectations, perceptions, and knowledge highlights the need for aesthetic professionals to approach client care in an integrated manner. Addressing the constructs together is essential for aligning treatment outcomes with client aspirations and supporting evidence-based decisions.



The integrated KAP–HBM framework provides a coherent theoretical foundation for explaining how the core constructs interact and influence client behaviour. The findings show that limited knowledge and several misconceptions influence clients' attitudes, expressed through expectations and perceptions, which subsequently guide treatment decisions. Within the KAP sequence, accurate knowledge supports realistic expectations and constructive perceptions, whereas misinformation contributes to uncertainty and unrealistic goals. The HBM extends this interpretation by clarifying how perceived benefits, perceived barriers, and cues to action mediate the link between expectations, perceptions, and actual treatment behaviour. The integrated perspective therefore emphasises the responsibility of beauty salons and medical aesthetics practices to strengthen client education and reduce barriers during consultations, promoting informed, safe, and satisfactory choices regarding non–surgical anti–ageing treatments.

8.3 Implications for aesthetic professionals

The integration of client expectations, perceptions, and knowledge, along with the overlap and interaction between these constructs, provides a comprehensive understanding of how individuals engage with aesthetic care. The insights form the basis for practical implications aimed at enhancing professional-client relationships and treatment outcomes. The findings of this study underscore the critical role of communication between aesthetic professionals and clients. The identification of gaps in client expectations, perceptions, and knowledge points to a strategic opportunity for beauty salons and medical aesthetics practices. This opportunity lies in reshaping how education, consultation, and non-surgical anti-ageing treatments are approached. The findings, as summarised in Table 8.1, provide a foundation for improving client engagement and aligning regional practices with broader aesthetic care standards.

**Table 8.1:** Summary of key findings and practice implications

Key finding	Implication for practice
Clients prefer natural-looking results	Emphasise subtle enhancements during consultations
Microneedling and chemical peels are most popular	Ensure availability and training in microneedling and peels
Trust in professionals is high	Maintain ethical and transparent communication
Knowledge gaps exist around product names and treatment mechanisms	Provide clear education on product types and treatment effects
Clients expect long-lasting results with minimal downtime	Set realistic expectations about treatment longevity

In regions where access to verified information remains uneven and informal networks continue to hold influence, beauty professionals and medical practitioners are uniquely positioned to become trusted sources of accurate, evidence-based guidance. This aligns with the finding that trust in professionals is high, reinforcing the need to maintain ethical and transparent communication (McDonald & Heydenrych, 2022).

Consequently, to achieve this, consultation frameworks must evolve beyond routine consent procedures, incorporating clear, client-friendly explanations of treatment options, structured myth correction, and personalised written aftercare to reinforce key information (Ramirez, Cullen, Ahdoot & Scherz, 2024; Philipp-Dormston, Bergfeld, Sommer, Sattler, Cotofana, Snozzi, Wollina, Hoffmann, Salavastru & Fritz, 2017). These strategies directly address the knowledge gaps around products and treatment mechanisms and support the implication to provide clear education on product types and treatment effects.

Proactive communication includes addressing safety, expected outcomes, and treatment frequency (Gout, Anand, Braz, Chao, Fabi, Kerscher, Landau, Pavicic, Peng, Rzany, Sattler, Tiryaki, Waldorf & Besins, 2017). It can help manage expectations, reduce anxiety, and empower clients to make informed decisions. These strategies directly address the knowledge gaps around product names and treatment mechanisms and support the implication to provide clear education on

product types and treatment effects. Recent evidence also suggest that non-surgical aesthetic treatments significantly improve psychological well-being and self-perception when paired with structured client education and realistic consultation practices (Hemsworth et al., 2024). The strong preference for natural-looking results and minimal downtime supports the need for professionals to prioritise personalised, ethical, and realistic treatment planning and realistic consultation practices, while avoiding promotional narratives that glorify extreme makeovers (Philipp-Dormston, Bergfeld, Sommer, Sattler, Cotofana, Snozzi, Wollina, Hoffmann, Salavastru & Fritz, 2017).

In particular, younger clients entering the non-surgical anti-ageing treatment market may benefit from structured preventative care guidance that is realistic, conservative, and focused on long-term skin health. Embedding the client voice into consultation protocols through actively listening (to e.g. motivations, fears, and misconceptions) enables aesthetic professionals to deliver care that is not only clinically effective, ethically grounded and deeply responsive to real-world client needs (Zargaran *et al.*, 2022a). Additionally, given the popularity of microneedling and chemical peels, professionals should ensure availability and training in these treatments to meet client demand effectively.

8.4 Recommendations

Building on the implications drawn from client expectations, perceptions, and knowledge, this section outlines targeted recommendations to enhance ethical practice, client satisfaction, and professional development in aesthetic care. These recommendations respond directly to the key findings summarised in Table 8.1, offering practical strategies for improving consultation quality, client education, and interdisciplinary collaboration. Each recommendation is designed to support professionals in aligning their services with client needs and evidence-based standards of care.

1. Strengthen client education through structured consultation. Aesthetic professionals should provide clear explanations of treatment mechanisms, expected timelines, safety considerations, and realistic



outcomes. Therefore, to ensure clarity and consistency, structured consultations should include active listening (to uncover client motivations), visual aids (to explain treatment mechanisms), pre-treatment questionnaires (to assess expectations and health status), and post-treatment follow-ups (to reinforce understanding and satisfaction) (GC Aesthetics, 2025; Bawa, 2022; Waldorf, 2013). Emphasis should be placed on correcting misconceptions and ensuring that informed consent goes beyond formality to include active client engagement and shared decision-making.

2. In addition, promote ongoing professional development. Both beauty professionals and medical practitioners should have regular access to training on treatment safety, emerging trends, and client-centred communication strategies. This is particularly important in regions where clients rely heavily on practitioner advice and may not seek additional information independently.

3. Furthermore, adopt ethical and realistic communication approaches. Professionals should avoid exaggerated claims, especially when consulting younger or first-time clients who may be influenced by media narratives. Language used during consultation and marketing should reflect conservative, fact-based messaging that supports long-term client trust and ethical responsibility.

4. Moreover, encourage interdisciplinary collaboration. Closer cooperation between medical practitioners and beauty professionals is recommended to establish an integrated model of care. Shared protocols, consistent messaging, and cross-referrals can improve client safety, credibility, and access to appropriate treatments within both beauty salons and medical aesthetics practices.

8.5 Limitations

While the preceding recommendations offer practical strategies for enhancing aesthetic care, it is important to acknowledge the limitations that may influence the scope and applicability of the study's findings. Recognising these constraints provides context for interpreting the results and highlights areas for improvement in future research. The following limitations outline key considerations related to geographic scope, data collection methods, participant selection, and demographic segmentation.

The study was limited by its geographic focus on the Free State and Northern Cape provinces of SA. While the regional focus allowed for in-depth insight into client behaviour in under-researched areas, it may limit the broader applicability of the findings to other contexts where access to non-surgical anti-ageing treatments, cultural attitudes, and marketing exposure may differ.

In addition, the study relied on self-reported data, which introduces the possibility of recall bias and socially desirable responses. Clients may have unintentionally overstated their knowledge, underreported concerns, or aligned their responses with what they believed to be professionally acceptable.

Moreover, the study exclusively included individuals who had already experienced non-surgical anti-ageing treatments. As a result, the perceptions of potential clients, those who are curious, undecided, or hesitant but have not yet engaged with aesthetic treatments, were not captured. Potential clients may hold different expectations, misconceptions, or barriers to access that influence their decision-making processes.

A final limitation worth noting is that while the study explored a broad range of treatment types, it did not segment findings by socio-economic status, racial identity, or education-level factors that may influence access to care, trust in aesthetic practitioners, and reliance on information sources. Future research would benefit



from a more demographically segmented analysis to better understand the diversity of client experiences in non-surgical anti-ageing treatment aesthetic care.

8.6 Suggestions for future research

Building on the findings of this study, future research should consider expanding the geographic scope beyond the Free State and Northern Cape. Including participants from other South African provinces could offer comparative insight into how regional differences influence client expectations, perceptions, and knowledge of non-surgical anti-ageing treatments. A broader sample may help identify disparities in access, cultural influences, and professional trust across different communities.

Another valuable direction for future research involves individuals who have not yet undergone non-surgical anti-ageing treatments. Exploring the expectations, perceptions, and knowledge of this group may uncover concerns, misconceptions, or motivations that diverge meaningfully from those who have already accessed treatments. This comparison could help aesthetic professionals better understand the factors that influence early decision-making, hesitation, or avoidance, and refine client education strategies accordingly.

Such insights could be deepened by conducting focused research on the 18–25 years age group, particularly as preventative expectations are becoming more common in younger populations. International trends in early intervention highlight the importance of this demographic.

Understanding younger clients' perceptions and knowledge of treatment safety and longevity can help professionals tailor consultations and messaging to support informed engagement. This is particularly relevant in the context of the Free State and Northern Cape, where preventative treatment uptake was found to occur later in life. The research could provide valuable comparative insights into regional differences and support the development of age-appropriate consultation strategies.



8.7 Concluding remarks

Clients pursuing non-surgical anti-ageing treatments often seek youthful results with minimal downtime. Yet, their expectations often lack some alignment with accurate perceptions, expectations or sufficient knowledge. Importantly, this study reveals that even clients who previously had non-surgical anti-ageing treatment may hold misconceptions, underscoring the need for stronger communication strategies within beauty salons and medical aesthetics practices.

Aesthetic professionals are central to bridging the gap between client aspirations and realistic treatment outcomes through transparent, ethical, and client-centred consultations. Ultimately, by incorporating new insights into consultation and practice, aesthetic professionals can enhance client trust, support realistic treatment planning, and contribute to the ethical growth of the non-surgical anti-ageing sector.

References

A

Ablon, G. 2018. Safety and effectiveness of an automated microneedling device in improving the signs of aging skin. *Journal of Clinical and Aesthetic Dermatology*, 11(8), pp. 29–34. [online] Available at: <https://pubmed.ncbi.nlm.nih.gov/30214664/> [Accessed 28 August 2025].

Aesthetic Doctors. 2023. Non-surgical treatments in South Africa: Guidelines and qualifications. [online] Available at: <https://www.aestheticdoctors.co.za> [Accessed 3 July 2024].

Aesthetic and Anti-Aging Medicine Society of South Africa (AAMSSA) 2024a. *Guideline – Safe Practices on Social Media – Updated 2024*. [online] Available at: <https://aestheticdoctors.co.za/wp-content/uploads/2024/05/AAMSSA-Guideline-Safe-Practices-on-Social-Media-Updated-2024.pdf> [Accessed 1 August 2025].

Aesthetic and Anti-Aging Medicine Society of South Africa (AAMSSA) 2024b. *The role of Aesthetic Medicine in boosting mental well-being*. [online] Available at: <https://aestheticdoctors.co.za/public-awareness/the-role-of-aesthetic-medicine-in-boosting-mental-well-being/> [Accessed 1 August 2025]

Aesthetic & Anti-Aging Medicine Society of South Africa (AAMSSA) 2019. *The risks of practising aesthetic medicine in non-clinical settings*. [pdf] Issued 09 December 2019. [online] Available at: <https://aestheticdoctors.co.za/wp-content/uploads/2022/03/AAMSSA-Guideline-The-risks-of-practicing-Aesthetic-Medicine-in-non-clinical-setting-Issued-09-December-2019.pdf> [Accessed 3 July 2024].

Aesthetica Med Spa. 2023. Advanced anti-ageing treatments. [online] Available at: <https://www.aestheticamedspa.com> [Accessed 21 August 2025].

Alam, M., Dover, J.S., Klein, A.W. & Arndt, K.A. 2002. Botulinum A exotoxin for hyperfunctional facial lines: Where not to inject. *Archives of Dermatology*, 138(9), pp. 1180–1185. <https://doi.org/10.1001/archderm.138.9.1180>

Alam, M., Gladstone, H., Kramer, E.M., Murphy, J.P. Jr, Nouri, K., Neuhaus, I.M., Spencer, J.M., Spenceri, E., Van Dyke, S., Ceilley, R.I., Lee, K.K., Menaker, G., Monheit, G.D., Orentreich, D.S., Raab, B., Smith, K.C. & Solish, N.J. 2008. American Society for Dermatologic Surgery, 2008. ASDS guidelines of care: injectable fillers. *Dermatologic Surgery*, 34(1), pp. S115–S148. doi:10.1111/j.1524-4725.2008.34253.x. PMID: 18547175.

Alenezi, B.T., Hamayun, R., Agarwal, A., Alanazi, D.A.J., Alruwaili, A.M.A., Alenezi, W.A.A. & Alanazi, A.K.M. 2024. Knowledge and attitude towards botulinum toxin use in cosmetic injections among the Arar population in Saudi Arabia: a cross-sectional study. *Cureus*, 16(10), e70694. doi:10.7759/cureus.70694. PMID: 39493111; PMCID: PMC11529696.

Alexiades-Armenakas, M.R., Dover, J.S. & Arndt, K.A. 2008. The spectrum of laser skin resurfacing: nonablative, fractional, and ablative laser resurfacing. *Journal of the American Academy of Dermatology*, 58(5), pp. 719–737. doi: 10.1016/j.jaad.2008.01.003.

Allure. 2024. Why chemical peels are the secret to perfect skin. *Allure*, 5 November. [online] Available at: <https://www.allure.com/story/skin-check-newsletter-at-home-chemical-peels> [Accessed 24 August 2025].

Almeida, J.R. & Barreto, I.S. 2021. Estrogen and skin ageing in menopause. *Climacteric*, 24(3), pp. 232–239.

Al-Nuaimi, Y., Sherratt, M.J. & Griffiths, C.E.M. 2014. Skin health in older age. *Maturitas*, 79(3), pp.237–241. <https://doi.org/10.1016/j.maturitas.2014.08.005>

Ambrosio, L. 2018. Beauty therapy in the modern age: Trends and transitions. *Journal of Aesthetic Medicine*, 12(3), pp. 56–63.

Alzghaibi, H. 2023. People behavioral during health information searching in COVID-19 era: A review. *Frontiers in Public Health*, 11, p. 1121327. doi:10.3389/fpubh.2023.1121327.

American Academy of Dermatology Association (AAD). 2024. *How long do results from fillers last?* [online] Available at: <https://www.aad.org/public/cosmetic/fillers/fillers-faqs> [Accessed 28 August 2025].

American Academy of Dermatology Association (AAD). 2025. *Cosmetic treatments: What to expect.* [online] Available at: <https://www.aad.org/public/cosmetic> [Accessed 28 August 2025].

American Board of Cosmetic Surgery. 2009–2024. *Surgical cosmetic procedures: An overview.* [online] Available at: <https://www.americanboardcosmeticsurgery.org> [Accessed 3 July 2024].

American Society for Aesthetic Plastic Surgery (ASAPS), 2021. *Annual statistics report.* New York: ASAPS. [online] Available at: <https://www.plasticsurgery.org/news/plastic-surgery-statistics> [Accessed 1 August 2025].

American Society for Dermatologic Surgery (ASDS) 2018. *ASDS consumer survey on cosmetic dermatologic procedures.* [online] Available at: <https://www.asds.net/skin-experts/news-room/press-releases/asds-consumer-survey> [Accessed 28 August 2025].

American Society for Dermatologic Surgery (ASDS). 2023a. *ASDS Consumer Survey: 2023 Results.* Rolling Meadows, IL: ASDS.

American Society for Dermatologic Surgery (ASDS). 2023b. *IPL Photofacial*. [online] Available at: <https://www.asds.net/skin-experts/skin-treatments/ipl-photofacial> [Accessed 18 August 2025].

American Society for Dermatologic Surgery (ASDS). 2024. *Chemical peels, IPL, and laser treatments*. [online] Available at: <https://www.asds.net/skin-experts/skin-treatments/chemical-peels-lasers> [Accessed 28 August 2025].

American Society of Plastic Surgeons (ASPS). 2023. *2023 plastic surgery statistics report*. Arlington Heights, IL: ASPS. [online] Available at: <https://www.plasticsurgery.org/news/plastic-surgery-statistics> [Accessed 28 August 2025].

