

**THE PERCEPTIONS AND EXPERIENCES OF CHIROPRACTIC  
STUDENTS WITH REGARDS TO OBJECTIVE STRUCTURED CLINICAL  
EXAMINATIONS AT A SOUTH AFRICAN UNIVERSITY OF  
TECHNOLOGY**

By

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I do hereby declare that this dissertation is representative of my own work in both  
conception and execution

(Except where acknowledgements indicate to the contrary)

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# DEDICATION

Alhamdulillah

With a heart full of gratitude, I dedicate this dissertation to my beloved parents, Hafez Azhar and Rookaya Vawda. Your sacrifice and guidance illuminated my path and with your unwavering love and endless support, you have moulded me into who I am today.

To my dear Nana and Nani, who constantly include me in their prayers. I deeply treasure your valuable advice, love, and the wealth of experiences you always have to share.

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# **ABSTRACT**

## **BACKGROUND**

A vast amount of literature has contributed to the topic of students' perceptions and experiences of objective structured clinical examination (OSCE). Many of these studies address the challenges that students face during those examinations, but few discuss the perceptions and experiences that university students may face before, during, and after the OSCE. In the realm of chiropractic education, abundant literature exists about the chiropractic field, as well as the curriculum and the accreditation of chiropractic education around the world. Noteworthy, unlike other healthcare professional programmes, literature regarding the perceptions and experiences of the chiropractic student with regard to the OSCEs in the course, and how that experience affects their clinical competence in the programme and future is scarce. This study recorded the perceptions and experiences of chiropractic students at a selected South African university of technology regarding the format, use and testing of the OSCE.

## **AIM**

To explore the perceptions and experiences of chiropractic students towards the OSCE at a South African university of technology.

## **METHOD**

A qualitative, exploratory, descriptive approach was utilised for this research. A purposive sample of 20 chiropractic students who have been examined in minimum of three OSCEs were interviewed. Their perceptions and experiences regarding the OSCEs were obtained through semi-structured interviews. A total of three key questions, each relating to how students feel before, during, and after the OSCE process were used to stimulate a discussion. The data were recorded electronically and thereafter transcribed verbatim. Thematic analysis was used to interpret the data.

## **RESULTS**

The participants indicated that, for the most part, the OSCE is valued but, to some extent, could be tailored closer to the chiropractic scope of practice. This meant that

while they were taught adequately, they were not fully prepared for the OSCEs as they did not adequately simulate real world clinical scenarios in the field of chiropractic.

The examiners demeanour also played a substantial role in the participants' experiences of the OSCEs. The participants indicated that their experiences were negative, stressful, and full of anxiety due to the format of the OSCEs, with its time constraints and difficulties with the examiners who were testing them.

Another factor which contributed to the participants' experiences of the OSCEs was the way they were being tested. The participants felt they were being examined differently to the way in which they were taught as many of the examiners were external clinicians. In contrast, the participants also mentioned that they benefitted from the OSCEs with regard to learning how to work well under pressure and building confidence, allowing them to be better prepared for clinical practice. The participants recommended that the OSCEs should be closer aligned with the chiropractic scope of practice, that the format of the OSCE be changed, and the time limit per a station increased.

## **CONCLUSION**

This is the first South African study to document the perceptions and experiences of chiropractic students regarding the OSCEs at a South African university of technology. These perceptions and experiences were based on a variety of internal and external factors in relation to the university, chiropractic course, and examiners of the OSCEs. While the participants acknowledged and appreciated the positive aspects of the OSCEs, they provided constructive feedback on different aspects to help improve the experiences of the OSCE for chiropractic students. For many of the participants, the overall experience of the OSCEs was negative and they felt it could be significantly improved in the chiropractic course. It is advisable for educational institutions and stakeholders within chiropractic education to leverage the findings of this study to improve chiropractic education in South Africa.

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## ABBREVIATIONS

BHSc	–	Bachelor of Health Sciences
CASA	–	Chiropractic Association of South Africa
DUT	–	Durban University of Technology
DUT CDC	–	Durban University of Technology Chiropractic Day Clinic
LSI	–	Learning style inventory
MHSc	–	Master of Health Sciences
OSCE	–	Objective structured clinical examination
UJ	–	University of Johannesburg
WFC	–	World Federation of Chiropractic

# CHAPTER 1: OVERVIEW OF STUDY

## 1.1 INTRODUCTION AND BACKGROUND TO THE STUDY

The objective structured clinical examination (OSCE) was introduced by Harden in 1975 (Savage *et al.* 2019). The OSCE is widely used in healthcare education to assess the clinical competence of students. The OSCE was introduced in 1975 and is now the standard in numerous medical fields by providing a structured and standardised approach to evaluate skills and knowledge, helping to identify strengths and weaknesses, which help students to improve their clinical skills and perform better in clinical practice (Kumar *et al.* 2023).

Despite the importance of OSCEs, students experience numerous challenges during the examination process. Many students feel nervous, anxious and overwhelmed during the examination, which affects their performance, and this in turn has a significant impact on their grades and clinical placements. Chiropractic education also incorporates the OSCE in their curriculum to assess the clinical skills, knowledge and abilities of their students. The chiropractic course, at the Durban University of Technology (DUT), comprises of a four-year bachelor's of health sciences (BHSc) degree which is followed by a Master's of Health sciences (MHSc) postgraduate degree. This course entails the studying of chiropractic specific subjects and basic medical sciences, both of which demand a high level of skill from the students studying it.

The rationale for this research study aimed to get insight into the perceptions and experiences of chiropractic students regarding the effectiveness of OSCEs in the chiropractic education context at a South African university of technology. It aimed to gain insight into students' perspectives and experiences to enhance the educational process and ensure that graduates are well-prepared for clinical practice in a culturally diverse environment.

Barman (2005) underscores that the primary objective of medical education is to cultivate the development of clinical competence in students across all levels. Differences in experiences, instructional methods, and ambiguous forms of assessment pose challenges to achieving this overarching goal. Hence, this study aimed to investigate and comprehend the perceptions and experiences of

chiropractic students regarding OSCEs at a South African university of technology. These results will help to better understand how the OSCEs can be improved upon.

## **1.2 PROBLEM STATEMENT**

The OSCE was initially used to assess final year medical students' clinical skills. It is now a common examination in the training and assessment of numerous health care professionals (Haufiku, Daniels and Karera 2019). Harden (1975) defined the OSCE as an approach to the assessment of clinical competence in which the components of the competence are assessed in a planned or structured way with attention being paid to the objectivity of the examination.

Typically, students' performances are measured against a pre-determined, objective marking scheme, which includes skills-based performance, aspects of professionalism and theoretical knowledge (Kirwan *et al.* 2019). While OSCEs have their numerous advantages, Ataro, Worku, and Asaminew (2020) note that the challenges of OSCE implementation are more severe in schools in non-Western countries and even more so in developing countries. This is primarily due to the late adoption of OSCEs in these regions, resulting in less experience and expertise in their administration.

Studies have shown that factors such as lack of a skills laboratory, excess costs, shortages of training faculties, unfair selection of tasks across the examination, stress, inconsistent tools, lack of standardised patients, absence of assessor training, assessor intimidation, time shortage on stations, and difficulty in standard settings have affected how students approach an OSCE (Ataro *et al.* 2020). Therefore, it is important to explore and understand the experiences of chiropractic students at the DUT.

## **1.3 AIM OF THE STUDY**

The aim of this study was to explore the perceptions and experiences of chiropractic students towards the OSCEs at a South African university of technology.

## **1.4 RESEARCH QUESTIONS**

1. What are the perceptions of chiropractic students towards the chiropractic OSCE assessments?

2. What are the experiences of chiropractic students with respect to the chiropractic OSCE assessments?

## **1.5 RATIONALE**

The OSCE is the benchmark for the assessment of clinical competence for health care professionals (Rose and Babajanian 2016). According to Müller *et al.* (2019), medical schools internationally have implemented the OSCE to assess practical skills and clinical competence (Grover *et al.* 2022). These assessments are measured by physically rotating students through multiple stations, and at each station, the student then demonstrates competence through oral or technical examinations for a specified amount of time (Kakadia, Chen and Ohyama 2020).