American Society for Dermatologic Surgery 2020. *Survey on Dermatologic Procedures*. Schaumburg, IL: ASDS [online] Available at: <https://www.asds.net/medical-professionals/practice-resources/survey-on-dermatologic-procedures> [Accessed 24 August 2025].

American Society of Plastic Surgeons (ASPS). 2024. *Trends in aesthetic procedures 2023*. Arlington Heights, IL: ASPS. [online] Available at: <https://www.plasticsurgery.org> [Accessed 3 July 2024].

Anido, J., Fernández, D., Genol, M., Ribé, N. & Pérez Sevilla, C. 2021. Long-term efficacy of hyaluronic acid dermal fillers. *Aesthetic Surgery Journal*, 41(2), pp.121–130.

Arsiwala, S.Z., 2018. Simplifying injectables for volumetric rejuvenation of face. *Journal of Cutaneous and Aesthetic Surgery*, 11(2), pp.51–59.
doi:10.4103/JCAS.JCAS_67_18. PMID: 30210206; PMCID: PMC6128161

APA. 2025. Knowledge. In: *APA Dictionary of Psychology*. American Psychological Association. [online] Available at: <https://dictionary.apa.org/knowledge> [Accessed 26 August 2025].

APRASSA. 2024. *Association of Plastic and Reconstructive Surgeons of Southern Africa: Members and standards*. [online] Available at: <https://www.aprassa.co.za> [Accessed 3 July 2024].

ASDS. 2020. Consumer Survey on Cosmetic Dermatologic Procedures. *American Society for Dermatologic Surgery*. [online] Available at: <https://www.asds.net> [Accessed 3 July 2024].

Audi, R. 2020. *Epistemology: A contemporary introduction to the theory of knowledge*. 3rd ed. New York: Routledge.

Aust, M.C., Knobloch, K., Reimers, K., Redeker, J., Ipaktchi, R., Altintas, M.A. & Vogt, P.M. 2008. Percutaneous collagen induction therapy: an alternative treatment for scars, wrinkles, and skin laxity. *Plastic and Reconstructive Surgery*, 121(4), pp.1421–1429. doi: 10.1097/01.prs.0000304612.72899.02. PMID: 18349665.

B

Babbie, E. 2020. *The Practice of Social Research*. 15th ed. Boston, MA: Cengage Learning.

Ballin, A.C., Brandt, F.S., & Cazzaniga, A. 2015. Dermal fillers: An overview. *Clinics in Plastic Surgery*, 42(3), pp. 409–417.

Baroni, A., Buommino, E., De Gregorio, V., Ruocco, E. & Ruocco, V., 2024. Skin structure, physiology, and pathology in topical and transdermal delivery. *Clinical, Cosmetic and Investigational Dermatology*, 17, pp.113–126. <https://doi.org/10.2147/CCID.S405827>

Basedow, L.A., Fischer, A., Benson, S., Bingel, U., Brassens, S., Büchel, C., Engler, H., Mueller, E.M., Schedlowski, M. & Rief, W. 2023. The influence of psychological traits and prior experience on treatment expectations. *Comprehensive Psychiatry*, 127, p.152431. doi: 10.1016/j.comppsy.2023.152431.

Battaglia, M.P. 2008. Nonprobability sampling. In: Lavrakas, P.J. (ed.) *Encyclopedia of Survey Research Methods*. Thousand Oaks, CA: Sage Publications.

Battle, E.F. 2007. Fractional laser technology and skin of color: considerations for laser treatment of pigmentary disorders. *Journal of Drugs in Dermatology*, 6(11 Suppl), pp.s31–s35. PMID: 18046915.

Baumann, L., Bernstein, E.F., Weiss, A.S., Bates, D., Humphrey, S., Silberberg, M. & Daniels, R., 2021. Clinical relevance of elastin in the structure and function of skin. *Aesthetic Surgery Journal Open Forum*, 3(3), article ojab019. <https://doi.org/10.1093/asjof/ojab019>

Baumann, L. 2007. *Cosmetic Dermatology: Principles and Practice*. 2nd ed. New York: McGraw-Hill.

Baumann, L., Bernstein, E.F., Weiss, R.A., Bates, D., Humphrey, S., Silberberg, M. & Daniels, M. 2021. Skin elasticity and facial ageing: A clinical review. *Journal of Cosmetic Dermatology*, 20(4), pp. 999–1009.

Bawa, M. 2022. Importance of the consultation. *Journal of Aesthetic Nursing*, 11(4), pp.180–182.

Berlin, A.L. 2014. Collagen stimulation using dermal fillers. *Journal of Clinical Aesthetic Dermatology*, 7(6), pp. 27–31.

Berson, D.S., Cohen, J.L., Rendon, M.I., Roberts, W.E., Starker, I. & Wang, B. 2009. Chemical peels: Principles and safety. *Cutis*, 84(4), pp. 195–202.

Boen, M. & Jerdan, K. 2022. Growing impact of social media in aesthetics: Review and debate. *Clinical Dermatology*, 40(1), pp. 45–48. doi: 10.1016/j.clindermatol.2021.08.011. PMID: 35190064.

Boireau-Adamezyk, E., Baillet-Guffroy, A. & Stamatas, G.N. 2021. The stratum corneum water content and natural moisturization factor composition evolve with age and depend on body site. *International Journal of Dermatology*, 60(7), pp.834-839. <https://doi.org/10.1111/ijd.15417>

Botox. 2024. *Botulinum Toxin Type A Information Sheet*. [online] Available at: <<https://www.botox.com>> [Accessed 3 July 2024].

Brackenbury, J. 2018. Managing expectations: An important part of the aesthetic consultation. *Journal of Aesthetic Nursing*, 7(6), pp. 324–327. doi:10.12968/joan.2018.7.6.324.

Braverman, I.M. 2000. The cutaneous microcirculation: Angioarchitecture, vasomotion, and vasoregulation. *Journal of Investigative Dermatology Symposium Proceedings*, 5(1), pp. 3–9.

Brown, L. & Krishnamurthy, K. 2022. Age-related changes in collagen structure and function. *International Journal of Dermatology*, 61(9), pp. 1102–1109.

Brown, L. & White, T. 2019. Skin barrier changes and lipid regulation with age. *Dermatologic Therapy*, 32(6), e13044.

Business Insider. 2025. *Skin-tightening is getting more advanced - and less painful. Here are the new techniques replacing facelifts*. [online] Available at: <https://www.businessinsider.com/skin-tightening-treatments-ultherapy-red-light-sofwave-facelift-alternatives-2025-8> [Accessed 28 August 2025].

Bustos, S.S., Vyas, K.S., Huang, A.H., Suchyta, H., LeBrasseur, N., Cotofana, S., Wyles, C. & Mardini, S. 2024. Recent advances in aesthetic medicine: Bridging surgical and non-surgical domains. *Aesthetic Plastic Surgery*, 48(2), pp. 123–137.

Bryman, A. 2016. *Social Research Methods*. 5th ed. Oxford: Oxford University Press.

C

Camargo, C.P., Xia, J., Costa, C.S., Gemperli, R., Tatini, M.D.C., Bulsara, M.K. & Riera, R. 2021. Botulinum toxin type A for facial wrinkles. *Cochrane Database of Systematic Reviews*, 7(7), CD011301.

<https://doi.org/10.1002/14651858.CD011301.pub2>.

Camirand, A. 1997. Needling technique for skin remodelling. *Plastic and Reconstructive Surgery*, 100(7), pp. 1901–1903.

Campbell, C. (2013). Collaboration in the clinical aesthetic setting. *Aesthetic Practice Journal*, 8(1), pp. 12–18.

Capili, B., 2021. Selection of the study participants. *Journal of Nursing Education and Practice*, 11(12), p.29. <https://doi.org/10.5430/jnep.v11n12p29>

Car, B., Bogucki, J., Bonikowski, R., Dec-Ćwiek, M. & Drużdż, D. 2021. Mechanism and effects of Botulinum Toxin A in facial aesthetics. *Journal of Cosmetic and Laser Therapy*, 23(1), pp. 34–39.

Carruthers, A., Glogau, R. & Blitzer, A. 2008. Advances in facial aesthetic treatments. *Dermatologic Surgery*, 34(Suppl 1), pp.S2–S9.

Carruthers, J.A. & Carruthers, J.D. 2001. Botulinum toxin type A: history and current cosmetic use in the upper face. *Seminars in Cutaneous Medicine and Surgery*, 20(2), pp.71–84. doi:10.1053/sder.2001.25156. PMID: 11449207.

Carruthers, J. & Carruthers, A. 2003. Clinical indications and applications of botulinum toxin type A. *Plastic and Reconstructive Surgery*, 112(5 Suppl), pp.43S–51S. doi:10.1097/01.PRS.0000081503.30138.7D. PMID: 14504596.

Carruthers, J. & Carruthers, A. 2010. Botulinum toxin products overview. *Skin Therapy Letter*, 15(5), pp.1–5. PMID: 20729867.

Carruthers, J., Fagien, S., Joseph, J.H., Humphrey, S., Biesman, B., Sundaram, H., Rzany, B., Flynn, T., Maas, C., Monheit, G., Kane, M., Owsley, J. & Carruthers, A. 2013. Botulinum toxin products: a literature review of differences in safety and efficacy. *Plastic and Reconstructive Surgery*, 132(5 Suppl. 2), pp. 29S–41S. doi:10.1097/PRS.0b013e31829f5834.

Carruthers, J., Carruthers, A. & Monheit, G. 2013. Consensus recommendations for combined aesthetic interventions in facial rejuvenation: botulinum toxin, fillers, and adjunctive procedures. *Dermatologic Surgery*, 39(9), pp. 1449–1462. doi:10.1111/dsu.12242.

Carruthers, J., Carruthers, A. & Humphrey, S., 2015. Introduction to fillers. *Plastic and Reconstructive Surgery*, 136(5 Suppl), pp.120S–131S. doi:10.1097/PRS.0000000000001770. PMID: 26441092

Cash, T.F., Phillips, K.A. & Santos, M.T. 2007. Body image and cosmetic surgery. *Clinical Psychology Review*, 27(5), pp. 601–622. doi: 10.1016/j.cpr.2007.04.005.

Castleberry, A. & Nolen, A. 2018. Thematic analysis of qualitative research data: Is it as easy as it sounds? *Currents in Pharmacy Teaching and Learning*, 10(6), pp. 807–815. doi: 10.1016/j.cptl.2018.03.019.

Chalise, H.N. 2019. Social support and its correlation with loneliness and subjective well-being: A cross-cultural study. *Aging & Mental Health*, 23(2), pp. 1–7.

Chaudhary, S., Khan, A. & Gupta, R. 2020. Ageing and skin: Pathophysiology and emerging treatments. *Dermatology and Therapy*, 10(1), pp. 1–14.

Chen, C., Cheng, L., Watchmaker, J.D., Dover, J.S. & Chung, J.H. 2022. Light therapy in facial rejuvenation: A review. *Journal of Clinical and Aesthetic Dermatology*, 15(3), pp. 56–64.

Chin Yee Ho, C. & Dreesen, O. 2023. Epidermal ageing mechanisms. *Journal of Cell Science*, 136(2), jcs260482.

Choi, W., Yin, L., Smuda, C., Batzer, J., Hearing, V.J. & Kolbe, L. 2017. Molecular and histological characterization of age spots. *Experimental Dermatology*, 26(3), pp.242–248. doi:10.1111/exd.13203.

Clarke, L.H. 2007. Older women's perceptions and experiences of non-surgical cosmetic procedures. *Ageing & Society*, 27(6), pp. 961–981. doi:10.1017/S0144686X07006438.

Clarke, L.H. and Korotchenko, A. 2011. 'Aging and the body: A review'. *Ageing & Society*, 31(5), pp. 705–725.

Clark, T. 2011. Gaining and maintaining access: Exploring the mechanisms that support and challenge the relationship between gatekeepers and researchers. *Qualitative Social Work*, 10(4), pp. 485–502.

Clementi, A., Cannarozzo, G., Amato, S., Zappia, E., Bennardo, L., Michelini, S., Morini, C., Sannino, M., Longo, C. & Nistico, S.P. 2024. Dye laser applications in cosmetic dermatology: Efficacy and safety in treating vascular lesions and scars. *Cosmetics*, 11(6), p. 227. doi:10.3390/cosmetics11060227.

Cleveland Clinic. 2023. *Botox injections: What you need to know*. [online] Available at: <https://my.clevelandclinic.org> [Accessed 21 August 2025].

Cleveland Clinic, 2024. *Microneedling: What it is, uses, benefits & results*. Cleveland Clinic Health Library. [online] Available at: <https://my.clevelandclinic.org/health/treatments/23113-microneedling> [Accessed 28 August 2025].

Coane, J.H., Cipollini, J., Barrett, T.E., Kavalier, J. & Umanath, S. 2023. Lay definitions of intelligence, knowledge, and memory: inter- and independence of constructs. *Journal of Intelligence*, 11(5), 84. doi:10.3390/jintelligence11050084. PMID: 37233333; PMCID: PMC10218958.

Coetzee, J. & Viviers, P.J. 2017. Healthcare delivery in South Africa: Barriers and opportunities. *South African Medical Journal*, 107(1), pp.17–20. doi:10.7196/SAMJ.2017.v107i1.12021.

Cohen, J.L., Goodman, G.J., De Almeida, A.T., Jones, D., Carruthers, J., Grimes, P.E., de Maio, M., Swift, A., Solish, N., Fagien, S., Carruthers, A. & Sangha, S. 2023. Decades of beauty: Achieving aesthetic goals throughout the lifespan. *Journal of Cosmetic Dermatology*, 22(11), pp. 2889–2901. doi:10.1111/jocd.15968.

Cohen, S.A., Tijerina, J.D., Shah, S.A., Amarikwa, L., Kossler, A.L. #CosmeticsTwitter: Predicting Public Interest in Nonsurgical Cosmetic Procedures Using Twitter Data. 2022. *Aesthet Surg. J.*, 42(12):NP788-NP797. doi: 10.1093/asj/sjac147. PMID: 35675468; PMCID: PMC10060694

Cohen, J.L. 2023. Decades of beauty: Achieving aesthetic goals throughout life. *Journal of Cosmetic Dermatology*, 22(6), pp. 1513–1520. doi:10.1111/jocd.15968.

Coleman, S.R. & Grover, R. 2006. The anatomy of the aging face: Volume loss and fat redistribution. *Clinics in Plastic Surgery*, 33(4), pp. 639–650.

Corduff, N. 2023. Surgical or nonsurgical facial rejuvenation: The patients' choice. *Plastic and Reconstructive Surgery – Global Open*, 11, e5318. doi:10.1097/GOX.0000000000005318

Cosmetify. (2024). *The Cosmetify Index: Hottest Beauty Brands of 2024*. Available at: <https://www.cosmetify.com/the-cosmetify-index/> [Accessed 25 August 2025].

Creswell, J.W. & Poth, C.N. 2018. *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*. 4th ed. Thousand Oaks, CA: Sage.

Creswell, J.W., 2014. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. 4th ed. Thousand Oaks, CA: SAGE

Croda Beauty. 2025a. Prejuvenation – Skin care trend. Croda Beauty [online] Available at: <https://www.crodabeauty.com/en-gb/trends/prejuvenation> [Accessed 16 August 2025].

Croda Beauty. 2025b. *Beauty trends: Preventative anti-ageing treatments*. [online] Available at: <https://www.crodabeauty.com/en-gb/trends/anti-ageing> [Accessed 28 August 2025].

Cutis Laser Clinics. 2021. 'Potential risks of Botox and fillers'. *Cutis Laser Clinics Blog*, 3 September. Available at: <https://cutislaser.com/> [Accessed 19 August 2025].

Czumbel, L.M., Farkasdi, S., Gede, N., Mikó, A., Csupor, D., Lukács, A., Gaál, V., Kiss, J., Hegyi, P. & Varga, G., 2021. Hyaluronic acid is an effective dermal filler for lip augmentation: a meta-analysis. *Frontiers in Surgery*, 8, Article 681028. doi:10.3389/fsurg.2021.681028. PMID: 34422892; PMCID: PMC8377277.

D

da Prato, E.B., Cartier, H., Margara, A., Molina, B., Tateo, A., Grimolizzi, F. & Spagnolo, A.G., 2024. The ethical foundations of patient-centered care in aesthetic medicine. *Philosophy, Ethics, and Humanities in Medicine*, 19(1), p.1. doi:10.1186/s13010-024-00151-1. PMID: 38317236; PMCID: PMC10845625.

Daryanto, A. & Song, Z., 2021. A meta-analysis of the relationship between place attachment and pro-environmental behaviour. *Journal of Business Research*, 123, pp.208–219. <https://doi.org/10.1016/j.jbusres.2020.09.045>

Dastoor, S.F., Misch, C.E. & Wang, H.L. 2007. Botulinum toxin applications in facial aesthetics. *Journal of Cosmetic and Laser Therapy*, 9(2), pp. 85–91.

Dayan, S.H., Carruthers, J., Narurkar, V., Brandt, F., Green, J.B., Kane, M.A., Nestor, M.S., Remington, B.K., Smith, S., Tami, T.A. & Werschler, W.P. 2024. Relative importance of a natural look in cosmetic medicine - A review and consensus. *Journal of Cosmetic Dermatology*, 23(2), pp. e1–e10.

Dayan, S., Rivkin, A., Sykes, J.M., Teller, C.F., Weinkle, S.H., Shumate, G.T. & Gallagher, C.J. 2019. Aesthetic treatment positively impacts social perception: Analysis of subjects from the HARMONY study. *Aesthetic Surgery Journal*, 39(12), pp.1380–1389. doi:10.1093/asj/sjy239. PMID: 30239596.

Dayan, S., Ogilvie, P., Boyd, C., De Boulle, K., Cavallini, M., Garcia, J. K. & Musumeci, M. 2024. Self-perception of natural outcome, appearance, and emotional well-being after onabotulinumtoxinA treatment for upper facial lines: post hoc analysis across age and gender. *Journal of Cosmetic Dermatology*, 23(1), 107-116. doi:10.1111/jocd.15947

De Boulle, K. & Heydenrych, I., 2015. Patient factors influencing dermal filler complications: prevention, assessment, and treatment. *Clinical, Cosmetic and Investigational Dermatology*, 8, pp.205-214. <https://doi.org/10.2147/CCID.S80446>.

Del Greco, L., Walop, W. & McCarthy, R.H. 1987. Questionnaire development: 2. Validity and reliability. *Canadian Medical Association Journal*, 136(7), pp. 699–700. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1491926/> [Accessed 21 August 2025].

De Lange, L. 2025. *The Rise of Non-Surgical Cosmetic Procedures in Cape Town*. [blog] Available at: <https://drlouisedelange.com/the-rise-of-non-surgical-procedures-in-cape-town/> [Accessed 18 August 2025].

Dermatology Times. 2024. The “undetectable era”: how patients are shifting towards more natural-looking results at the clinic. *Dermatology Times*, 12 February. Available at: <https://www.dermatologytimes.com/view/-the-undetectable-era-how-patients-are-shifting-towards-more-natural-looking-results-at-the-clinic> [Accessed 24 August 2025].

Dermapen. 2023. *Microneedling technology overview*. [online] Available at: <https://www.dermapen.com> [Accessed 3 July 2024].

- De Vaus, D. 2014. *Surveys in Social Research*. 6th ed. London: Routledge.
- DeVon, H.A., Block, M.E., Moyle-Wright, P., Ernst, D.M., Hayden, S.J., Lazzara, D.J., Savoy, S.M. & Kostas-Polston, E. 2007. A psychometric toolbox for testing validity and reliability. *Journal of Nursing Scholarship*, 39(2), pp.155–164. doi:10.1111/j.1547-5069.2007.00161.x.
- Dhir, A., Talwar, S., Kaur, P. & Budhiraja, S. 2021. Why do young people buy cosmetic procedures? Examining the role of social media intensity, body image, and celebrity worship. *Telematics and Informatics*, 57, p. 101515. doi:10.1016/j.tele.2020.101515.
- Dimitrov, D. & Kroumpouzou, G. 2023. The evolution of chemical peels in aesthetic medicine. *Clinics in Dermatology*, 41(1), pp. 59–66.
- Di Santis, É.P., Hirata, S.H., Di Santis, G.M. & Yarak, S. 2021. Adverse effects of the aesthetic use of botulinum toxin and dermal fillers on the face: a narrative review. *Anais Brasileiros de Dermatologia*, 96(6), pp. 725–736. doi:10.1016/j.abd.2021.03.001. PMID: 34332540; PMCID: PMC8645189.
- Dollie, S. 2023. Medical misinformation in aesthetic medicine on social media – AAMSSA Bulletin. *Aesthetic Appointment* [blog]. Available at: <<https://www.aestheticappointment.co.za/2023/11/aamssa-bulletin-medical-misinformation-in-aesthetic-medicine-on-social-media.html>> [Accessed 18 August 2025].
- Dover, J.S. & Dover, J. 2017. Botulinum toxin in aesthetic medicine: Myths and realities. *Journal of Clinical and Aesthetic Dermatology*, 10(4), pp. 44–50. PMID: 29016535.

Dover J.S., Monheit, G., Greener, M. & Pickett, A. 2018. Botulinum Toxin in Aesthetic Medicine: Myths and Realities. *Dermatol Surg.*, 44(2), pp. 249-260. doi: 10.1097/DSS.0000000000001277. PMID: 29016535; PMCID: PMC5821482.

Dr H Consult, 2021. *Anti-ageing treatments explained*. [online] Available at: <https://www.drhconsult.com> [Accessed 21 August 2025].

Drozdowski, M. 2008. The origins of anti-ageing techniques in ancient Egypt. *Journal of Historical Medicine*, 16(2), pp. 77–85.

Dudek, M., Stachowicz, N. & Juśkiewicz, J. 2021. Glycation and skin ageing: A biochemical overview. *Molecules*, 26(6), p. 1744.

E

Elendu, C. 2024. The evolution of ancient healing practices: From shamanism to Hippocratic medicine: A review. *Medicine (Baltimore)*, 103(28), e39005. doi:10.1097/MD.00000000000039005.

El-Domyati, M., Medhat, W., Abdel-Wahab, H., Moftah, N., Nasif, A. & Hosam, W. 2014. Types of wrinkles: Clinical classification and pathophysiology. *Clinical, Cosmetic and Investigational Dermatology*, 7, pp. 85–92.

Elsner, P. & Maibach, H.I. 2008. *Cosmetic Dermatology: Products and Procedures*. New York: Springer.

F

Farber, K. 2020. Laser resurfacing and chemical peels in aesthetic dermatology: outcomes and durability. *Plastic and Aesthetic Research*, 7, 52. doi:10.20517/2347-9264.2020.152.

Fabbrocini, G., De Vita, V., Pastore, F., Panariello, L., Fardella, N., Sepulveres, R. & Monfrecola, G. 2014. Collagen induction therapy for skin rejuvenation. *Dermatologic Therapy*, 27(1), pp. 13–16.

Fabi, S., Alexiades, M., Chatrath, V., Colucci, L., Sherber, N., Heydenrych, I., Jagdeo, J., Dayan, S., Swift, A., Chantrey, J., Stevens, W.G. & Sangha, S. 2022. Facial aesthetic priorities and concerns: a physician and patient perception global survey. *Aesthetic Surgery Journal*, 42(4), pp. NP218–NP229. <https://doi.org/10.1093/asj/sjab358>

Fabi, S.G. & Sundaram, H. 2014a. The potential of topical and injectable growth factors and cytokines for skin rejuvenation. *Journal of Drugs in Dermatology*, 13(9), pp.1060–1064.

Fabi, S.G. & Sundaram, H. 2014b. The science of dermal fillers: an evidence-based review and best practices for optimal outcomes. *Journal of Drugs in Dermatology*, 13(9 Suppl.), pp. s14–s17.

Farage, M.A., Miller, K.W., Elsner, P. & Maibach, H.I. 2008. Intrinsic and extrinsic factors in skin ageing: A review. *International Journal of Cosmetic Science*, 30(2), pp. 87–95.

Fedorchenko, Y. 2024. Anti-Aging Cosmetic Procedures: Benefits and Risks. *Anti-Aging Eastern Europe*, 3(3), pp.135-140. <https://doi.org/10.56543/aaeeu.2024.3.3.04>

Fernandes, D. 2005. Percutaneous collagen induction therapy: An alternative to laser resurfacing. *Aesthetic Surgery Journal*, 25(3), pp. 307–309.

Fernandes, D. 2008. Minimally invasive percutaneous collagen induction. *Oral and Maxillofacial Surgery Clinics of North America*, 20(1), pp.91–104. doi:10.1016/j.coms.2007.11.003. PMID: 18312971.

Filoni, A., Mariano, M. & Cameli, N. 2019. Melasma: How hormones can modulate skin pigmentation. *Journal of Cosmetic Dermatology*, 18(2), pp. 458–463. doi:10.1111/jocd.12877.

Fisher, G.J., Varani, J. & Voorhees, J.J. 2002. Collagen fragmentation and skin ageing. *American Journal of Pathology*, 162(5), pp. 1529–1536.

Flament, F., Bazin, R., Laquieze, S., Rubert, V., Simonpietri, E. & Piot, B. 2013. Skin ageing: Clinical and instrumental assessment. *Journal of Cosmetic Dermatology*, 12(2), pp. 88–94.

Flynn, T.C. 2010. Botulinum toxin: examining duration of effect in facial aesthetic applications. *Journal of the American Academy of Dermatology*, 62(3), pp. 489–495. doi: 10.1016/j.jaad.2009.01.050.

França, K., Kumar, A., Fioranelli, M., Lotti, T., Tirant, M. & Rocchia, M.G. 2017. The history of botulinum toxin: From poison to beauty. *Wiener Medizinische Wochenschrift*, 167(Suppl. 1), pp. 46–48. doi:10.1007/s10354-017-0553-7.

Funt, D. & Pavicic, T. 2013. Dermal fillers in aesthetics: an overview of adverse events and treatment approaches. *Clin Cosmet Investig Dermatol.*, 6: 295-316. doi: 10.2147/CCID.S50546. PMID: 24363560; PMCID: PMC3865975.

Furler, J., Magin, P., Pirotta, M. & Van Driel, M. 2012. Participant demographics reported in "Table 1" of randomised controlled trials: a case of "inverse evidence"? *International Journal for Equity in Health*, 11(14), pp.1–6. doi:10.1186/1475-9276-11-14.

Furnham, A. & Levitas, J. 2012. Factors that motivate people to undergo cosmetic surgery. *Canadian Journal of Plastic Surgery*, 20(4), pp. e47–e50. doi:10.1177/229255031202000409.

G

GC Aesthetics. 2025. *Why patient consultation matters in aesthetic treatments*. GC Aesthetics Academy. [online] Available at: <https://www.gcaesthetics.com> [Accessed 3 July 2025].

Ganceviciene, R., Liakou, A.I., Theodoridis, A., Makrantonaki, E. & Zouboulis, C.C. 2012. Skin anti-aging strategies. *Dermato-Endocrinology*, 4(3), pp. 308–319.

Garg, S., Vashisht, K.R., Garg, D., Oberoi, B. & Sharma, G. 2024. Advancements in laser therapies for dermal hyperpigmentation in skin of color: A comprehensive literature review and experience of sequential laser treatments in a cohort of 122 Indian patients. *Journal of Clinical Medicine*, 13(7), p. 2116. doi:10.3390/jcm13072116.

Ghadially, R., Tong, P., Man, M.Q. & Elias, P.M. 1995. Age-related changes in stratum corneum lipid structure and composition. *Journal of Investigative Dermatology*, 104(6), pp. 764–767.

Ghasemi, A. & Zahediasl, S. 2012. Normality tests for statistical analysis: A guide for non-statisticians. *International Journal of Endocrinology and Metabolism*, 10(2), pp. 486–489.

Gilson, L., Palmer, N. & Schneider, H., 2005. Trust and health worker performance: exploring a conceptual framework using South African evidence. *Social Science & Medicine*, 61(7), pp.1418–1429. doi:10.1016/j.socscimed.2004.11.062.

Gold, M.H. 2007a. The evolving role of botulinum toxin in dermatology. *Journal of Drugs in Dermatology*, 6(3), pp. 298–303.

Gold, M.H., 2007b. Lasers and light sources for the treatment of benign cutaneous vascular lesions: a review. *Dermatologic Surgery*, 33(2), pp.131–142. doi:10.1111/j.1524-4725.2007.33028.x. PMID: 17300695.

Goldie, K. 2022. Aesthetic treatments by age: Tailoring non-surgical options. *Aesthetic Medical Practitioner*, 9(2), pp. 40–47.

Goldie, K., Peeters, W., Alghoul, M., Avram, M., Benedetto, A., Cohen, J., & Van Loghem, J.A. 2019. Global consensus recommendations on the use of botulinum toxin type A in aesthetics. *Plastic and Reconstructive Surgery*, 143(1), pp. 240e–250e. doi:10.1097/PRS.00000000000005110.

Goldstein, E.B. 2013. *Sensation and Perception*. 9th ed. Belmont, CA: Wadsworth, Cengage Learning.

Goodman, G.J., Magnusson, M.R., Callan, P., Roberts, S., Hart, S., Lin, F., Rahman, E., McDonald, C.B., Liew, S., Porter, C., Corduff, N. & Clague, M. 2022. Aspiration before tissue filler - an exercise in futility and unsafe practice. *Aesthetic Surgery Journal*, 42(1), pp. 89–101. doi:10.1093/asj/sjab036. PMID: 33512439; PMCID: PMC8670299.

Grigoryeva, N. & Zakirova, A. 2022. Language clarity and bias in self-administered questionnaires. *Procedia - Social and Behavioral Sciences*, 215, pp. 432–438.

Guo, J. 2023. Longevity and effectiveness of dermal fillers: a systematic review. *Journal of Clinical Medicine*, 12(15), 5123. doi:10.3390/jcm12155123.

Gout, U., Anand, C.V., Braz, A., Chao, Y.Y.Y., Fabi, S.G., Kerscher, M., Landau, M., Pavicic, T., Peng, P.H.L., Rzany, B., Sattler, G., Tiryaki, T., Waldorf, H.A. & Besins, T. 2017. Communication concepts for prevention and early intervention in aesthetic medicine: Consensus and literature review. *Journal of Drugs in Dermatology*, 16(9), pp.859–864. PMID: 28915280.

H

Haedersdal, M., Beerwerth, F. & Nash, J. 2011. Laser and intense pulsed light (IPL) therapy: Mechanisms and applications. *Journal of Investigative Dermatology Symposium Proceedings*, 16(1), pp. S7–S13.

Hamilton Fraser. 2023. Prejuvenation and the rise of preventative aesthetics. *Aesthetic Journal*, 11(1), pp. 20–24.

Harris, B., Goudge, J., Ataguba, J.E., McIntyre, D., Nxumalo, N., Jikwana, S. & Chersich, M. 2011. Inequities in access to health care in South Africa. *The Lancet*, 374(9692), pp. 858–865. doi:10.1016/S0140-6736(09)62116-7.

Harth, W. 2017. Was ist Schönheit. Manifest einer ästhetischen Charaktermedizin [What is beauty? Manifest for an aesthetic character medicine]. *Hautarzt*, 68(12), pp. 950–958. doi:10.1007/s00105-017-4051-z.

Harth, W. & Hermes, B. 2007. Psychosomatic disturbances and cosmetic surgery. *JDDG: Journal der Deutschen Dermatologischen Gesellschaft*, 5(9), pp. 736–743. doi:10.1111/j.1610-0387.2007.06293. x.

Hartmann, A., Ruzicka, T. & Gauglitz, G.G. 2015. Modern concepts of skin rejuvenation: A review. *Journal of the German Society of Dermatology*, 13(11), pp. 1013–1023.