The graduation of chiropractors who are clinically competent is the major objective of any chiropractic programme, which would enable these graduates to maintain a successful career (Kobrossi and Schut 1987). In South Africa, chiropractic can be studied at two institutions, namely the DUT and the University of Johannesburg (UJ) (Chiropractic Association of South Africa 2022).

The chiropractic curriculum at the DUT initially consists of a grounding in basic medical sciences, chiropractic philosophy and, later, a more practical approach, comprising of modules, such as diagnostics and diagnostic imaging. In the concluding years, students provide treatment for patients at the DUT Chiropractic Day Clinic (CDC) as part of their clinical training (Department of Chiropractic 2023).

The OSCE has been used in healthcare education programmes in which students interact with examiners in person, for them to assess the students' competency in skills, including problem solving, empathy, and communication (Mak, Krishnan and Chuang 2022). Chiropractic students are required to have various practical skills examined of as part of the chiropractic programme. From the third year of study, OSCEs commence as a form of assessment at the DUT. While students are responsible for actively engaging in the learning process, utilizing available resources, seeking feedback, and demonstrating ethical behaviour to achieve these standards, it is the task of educational providers to impart the necessary skills, knowledge and models of behaviour to ensure that a student meets the minimum requirements expected for an entry-level chiropractor upon graduation (Fong *et al.* 2020).



In a study presented by Cade (2022) at a World Federation of Chiropractic (WFC 2022) conference, it was found that the quality of the OSCEs in a chiropractic programme showed potentially missed teaching concepts, examiners showing open interpretation marking at OSCE stations, and inconsistencies in examiner marking.

In a recent study by Bogutcka (2022) on OSCEs, contrasting them to traditional examinations (TE) in paediatrics, it was found that students suggested improving the OSCE by increasing the time allocated per station, immediately knowing their grades after the exam, increasing the time allocation for reading instructions, and even increasing the number of stations.

A paucity exists in the literature regarding chiropractic students' perceptions and experiences with regard to the OSCE in a South African context; a study of this nature has not yet been conducted. The researcher of this present study assessed the perceptions and experiences of South African chiropractic students regarding the chiropractic OSCE, which will allow for the improvement of the chiropractic curriculum and, in turn, qualifying clinically-skilled chiropractors.

## **1.6 OVERVIEW OF CHAPTERS**

Chapter 1: The introduction, research problem and aim of this study, as well as the rationale behind the study and the research questions have been discussed.

Chapter 2: The relevant literature review pertaining to the topic is extensively described in this chapter.

Chapter 3: The research methodology, the data collection, as well as data analysis, is presented in this chapter. The ethical principles followed in this study are also discussed in this chapter.

Chapter 4: The data analysis, complying with qualitative research, for this dissertation is presented in this chapter.

Chapter 5: The results of the study are discussed and compared to previous studies that are relevant to this dissertation.

Chapter 6: The overall conclusions and limitations of the study are presented.

## **CHAPTER TWO**

### **2.1 INTRODUCTION**

Assessment or examinations are a process crafted to gauge students' achievement of the learning outcomes considered essential for the fulfilment of their programme requirements. (Salawu, Stewart and Daud 2023). The OSCE serves as the standard for evaluating clinical skills in healthcare globally. These examinations enable educators to evaluate students' clinical knowledge, communication, and problem-solving skills within a time-sensitive, simulated environment, adding more rigor than written examinations (Lim *et al.* 2020).

An OSCE is a test format that incorporates diverse clinical stations, simulating real-life scenarios for student evaluation, using checklists to systematically assess clinical skills with reliability, objectivity, consistency, and standardisation; additionally, the OSCE has been observed to enhance student autonomy, facilitate learning, and foster a positive perception, contributing to the potential improvement of future healthcare provision (Baena and Portero 2023). The contents of a high-quality OSCE should align with the learning level of students and this principle serves as one of the primary premises that should inform the design of OSCEs and guide their subsequent analyses (Castro-Yuste *et al.* 2020).

Medical training is extensive, and to evaluate students' competency in clinical skills, a comprehensive examination is necessary at various stages of their training (Tolani *et al.* 2019). Clinical competency is founded on a combination of clinical skills, scientific knowledge, and ethical attributes essential for effective performance in clinical settings and is important in that it affects clinical performance as a healthcare provider after graduation (Yu *et al.* 2020). The OSCE is a method for evaluating student assessments, wherein various aspects of clinical competence are systematically and comprehensively appraised, emphasising consistency and structure while maintaining a focus on the objectivity of the evaluation process (Nasir *et al.* 2014).

### **2.2 THE OBJECTIVE STRUCTURED CLINICAL EXAMINATION**

The OSCE is a clinical examination that enables students to be evaluated in a uniform, standardised, reliable, and objective way (Baena and Portero 2023). An

OSCE is carried out in various separate clinical stations that simulate actual clinical scenarios. According to Fu *et al.* (2023), the assessment of clinical competence within medical education primarily occurs through written examinations, designed to evaluate medical knowledge, and performance assessments. The reliability and educational value of an OSCE is high but the organisational burden and costs of administering one are equally as high due to the need for human resources and time (Schwill *et al.* 2020).

Initially characterised as “a timed examination in which medical students engage with a series of simulated patients across stations covering history-taking, physical examination, counselling, or patient management” (Zayyan 2011), the OSCE examination has evolved in its scope and undergone substantial modifications to accommodate specific circumstances (Zayyan 2011). Richardson (2023) mentions that OSCEs are clinical examination scenarios which are organised and presented to assess students’ clinical knowledge and skills under timed conditions. According to Waghmare and Waghmare (2021), regardless of the design of the OSCE, its fundamental purpose remains the same: to serve as an assessment tool that enhances learning.

Depending on the intent and objectives of the OSCE, various forms can be combined or performed independently. Whether adopted in its traditional form or any variation, the impactful implementation follows a consistent chronology, including diligent planning; thorough preparation; smooth execution involving direct observation of skills (such as psychomotor, affective, communication, attitudinal, problem-solving, clinical reasoning, critical reasoning, inter-professional skills); and timely, specific, and developmental feedback.

The outcomes of an OSCE can serve dual purposes, functioning either as a formative assessment during training or as a component of a summative assessment. In a formative capacity, it facilitates the provision of feedback to trainees and the training programme director, highlighting areas that require improvement. As a summative assessment, it aids in determining the successful completion of a rotation or training level, influencing decisions regarding board certification. Additionally, the OSCE can effectively complement other assessment methods, such as written multiple-choice tests and global ratings throughout the training process (Hijazi and Downing, 2008).

### **2.2.1 Definition of the OSCE**

The OSCE was introduced by Harden in 1975 (Harden 1975). Harden defined the OSCE as an approach to the assessment of clinical competence in which the components of the competence are assessed in a planned or structured way, with attention being paid to the objectivity of the examination (Savage *et al.* 2021). It was initially used to assess final year medical students' clinical skills. It is now a common examination in the training of and assessment of numerous health care professionals (Haufiku, Daniels and Karera 2019).

### **2.2.2 Structure of an OSCE**

The standardised OSCE is a concise practical examination comprising of simulated clinical scenarios arranged and completed in a circular pattern of stations (Richardson 2023). Typically, an OSCE comprise of approximately 10 to 20 individual stations that assess a diverse range of clinical or practical competencies. At each station, candidates are evaluated and scored against standardised rubrics by trained assessors (Waghmare and Waghmare 2021).

According to Chan (2009), the OSCE comprises a series of stations designed to assess students' competency in taking medical histories, performing specific clinical tasks, and interpreting clinical data. This assessment method involves two types of stations:

1. Practically based stations, where students receive written instructions and must carry out a procedure.
2. Question-based stations, where students answer questions related to their findings from the preceding station and interpret the results. These questions can be open-ended or multiple-choice.

Examiners evaluate students based on a predetermined, objective marking scheme.

Zayyan (2011) mentions that the foundational structure of an OSCE comprises a circuit of assessment stations, wherein examiners evaluate a variety of practical clinical skills based on a predetermined objective marking scheme. The basic steps in modelling such an OSCE are:

1. Establishing the OSCE examination framework, which involves identifying the OSCE team.

2. Specifying the skills to be evaluated at OSCE stations, which is a crucial step.
3. Formulating objective marking schemes, which is an integral part of the modelling process.
4. Recruiting and training standardised patients, a key component in preparing for the OSCE.
5. Addressing the logistics of the examination process.