Haykal, D., Nahai, F. & Cartier, H. 2023. Prejuvenation: The global new anti-aging trend. *Aesthetic Surgery Journal Open Forum*, 5, ojad061. doi:10.1093/asjof/ojad061.

Haykal, D., Treacy, P., Lim, T., Clatici, V.G., Fakh-Gomez, N., Leal-Silva, H., du Crest, D. & Cartier, H. 2023. Cross-cultural perspectives on patient expectations in cosmetic dermatology: a comparative analysis across countries and ethnicities. *Journal of Cosmetic Dermatology*, 22(4), pp.1–4. doi:10.1111/jocd.15869.

He, W., Workman, C.I., Kenett, Y.N. & Chatterjee, A. 2021. Beauty and the brain: Investigating the neural basis of aesthetic experiences. *Trends in Cognitive Sciences*, 25(10), pp. 889–902.

Hermans, A.M., Boerman, S.C. & Veldhuis, J. 2022. Follow, filter, filler? Social media usage and cosmetic procedure intention, acceptance, and normalization among young adults. *Body Image*, 43, pp. 440–449. doi: 10.1016/j.bodyim.2022.10.004.

Hemsworth, C., Hemsworth, D. & Richmond, D. 2024a. *Perception and client satisfaction in aesthetic treatment outcomes. Journal of Aesthetic Research*, 18(1), pp. 34–42.

Hemsworth, B., Hemsworth, C. & Richmond, S.A. 2024b. Non-surgical Medical Aesthetics and Patient Quality of Life: An Umbrella Review. *Aesthet Surg J Open Forum*, 6, ojae096. doi: 10.1093/asjof/ojae096. PMID: 39678691; PMCID: PMC11646117.

Henss, L. & Pinquart, M., 2023. Expectations do not need to be accurate to be maintained: Valence and need for cognitive closure predict expectation update vs. persistence. *Frontiers in Psychology*, 14, 1127328. <https://doi.org/10.3389/fpsyg.2023.1127328>

Hernandez, C., Frech, T.M., Mohsin, N., Dreyfuss, D. & Nouri, K. 2022. Misinformation in aesthetic medicine: Evaluating online content. *Dermatologic Surgery*, 48(6), pp. 755–760.

Hexsel, D., Brum, C. & Porto, M.D. 2015. Botulinum toxin for cosmetic indications: safety, efficacy, and patient satisfaction. *Expert Opinion on Drug Safety*, 14(4), pp. 531–544. doi:10.1517/14740338.2015.1000850. PMID: 25582799.

Hexsel, D., Dal’Forno, T. & Hexsel, C. 2011. Botulinum toxin type A for cosmetic use in the upper face: Onset and duration of effect. *Dermatologic Surgery*, 37(9), pp.1291–1297. doi:10.1111/j.1524-4725.2011.02071.x. PMID: 21810088.

Hexsel, D., Hexsel, C., Dal'Forno, T., Porto, M.D. & Siega, C. 2022. Patients' understanding and expectations of botulinum toxin type A treatment. *Dermatologic Therapy*, 35(9), e15639. doi:10.1111/dth.15639.

Hirschfeld, E.R. 2019. Motivational factors and post procedure impact of facial dermal fillers: a qualitative descriptive study. Faculty of Health Sciences, Department of Medicine. <http://hdl.handle.net/11427/36858>

Hoffmann, K., Janik, A.B., O'Shaughnessy, K.F. & Kerscher, M. 2022. The influence of minimally invasive aesthetic procedures on self-esteem and psychological well-being: A review. *Aesthetic Surgery Journal*, 42(10), pp. 1159–1170. doi:10.1093/asj/sjac092. PMID: 35435062.

Hoffman, L. & Fabi, S., 2022. Look better, feel better, live better? The impact of minimally invasive aesthetic procedures on satisfaction with appearance and psychosocial wellbeing. *Journal of Clinical and Aesthetic Dermatology*, 15(5), pp.47–58. PMID: 35642226; PMCID: PMC9122280

Holland, G. & Tiggemann, M. 2016. A systematic review of the impact of the use of social networking sites on body image and disordered eating outcomes. *Body Image*, 17, pp. 100–110. doi:10.1016/j.bodyim.2016.02.008. PMID: 26995158.

Honigman, R. & Castle, D.J. 2006a. Aging and cosmetic enhancement. *Clin Interv Aging*, 1(2): pp. 115-9. doi: 10.2147/ciia.2006.1.2.115. PMID: 18044108; PMCID: PMC2695163.

Honigman, R.J. & Castle, D.J. 2006b. The impact of cosmetic procedures on mental health. *Medical Journal of Australia*, 185(11–12), pp. 537–541.

Honigman, R.J., Phillips, K.A. & Castle, D.J. 2004. A review of psychosocial outcomes for patients seeking cosmetic surgery. *Plastic and Reconstructive Surgery*, 113(4), pp.1229–1237. <https://doi.org/10.1097/01.prs.0000110214.88868.ca>

HPCSA (Health Professions Council of South Africa). 2023. *Guidelines for aesthetic medical practice*. [online] Available at: <<https://www.hpcsa.co.za>> [Accessed 3 July 2024].

HPCSA (Health Professions Council of South Africa). 2020–2024. *Ethical Guidelines for Good Practice in the Health Care Professions* (Booklets 2, 5 and 16). Pretoria: HPCSA.

Humphrey, S., Bertucci, V., Heydenrych, I., Ogilvie, P., Safa, M. & de la Guardia, C. 2024. A 360° approach to patient care in aesthetic facial rejuvenation. *Aesthetic Surgery Journal Open Forum*, 6, ojae059. doi:10.1093/asjof/ojae059. PMID: 38902932.

Husain, Z. & Alster, T.S., 2016. The role of lasers and intense pulsed light technology in dermatology. *Clinical, Cosmetic and Investigational Dermatology*, 9, pp.29-40. <https://doi.org/10.2147/CCID.S69106>

I

International Society of Aesthetic Plastic Surgery (ISAPS). 2023. *ISAPS International Survey on Aesthetic/Cosmetic Procedures 2023*. Hanover, NH: ISAPS. [online] Available at: <https://www.isaps.org/discover/about-isaps/global-statistics/global-survey-2023-full-report-and-press-releases/> [Accessed 28 August 2025].

IOL. 2025. *Is natural beauty a myth? Unpacking the tweakment trend and cosmetic pressure*. IOL. [online] Available at: <https://iol.co.za/lifestyle/style-beauty/beauty/2025-04-10-is-natural-beauty-a-myth-unpacking-the-tweakment-trend-and-cosmetic-pressure/> [Accessed 2 Augustus 2025].

Iriarte, C., Awosika, O., Rengifo-Pardo, M. & Ehrlich, A., 2017a. Review of applications of microneedling in dermatology. *Clinical, Cosmetic and Investigational Dermatology*, 10, pp. 289–298. doi:10.2147/CCID.S142450. PMID: 28848356.

Iriarte, C., Awosika, O., Rengifo-Pardo, M. & Ehrlich, A., 2017b. Use of chemical peels in the treatment of skin disorders: A review of clinical effectiveness and safety. *Journal of Clinical and Aesthetic Dermatology*, 10(9), pp. 28–35.

Izadi-Avanji, F.S., Alavi, M., Namnabati, M., Mohammadi, S. & Khoshkesht, S. 2024. Development and psychometric testing of the Aesthetics of Everyday Life Scale in Aging (AELSA). *BMC Geriatrics*, 24, 244. doi:10.1186/s12877-024-04874-w.

J

Jaiswal, A. & Jawade, R. 2024a. Advances in minimally invasive anti-ageing procedures: Microneedling and beyond. *Indian Journal of Dermatology*, 69(1), pp. 33–40. doi:10.4103/ijd.ijd_245_23.

Jaiswal, S. & Jawade, S. 2024b. Microneedling in Dermatology: A Comprehensive Review of Applications, Techniques, and Outcomes. *Cureus*, 16(9), e70033. doi: 10.7759/cureus.70033. PMID: 39449889; PMCID: PMC11499218.

Jia, X., Pang, Y. & Liu, L.S. 2021. Online health information seeking behavior: A systematic review. *Healthcare*, 9(12), p.1740. doi:10.3390/healthcare9121740.

Joshi, M., Korrapati, N.H., Reji, F., Hasan, A. & Kurudamannil, R.A. 2022. The impact of social media on skin care: a narrative review. *Lviv Clinical Bulletin*, 1–2, pp. 85–96. doi:10.25040/lkv2022.01-02.085.

Juvederm. 2025. *How Juvederm works*. [online] Available at: <https://www.juvederm.com>. [Accessed 1 August 2025]

K

Kablik, J., Monheit, G.D., Yu, L., Chang, G. & Gershkovich, J. 2009. Comparative physical properties of hyaluronic acid dermal fillers. *Dermatologic Surgery*, 35 (Suppl. 1), pp. 302–312. doi:10.1111/j.1524-4725.2008.01046.x.

Kaminer, M.S. 2008a. Patient satisfaction in aesthetic dermatology. *Dermatologic Clinics*, 26(3), pp. 445–452.

Kaminer, M.S. 2008b. Non-surgical skin rejuvenation. *Journal of Drugs in Dermatology*, 7(1 Suppl), pp.S2–S6.

Kerscher, M., Volkenandt, M., Reuther, T., Bayrhammer, J., Reuther, K. & Altmeyer, P., 2008. Rejuvenation of aged skin by infrared light treatment: safety and efficacy of a non-ablative, non-pulsed, non-laser light source. *Dermatologic Surgery*, 34(9), pp.1173–1180. doi:10.1111/j.1524-4725.2008.34255.x. PMID: 18503606.

Khumalo, N.P. 2016. Aesthetic dermatology in Africa: Challenges and opportunities. *International Journal of Dermatology*, 55(S1), pp. 48–53. doi:10.1111/ijd.13246.

Khunger, N. & Chanana, A. 2022. Chemical peels in modern dermatology. *Indian Dermatology Online Journal*, 13(1), pp. 15–21.

Kim, E., Park, H.Y. & Kang, H. 2022. Skin pigmentation disorders and treatment strategies. *Dermatology Reports*, 14(1), pp. 12–20.

Klassen, A.F., Cano, S., Mansouri, J., Poulsen, L., Rae, C., Kaur, M., Dayan, S., Tsangaris, E., Armstrong, K., Klok, J., Santosa, K. & Pusic, A. 2024. “I want it to look natural”: development and validation of the FACE-Q aesthetics natural module. *Aesthetic Surgery Journal*, 44(7), pp. 733–743. doi:10.1093/asj/sjad374. PMID: 38180487; PMCID: PMC11177552.

Kleemans, M., Daalmans, S., Carbaat, I. & Anschütz, D. 2018. Picture perfect: The impact of manipulated Instagram photos on adolescent body image. *Body Image*, 26, pp. 90–97. doi:10.1016/j.bodyim.2018.06.001.

Kligman, A.M. 1989. Early destructive effects of sunlight on human skin. *Journal of the American Academy of Dermatology*, 21(5), pp. 1102–1105.

Korstjens, I. & Moser, A. 2017. Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing. *European Journal of General Practice*, 24(1), pp. 120–124.

Kopczewska, K., Kubara, M. & Kopyt, M. 2024. Population density as the attractor of business to the place. *Scientific Reports*, 14, p. 22234. doi:10.1038/s41598-024-73341-8.

Kosiński, J., Jarecki, J., Przepiórka-Kosińska, J. & Ratajczak, M. 2020. Hyaluronic acid fillers in aesthetic medicine. *Advances in Dermatology and Allergology*, 37(3), pp. 417–425.

Kotler, P. & Keller, K.L. 2016. *Marketing Management*. 15th ed. Harlow: Pearson Education.

Kunda, Z. 1999. *Social cognition: Making sense of people*. Cambridge, MA: MIT Press.

L

Laurent, T.C. & Fraser, J.R.E. 1992. Hyaluronan. *The FASEB Journal*, 6(7), pp. 2397–2404.

Launiala, A.2009. 'How much can a KAP survey tell us about people's knowledge, attitudes and practices? Some observations from medical anthropology research on malaria in pregnancy in Malawi', *Anthropology Matters*, 11(1), pp. 1– 13

Lekalakala-Mokgele, E., Lowane, M. P. & Mogale, N. M. 2023. Knowledge, Perceptions and Attitudes of eHealth and Health Technology among Nursing Students from Gauteng Province, South Africa. *Healthcare*, 11(12), 1672. doi:10.3390/healthcare11121672.

Lemena, B. 2023. Customer experience, satisfaction and loyalty at South African hair salons and spas. University of the Witwatersrand.

Lee, H.J., Jang, Y.J., Kim, M. & Kim, W.S. 2023. Poly-L-lactic acid (PLLA) for skin rejuvenation. *Archives of Plastic Surgery*, 50(1), pp. 34–40.

Lee, A.Y. 2021. Skin pigmentation abnormalities and their possible relationship with skin aging. *International Journal of Molecular Sciences*, 22(7), p. 3727. doi:10.3390/ijms22073727.

Lee, K.C., Wambier, C.G., Soon, S.L., Sterling, J.B., Landau, M., Rullan, P. & Brody, H.J., 2019. Advanced chemical peels: Phenol-croton oil peel. *Journal of the American Academy of Dermatology*, 81(2), pp.327-336. <https://doi.org/10.1016/j.jaad.2018.11.060>

Lee, J.C., Daniels, M.A. & Roth, M.Z. 2016. Mesotherapy, Microneedling, and Chemical Peels. *Clin Plast Surg.*, 43(3), pp. 583-95. doi: 10.1016/j.cps.2016.03.004. Epub 2016 May 11. PMID: 27363773.

Levy, A.G., Scherer, A.M., Zikmund-Fisher, B.J., Larkin, K., Barnes, G.D. & Fagerlin, A. 2018. Prevalence of and factors associated with patient nondisclosure of medically relevant information to clinicians. *JAMA Network Open*, 1(7), e185293. doi:10.1001/jamanetworkopen.2018.5293. PMID: 30646397.

Levy, L.L. & Emer, J.J. 2012. Complications of minimally invasive cosmetic procedures. *Journal of Clinical and Aesthetic Dermatology*, 5(10), pp. 32–39.

Lio, P. & Ahuja, K., 2023. A review of the dermatological manifestations associated with e-cigarettes and vaping. *Journal of Integrative Dermatology*, vol. 7, Article No. v7rp5393. <https://doi.org/10.64550/joid.v7rp5393>

Liao, Z.F., Zhu, Y., Xiao, M., Zhu, W., Liu, Y. & Xiao, H. 2024. The research trend of soft tissue filler injection from 2000 to 2022: a bibliometric and visualized analysis. *Plastic and Reconstructive Surgery – Global Open*, 12(2), e5481. <https://doi.org/10.1097/GOX.0000000000005481>. PMID: PMC10836874.

Li, H., Li, W., Zhai, Y., Lin, J. & Cao, F. 2025. Association between online health information-seeking and outpatient visits: Evidence from the Chinese General Social Survey 2021. *Frontiers in Public Health*, 13, p. 1435281. doi:10.3389/fpubh.2025.1435281. PMID: 40085841.

Li, K., Meng, F., Li, Y.R., Tian, Y., Chen, H., Jia, Q., Cai, H. & Jiang, H.B. 2022. Application of non-surgical modalities in improving facial aging. *International Journal of Dentistry*, 2022, p. 8332631. doi:10.1155/2022/8332631. PMID: 35251183; PMID: PMC8894069.

Lima, E.A. & Lima, M.M., 2019. Microneedling in facial recalcitrant melasma: report of a series of 22 cases. *Anais Brasileiros de Dermatologia*, 94(6), pp.695–699. doi: 10.1016/j.abd.2019.04.006. PMID: 31668558; PMID: PMC6960133.

Liu, M., Lu, F. & Feng, J., 2024. Aging and homeostasis of the hypodermis in the age-related deterioration of skin function. *Cell Death & Disease*, 15(6), article 443. <https://doi.org/10.1038/s41419-024-06818-z>

Lowe, N.J., Maxwell, C.A. & Patnaik, R. 2005. Adverse reactions to dermal fillers: review. *Dermatologic Surgery*, 31(11 Pt 2), pp. 1616–1625. doi:10.2310/6350.2005.31172. PMID: 16416647.

Lupo, M.P. 2006. Hyaluronic acid fillers in facial rejuvenation. *Seminars in Cutaneous Medicine and Surgery*, 25(3), pp.122–126. doi: 10.1016/j.sder.2006.06.011.

M

Mahant, N., Clouston, P.D. & Lorentz, I.T. 2000. The current use of botulinum toxin. *Journal of Clinical Neuroscience*, 7(5), pp. 389–394. doi:10.1054/jocn.2000.0684.

Manav, V., İlhan, D., Bal Avcı, E., Kara Polat, A., Erdil, D., Baş, S. & Koku Aksu, A.E. 2022. Perceptions and knowledge toward cosmetic procedures: A cross-sectional survey. *Turkderm – Turkish Archives of Dermatology and Venereology*, 56(2), pp. 51–57. doi:10.4274/turkderm.galenos.2021.66563.

Margara, A., Arrigoni, F., Bartoletti, E., Cavalieri, L., Fraone, N., Mariotti, M., Tamburlin, N., Tanzini, L., Trocchi, G. & Spagnolo, A.G. 2025. Ethics in aesthetic practice: results from a survey of medical doctors attending aesthetic medicine programs in Italy. *Philosophy, Ethics, and Humanities in Medicine*, 20(1), pp.1–15. doi:10.1186/s13010-025-00169-z.

Markiewicz-Tomczyk, D., Kozicka, A. & Chlebus, E. 2023. Combining chemical peels with microneedling: A synergistic anti-ageing approach. *Journal of Cosmetic Dermatology*, 22(1), pp.101–110.

Mazhar, S., Anjum, A., Anwar, M. & Khan, N. 2021a. Designing a research questionnaire: Validity and reliability in social sciences. *International Journal of Research in Business and Social Science*, 10(5), pp.17–27. doi:10.20525/ijrbs.v10i5.1236.

Mazhar, S.A., Anjum, R., Anwar, A.I. & Khan, A.A., 2021b. Methods of data collection: A fundamental tool of research. *Journal of Integrated Community Health*, 10(1), pp.6–10.

Mayo Clinic. 2023. *Wrinkles – diagnosis and treatment*. [online] Available at: <https://www.mayoclinic.org/diseases-conditions/wrinkles/diagnosis-treatment/drc-20354931> [Accessed 25 August 2025].

Mayo Clinic. 2024a. *Chemical peel*. [online] Available at: <https://www.mayoclinic.org/tests-procedures/chemical-peel/about/pac-20393473> [Accessed 28 August 2025].

Mayo Clinic. 2024b. *Cosmetic procedures: What you need to know*. [online] Available at: <https://www.mayoclinic.org> [Accessed 1 August 2025].

McDaniel, D.H., Farris, P. & Valacchi, G. 2018. Atmospheric skin ageing - contributing environmental factors. *Journal of Cosmetic Dermatology*, 17(6), pp.124–129.

McDonald, C., Hart, R., Liew, S. & Heydenrych, I. 2022a. Aesthetic practice: Global guidelines and perspectives. *Aesthetic Surgery Journal*, 42(10), pp.1125–1135. doi:10.1093/asj/sjac142.

McDonald, C.B., Hart, S., Liew, S. & Heydenrych, I., 2022b. The importance of patient mindset: Cosmetic Injectable Patient Experience Exploratory Study – Part 1. *Aesthetic Surgery Journal Open Forum*, 4, ojac043. doi:10.1093/asjof/ojac043. PMID: 35769690; PMCID: PMC9225726.

McDonald, C.B. & Heydenrych, I. 2022c. Factors influencing trust and trustworthiness: Cosmetic Injectable Patient Experience Exploratory Study (CIPEES) – Part 3. *Aesthetic Surgery Journal Open Forum*, 4, ojac082. doi:10.1093/asjof/ojac082.

McKeown, D.J. 2021. Impact of minimally invasive aesthetic procedures on the psychological and social dimensions of health. *Plastic and Reconstructive Surgery Global Open*, 9(4), e3578. doi:10.1097/GOX.0000000000003578. PMID: 33936919; PMCID: PMC8081460.

McKenna, S.P., Meads, D.M., Doward, L.C., Twiss, J., Pokrzywinski, R., Revicki, D. & Glendenning, A. 2011. Development and validation of patient-reported outcome measures: The example of the chronic venous insufficiency questionnaire. *Health and Quality of Life Outcomes*, 9(1), p. 56. doi:10.1186/1477-7525-9-56.

MD Cosmetic Dermatology, 2025. *Chemical Peel Benefits: How Long Do They Last?* MD Cosmetic Dermatology Blog. [online] Available at: <https://mdcosmetic.com/blog/chemical-peel-benefits-how-long-do-they-last/> [Accessed 1 August 2025]

MedEsthetics. 2024a. Growth of non-surgical aesthetics in South Africa. MedEsthetics Magazine. Available at: <https://www.medestheticsmag.com> [Accessed 3 July 2024].

MedEsthetics, 2024b. South African trends in aesthetic medicine: A market overview. [online] Available at: <https://www.medesthetics.co.za> [Accessed 3 July 2024].

Meretsky, C.R., Umali, J.P. & Schiuma, A.T. 2024. A systematic review and comparative analysis of Botox treatment in aesthetic and therapeutic applications: advantages, disadvantages and patient outcomes. *Cureus*, 16(8), e67961. doi:10.7759/cureus.67961. PMID: 39328645; PMCID: PMC11427080.

Mian, A., Ghani, S. & Mian, M. 2021. The impact of social media on cosmetic procedures: a cross-sectional study. *Cureus*, 13(12), e20071. doi:10.7759/cureus.20071. PMID: 35082742; PMCID: PMC8783176.

Milady, 2016. *Milady Standard Esthetics: Fundamentals*. 11th ed. Clifton Park, NY: Cengage Learning.

Mironica, A., Popescu, C.A., George, D., Tegzeşiu, A.M. & Gherman, C.D. 2024. Social media influence on body image and cosmetic surgery considerations: A systematic review. *Cureus*, 16(7), e65626. doi:10.7759/cureus.65626.

Monheit, G.D. & Chastain, M.A. 2001. Chemical peels. *Facial Plastic Surgery Clinics of North America*, 9(2), pp. 239–255.

Montemurro, P., Porčnik, A., Hedén, P. & Otte, M. 2015. The role of authenticity and the “natural look” in aesthetic surgery patient satisfaction. *Aesthetic Plastic Surgery*, 39(6), pp.1180–1190.

Mora Huertas, A.C., Schmelzer, C.E.H., Hoehenwarter, W., Heyroth, F. & Heinz, A., 2016. Molecular-level insights into aging processes of skin elastin. *Biochimie*, 128-129, pp.163–173. <https://doi.org/10.1016/j.biochi.2016.08.010>

Morita, A. 2007. Tobacco smoke causes premature skin aging. *Journal of Dermatological Science*, 48(3), pp.169–175.

Murphrey, M., Cullen, S., Ahdoot, R., Reece, E.M., Shah, A.R., Patel, B.C. & Sung, C. 2023. Patient preferences and perceptions concerning aesthetic providers and social media. *Aesthetic Surgery Journal*, 43(6), pp. 704–709. doi:10.1093/asj/sjad037. PMID: 36804673.

Myktyyn, C.E. 2006. Anti-aging medicine: A patient/practitioner movement to redefine aging. *Social Science & Medicine*, 62(3), pp. 643–653. doi: 10.1016/j.socscimed.2005.06.021. PMID: 16040177.

N

Naidu, T. & Prose, N.S. 2018. A global narrative review on ethical issues in dermatology. *Indian Journal of Dermatology, Venereology and Leprology*, 84(6), pp. 596–604. doi: 10.4103/ijdv.IJDVL_516_17. PMID: 30264770.

Narurkar, V., Shamban, A., Sissins, P., Stonehouse, A. & Gallagher, C. 2015. Facial treatment preferences in aesthetically aware women. *Dermatologic Surgery*, 41(Suppl. 1), pp. S153–S160. doi:10.1097/DSS.000000000000293. PMID: 25828040.

Naumann, M. & Jankovic, J., 2004. Safety of botulinum toxin type A: a systematic review and meta-analysis. *Current Medical Research and Opinion*, 20(7), pp. 981–990. doi:10.1185/030079904125003467. PMID: 15200710.

Nestor, M., Ablon, G. & Pickett, A. 2017. Key parameters for the use of abobotulinumtoxinA in aesthetics: onset and duration. *Aesthetic Surgery Journal*, 37(Suppl. 1), pp. S20–S31. doi:10.1093/asj/sjw282. PMID: 28388717; PMCID: PMC5434495.

News24. 2024. 'South Africa's non-surgical aesthetics market set for 14% annual growth through 2026', *News24*, 7 February. [online] Available at: <https://www.news24.com/> [Accessed 19 August 2025].

New York Post, 2025. *Millennials drive surge in tweakments as beauty goes subtle*. *New York Post*. [online] Available at: <https://nypost.com/2025/01/14/millennials-drive-surge-in-tweakments> [Accessed 1 Augustus 2025].

Nikalji, N., Godse, K., Sakhiya, J., Patil, S. & Nadkarni, N. 2012. Complications of medium depth and deep chemical peels. *Journal of Cutaneous and Aesthetic Surgery*, 5(4), pp. 254–260. doi:10.4103/0974-2077.104913. PMID: 23378707; PMCID: PMC3560165.

Nikolopoulou, K. 2023. Snowball sampling in applied social research. *International Journal of Social Research Methodology*, 26(1), pp. 52–66.

Nguyen, T. & Patel, V. 2021. The structure and function of the dermis. *Dermatology Clinics*, 39(1), pp. 7–16.

Nkwanyana, N.P. 2015. An investigation of the professional relationship between somatologists and medical professionals practicing non-invasive aesthetic and anti-ageing medicine in eThekweni Durban University of Technology.

Nonaka, I. & Takeuchi, H. 1995. *The knowledge-creating company: how Japanese companies create the dynamics of innovation*. New York: Oxford University Press.

O

O'Connor, A.A., Lowe, P.M., Shumack, S. & Lim, A.C., 2018. Chemical peels: A review of current practice. *Australasian Journal of Dermatology*, 59(3), pp.171–181. doi:10.1111/ajd.12761. PMID: 29064096.

Ogbechie-Godec, O. & Elbuluk, N. 2020. Melasma: An up-to-date comprehensive review. *Dermatology and Therapy*, 10(4), pp. 773–796. doi:10.1007/s13555-020-00427-8.

Olson, K.M. 2010. An examination of questionnaire evaluation by expert reviewers. *Field Methods*, 22(4), pp. 295–318. doi:10.1177/1525822X10379795.

Ono, Y., Egawa, G. & Kabashima, K. 2017. Vascular ageing and inflammatory skin conditions. *Experimental Dermatology*, 26(4), pp. 321–325.

Orentreich, D.S. & Orentreich, N. 1995. Subcutaneous incisionless (subcision) surgery for the correction of depressed scars and wrinkles. *Dermatologic Surgery*, 21(6), pp. 543–549.

Ou, Y., Zhang, Y., Tan, L., Zhou, Y. & Li, X. 2022. Structural changes in the hypodermis during facial ageing. *Skin Research and Technology*, 28(4), pp. 547–554.

Ozturk, M., Oliveira, F.A., Teixeira, M.R., Wellenbrock, S., Tav, B., Kueckelhaus, M., Wiebringhaus, P., Hirsch, T., Aitzetmüller-Klietz, M-L. & Aitzetmüller-Klietz, M. 2024. Insights into minimally invasive aesthetic procedures: Defining demographic factors and impact of the treatment on self-perception – a propensity-matched cross-sectional study. *Aesthetic Surgery Journal Open Forum*, 7, ojae111. doi:10.1093/asjof/ojae111.

P

Papaccio, F., D'Arino, A., Caputo, S. & Bellei, B. 2022. Smoking and skin ageing: Molecular mechanisms and clinical implications. *Dermatologic Therapy*, 35(2), e15240.

Patino, C.M. & Ferreira, J.C. 2018. Inclusion and exclusion criteria in research studies. *Jornal Brasileiro de Pneumologia*, 44(2), pp. 84–84.

Pearl, R.L. & Percec, I. 2019. Ageism and health in patients undergoing cosmetic procedures. *Aesthetic Surgery Journal*, 39(7), pp. NP288–NP292. doi:10.1093/asj/sjy283.

Peters, D.H., Garg, A., Bloom, G., Walker, D.G., Brieger, W.R. & Rahman, M.H. 2008. Poverty and access to health care in developing countries. *Annals of the New York Academy of Sciences*, 1136(1), pp. 161–171. doi:10.1196/annals.1425.011.

Philipp-Dormston, W.G., Bergfeld, D., Sommer, B.M., Sattler, G., Cotofana, S., Snozzi, P., Wollina, U., Hoffmann, K.P.J., Salavastru, C. & Fritz, K. 2017. Consensus statement on prevention and management of adverse effects following rejuvenation procedures with hyaluronic acid-based fillers. *Journal of the European Academy of Dermatology & Venereology*, 31(7), pp.1088-1095. <https://doi.org/10.1111/jdv.14295>

Pickens, J. 2005. Attitudes and Perceptions. In: S. Borkowski, ed. *Organizational Behavior in Health Care*. Sudbury, MA: Jones & Bartlett Publishers.

Plante, G.E. 2003. Vascular response to aging and hypertension. *Geriatrics and Aging*, 6(7), pp. 41–45.

Poljšak, B. & Milisav, I. 2022. Intrinsic skin aging: The role of oxidative stress. *Oxidative Medicine and Cellular Longevity*, 2022, p. 8184815.

Prabhu, S., Khetpal, S., Jain, N.S. & Vardanian, A.J. 2025. The influence of social media on patient expectations in plastic surgery. *Clinics in Plastic Surgery*, 52(3), pp. 363–367. <https://doi.org/10.1016/j.cps.2025.03.002>.

Professional Beauty South Africa. 2024. 'Collaborating with other clinics'. *Professional Beauty SA*, 13 June. [online] Available at: <https://probesa.co.za/> [Accessed 19 August 2025].

Psychology Today. 2022/2023. *Articles on cosmetic psychology*. [online] Available at: <https://www.psychologytoday.com>. [Accessed 1 August 2025]

Pullar, J.M., Carr, A.C. & Vissers, M.C.M. 2017. The roles of vitamin C in skin health. *Nutrients*, 9(8), p. 866.

Puig, S. & Guilabert, A. 2023. Genetic influences on skin ageing. *Clinical Dermatology Review*, 7(1), pp. 15–21.

Q

Octaviani, A., Octaviani, R. & Sunaryo, W. 2023. Antecedents of patient experience in aesthetic clinics: service encounter, electronic word of mouth, and outcome quality. *South African Journal of Business Management*, 54(1), a3832. doi:10.4102/sajbm.v54i1.3832.

Ogbechie-Godec, O. & Elbuluk, N. 2020. Aging in skin of color: Clinical considerations. *Dermatologic Clinics*, 38(2), pp. 283–290.

Quan, T. & Fisher, G.J. 2015. Role of age-associated alterations of the dermal extracellular matrix microenvironment in human skin aging. *Gerontology*, 61(5), pp. 427–434.

Quan, T., Qin, Z., Xia, W., Shao, Y., Voorhees, J.J. & Fisher, G.J. 2009. Matrix-degrading metalloproteinases in photoaging. *Journal of Investigative Dermatology Symposium Proceedings*, 14(1), pp. 20–24.

R

Rajenala, S. & Vashi, N. 2017. Clinical use of alpha hydroxy acids in dermatology. *Journal of Cosmetic Dermatology*, 16(4), pp. 398–403.

Rajanala, S., Maymone, M.B.C. and Vashi, N.A. 2018. 'Selfies—Living in the era of filtered photographs'. *JAMA Facial Plastic Surgery*, 20(6), pp. 443–444.