### **2.2.3 Purpose of an OSCE**

The OSCE is a clinical assessment designed to reinforce practical competencies (Ha and Lim 2023). The aim of an OSCE is to use a simulated clinical environment to test a student's ability to deal with various clinical scenarios or situations and respond to questions that arise. It also assesses theoretical and practical skills, leadership, situational awareness, resource management, and teamwork (Baena and Portero 2023).

Hijazi and Downing (2008) mention that the OSCE has demonstrated its efficacy in evaluating physician performance under examination conditions, serving as a crucial precursor to real-life practice. As a valuable element in multi-method assessment, it complements other evaluation tools, such as multiple-choice tests and subjective ratings. Notably, the OSCE eliminates the necessity for less reliable assessment data derived from oral clinical examinations.

Due to its evident advantages, particularly in terms of objectivity, consistency and the ability to assess a wide range of clinical scenarios, the OSCE style of clinical assessment surpasses traditional methods. It enables the evaluation of clinical students across different training levels within a concise timeframe, testing a diverse array of skills and issues. The OSCE eliminates biases in student examination, ensuring that all individuals undergo assessment based on the same standards and criteria. These attributes contribute to the significant value of OSCE in the field of medical practice (Zayyan 2011).

### **2.2.4 Benefits, Advantages and Disadvantages of an OSCE**

Students experience numerous advantages when being assessed during an OSCE. Izzeddin, Hala and Hala (2019) found that OSCEs are a useful method to assess students' skills that are not fully assessed through T.E, such as communication skills. It also enhances learning process, increases students' confidence, and ensures

safe practice. Students' involvement in OSCEs develops their skills in self-reflection, engagement in learning, and enhances preparation for clinical practice.

Chan (2009) states that the OSCEs offer several advantages:

1. Establishes a standardised marking scheme for examiners and ensures consistent examination scenarios for students.
2. Provides an authentic assessment method for medical students, simulating real-life situations, including pressure from patients.
3. Generates formative feedback for both students and the teaching programme, with immediate feedback potentially enhancing students' competency at subsequent stations and improving the overall learning experience.
4. Minimises the impact of cueing by restricting students from revisiting and correcting mistakes or omissions made in previous stations.
5. Enables the examination of more students simultaneously, as one student can be engaged in a procedure while another, who has completed that stage, is answering questions at a different station.
6. Allows for a more objective assessment of the students' clinical competence because the setting is controlled with only two variables (the patient and the examiner).
7. Offers insights into students' clinical and interactive competencies.
8. Objectively assesses various aspects of clinical expertise, including physical examination skills, interpersonal skills, technical skills, problem-solving abilities, decision-making abilities, and patient treatment skills.

Along with advantages to students, they are also disadvantages. The OSCE may compartmentalise a candidate's skills and knowledge and, as such, it may undermine holism. The ideal textbook situation of OSCEs may not completely mimic real-life scenarios. Student performance is also affected by the order of the examination stations and the precision of standardised patient simulation (Shirwaikar 2015).

While OSCEs are generally considered objective and impartial, instances of human error, inconsistency, non-uniform grading, and inter-rater variability have been documented, contributing to unfairness in the overall clinical assessment of students

(Nyangeni *et al.* 2023). In a critique study of OSCEs, Barman (2005) states that the OSCE has limitations in its capacity to gauge a student's actions in real-life situations for patient care because the OSCE shows a student's skills in isolation of several, different patients, instead of comprehensively examining one single patient.

### **2.2.5 Professions Which Use the OSCE**

The OSCE is a widely employed assessment strategy in both undergraduate and postgraduate medical and health professions education (Wong, Roberts and Thistlethwaite 2020). The OSCE is widely regarded as the standard method for assessing medical students in both pre-clinical and clinical courses on an international scale, particularly in esteemed universities in the United States, Canada, the United Kingdom, and Australia (AIOsail *et al.* 2015).

The OSCEs have become a widely adopted performance assessment method in schools of medicine, nursing, dentistry, pharmacy, physical education, speech-language pathology, physical therapy (PT), and social work (Krusen and Rollins 2019). The OSCE is commonly used within pre-registration and post-qualification nursing institutions to test clinical competence (Jones, Pegram and Fordham-Clarke 2010).

The OSCE has been an instrumental part of clinical competence assessment in the Faculty of Pharmacy at the International Islamic University Malaysia (IIUM) since 2006 (Awaisu *et al.* 2016). Over the past two decades, OSCEs have gained growing significance in psychiatry education and assessment within the Australian context (Plakiotis 2017). The OSCE is emerging as a progressively recognised assessment method in dental schools (Cidoncha *et al.* 2023). Additionally, the OSCEs offer a chance for a comprehensive evaluation of social work competency (Rawlings and Barbara 2019).

As in many other professions, students in the chiropractic programmes must complete OSCEs successfully (Russell, Hoiriis and Guagliardo 2012). The OSCE format is adaptable and can be applied to other disciplines, such as science and engineering (Chan 2009).

### **2.2.6 Students Perceptions and Experiences of the OSCE**

A study by Kumar *et al.* (2023) on the perception of students and faculty for OSCE as a tool for assessment of clinical competence in summative examination of general medicine showed that the OSCE is a reliable and a valid format for testing clinical skills and that that OSCE is perceived as a fair assessment tool by both students and faculty members.

Another questionnaire study by Alkhateeb *et al.* (2022) stated that participants expressed overall satisfaction with the OSCE, acknowledging numerous positive aspects, such as its role in boosting confidence, fostering engagement and motivating learning. They also recognised its contribution to achieving a higher level of learning, appreciated its content validity, and commended the overall quality of the OSCE. However, the study also showed that the students identified several main weaknesses of the OSCE, including concerns about fairness, perceptions of gender discrimination, dissatisfaction with the duration of the examination, and issues related to the behaviour of the examiners.

In a cross sectional study of students who had surgical OSCEs in the study titled the: *Assessment and comparison of the strengths and weaknesses of objective structured clinical examination and conventional examination* by Tolani *et al.* (2019) showed that, in terms of assessing the perception of the content of the OSCE, 51.5%, 53.0%, and 54.9% of the candidates, respectively, strongly agreed that it effectively addressed bias in physical examination, encompassed a broad range of clinical competencies, and highlighted specific areas of weakness.

## **2.3 CHIROPRACTIC**

According to the Chiropractic Association of South Africa (CASA), chiropractic is a health care profession that specialises in the diagnosis, treatment and prevention of mechanical disorders of the musculoskeletal system and the effects of these disorders on the functioning of the nervous system and general health (CASA 2022). Chiropractic is categorised as a form of complementary and alternative medicine (National Health Services 2024).

Treatment typically involves manual therapy which often includes spinal manipulation. Other forms of treatment, such as auxiliary modalities, dry needling,



exercise and nutritional counselling also form part of overall management (National Centre for Complementary and Integrative Health 2017).

Chiropractic adjustment, also referred to as spinal manipulation, is a technique performed by trained specialists, known as chiropractors. During this procedure, chiropractors use their hands or a small instrument to apply a controlled and sudden force to a spinal joint. The primary objective of a chiropractic adjustment is to enhance spinal motion, ultimately aiming to improve the physical function of the body (Mayo Clinic 2022).

According to CASA (2022), chiropractic care is one of the most cost-effective forms of treatment for neuromusculoskeletal conditions. Chiropractors can effectively diagnose and treat athletes without the use of drugs or invasive surgical procedures, treat all aches, pains and strains associated with the workplace, and can free children of spinal nerve stress which helps promote proper growth and brain development for babies and children. Chiropractic care is a safe and gentle alternative care for aches and pains associated with aging for the elderly, while also offering a wide range of benefits for everyone's greater health and well-being, by helping reduce the risk of sustaining injuries in the future.