Ramirez, S., Cullen, C., Ahdoot, R. & Scherz, G. 2024. The primacy of ethics in aesthetic medicine: A review. *Plastic and Reconstructive Surgery Global Open*, 12(6), e5935. doi:10.1097/GOX.0000000000005935. PMID: 38919517.

Ramirez, S.P.B., Scherz, G. & Smith, H. 2021. Characteristics of Patients Seeking and Proceeding with Non-Surgical Facial Aesthetic Procedures. *Clinical, Cosmetic and Investigational Dermatology*, 14, pp.197–207. doi:10.2147/CCID.S296970.

Ranganathan, P. & Caduff, C. 2023. Designing and validating a research questionnaire – Part 1. *Perspectives in Clinical Research*, 14(3), pp. 152–155. doi: 10.4103/picr.picr_140_23.

Rana, A., Yadav, D., Bhalerao, S. & Dogra, A. (2017). Combination therapies in facial rejuvenation. *Indian Journal of Dermatology*, 62(4), pp. 387–393.

Ravitch, S.M. and Riggan, M. (2016) *Reason and Rigor: How Conceptual Frameworks Guide Research*. 2nd edn. Thousand Oaks, CA: SAGE Publications.

Rendon, M.I., Berson, D.S., Cohen, J.L., Roberts, W.E., Starker, I. & Wang, B. 2010. Evidence and considerations in the application of chemical peels in skin disorders and aesthetic resurfacing. *J Clin Aesthet Dermatol.* 3(7), pp. 32-43. PMID: 20725555; PMCID: PMC2921757.

Research and Markets. 2016. *Global Medical Aesthetics Market Report 2016–2021*. [online] Available at: <https://www.researchandmarkets.com> [Accessed 3 July 2024].

Resneck, J.S. & Kimball, A.B. 2008. The dermatology workforce shortage. *Journal of the American Academy of Dermatology*, 59(5), pp. 741–745.

Ricard-Blum, S. 2011. The collagen family. *Cold Spring Harbor Perspectives in Biology*, 3(1), a004978.

Rieder, E.A., Zubek, A. & Tammaro, A. 2021. The prejuvenation movement: Preventative aesthetic dermatology in millennials. *Journal of Cosmetic Dermatology*, 20(9), pp. 2877–2882.

Risi, A., Ramelet, A. & Heinzer, R. 2019. Psychological benefits of facial rejuvenation. *Journal of Cosmetic Dermatology*, 18(1), pp. 152–159.

Rittié, L. & Fisher, G.J. 2015. Natural and sun-induced aging. *Cold Spring Harbor Perspectives in Medicine*, 5(1), a015370.

Rock, I. 1985. Perception and knowledge. *Acta Psychologica*, 59(1), pp.3–22.

Roztock, N., Soja, P. & Weistoffer, A. 2019. The impact of digital transformation on business models in the aesthetic sector. *Journal of Theoretical and Applied Electronic Commerce Research*, 14(3), pp. 1–16.

Ryan, K., Gannon-Slater, N. & Culbertson, M.J. 2012. Improving survey methods with cognitive interviews in small- and medium-scale evaluations. *American Journal of Evaluation*, 33(3), pp. 414–430. doi:10.1177/1098214012441499.

S

Sadler, G.R., Lee, H.C., Lim, R.S.H. & Fullerton, J. 2010. Recruiting hard-to-reach populations. *Nursing Research*, 59(2), pp.132–137.

Samargandy, S. & Raggio, B.S., 2025. Chemical peels for skin resurfacing. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing. [online] Available at: <https://www.ncbi.nlm.nih.gov/books/NBK547752/> [Accessed 20 August 2025].

Samizadeh, S. & De Boulle, K., 2023. Complications of toxins and fillers in facial aesthetics. *Prim Dent J*, 12(3), pp. 65–72. doi:10.1177/20501684231197717. PMID: 37705471.

Sarkar, R., Bansal, S. & Garg, V.K., 2013. Chemical peels for melasma in dark-skinned patients. *Journal of Cutaneous and Aesthetic Surgery*, 6(4), pp.212–218. doi:10.4103/0974-2077.123428. PMID: 24396751; PMCID: PMC3875244.

Sarkar, R., Ghunawat, S. & Garg, V.K. 2019. Comparative study of 35% glycolic acid, 20% salicylic –10% mandelic acid, and phytic acid combination peels in the treatment of active acne and postacne pigmentation. *Journal of Cutaneous and Aesthetic Surgery*, 12(3), pp.158–163. doi:10.4103/JCAS.JCAS_135_18. PMCID: PMC6785964.

Sarwer, D.B., Magee, L. & Crerand, C.E. 2005. Cosmetic surgery and body image. *Plastic and Reconstructive Surgery*, 115(2), pp.1027–1034. doi:10.1097/01.PRS.0000154210.79196.63.

Sarwer, D.B., Wadden, T.A., Pertschuk, M.J. & Whitaker, L.A. 2005. Body image dissatisfaction and cosmetic surgery. *Plastic and Reconstructive Surgery*, 115(6), pp.1794–1800.

Satriyasa, B.K. 2019. Botulinum toxin (Botox) A for reducing the appearance of facial wrinkles. *Journal of Clinical and Aesthetic Dermatology*, 12(2), pp. 28–31.

Schneider, L., Hong, J., Zhang, Z., Smith, B.J., Dando, R., Li, L. & Snyder, S.H. 2009. Skin pigmentation: Molecular and physiological determinants. *Annual Review of Physiology*, 71, pp. 569–588.

Schoenmakers, T.M. & Van Tilburg, T. 2019. Cosmetic procedures and aging: Perceptions of accessibility and social meaning. *Journal of Aging Studies*, 50, 100791.

Scott, K., Ummer, O. & LeFevre, A.E. 2021. The devil is in the detail: Reflections on the value and application of cognitive interviewing to strengthen quantitative surveys in global health. *Health Policy and Planning*, 36(6), pp. 982–995. doi:10.1093/heapol/czab048.

Sethi, N., Kaur, T. & Al-Nuaimi, Y. 2021. Botulinum toxin in aesthetic dermatology: Clinical applications and patient perspectives. *Clinical, Cosmetic and Investigational Dermatology*, 14, pp. 373–384. doi:10.2147/CCID.S294019. PMID: 33762977.

Sethi, N., Singh, R. & Goodman, G.J. 2024. Patient expectations and satisfaction in aesthetic medicine: Bridging the gap between perception and clinical outcomes. *Journal of Cosmetic Dermatology*, 23(4), pp.1098–1106. doi:10.1111/jocd.15793

Sharad, J. 2013. Glycolic acid peel therapy – a current review. *Clinical, Cosmetic and Investigational Dermatology*, 6, pp.281–288. doi:10.2147/CCID.S33046. PMID: 24294083; PMCID: PMC3951610.

Sharkiya, S. 2023. The importance of verbal and nonverbal communication in improving patient-centered outcomes of older patients in healthcare: A rapid review. *Patient Education and Counseling*, 113, p. 107789. doi:10.1016/j.pec.2023.107789.

Sherratt, M.J. 2009. Age-related changes in the skin. *Journal of Anatomy*, 215(4), pp. 491–505.

Shin, S.H., Lee, Y.H., Rho, N.K. & Park, K.Y. 2023. Skin aging from mechanisms to interventions: Focusing on dermal aging. *Frontiers in Physiology*, 14, p. 1195272. doi:10.3389/fphys.2023.1195272.

Sijabat, L. & Mandagi, D.W. 2022. The role of social media influencers in shaping customer brand engagement and brand perception. *Jurnal Manajemen Bisnis*, 9(2), pp. 280–288. doi:10.33096/jmb.v9i2.459.

Singh, A. & Yadav, S. 2016. Microneedling: Advances and widening horizons. *Indian Dermatology Online Journal*, 7(4), pp. 244–254. doi:10.4103/2229-5178.185468.

Singh, R., Kumar, P. and Sharma, A. 2025. 'Exploring Knowledge, Attitudes, and Practices on Seasonal Vaccination: Mediating 5C Antecedents and Moderating Vaccine Perception', *Journal of Natural Science, Biology and Medicine*, 16(1), pp. 12–20.

Singh, S. & Wassenaar, D.R. 2016. Contextualising the role of the gatekeeper in social science research. *South African Journal of Bioethics and Law*, 9(1), pp.42–46.

Singh-Behl, D. & Tung, R. 2009. The role of chemical peels in aesthetic practice. *Dermatologic Clinics*, 27(4), pp. 441–452.

Skin Renewal Clinic, 2025. *Prejuvenation*. Skin Renewal Clinic. Available at: <https://www.skinrenewal.co.za/prejuvenation> [Accessed 20 August 2025]

Small, R. & Hoang, D. 2014. A practical guide to injectable fillers. *Seminars in Plastic Surgery*, 28(3), pp.158–163. doi:10.1055/s-0034-1389455.

Sobanko, J.F., Taglienti, A.J., Wilson, A.J., Sarwer, D.B., Margolis, D.J., Dai, J. & Percec, I. 2015. Motivations for seeking minimally invasive cosmetic procedures in an academic outpatient setting. *Aesthetic Surgery Journal*, 35(8), pp.1014–1020. doi:10.1093/asj/sjv094.

Soleymani, T., Lanoue, J. & Rahman, Z. 2018. A practical approach to chemical peels: a review of fundamentals and step-by-step algorithmic protocol for treatment. *Journal of Clinical and Aesthetic Dermatology*, 11(8), pp.21–28. PMID: 30237838; PMCID: PMC6122508.

Sorice, Z.C., Li, A.Y., Gilstrap, J., Canales, F.L. & Furnas, H.J. 2017. Why patients request cosmetic procedures: Body dysmorphic disorder, social media, and the

selfie. *Plastic and Reconstructive Surgery*, 140(4), pp. 765–773. doi:10.1097/PRS.0000000000003682. PMID: 28953743.

Spalding, E. & Sadick, N. 2018. Patient misconceptions in aesthetic dermatology: A review of challenges and solutions. *Journal of Drugs in Dermatology*, 17(8), pp.849–853.

Spataro, E.A., Dierks, K. & Carniol, P.J. 2022. Microneedling-associated procedures to enhance facial rejuvenation. *Facial Plastic Surgery Clinics of North America*, 30(3), pp.389–397. doi:10.1016/j.fsc.2022.03.012.

Srivastava, K., Kharbada, M., Pal, S. & Shah, R. 2015. Botulinum toxin in facial aesthetics: Mechanism and practice. *Journal of Aesthetic and Clinical Dermatology*, 8(2), pp. 97–101.

Statistics South Africa. 2023. *Inequality trends in South Africa*. Pretoria: Statistics South Africa.

Statistics South Africa. 2024. *Mid-year population estimates*. Pretoria: Stats SA.

Storeng, K.T., Béhague, D.P., Koblinsky, M., Kumar, S. & Calhoun, L. 2012. Beyond body counts: a qualitative study of lives and loss in maternal health advocacy. *Social Science & Medicine*, 75(10), pp. 1742–1750. doi: 10.1016/j.socscimed.2012.07.001

Stout, R. & Birch-Machin, M. 2019. Mitochondria's role in skin ageing. *Biology (Basel)*, 8(2), p.29. <https://doi.org/10.3390/biology8020029>

Sundaram, H. & Cassuto, D. 2013. Biophysical characteristics of hyaluronic acid soft-tissue fillers and their relevance to aesthetic applications. *Plastic and Reconstructive Surgery*, 132(4 Suppl. 2), pp. 5S–21S. doi:10.1097/PRS.0b013e31829fe224.

Sundaram, H., Signorini, M., Liew, S., Trindade de Almeida, A.R., Wu, Y., Vieira Braz, A., Fagien, S., Swift, A., Monheit, G., Raspaldo, H., Van Eijk, T., Goodman,

G.J., Carruthers, J., Kane, M.A., Guetta, R., Bertossi, D., Gallagher, C.J. & Global Aesthetics Consensus Group (2016). Global Aesthetics Consensus: Avoidance and management of complications from hyaluronic acid fillers—Evidence- and opinion-based review and consensus recommendations. *Plastic and Reconstructive Surgery*, 137(6), pp. 961e–971e. doi:10.1097/PRS.0000000000002184.

Swami, V., Knight, D., Tovée, M.J., Davies, P. & Furnham, A. 2009a. Preferences for cosmetic surgery in the UK: The role of sociocultural influences. *Body Image*, 6(1), pp. 32–37. doi:10.1016/j.bodyim.2008.10.002.

Swami, V., Knight, D., Tovée, M.J., Davies, P. & Furnham, A. 2009b. Preferences for cosmetic surgery: Associations with appearance evaluation and body image. *Body Image*, 6(3), pp. 210–214.

Swami, V., Mada, R., Tovée, M.J., Akkus, B., Harris, A.S. & Shah, R.M. 2009c. The influence of Western media on body image and cosmetic surgery attitudes. *Body Image*, 6(3), pp.193–199. doi:10.1016/j.bodyim.2009.03.002.

Swami, V., Taylor, R. & Carvalho, C. 2009d. Acceptance of cosmetic surgery and celebrity worship: Evidence of associations among female undergraduates. *Body Image*, 6(1), pp. 36–39. doi:10.1016/j.bodyim.2008.10.001.

Syed, M. & Juan, M.J. 2016. Rethinking and updating demographic questions: Guidance to improve descriptions of research samples. *Psi Chi Journal of Psychological Research*, 21(3), pp. 138–151. doi:10.24839/2164-8204.JN21.3.138.

T

Taylor, K. & Johnson, L. 2017. The hypodermis and structural skin support. *Dermatology Reports*, 9(1), pp. 78–86.

Tenchov, R., Sasso, J.M., Wang, Y. & Zhou, Q.A. 2024. Anti-aging innovations: Biotech advances in aesthetic treatments. *Pharmaceutics*, 16(1), p. 56.

Tehrani, L., Tashjian, M. & Mayrovitz, H.N. 2025. Physiological mechanisms and therapeutic applications of microneedling: a narrative review. *Cureus*, 17(3), e80510. doi:10.7759/cureus.80510. PMID: 40225445; PMCID: PMC11993440.

Teresi, J.A., Yu, X., Stewart, A.L. & Hays, R.D. 2022. Guidelines for designing and evaluating feasibility pilot studies. *Medical Care*, 60(1), pp. 95–103. doi:10.1097/MLR.0000000000001664.

Thornton, M.J. 2022. Estrogen and the skin: The role of hormonal balance in female ageing. *Clinical Dermatology Review*, 6(2), pp. 71–79.

Tierney, E.P., Hanke, C.W. & Goldman, M.P. 2012. Treatment of vascular lesions with intense pulsed light and lasers. *Dermatologic Surgery*, 38(6), pp. 951–963. doi:10.1111/j.1524-4725.2012.02394. x.

Tierney, E.P., Hanke, C.W., Petersen, J. & Bartley, J. 2012. Ablative fractionated CO₂ laser treatment of photoaging: a clinical and histologic study. *Dermatologic Surgery*, 38(11), pp.1777–1789. doi:10.1111/j.1524-4725.2012.02531. x. PMID: 23062123.

Tiggemann, M. & Zinoviev, K. 2019. The effect of #enhancement-free Instagram images and hashtags on women's body image. *Body Image*, 31, pp. 131–138. doi: 10.1016/j.bodyim.2019.09.001.

Thérapie Clinic. 2021. *Cosmetic injectables*. [online] Available at: <https://www.therapieclinic.com> [Accessed 21 August 2025].

Thompson, J. K. & Schaefer, L. 2019. *A multidimensional innovator in the measurement of body image: Some lessons learned and some lessons for the future of the field*. *Body Image*, 31, pp. 198-203. doi: 10.1016/j.bodyim.2019.08.006

Triana, L., Palacios Huatuco, R.M., Campilgio, G. & Liscano, E. 2024. Trends in surgical and nonsurgical aesthetic procedures: A 14-year analysis of the International Society of Aesthetic Plastic Surgery-ISAPS. *Aesthetic Plastic Surgery*, 48(20), pp. 4217–4227. doi:10.1007/s00266-024-04260-2.