## **2.4 CHIROPRACTIC AT DUT**

In South Africa, a chiropractor is concerned with the diagnosis, treatment and prevention of neuro-musculoskeletal conditions, and the effects of these conditions on the nervous system and general health. Additionally, chiropractors embrace the biopsychosocial model of healthcare, offering a range of complementary services. These may include nutritional guidance, exercise therapy, stress management, electrotherapy, massage, acupuncture, traction, and various other modalities. Chiropractic practitioners are dedicated to addressing the well-being of the human frame in both health and disease, and they may refer patients to other healthcare providers when deemed necessary (DUT 2023).

In Africa, chiropractic can be studied at two universities, that is the DUT and the UJ, both of which are in South Africa. At the DUT, chiropractic is a full-time course which consists of a four-year BHSc degree and a minimum of one-year MHSc postgraduate degree. At the DUT, it is a requirement for the undergraduate and

postgraduate chiropractic students to participate in OSCEs as part of an examination process.

Chiropractic students are required to achieve an extensive list of competencies, across a wide range of diagnostic domains, as part of their student training. It is the task of educational providers to impart the necessary knowledge, skills and models of behaviour to ensure that a student meets the minimum requirements set out for an entry-level chiropractor upon graduation (Fong *et al.* 2019).

According to the *Chiropractic Handbook* (Department of Chiropractic 2023), OSCEs commence from the third year of the undergraduate BHSc chiropractic programme until the completion of the MHSc chiropractic programme. In the BHSc programme, students are required to have a minimum of 50% examination and as well as a 50% year mark; in the MHSc, the requirements are a 60% subminimum. The previous Master of Technology (MTech) qualification only required a minimum of 50% year mark to complete the year.

Students in the BHSc programme have a semester mark which is composed of being assessed in two OSCEs per semester and then a final examination at the end of the semester; MHSc students who are in their 1<sup>st</sup> year are examined in two OSCEs per year, while those in their 2<sup>nd</sup> year are examined in only one OSCE per year to assess for clinical competence.

The OSCEs usually take place in the CDC which is situated on the DUT's premises and is conducted by a chiropractic lecturer. The lecturer oversees the setting up of stations, which includes providing adequate practical and theoretical stations, qualified examiners, as well as mock patients, where necessary. The OSCE co-ordinator is also involved in making sure that the examination runs smoothly and timeously.

## **2.5 THEORETICAL FRAMEWORK**

In this study, the theoretical framework is guided by the integration of two prominent psychological theories: Kolb's experiential learning theory and Bandura's self-efficacy theory. Kolb's experiential learning theory posits that learning is a dynamic process that occurs through reflection on concrete experiences, abstract conceptualisation, active experimentation, and observation. This theory provides a

lens through which to explore the role of experiential learning in shaping individuals' behaviours and perceptions in the context of chiropractic students and OSCEs (Kolb 1984).

Kolb's experiential learning theory proposes that learning is most effective when experience occurs first hand and that reflection on experience is essential for learning and growth (Kolb and Kolb 2017). According to Morris (2020), in experiential learning, learners are involved, active and engaged participants in the learning process. Learner participation is central, where "learning by doing" is a founding concept. It is a "hands on" task-oriented process which is based on direct experience (Morris 2020).

Kolb's approach consists of three main components: a theory of experiential learning, a learning cycle graphical model, and the learning styles inventory (LSI) (Bergsteiner *et al.* 2010). The LSI is used to assess individual learning styles and it was created as an educational tool to enhance individuals' understanding of the learning process through experience and their individual approach to learning (McCarthy 2016).

According to Kolb's experiential learning theory (1984), the learning process involves four stages, which are based on a continuous cycle:

1. Concrete experience: This stage involves actively engaging in an experience or encountering a new situation. It is characterised by direct observation, participation, and sensory and emotional involvement. The OSCEs typically involve simulated patient encounters where learners actively engage in clinical activity. This aligns with the experiential learning process by providing the students with practical experiences to refine clinical skills.
2. Reflective observation: After the concrete experience, learners reflect on their experiences and analyse the observations they have made. They consider what happened, how they felt, and what the experience meant to them. Reflective observation encourages learners to examine different perspectives and gain insights from their experiences. After each OSCE, learners often have time to reflect on their individual performances. This can be facilitated through feedback from assessors, self-assessment, or a general debriefing session. This allows the students to analyse their actions,

- identify strengths and weaknesses, and gain insights into their clinical decision-making process.
3. **Abstract conceptualisation:** In this stage, learners form abstract concepts and theories based on their reflections. They draw connections between their experiences and existing knowledge, theories, or frameworks. Abstract conceptualisation involves analysing and synthesising information, identifying patterns, and developing generalisations. During this phase, learners can link their observations and experiences to existing theoretical knowledge. They do this by analysing their clinical encounters, identify patterns and conceptualising the principles that underlie their actions. This step helps students develop an in-depth understanding of clinical concepts and allows for building of a solid knowledge foundation.
  4. **Active experimentation:** This final stage emphasises applying the concepts and theories developed in the previous stages to new situations or future experiences. Learners actively test their hypotheses, make decisions and take action. By doing so, they gain practical knowledge, refine their skills, and adapt their approaches based on feedback. The OSCEs often involve multiple encounters and stations to allow learners to apply what they have learned from previous experiences and new scenarios. By actively experimenting with different scenarios, techniques and interventions, students refine their clinical skills, test hypotheses, and adapt various strategies to different scenarios based on feedback and outcomes.

Complementing Kolb's experiential learning theory (1984), Bandura's self-efficacy theory emphasises the influence of individuals' beliefs in their own capabilities about their motivation, performance, and behaviour (Bandura Self Efficacy Theory 1977). By considering the interplay between experiential learning and self-efficacy beliefs, this framework elucidates how individuals' learning experiences interact with their confidence in their abilities to influence chiropractic students' experiences in OSCEs. The integration of these two theories offers a comprehensive perspective on the complex interrelationships among learning, experiential engagement, and self-perceived competence within this study.

Bandura's self-efficacy theory (1977) is defined into five stages:

1. **Mastery experience:** The OSCEs provide students with opportunities to demonstrate their clinical skills and knowledge in a simulated and controlled environment. Successfully completing OSCE stations can enhance students' sense of mastery and self-efficacy. As students gain experience and achieve positive outcomes in OSCEs, their belief in their ability to perform clinical tasks effectively can increase, leading to improved performance in subsequent assessments and real-life situations.
2. **Vicarious learning:** Observing others, such as experienced healthcare professionals or peers, performing well in OSCEs can influence students' self-efficacy beliefs. When students see others successfully completing OSCE stations, it can serve as a model for them to emulate and can improve their belief in their own capabilities. Incorporating opportunities for peer observation or providing access to videos of exemplary performances in OSCEs can promote vicarious learning and enhance self-efficacy.
3. **Verbal persuasion:** Providing constructive feedback, encouragement, and positive reinforcement during OSCE assessments can significantly impact students' self-efficacy. Feedback that highlights their strengths, acknowledges their progress, and offers guidance for improvement can instil confidence in their own abilities. Conversely, negative or overly critical feedback can undermine self-efficacy. Thus, providing effective feedback and creating a supportive learning environment during OSCEs are crucial for fostering self-efficacy beliefs.
4. **Physiological and emotional states:** Anxiety and stress can influence self-efficacy and performance in OSCEs. High levels of anxiety can lower self-efficacy and impair learners' ability to effectively demonstrate their skills and knowledge. Creating a supportive and low-stress environment during OSCEs, providing relaxation techniques or stress management strategies, and addressing learners' concerns can help alleviate anxiety and promote positive physiological and emotional states, thereby enhancing self-efficacy.
5. **Enactive mastery:** Offering learners opportunities for repeated practice and exposure to OSCE scenarios can contribute to the development of self-efficacy. By progressively increasing the complexity and difficulty of the cases

or tasks, learners can experience a sense of mastery as they successfully navigate more challenging scenarios. Learners may also build confidence in their ability to adapt to various clinical situations if they gradually expand the range of OSCE assessments.

## **2.6 SUMMARY OF THE CHAPTER**

The study used a qualitative approach, allowing participants to reflect on their experiences with OSCEs to provide rich, detailed descriptions of their perceptions and experiences. By incorporating the principles of experiential learning into this study, educators can create more immersive and effective learning experiences for healthcare students.

This chapter explored how the participants' perceptions of their own abilities to perform in OSCEs may have an impact on their experiences and attitudes towards this aspect of chiropractic education and practice. By considering the principles of the self-efficacy theory, educators can create an OSCE environment that supports learners' self-efficacy beliefs. This, in turn, can positively influence their motivation, engagement, and performance, ultimately leading to improved clinical competence.

In South Africa, a paucity exists in the literature with regard to the perceptions and experiences of chiropractic students regarding OSCEs. This study is the first of its kind in South Africa. It may fill the gap in research and benefit future academics in enhancing the structure of the chiropractic programme.

The next chapter will provide a detailed account of the method which the study has followed.

## **CHAPTER THREE: METHODOLOGY**

### **3.1 INTRODUCTION**

In this chapter, the methodology which was used for this study will be discussed. Aspects of the process, such as the research setting, sample size and population, data collection and analysis, as well as ethical issues, are also discussed in this chapter.

### **3.2 STUDY DESIGN**

A qualitative, exploratory, descriptive research design was utilised for this research. The qualitative design is best suited for this study as it aims to explore a topic, understand phenomena and answer questions, by analysing, categorising and making sense of unstructured raw data (Houghton *et al.* 2013:12-17). Qualitative research yields outcomes that align with participants and their lived experiences. It transcends the confines of predefined questions, resulting in information characterised by its depth and complexity (Houghton *et al.* 2013: 12-17). An exploratory design allows the researcher to explore a topic with limited coverage within the literature and allows the participants of the study to contribute to the development of new knowledge in that area (Hunter, McCallum and Howes 2019: 2). This allows for an understanding of the beliefs and feelings of student interns about their experiences in OSCEs.

### **3.3 RESEARCH SETTING**

The study took place in the DUT CDC rooms or the Chiropractic Department's boardroom, depending on the availability of venues. Permission from the Research Director was obtained to conduct research at the DUT (Appendix A) and permission to use the venue was obtained from the Head of Department of Chiropractic (Appendix B).

### **3.4 POPULATION, SAMPLE TECHNIQUE AND SAMPLE SIZE**

The research population for this study consisted of chiropractic students who have been examined in a minimum of three OSCEs, which was 185 registered chiropractic students. The interviews were conducted after permission was sought

from the Research Director at DUT (Appendix A) and from the Head of Department of Chiropractic (Appendix B).

Purposive sampling was used in this study. The purposive sampling technique, also called judgment sampling, is the deliberate choice of a participant due to the qualities the participant possesses. This is a non-random technique that does not need underlying theories or a set number of participants (Etikan, Alkassim and Abubakar 2016). Purposive sampling is a frequently applied conceptually driven approach. It involves the researcher deliberately and purposefully selecting the sample they believe can be the highest yielding in answering the research question proposed (Farrugia 2019). The researcher selected participants from the cohort of registered chiropractic students who expressed interest in wanting to participate in the study.

The sample size consisted of at least 12 registered chiropractic students, and data collection continued until data saturation was reached. Data saturation is reached once no further additional information is generated from interviews and, then, further data collection becomes unnecessary (Saunders *et al.* 2018). A total of 20 interviews were conducted and data saturation was reached at the 16<sup>th</sup> interview. The researcher interviewed four more participants to ensure that data saturation had been reached. Of the 20 participants, 1 was of the MTech, 13 of the MHSc and 6 of the BHSc chiropractic programme.

### **3.5 INCLUSION AND EXCLUSION CRITERIA**

#### **3.5.1 Inclusion Criteria**

- Registered chiropractic students at the DUT.
- Chiropractic students that have been examined in at least three or more OSCEs.

#### **3.5.2 Exclusion Criteria**

- Participants who do not sign an informed consent form.
- Participants who refused to be audio recorded.



### **3.6 PARTICIPANT RECRUITMENT**

The participants were approached directly as per their respective classes by the researcher and the purpose, aim and procedure were explained to them. Participants were also contacted telephonically, and the study was explained in a detailed manner. Any interested participants were required to contact the researcher directly should they wish to be a participant or have any questions regarding the study. Interested participants were then allocated a day and time which was most suitable to them. No incentives were offered and participation was voluntary, as stipulated in the letter of information and informed consent form (Appendices C and D).

### **3.7 DATA COLLECTION PROCESS**

The researcher reminded each participant of the time and venue for their interview the day before their scheduled interview via a text message. Before commencing each interview, the participants were again informed about the purpose and aim of the study. The participants were then provided with a letter of information and informed consent form to read and sign (Appendices C and D). Prior to the signing of forms, the participants were notified that they could withdraw from the study at any time and that all information obtained would be confidential.

Once consent was obtained, pseudonyms in the form of codes were given to use during the interview and transcription process. The code ensured that the principles of confidentiality were upheld. Only the researcher and supervisor had access to the data obtained. A semi-structured interview was used to obtain the data.

The duration of the interviews varied but lasted an average of around 20 minutes per interview. All interviews were recorded on a pre-tested digital audio-recording device.

### **3.8 RESEARCH INSTRUMENT**

This study used a semi-structured interview guide to collect data (Appendix E). A semi-structured interview is a qualitative data collection strategy in which the researcher asks informants a series of pre-determined but open-ended questions. Probing questions were used to supplement the pre-determined questions. These probes gave the participants the opportunity to provide more detailed information

based on their initial answer (Ahlin 2019). This method allowed for a discussion with the participant rather than a straightforward question and answer format (Macmillan and Schumacher 2006:204).

### **3.9 DATA ANALYSIS**

The data were analysed using Tesch's method or thematic analysis. Thematic analysis is a data analysis strategy that is used in qualitative designs and is a method of identifying, analysing and reporting patterns and/or themes within data (Creswell 2013). The eight steps are as follows:

- The researcher transcribes the interviews which are recorded verbatim.
- The researcher compares the transcribed data with the audio recording with the use of field notes to confirm certain aspects of the data.
- The researcher reads the transcriptions as many times as needed to fully conceptualise the data.
- The most informative interview is selected, and notes are made regarding that interview. This is repeated for the other interviews.
- Similar topics are identified and grouped.
- Themes are formulated from the various topics.
- An experienced person in qualitative research (in this case, the research supervisor) confirms the data and transcriptions, and themes identified by the researcher.
- Merging themes are identified and confirmed by the researcher and supervisor, supported by verbatim statements from the participants. The literature is then reviewed to verify findings and draw a conclusion.

### **3.10 ETHICAL CONSIDERATIONS**

#### **3.10.1 Ethical Approval**

Approval to conduct this study was obtained from the Institutional Research and Ethics Committee (IREC) of the DUT (Ethics Reference Number: 186/23) (Appendix F). Gatekeeper permission was obtained from the Director of Research at DUT and the Head of the Department of Chiropractic at DUT (Appendices A and B).

Ethical considerations require adherence to the four pillars of ethics, which are autonomy, non-maleficence, beneficence and justice.

### **3.10.2 Autonomy**

The participants had the opportunity to make independent decisions irrespective of the research process (Polit and Beck 2006). The participants were informed that they were allowed to withdraw at any time during the study.

### **3.10.3 Non-Maleficence**

The researcher took all precautions to ensure no harm, risk, or side-effects were experienced by the participants (Polit and Beck 2006). The participants were not harmed in any way. This was verbally explained and in a letter of information.

### **3.10.4 Beneficence**

The researcher ensured maximal benefit and elimination of any harm to the participants upholding their emotional, legal, financial, physical, and social wellbeing (Polit and Beck 2006). Participants were informed about the benefits of the study and reassured about confidentiality.

Other benefits were that gaps in current literature were identified between students and examiners in OSCE, which allowed for improvement in the way the OSCEs are assessed and the way preparation for OSCEs go about.

### **3.10.5 Justice**

Participants have a right to their privacy and fair treatment (Polit and Beck 2006). Every participant was treated fairly and given an equal opportunity to express their own views and opinions.

Permission was required from the gatekeepers, who are the Head of Department of Chiropractic and the Research Director at DUT (appendices A and B). The research proposal was also approved by the Institutional Research and Ethics Committee of DUT. Participants needed to read the letter of information (Appendix D) and sign the informed consent form (Appendix E) before beginning the interview.