U

University of the Free State. 2024. *HSREC Research Ethics Guidelines*. [online] Available at: <<https://www.ufs.ac.za>> [Accessed 3 July 2024].

Urdiales-Gálvez, F., Martín-Sánchez, S., Maz-Jiménez, M., Castellano-Miralla, A. & Lionetti-Leone, M. 2019. Muscle relaxants and dermal fillers: Combination protocols. *Journal of Cosmetic and Laser Therapy*, 21(7–8), pp. 395–403.

V

Van der Deijl, M., Veenhoven, R., Burger, M.J., & Voorwinden, M. 2023. Theoretical framework for the 10-item Well-being instrument (WiX). *Applied Research in Quality of Life*. doi:10.1007/s11482-023-10241-5.

Van Teijlingen, E.R. & Hundley, V. 2001. The importance of pilot studies. *Social Research Update*, 35(1), pp. 1–4.

Varani, J., Dame, M.K., Rittie, L., Fligel, S.E.G., Kang, S., Fisher, G.J. & Voorhees, J.J., 2006. Decreased collagen production in chronologically aged skin: roles of age-dependent alteration in fibroblast function and defective mechanical stimulation. *American Journal of Pathology*, 168(6), pp.1861–1868. <https://doi.org/10.2353/ajpath.2006.051302>

Verma, A., Yumeen, S. & Raggio, K.L. 2023. Advances in IPL-based treatments. *Journal of Clinical and Aesthetic Dermatology*, 16(2), pp. 82–91.

Verdier-Sévrain, S., Bonté, F. & Gilchrist, B. 2006. Biology of estrogens in skin: implications for skin aging. *Experimental Dermatology*, 15(2), pp.83-94. <https://doi.org/10.1111/j.1600-0625.2005.00377.x> pubmed.ncbi.nlm.nih.gov

Vierkötter, A. & Krutmann, J. 2012. Environmental influences on skin aging and ethnic-specific manifestations. *Dermato-Endocrinology*, 4(3), pp.227–231. <https://doi.org/10.4161/derm.19858>

Vogue Business. 2025. *Future of Appearance Survey: The rise of tweakments*. Available at: <https://www.voguebusiness.com/> [Accessed 4 August 2025].

W

Waldorf, H. 2013. Communication and education in cosmetic procedures. *Modern Aesthetics*, 1(2), pp. 22–25.

Walker, C.E., Krumhuber, E.G., Dayan, S. & Furnham, A. 2021. Aesthetic interventions and self-perception. *Aesthetic Surgery Journal*, 41(9), pp. NP1075–NP1087.

Walker, C.E., Thornton, L., Coroneos, R., Phan, T. & Wallace, R. 2021. Beauty and body image concerns among Australian adolescents: The role of social media. *Body Image*, 36, pp.164–173. doi:10.1016/j.bodyim.2020.11.001.

Waworuntu, E.C., Mandagi, D.W. & Pangemanan, A.S. 2022. 'I See It, I Want It, I Buy It': The role of social media marketing in shaping brand image and Gen Z's intention to purchase local products. *Society*, 10(2), pp. 253–271. doi:10.33019/society.v10i2.463.

Weinkle, S. & Lupo, M. 2010. Attitudes, awareness, and usage of medical anti-aging treatments: Results of a patient survey. *Journal of Clinical and Aesthetic Dermatology*, 3(9), pp. 30–33. PMID: 20877522.

Wellness Sciences – CPUT. 2023. *Advancing holistic care in beauty therapy*. Cape Peninsula University of Technology. [online] Available at: <<https://www.cput.ac.za>> [Accessed 3 July 2024].

Wilkinson, S. & White, N. 2022. Social media influence on skin aesthetics and self-image. *Journal of Cosmetic Dermatology*, 21(1), pp. 14–21.

Wiltsher, C. 2015. Philosophical perspectives on perception and knowledge. *Philosophy Compass*, 10(6), pp. 397–408.

Wisniewski, M., Ellis, C. & Lupo, M.P. 2014. Chemical peel classifications and treatment protocols. *Aesthetic Surgery Journal*, 34(2), pp. 215–224.

Wong, E. 2021. Non-invasive aesthetic procedures: Client expectations and clinical realities. *Clinical Cosmetic and Investigational Dermatology*, 14, pp. 879–886.

Wong, V. 2021. Resurface, Retone and Reboost: A multi-modality approach for rejuvenation of millennial patients. *Journal of Clinical and Experimental Dermatology Research*, 8, p. 549. doi:10.35248/2155-9554.21. s8.549.

Wong, Z.Y., Damavandi, P., Richards, M., Danpanichkul, P., Adegboye, O., Faderani, R., Kanapathy, M. & Mosahebi, A. 2025. Botulinum toxin in aesthetic medicine: a bibliometric analysis of research trends and methodological quality of the top 100 cited publications. *Aesthetic Surgery Journal Open Forum*, 7, ojae131. <https://doi.org/10.1093/asjof/ojae131>. PMID: PMC11836436.

Wongprasert, N., Dreiss, C.A. & Murray, J. 2022. Injectable dermal fillers: Clinical applications and advances. *Journal of Cosmetic and Laser Therapy*, 24(1), pp. 1–8.

Wu, W.T., Liew, S., Chan, H.H., Ho, W.W., Supapannachart, N., Lee, H.K., Prasetyo, A., Yu, J.N. & Rogers, J.D. 2016. Consensus on current injectable treatment strategies in the Asian face. *Aesthetic Plastic Surgery*, 40(2), pp. 202–214. doi:10.1007/s00266-016-0608-y. PMID: 26893276; PMID: PMC4819487.

Y

Ya, J. & Bayraktutan, U., 2023. Vascular ageing: Mechanisms, risk factors, and treatment strategies. *International Journal of Molecular Sciences*, 24(14), p.11538. <https://doi.org/10.3390/ijms241411538>

Yaddanapudi, L.N. & Yaddanapudi, S. 2019. Designing questionnaires and clinical surveys. *Indian Journal of Anaesthesia*, 63(5), pp. 335–337. doi:10.4103/ija.IJA_56_19.

Yip, W.L. & Lim, C. 2024. Non-surgical approaches to facial ageing. *Clinical Aesthetics Review*, 12(1), pp. 33–42.

Ye, S., Lin, Y., Chen, Y., Wu, X. & Zhao, Y. 2024. Skin ageing: A multidisciplinary review. *Frontiers in Aging*, 5, 1243563.

Yutskovskaya, Y.A. & Kogan, E.A. 2017. Improved neocollagenesis and skin mechanical properties after injection of diluted calcium hydroxylapatite in the neck and décolletage: A pilot study. *Journal of Drugs in Dermatology*, 16(1), pp. 68–74. PMID:28095536.

Youn, S.W. 2024. Poly-L-lactic acid fillers: Clinical updates. *Journal of Cosmetic and Dermatologic Surgery*, 28(1), pp. 8–16.

Z

Zachary, C.B. 2016. Advances in cosmetic dermatology: A new era of skin rejuvenation. *Journal of Clinical and Aesthetic Dermatology*, 9(4), pp. 25–32.

Zargaran, D., Zoller, N., Zargaran, A., Weyrich, T. & Mosahebi, A. 2022a. Environmental influences on extrinsic skin ageing. *Plastic and Reconstructive Surgery Global Open*, 10(2), e4120.

Zargaran, D., Zoller, F., Zargaran, A., Weyrich, T. & Mosahebi, A. 2022b. Facial skin ageing: Key concepts and overview of processes. *International Journal of Cosmetic Science*, 44(4), pp. 414–420. doi:10.1111/ics.12779. PMID: 35426152.

Zduńska, K., Kołodziejczak, A. & Rotsztein, H. 2018. Clinical applications of microneedling. *Advances in Dermatology and Allergology*, 35(5), pp. 563–569.

Zhang, S. & Duan, E. 2018. Fighting against skin aging: The way from bench to bedside. *Cell Transplantation*, 27(5), pp. 729–738.

Zhao, X., Zhang, X. & Chen, Y. 2024. Mechanisms of PLLA-induced collagen remodeling. *Biomaterials Research*, 28(1), pp. 49–60.

Zhong, J., Wu, Y. & Chen, J. 2022. The role of microcirculation in facial ageing. *Dermatologic Therapy*, 35(3), e15288.

Zouboulis, C.C., Ganceviciene, R., Liakou, A.I., Theodoridis, A., Elewa, R. & Makrantonaki, E. 2019. *Skin anti-aging strategies*. *Dermato-Endocrinology*, 11(1), e1596990.

Appendix A: Ethical clearance certificate from the University of Free State

UNIVERSITY OF THE
FREE STATE
UNIVERSITEIT VAN DIE
VRYSTAAT
YUNIVESITHI YA
FREISTATA



UFS
HEALTH SCIENCES

Health Sciences Research Ethics

12-Jun-2025

Dear **Marileen Lombard**

Ethics Number: UFS-HSD2024/0281/2307-0002

Ethics Clearance: **Clients' expectations, perceptions and knowledge of non-surgical anti-ageing treatments: a South-African study**

Principal Investigator: **Marileen Lombard**

Department: **CUT - Central University of Technology**

[Submission Page](#)

SUBSEQUENT SUBMISSION APPROVED

With reference to your recent submission for ethical clearance from the Health Sciences Research Ethics Committee. I am pleased to inform you on behalf of the HSREC that you have been granted ethical clearance for your request as stipulated below:

- The extension of this study is approved until **30 June 2026**.

The HSREC functions in compliance with, but not limited to, the following documents and guidelines: The SA National Health Act. No. 61 of 2003; Ethics in Health Research: Principles, Structures and Processes (2015); SA GCP(2020); Declaration of Helsinki; The Belmont Report; The US Office of Human Research Protections 45 CFR 461 (for non-exempt research with human participants conducted or supported by the US Department of Health and Human Services- (HHS), 21 CFR 50, 21 CFR 56; CIOMS; ICH-GCP-E6 Sections 1-4; International Council for Harmonisation (ICH) Harmonised Guideline, Integrated Addendum to ICH E6(R1), Guideline for Good Clinical Practice (GCP) E6(R2), 2016, SAHPRA Guidelines as well as Laws and Regulations with regard to the Control of Medicines, Constitution of the HSREC of the Faculty of Health Sciences.

The Principal Investigator (PI) bears final responsibility for the RIMS application. In the event of any misconduct or improper activities perpetrated by a third party, the PI will be held vicariously liable. The HSREC will bear no responsibility or liability for any actions of a PI and/or third party or breach of confidentiality caused by the PI and/or third party.

For any questions or concerns, please feel free to contact HSREC Administration: 051-4012650/9860 or email EthicsFHS@ufs.ac.za.

Thank you for submitting this request for ethical clearance and we wish you continued success with your research.

Yours



Dr. C. Armour
Chairperson : Health Sciences Research Ethics

Health Sciences Research Ethics Committee

T: +27 (0)51 401 2650/9860 | E: ethicsfhs@ufs.ac.za

IRB 00011992; REC 230408-011; IORG 00100906WA 00027947

Block D, Dean's Division, Room D104 | P.O. Box 339 (Internal Post Box G40) | Bloemfontein 9300 | South Africa

www.ufs.ac.za



Appendix B: Confirmation of CUT online platform



RESEARCH, INNOVATION AND ENGAGEMENT (RIE)

TO : Chairs: Ethical Clearance Committees

FROM : Prof. A. Ngowi
Deputy Vice-Chancellor: Research, Innovation and Engagement

DATE : 13 June 2023

The email titled 'Institutionally approved POPIA platform for research data storage', and dated 2023-05-30, has reference.

The Council approved the Policy on Research Data Management on the 8th of December 2022. This Policy rightfully advocates for the management of research data, which includes storage in institutionally approved POPIA platform.

The Library and Information Services (LIS) will institute the possibility of using a storage platform whose applicability has already been confirmed by other higher education libraries, FigShare. The repository is regarded as the most developed data repository platform that allows for research data to be stored, shared and discovered by researchers globally. However, the LIS and IComTec will still have to conduct due diligence before confirming FigShare as the CUT's institutional open access data repository as a permanent storage solution.

The LIS would like to recommend, as a temporary measure, the use of SharePoint. It has been confirmed as having capabilities to store data in different formats and data can be embargoed as might be required, based on ethical clearance issues. The LIS will create a subdirectory for each research study with only access to the researcher and his/her supervisor.

2

Hoping the above satisfies and meets with your postgraduate students' research data storage.

Kind regards



Prof. A Ngowi
Deputy Vice-Chancellor
Research, Innovation and Engagement

Appendix C: Information letter and consent form for questionnaire in hard copy

Information letter and consent form for questionnaire

Study title: Clients' expectations, perceptions, and knowledge of non-surgical anti-ageing treatments in the Free State and the Northern Cape

Greetings: Participant

Introduction: The research I wish to conduct for my master's degree involves the knowledge, expectations, and perceptions of clients in Central South Africa regarding non-surgical anti-ageing treatments.

The aim of this study

The aim of this study is to determine the knowledge, expectations, and perceptions of clients in Central South Africa regarding non-surgical anti-ageing treatments to assist service providers with possible alignment of services provide.

For any questions regarding ethics feel free to contact the following:

Health Sciences Research Ethics Committee

Office of the Dean: Health Sciences

Tel.: +27 (0)51 401 2650/9860 | E: ethicsfhs@ufs.ac.za

IRB 00011992; REC 230408-011; IORG 0010096; FWA 00027947

Block D, Dean's Division, Room D104 | P.O. Box/Posbus 339 (Internal Post Box G40) | Bloemfontein 9300 | South Africa

www.ufs.ac.za

Invitation to participation:

- All participation is voluntary and anonymous.
- Participants may withdraw from the study at any time without any penalties.
- No remuneration will be provided for participation.
- No risks and foreseeable discomfort for the participant.
- By signing on this consent form, participants agree to take part in this study.
- Answering of questionnaire might take about 30 minutes.
- Data from this research will be kept online and password protected, only accessible to the researcher and reported only as a collective combined total.
- No one other than the researchers will know your individual answers to this questionnaire.

Thank you for your assistance in this important endeavour.

Dear Participant

Thank you for considering participating in this questionnaire. Your insights and feedback are invaluable to the research, and I truly appreciate your time and contribution to the study.

The research will contribute to my master's degree with regards to the expectations, perceptions and knowledge of clients in Central South Africa regarding non-surgical anti-ageing treatments, including aesthetic procedures and cosmetic injectables.

By proceeding with the questionnaire, you hereby consent to participate voluntarily. Your involvement is entirely anonymous, and no personally identifiable information will be collected. The data gathered will be used for research purposes only and treated with the utmost confidentiality.

Please answer the questions as fully and honestly as possible. Your truthful and open responses will significantly improve the quality and dependability of study and its findings. Please take note that your opinions are important and will have a big impact on the study's' effectiveness.

No individual responses will be disclosed, and the aggregated data will be presented in such a manner that it will protect the identity of each participant.

If you have any concerns or questions regarding the questionnaire and your participation, please feel free to contact me.

Your participation is highly valued.

Marileen Lombard

Somatology master's degree student: Central University of Technology, Free State.
0763085098

marileenlombard@protonmail.com

Instructions:

Please sign to confirm you participation: _____

Appendix D: Information letter and consent form for Questionnaire

Information letter and consent form for questionnaire

Study title: Clients' expectations, perceptions, and knowledge of non-surgical anti-ageing treatments in the Free State and the Northern Cape

Greetings: Participant

Introduction: The research I wish to conduct for my master's degree involves the knowledge, expectations, and perceptions of clients in Central South Africa regarding non-surgical anti-ageing treatments.

The aim of this study

The aim of this study is to determine the knowledge, expectations, and perceptions of clients in Central South Africa regarding non-surgical anti-ageing treatments to assist service providers with possible alignment of services provide.