## **3.11 CONFIDENTIALITY AND ANONYMITY**

The participants were identifiable as some are colleagues of the researcher. Participants were allocated pseudonyms to ensure their responses and names were

anonymous. The pseudonyms were used as a label for each of the participant's data captured and will be stored at the Chiropractic Department for a period of five years. Electronic data were password protected/stored on a portable storage device at DUT. Hard copies were shredded, and electronic data will be deleted after five years. Only the researcher and supervisor have access to the data.

### **3.12 TRUSTWORTHINESS OF THE RESEARCH PROCESS**

Ensuring rigour in qualitative research means that all data need to be collected from the participants, analysed and presented as accurately as it can be (Lincoln and Guba 1985). Norman and James (2020) state that researchers should rely on four general criteria to achieve trustworthiness. These are:

**Credibility:** This is defined as the confidence that is placed in the truth of the findings (Korstjens and Moser 2018). This establishes if the findings represent plausible information from the participants' original data and is a correct interpretation of the participants own views (Anney 2014). Credibility was ensured in this study by issuing an informed consent letter to the participants, which they signed before any form of participation into the study. Participation was also voluntary, and the participants were able to discontinue if they wished to do so.

**Transferability:** This refers to the degree to which the results of a qualitative study can be transferred to other contexts with other participants. It is the interpretive equivalent of generalisability (Anney 2014). Transferability was ensured in this study by the researcher providing a complete and full detailed description of the research situation and methods.

**Dependability:** Dependability refers to the "stability of findings over time" (Polit and Beck 2006). This involves participants evaluating the findings and the interpretation and recommendations of the research study to ensure that they are all supported by the results from the participants of the study (Anney 2014). An audit trail tracked procedure to ensure dependability. This strategy enables the supervisor to study the transparency of the path.

**Confirmability:** Refers to the consistency and congruency of the results over time (Polit and Beck 2006). This was ensured by the researcher by maintaining the subjectivity of the data.

### **3.13 CONCLUSION**

In this chapter, the research protocol used in this research study, as well as the method in which the data was obtained and analysed, were discussed.

The next chapter will present the findings acquired from the data.

# CHAPTER FOUR

## RESULTS

### 4.1 INTRODUCTION

In this chapter, the outcomes of the 20 semi-structured interviews are presented. These results stem from a thematic analysis of the interviews with 20 chiropractic students, all of whom have participated in a minimum of three OSCEs at the DUT.

### 4.2 MAIN THEMES

**Table 4.1** displays the six primary themes, along with their corresponding subthemes, accompanied by the relevant synopses. These themes exhibit considerable interconnectedness, collectively influencing one another. The themes and subthemes play a pivotal role in shaping the perceptions and experiences of chiropractic students concerning OSCEs at a South African university of technology.

All narratives from research participants were transcribed verbatim.

**Table 4.1: The main themes, subthemes and their synopsis**

Theme	Sub-theme	Synopsis
<b>THEME ONE:</b> Effectiveness of an OSCE in Chiropractic Education	<ul style="list-style-type: none"> <li>• Chiropractic student perception of effectiveness of OSCEs in assessing clinical skills.</li> <li>• Accurate reflection of OSCEs with respect to chiropractic student preparedness for practice.</li> <li>• Chiropractic student perception on overall implementation of OSCE in the chiropractic programme.</li> </ul>	<p>This theme explores the effectiveness of OSCEs in the context of chiropractic education. It delves into an analysis of how these examinations impact the learning and assessment experiences of chiropractic students, aiming to assess the overall efficacy of OSCEs in enhancing educational outcomes within this specific field.</p>
<b>THEME TWO:</b> Preparation and Training for an OSCE	<ul style="list-style-type: none"> <li>• Adequate training and preparation provided to chiropractic students for OSCEs.</li> <li>• Role of the Chiropractic Department in supporting and guiding chiropractic students' experiences with OSCEs.</li> <li>• Additional resources or support needed for OSCEs.</li> </ul>	<p>This theme delves into the preparation and training methods employed for OSCEs. It examines the strategies and approaches used to ready individuals, particularly focusing on how candidates are equipped and trained to navigate the challenges presented by OSCEs. The theme explored the various aspects of preparation that contribute to effective performance in these clinical examinations.</p>
<b>THEME THREE:</b> Challenges Faced by Chiropractic Students in an OSCE	<ul style="list-style-type: none"> <li>• Challenges encountered by chiropractic students in OSCEs.</li> <li>• Factors affecting chiropractic student performance in OSCEs.</li> <li>• Recommendations or suggestions to the chiropractic programme.</li> </ul>	<p>This theme explores the challenges encountered by chiropractic students during OSCEs. It investigates the difficulties and obstacles faced by students in this specific context, aiming to provide insight into the various hurdles that may impact their performance during these clinical assessments.</p>
<b>THEME FOUR:</b> Chiropractic students' perceptions of Feedback and evaluation of OSCEs	<ul style="list-style-type: none"> <li>• Chiropractic student perception on OSCE feedback, fairness and consistency with OSCE process.</li> <li>• Chiropractic Department interaction and communication impact on chiropractic student confidence and performance.</li> <li>• Perceptions and experiences with OSCEs among chiropractic students in different academic levels.</li> </ul>	<p>This theme delves into the perspectives of chiropractic students regarding feedback and evaluation in the context of OSCEs. It examines how students perceive the feedback they receive and the overall evaluation process within the framework of OSCEs, aiming to provide insights into their experiences and attitudes towards these crucial aspects of clinical assessment.</p>
<b>THEME FIVE:</b> OSCEs long-term Impact on Clinical Competence	<ul style="list-style-type: none"> <li>• Correlation between success in OSCEs and long-term clinical competence.</li> <li>• Development of critical skills in practice.</li> </ul>	<p>This theme delves into the enduring effects of OSCEs on the clinical competence of individuals. It explores how participation in OSCEs contributes to the long-term development and enhancement of clinical skills and competency in a specific field, shedding light on the sustained impact of these examinations on professional abilities over time.</p>

## **4.3 THEME ONE: EFFECTIVENESS OF AN OSCE IN CHIROPRACTIC EDUCATION**

The participants were asked questions regarding the perception of OSCEs and how the efficacy of OSCE in chiropractic education prepared them for real life scenarios. Varied responses were recorded from the participants.

### **4.3.1 Chiropractic Student Perception of Effectiveness of OSCES in Assessing Clinical Skills**

Most participants felt the OSCE is essential to the chiropractic course and is a good method of assessing clinical competence because it changes as they progress through the years.

*“Okay, so I think in third year OSCEs are very necessary. Obviously, to help familiarise you with how to perform the examination. What are the relevant key things that you look for in a patient presenting with certain things? I think it just helps. But the pressure helps you think quicker, and it helps you well, the OSCE itself helps you with actually performing the exam the correct way. So, I’d say in third year it’s definitely necessary, fourth year as well.”*  
(Participant 3)

Participant 8 had a different view on how they are essential.

*“Um, I think they are essential. Especially because we are trying to really bridge that gap between like medicine, and I’m trying to get chiropractic more accepted within the medical by the allopathic medical field. So, by you know, actually holding OSCEs which is also like, a standard practice in med school, that a standard practice exam in med school, it also, like gives us an extra boost of like, we do know what we’re, we’re doing what examining at the same standard that is used across the board. So, I do think they are they are really useful and an essential part of the programme. So, I think OSCEs are a good way of assessing somebody to think very quickly so I say under pressure, because if you have a patient that is like almost like an emergency kind of situation, you know, you don’t have time to like to play with you have to do it ASAP. Right. Um, so if you have a patient that you are dry needling them, and you give them a needle stick injury, or they start seizing on your bed or whatever, you have to know what to do. You have to be able to work*



*in a high-pressure environment. So, I think in terms of clinical competency, say that it is. It is medium kind of.” (Participant 8)*

Similar to participant 8, Participant 13 expressed related views.