For any questions regarding ethics feel free to contact the following:

Health Sciences Research Ethics Committee

Office of the Dean: Health Sciences

Tel.: +27 (0)51 401 2650/9860 | E: ethicsfhs@ufs.ac.za

IRB 00011992; REC 230408-011; IORG 0010096; FWA 00027947

Block D, Dean's Division, Room D104 | P.O. Box/Posbus 339 (Internal Post Box G40) | Bloemfontein 9300 | South Africa

www.ufs.ac.za

Invitation to participation:

- All participation is voluntary and anonymous.
- Participants may withdraw from the study at any time without any penalties.
- No remuneration will be provided for participation.
- No risks and foreseeable discomfort for the participant.
- By clicking 'I agree' to this consent form, participants agree to take part in this study.
- Link and password to the online questionnaire will be provided.
- Answering of questionnaire might take about 30 minutes.
- Data from this research will be kept online and password protected, only accessible to the researcher and reported only as a collective combined total.
- No one other than the researchers will know your individual answers to this questionnaire.

Thank you for your assistance in this important endeavour.

Dear Participant

Thank you for considering participating in this questionnaire. Your insights and feedback are invaluable to the research, and I truly appreciate your time and contribution to the study.

The research will contribute to my master's degree with regards to the expectations, perceptions and knowledge of clients in Central South Africa regarding non-surgical anti-ageing treatments, including aesthetic procedures and cosmetic injectables.

By proceeding with the questionnaire, you hereby consent to participate voluntarily. Your involvement is entirely anonymous, and no personally identifiable information will be collected. The data gathered will be used for research purposes only and treated with the utmost confidentiality.

Please answer the questions as fully and honestly as possible. Your truthful and open responses will significantly improve the quality and dependability of study and its findings. Please take note that your opinions are important and will have a big impact on the study's effectiveness.

No individual responses will be disclosed, and the aggregated data will be presented in such a manner that it will protect the identity of each participant.

If you have any concerns or questions regarding the questionnaire and your participation, please feel free to contact me.

Your participation is highly valued.

Marileen Lombard

Somatology master's degree student: Central University of Technology, Free State.
0763085098

marileenlombard@protonmail.com

Instructions:

Please sign to confirm your participation: _____

If there is no space to make an X, please circle your answer.

Appendix E: Questionnaire

Information letter and consent form for questionnaire

Study title: Clients' expectations, perceptions, and knowledge of non-surgical anti-ageing treatments in the Free State and the Northern Cape

Greetings: Participant

Introduction: The research I wish to conduct for my master's degree involves the knowledge, expectations, and perceptions of clients in Central South Africa regarding non-surgical anti-ageing treatments.

The aim of this study

The aim of this study is to determine the knowledge, expectations, and perceptions of clients in Central South Africa regarding non-surgical anti-ageing treatments to assist service providers with possible alignment of services provide.

For any questions regarding ethics feel free to contact the following:

Health Sciences Research Ethics Committee

Office of the Dean: Health Sciences

Tel.: +27 (0)51 401 2650/9860 | E: ethicsfhs@ufs.ac.za

IRB 00011992; REC 230408-011; IORG 0010096; FWA 00027947

Block D, Dean's Division, Room D104 | P.O. Box/Posbus 339 (Internal Post Box G40) | Bloemfontein 9300 | South Africa

www.ufs.ac.za

Invitation to participation:

- All participation is voluntary and anonymous.
- Participants may withdraw from the study at any time without any penalties.
- No remuneration will be provided for participation.
- No risks and foreseeable discomfort for the participant.
- By clicking 'I agree' to this consent form, participants agree to take part in this study.
- Link and password to the online questionnaire will be provided.
- Answering of questionnaire might take about 30 minutes.
- Data from this research will be kept online and password protected, only accessible to the researcher and reported only as a collective combined total.
- No one other than the researchers will know your individual answers to this questionnaire.

Thank you for your assistance in this important endeavour.

Dear Participant

Thank you for considering participating in this questionnaire. Your insights and feedback are invaluable to the research, and I truly appreciate your time and contribution to the study.

The research will contribute to my master's degree with regards to the expectations, perceptions and knowledge of clients in Central South Africa regarding non-surgical anti-ageing treatments, including aesthetic procedures and cosmetic injectables.

By proceeding with the questionnaire, you hereby consent to participate voluntarily. Your involvement is entirely anonymous, and no personally identifiable information will be collected. The data gathered will be used for research purposes only and treated with the utmost confidentiality.

Please answer the questions as fully and honestly as possible. Your truthful and open responses will significantly improve the quality and dependability of study and its findings. Please take note that your opinions are important and will have a big impact on the study's effectiveness.

No individual responses will be disclosed, and the aggregated data will be presented in such a manner that it will protect the identity of each participant.

If you have any concerns or questions regarding the questionnaire and your participation, please feel free to contact me.

Your participation is highly valued.

Marileen Lombard

Somatology master's degree student: Central University of Technology, Free State.
0763085098

marileenlombard@protonmail.com

Instructions:

Please sign to confirm your participation: _____

If there is no space to make an X, please circle your answer.

Section A: Demographics

A1. What sex do you identify with:

1. Rather not say
2. Male
3. Female
4. Other _____

A2. What is your age range?

1. Under 18
2. 18-24
3. 25-34
4. 35-44
5. 45-54
6. 55-64
7. 65 -74
8. 75 -85
9. Older than 85

A3. Which province do you live in?

1. Free State
2. Northern Cape

Section B: Expectations and preferences regarding anti-ageing treatments

B1. Have you undergone any of the following treatments? (**Select all that apply**)

1. Fillers
2. Botox
3. Microneedling
4. Chemical peel
5. IPL/laser
6. All of the above

B2. In your opinion, what is the best treatment for anti-ageing? Please select **ONLY** one option.

1. Botox

2. Fillers
3. Chemical peel
4. Laser/IPL
5. Microneedling
6. All the above
7. Not sure
8. None
9. Other _____

B3. Please rank each treatment with a number according to your preference: 1 being your favourite and 5 being your least favourite.

- Botox _____
- Fillers _____
- IPL/Laser _____
- Chemical Peel _____
- Microneedling _____

B4. Give a reason why is this specific treatment your favourite, from Question B

3. **(Select only one)**

1. Quick
2. Painless
3. No downtime
4. Cost affordability
5. It works effectively
6. All of the above
7. Other _____

B5. How long do you expect the results of the listed treatments to last? **(Answer all)**

	One week	One month	Three months	Six months	A year	Forever
Botox	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fillers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IPL/laser	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chemical peel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Microneedling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

B6. At what age do you think people should start anti-ageing treatments?

B7. My primary motivation for receiving anti-ageing treatments: **(Select only one)**

1. Looking younger
2. Boosting confidence
3. Enhancing overall appearance
4. Improving skin texture
5. Reducing the appearance of wrinkles and fine lines
6. Addressing specific skin concerns (e.g., pigmentation, redness)
7. Feeling more attractive
8. Keeping up with societal or professional expectations
9. Preventing future signs of ageing
10. Following recommendations from friends or family
11. All of the above
12. Other

B8. Which of the following statements best describe your expectations for anti-ageing treatments? **(Select only one)**

1. I expect anti-ageing treatments to improve my appearance
2. I expect anti-ageing treatments to be painless
3. I expect anti-ageing treatments to improve my results to last for a longer time
4. I expect the results of anti-ageing treatments to make significant and noticeable differences
5. I consider anti-ageing treatments only for medical reasons
6. I avoid anti-ageing treatments for ethical reasons
7. Other

B9. In your opinion, how important is it for anti-ageing treatments to look natural and not overdone?

(Select only one)

1. Not important
2. Slightly important
3. Moderately important
4. Very important
5. Extremely important

Section C: Effects/results and dangers of anti-ageing treatments

C1. How long do you expect it will take to see the effects of a specific anti-ageing treatment?

	Immediately	24 h	48h	One week	Two weeks	Longer
Botox	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fillers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chemical peel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ILP/laser	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Microneedling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

C2. Indicate the effect anti-ageing treatments have on your mood:

1. Very happy
2. Happy
3. No change in mood
4. Sad

C3. How concerned are you with possible dangers or side effects of anti-ageing treatments

1. Not at all concerned
2. Slightly concerned
3. Moderately concerned
4. Very concerned
5. Extremely concerned

C4. If you could, how often would you like to receive anti-ageing treatments?

1. Once a year
2. Every six months
3. Every three months
4. Every month
5. More than once a month
6. Weekly
7. Other

C5. What do you consider; too much when it comes to anti-ageing treatments? Please choose only **ONE**.

1. When it becomes too expensive

2. If it changes your natural appearance noticeably
3. When it could potentially harm your health
4. When you do a treatment every week
5. Other

C6. Which of the following best describes your opinion of anti-ageing treatments? **(Select only one)**

1. They are an effective way to maintain a youthful appearance
2. They help boost self-esteem and confidence
3. They are empowering to receiver
4. They are risky to the client
5. They are only for the wealthy
6. They should look natural and not overdone
7. They can be a valuable part of a broader skincare and wellness routine
8. Other

C7. What factors have prevented you from trying some/certain anti-ageing treatments?

(Select all that apply)

1. Cost
2. Fear of side effects
3. Lack of knowledge about treatments
4. Concerns about effectiveness
5. Time commitment
6. All of the above
7. Other

Section D: Stakeholders and influences of treatments

D1. Are you comfortable in discussing your anti-ageing treatments with friends and family?

1. Yes, open about it
2. No, family and friends must believe I look this way naturally.
3. It is private, nobody needs to know

D2. Do you trust your beauty professional's / medical professional's (e.g. doctors) advice on anti-ageing treatments?

1. Sometimes

2. Always
3. Never

D3. Do you inform your beauty professionals or medical professionals about any medications you are currently taking before receiving any of the anti-ageing listed treatments below:

	Yes	No	Sometimes	Rarely
Botox	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IPL/laser	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fillers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Microneedling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chemical peel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

D4. Do any of the following influence your thoughts, knowledge, opinion or preferences of anti-ageing treatments? (Answer all)

	Yes	No	Sometimes	Rarely
Family	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Beauty expert	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Doctor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Social media	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pamphlet or brochure about treatment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Society	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Online reviews	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Before-and-after photos	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Celebrity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

D5. Where do you typically go for anti-ageing treatments? (Select all that apply)

1. A dermatology clinic (skin doctor)
2. An aesthetic clinic
3. A beauty salon
4. A plastic surgeon
5. A therapist working at a doctor practice
6. Other

Section E: Knowledge about anti-ageing treatments

E1. Are the following statements true or false about Botox:

	True	False	Do not know
Botox gives an unnatural look.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Botox is toxic and dangerous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Once you start Botox, you cannot stop	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Botox can only be used for cosmetic purposes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Botox is only for persons over 50 years	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Botox is painful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

E2. According to your knowledge, what is the actual target of the listed treatments below? (Select all that apply)

	Wrinkles	Loss of volume in face	Red veins	En-large pores	Loss of skin elasticity	Brown spots	Uneven skin tone	Sun damage	Dull skin texture	Fine lines
Botox	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fillers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chemical peel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IPL/laser	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Microneedling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

E3. How often do you seek out information or research anti-ageing treatments.

1. Every day
2. Weekly
3. Monthly
4. Never

E4. How do you usually distinguish between myths and facts about non-surgical anti-ageing treatments? (Select all that apply)

1. Get answers online with social media
2. Consult with a beauty professional
3. Rely on recommendations from friends or family
4. Seek information from trusted sources (e.g., medical websites, reputable magazines)
5. Consult with a medical professional
6. Other

E5. Do you know what type of Botox product are used during your Botox treatment?

1. Dysport
2. Juvederm
3. Botox
4. Do not know
5. Do not receive Botox

E6. Indicate if the following statements are true or false about anti-ageing treatments:

	True	False	Do not know
Botox is permanent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dermal fillers are only used for cosmetic purposes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chemical peels can treat acne scars	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chemical peels require downtime for recovery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dermal fillers are permanent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Botox requires downtime for recovery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dermal fillers can be used to enhance lip volume	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Microneedling can be used to treat stretch marks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laser treatments are permanent solutions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Microneedling results are immediate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laser treatments are safe for all skin tones	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Microneedling is suitable for deep wrinkles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chemical peels are suitable for all skin types	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chemical peels are typically painless	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dermal fillers require frequent touch-up sessions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fillers stretch the skin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Botox and fillers are the same	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Botox can be injected everywhere on face	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fillers can be injected everywhere on face	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Thank you for taking the time to participate in completing the questionnaire.

Appendix F: Biostatistician conformation letter



STATISTICAL ANALYSIS CONFIRMATION LETTER

Date: 23 June 2025

<p>Customer: Marileen Lombard Department of Somatology Faculty of Health and Environmental Sciences Central University of Technology Free State Bloemfontein email: marileenlombard@protonmail.com</p>	<p>Service Provider: IT Statistical Analysis Unit Central University of Technology BHP Billition Building 210 Contact Person: Marisa Venter Tel: 078-267-0491 email:marisa@cut.ac.za</p>
---	---

Statistical analysis services: Master of Health Sciences in Somatology

To Whom It May Concern

This letter serves to confirm that the statistical analysis for Mrs Marileen Lombard was conducted by the Statistical Analysis Unit at the Central University of Technology (CUT) during the first term of 2025.

Yours sincerely



Marisa Venter
Coordinator Statistical Analysis Unit

Appendix G: Language editing conformation letter

29 January 2025

DECLARATION

I hereby declare that I am a qualified and professional language practitioner with the following qualification from the Central University of Technology, Free State:

- MTech Language Practice (2013)

In this capacity, I have linguistically revised (in English) the following title:

TITLE: Clients' Expectations, Perceptions, and Knowledge of Non-Surgical AntiAgeing Treatments in the Free State and Northern Cape

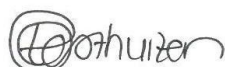
EDITED TITLE: Clients' expectations, perceptions and knowledge of non-surgical anti-ageing treatments in the Free State and Northern Cape

DEGREE: Master of Health Sciences in Somatology

STUDENT: M Lombard (student number: 20303386)

INSTITUTION: Central University of Technology, Free State
Faculty of Health and Environmental Sciences

Signed:



.....
TANIA OOSTHUIZEN
SENIOR LANGUAGE PRACTITIONER
CENTRAL UNIVERSITY OF TECHNOLOGY, FREE STATE

Appendix H: Gatekeepers' consent letters

Subject: Agreement to Act as Gatekeeper for Research Study

I hereby confirm
my agreement to act as a gatekeeper for the research study
conducted by Marileen Lombard a student at Central University of the
Free State.

This agreement involves my commitment to assist the recruitment of
participants for the study while ensuring strict confidentiality and
adhering to all ethical practices. As where communicated to me by the
Researcher.

As a gatekeeper, I understand and agree that my responsibilities
include:

Confidentiality: Ensuring that all information related to participants
remains confidential.

Ethical Practices: Upholding the highest standards of ethics, as
discussed with the researcher, including obtaining informed consent
and respecting the rights of participants throughout the study.

I acknowledge and agree to these responsibilities and commit to
supporting the research study as outlined.

If further information is needed, please do not hesitate to contact me.

Sincerely,

Sign

Salon or practice name and contact information

Appendix I: Gatekeepers' managers' consent letters

Dear Marileen

RE: Permission to Act as Gatekeeper for Research Study on Clients' Expectations, Perceptions, and Knowledge of Non-Surgical Anti-Ageing Treatments

I, the owner/practise hereby grant permission for myself and/or my therapists to act as gatekeepers for your research study titled "Clients' Expectations, Perceptions, and Knowledge of Non-Surgical Anti-Ageing Treatments: A Central South-African Study."

We understand that our role as gatekeepers involves facilitating access to our clients for the purpose of data collection. We will assist in identifying and approaching clients who may be willing to participate in the study, ensuring that they are informed about the nature and purpose of the research. We are committed to supporting this study as we believe it will provide valuable insights into the beauty and aesthetic industry, particularly in understanding client expectations and perceptions of non-surgical anti-ageing treatments.

We are committed to maintaining the confidentiality and ethical standards required for the research.

We look forward to contributing to this important study and are available to discuss any further details or requirements you may have.

Yours sincerely,