*“So, I think, firstly they are very valuable, erm I think the clinical examination, especially the practical side of it, it is important for us to be examined in it and at the end of the day it is a very hands on, and we are dealing one on one with patients. There is not a lot of sit downs theoretical aspects but there are theoretical components that prepare us for it even though it is not written down. But I think the hands-on approach erm dealing one on one with people, erm doing one on one examinations, it is a lot of how we practice so I think it is very valuable and important to be assessed in that sense. Yeah, so I think clinically, it is the only if not the best way to be assessed. I know in other medical fields as well, the OSCEs and exams are objective structured clinical examinations.” (Participant 13)*

Participant 17 felt OSCEs are essential due to the way they change through the years, teaching different skills.

*“Yeah, it is essential. Uhm, I think it is important. Yeah, it is quite useful in doing that. Yeah, you get a good variety. Uhm and also because it changes, the OSCEs change from 3<sup>rd</sup> year and 4<sup>th</sup> year to when you are in clinical. The usefulness of it when you are in those earlier years is very diagnostic and it changes once you get into the clinic, a little bit more clinical. Yeah, I think it is useful.” (Participant 17)*

While some participants felt it was essential, other participants felt that OSCEs were important as an assessment tool for chiropractic students but they did not feel it accurately represented their true skills as chiropractors.

*“I think they’re important to make sure that we are on top of our work, and that we’re constantly revising and making sure that we continue continuously learning. But in terms of the actual OSCE, I don’t think it’s a true reflection of testing people’s ability because some people just don’t do well under that 5 minutes or 10 minutes pressure and sit down with a clinician they’re staring at the marking. And sometimes the questions aren’t a true reflection of what’s in our scope of practice or what we actually want to see in practice one day,*

*it doesn't sometimes reflect that. So, it almost isn't testing our ability as a chiropractor, like yes, I know it's in our diagnostic curriculum or whatever, to assess certain things or know how to do certain stuff. But in terms of being an actual chiropractor on a daily basis, I think things should be more aligned with what we see on an average day." (Participant 1)*

Participant 7 shared similar views to Participant 1.

*"I think the motive behind it is very important. However, I think the way it is done, does not assess my full competency. However, the reason why they do it, I think is important. It's just the way they do it. I don't think is as effective as it should be." (Participant 7)*

Participant 11 felt that the OSCEs they participated in needed more chiropractic related questions.

*"I feel like they are, I just feel they should do more chiropractic-based questions in OSCEs." (Participant 11)*

Some participants felt that while OSCEs were fair, they were not essential and could be replaced as an assessment method.

*"Essential? I wouldn't say it is essential. Okay in my opinion, Sure it tests your ability to deal with different situations, but it only tests you in a stressful manner and in a clinical setting as well, it is simulated so not every patient has every checkbox, so from my understanding of OSCEs and experience, OSCEs has always said A, B, C, D, E. So, you fill in their checkbox. As opposed to application of knowledge and so I remember in one of the OSCEs I actually argued with the clinician that you need to do ABCDE as well in addition to what you are asking me for and they actually has told me just to do this specific aspect of the station and it, told me and then it teaches or reinforces the idea that I just need to do this for my patient in real life as opposed to what needs to be done, so that gets reinforced by students and so I, while it is fair , I don't think it should be the only way of testing." (Participant 10)*

*"I don't think it assess my clinical competence, because erm I just feel like if I were to see a patient, I wouldn't have to rush and do vitals in 5 minutes and have more time to actually do it properly and erm I just think that running from*

*1 room to another room, it throws you off your game. erm, I think maybe 1 on 1 OSCEs are essential, yes. Not the OSCEs where we are running from one room to another.” (Participant 16)*

#### **4.3.2 Accurate Reflection of OSCEs with Respect to Chiropractic Student Preparedness for Practice**

Most students felt that the OSCE does not simulate a real-world clinical scenario and, as such, did not prepare them for practice.

Participants 1 and 2 had similar answers in terms of why they felt this way.

*“I just feel like if they give you a case, if I had a patient in real life, I’d want to do a couple of exams or assess different systems to rule out things properly. But in a five-minute situation, you can’t do multiple examinations or whatever, so you literally just choose one. And sometimes that’s obviously not always accurate, so it’s not stimulating or simulating a real-life situation.” (Participant 1)*

*“I just think that it’s unrealistic for you or for your clinical competence to be assessed in five minutes. When you’ve got five minutes to read a question, assess the patient. And the questions are ambiguous, you’re not really sure what’s going on. In a clinical setting, you would have time unless you work in an ER which chiropractors don’t to be able to thoroughly assess the situation and then to determine what tests you would need. An OSCE doesn’t really give you that freedom.” (Participant 2)*

Participants 6 and 12 felt that OSCEs could and should be more chiropractic based, with less diagnostically rare conditions.

*“Not at all. Majority of the OSCE questions that I’ve experienced, there are one or two that that makes sense as a chiropractor to be asked. But the majority are testing you on the rare number of people that might come into your clinic with very rare conditions, as well as testing you on things that typically the answer should be referred out to a different healthcare professional. It is not within our scope, as chiropractors to be treating or even testing those types of patients. And I don’t understand the point of being tested on all of that when we see so many patients with things that can be tested on when it comes to, to the degree. So, I think that they have chosen*

*to ask us questions for the rare minority of patients that we might see 1 of in 10 years versus the common patients that we will see.” (Participant 6)*

*“Erm, because we are given mock patients in the OSCE. In addition to that in our real-world experience as chiropractors and future rooms, we are not going to be given such an evident case but rather a person with jaundice or hepatitis would opt to go to their GP before going to a chiropractor instead. So, I think that’s why.” (Participant 12)*

Participant 16 reflected similar views to participants 1 and 2.

*“Okay so let’s put into perspective. A respiratory exam takes more than 5 minutes whereas a peripheral vascular exam will take you 2-3 minutes. Whereas if you were to have that time combined, you would be able to do both those assessments properly whereas in an OSCE you are not finishing your respiratory and you are sitting in your peripheral vascular exam for the next 2 to 3 minutes just waiting.” (Participant 16)*

Both participants 17 and 20 had very similar views to participants 1, 2 and 16.

*“It is too out there. It is not realistic. You hardly ever are going to need to do all these other assessments and patients are not going to come to you for some random abdominal pain. Sure, you will get the odd one, but I think it is pretty obvious you aren’t going to manage those patients. Go see your doctor, they are going to handle that. Uhm, so I think that’s really where they come a little bit short. I think it is necessary in the earlier years, so you know when to do those assessment in certain presentations of patients when you are maybe looking at a cardiac issue or an abdominal issue, but I still feel most of the time it is not realistic in what we see.” (Participant 17)*

*“Because it’s not going to be that simple, like 43-year-old man experience’s chest pain referring down the left arm. It is not going to be like that and if it is, you are not going to have time to perform a cardiac exam, you are not going to have time to auscultate each F\*\*\*\* valve you know? We are going to have been like okay we have to call an ambulance, like what are we as chiros going to do about that? We can’t even prescribe aspirin to help though. I really don’t think because when we see a patient. It will be involved. It will be a case history, it’ll be this and we haven’t really been taught how to integrate*

*it all, but we can't even do a cursory exam because they haven't even figured out how to do that. So, it's not very clinic orientated." (Participant 20)*

Participants 13 and 14 both felt that it was not realistic, but it was still important for them to be tested in this manner due to the potential for other pathologies to present themselves as musculoskeletal pain.

*"Erm, in the chiropractic sense? No. I think there is a lot more emphasis on the diagnostic side of things which is good because there will be patients coming in with organic pathologies which could mimic musculoskeletal pain, so it is important to pick those up, erm, so it is important to have those examinations in an OSCE but there should be emphasis placed on the chiropractic examinations that we would do more often in the clinical chiropractic room." (Participant 13)*

*"Okay so, first of all they focus on the unusual cases, they focus on diagnostically things which are important, I understand that, but there are also a lot of things that we don't get tested on which we see more often, uhm like actual musculoskeletal conditions, so there will be 1 musculoskeletal but 5 of your diagnostic but in a sense they should put of our musculoskeletal stuff as well as like the x-rays and stuff. Stuff that we use. Because most of us know how to find things but not treat it and I think it would be a good way to bring it in in the OSCE." (Participant 14)*

Participant 15 felt that it is realistic but does not prepare you for real life clinical scenarios.

*"I think that they do but I think very often which has happened, mostly in the recent years, stuff that you say in the OSCE is not what the memo says. And often the memos have nothing to do with how you actually deal with the situation in real life, so I think that if there was some sort so system to capture marks based on the student's ability to apply knowledge rather than say exactly word for word on the memo. I mean, just for example in our recent OSCE that we had, you had to answer 4 questions, I mean the student has to ask the patient 4 questions and just because I didn't ask a specific question which was so specific , I did not get the mark but meanwhile I already knew the correct answer but I didn't get the full mark because I didn't say the*

*specific question. So maybe make it more application based.” (Participant 15)*

Only participant 19 felt that the OSCE simulates real-world clinical scenarios and helps prepare for real life situations.

*“Yes, I do, because erm, when you are learning in class, your patient is not going to come to you saying I have hypertension, this is what I have but when you are in the OSCE, how old they are and what they come in complaining off. It helps now because I must take what I learnt and apply it, and nothing is written. It is me utilising my skills and my clinician expertise to try and diagnose the patient adequately.” (Participant 19)*

#### **4.3.3 Chiropractic Student Perception on Overall Implementation of OSCE in Chiropractic Course**

Izzedin, Hala and Hala (2019) state that the primary purpose of employing OSCE is to evaluate students’ competencies and clinical performance effectively as its aim is to enable students to practice in a safe and competent manner, ensuring the delivery of high-quality care. Most of the participants felt that OSCEs are essential to the chiropractic course as it helps students to properly identify problem areas within their own practical skills so that they can improve on for the future.

*“Yes, uhm, it makes you revise and go through everything you’ve learned through from third, second year onwards, to know you are covering your bases. And that helps you look at where the gaps are, that you need to fill to make sure that you are competent enough for when you qualify.” (Participant 7)*

*“Um, I think they are essential. Especially because we are trying to really bridge that gap between like medicine, and I’m trying to get chiropractic more accepted within the medical by the allopathic medical field. So, by you know, actually holding OSCEs which is also like, a standard practice in med school, that is a standard practice exam in med school, it also, like gives us an extra boost of like, we do know what we’re, we’re doing what examining at the same standard that is used across the board. So, I do think they are they are really useful and an essential part of the programme.” (Participant 8)*

*“I think we are a profession that is very like hands on and as well we have like one on one with the patients so it does simulate that situation quite nicely as well as it gives it like a different form of testing so that people that might not thrive in one area can show their understanding in another area.”*  
(Participant 14)

Some participants felt OSCEs are essential but simply need to be modified by including more chiropractic-related questions to help better prepare them for future patients or by even changing the entire format and making it into an individual OSCE with a real case scenario patient.

Participant 3 felt that they should not have so many OSCEs in the senior years as OSCEs are different to the real-world clinic experience.

*“So I feel like once you’ve done entrance OSCEs to get into clinic, the relevance of the OSCE can be questioned, because you would have been treating patients throughout the time before you do the OSCE and then all of a sudden you have an OSCE and this OSCE will determine if you will continue seeing patients or you will stop seeing patients which doesn’t make sense to me personally, because if I failed the OSCE. Okay, cool, but I had been seeing patients prior to that. So, I just I don’t understand the logic behind it.”* (Participant 3)

Participants 11 and 17 felt the OSCE needs to be more relevant to the scope of practice by including more chiropractic-based questions.

*“I feel like they are, I just feel they should do more chiropractic-based questions in OSCEs.”* (Participant 11)

*“I almost feel like they don’t make it enough chiropractic-ally oriented. Especially when you are in your clinic years. They still have it very diagnostically oriented which I don’t need to completely remove it from OSCEs but it still feels very diagnostic oriented when you are not getting a lot more chiro based stuff and you don’t get OSCE stations where they talk to you about managing patients and it is still very diag oriented and a lot of the time it is weird stuff, it is things that are seldom seen by Doctors even and we are getting asked that stuff. So that where I think it falls short.”* (Participant 17)

*“I think they are, but I think they could be conducted in a different way.”  
(Participant 20)*

Participant 16 mentioned that an individual OSCE was essential to the chiropractic course. The participant was also asked to explain how it worked.

*“Erm, I think maybe 1 on 1 OSCEs, yes. Not the OSCEs where we are running from one room to another. okay, so as I said that if I were to be with a patient, I wouldn’t do vitals in 5 minutes. It’s hard to do, I mean look at a person’s breathing rate, look at their pulse in 5 minutes and now you are not even getting an accurate reading because all of those take a minute each and now, we must do it for 15 seconds and multiply it and all of that and quick maths? No. Then respiratory exams, half the time the clinicians just tell you to skip so you are not really getting tested, I mean they are telling you to skip and you are skipping stuff and then you are forgetting stuff, like I forgot, I know in class I can do it properly without looking at my work but then in an OSCE situation, about two times I forgot to do chest expansion in an respiratory exam.” (Participant 16)*

A few participants had similar views but felt the OSCE was not essential to the chiropractic course.

*“No, I do not, because like I said, our OSCEs are compromised stations that are five minutes each and looking at five minutes we are expected to understand the question, interpret the question perform the relevant exams and give theory question the answers if relevant, and with all of that you are not correctly thinking about what you’re doing you just muscle memory doing everything if that makes sense?” (Participant 4)*

*“No, I don’t. I think they could create a much more realistic form of testing that would test our clinical competence. But in a more structured and logical way, one where we’ve got more time with the patient are actually able to do a thorough examination, not just try tick off questions and test in order to get marks.” (Participant 6)*

*“I think that I just feel like there’s lots of stuff that we get tested on in the OSCEs that we end up not using to be very honest. Like I understand it’s a good skill to have, but I don’t feel like that kind of pressure that is put on us*



*to perform in a very high level in the OSCEs is beneficial for us in the long term. And like, I just don't, I've never been to a chiropractor that's in private practice that checks my heart rate and checks my vitals. And that's just the basic set let alone the other stuff. So ..."* (Participant 9)

## **4.4 THEME TWO: PREPARATION AND TRAINING FOR AN OSCE**

### **4.4.1 Adequate Training and Preparation Provided to Chiropractic Students for OSCEs**

Some participants felt adequately prepared but still required additional supplementation of resources, such as the use of online videos, tutorial classes or just by simply speaking to senior students about it.

*"Yes and no. Like some of the ways some lectures have taught us has definitely helped my knowledge and way of thinking, but also sometimes a lot of things come out in OSCEs that no one's ever taught us. So, we kind of just have to think how are we going to approach this or you just or you are just like I will get it wrong?"* (Participant 1)

*"As a student and as a tutor, I do think I think that to a certain extent that they do. Everything that you need to know is taught to you in class I feel. from my perspective I didn't really go and watch many other videos., go for private tutoring whatever, like yes go to like, the TUT sessions and that would have not been sufficient for me to pass in 3rd year and pass well and that is when you're learning the crux of your stuff. Right. So, I do think that yes, it is it adequate and it is only adequate If you put in the effort. so, you got and consolidate what you've learned at home and if you're not understanding, or, you know, go, and do your own research and stuff. It's not adequate when you don't consolidate, and you expect your learning to be up to someone else. I was taught during COVID diagnostic, and I think the videos really helped because you could go back and look but I don't feel that I've lacked anything in terms of knowing what I need to know for OSCES from what I've been taught the lecturing was pretty sufficient if you listened properly and actually engaged with the material."* (Participant 8)

Most participants felt they were taught all the information but were not guided on how to perform in the OSCE environment.

*“I’m going to say yes. But I’m also going to say no at the same time. Yes, in a sense that we are taught like everything. Like when it comes to examinations and stuff like that. But a lot of the time, the way certain things are asked you don’t know that you have to answer it in a certain way. I think it’s just that like, sometimes the questioning can be a bit confusing. But in terms of them teaching us everything that’s to know for OSCEs I think they’ve tried, they’ve done the best, I guess.” (Participant 3)*

*“Okay. So, the theory and prac sessions that we have during the weeks just simply relate information, but it doesn’t exactly teach us how to perform these things in an OSCE situation. So, I do not feel prepared with the knowledge that I have to do”. (Participant 4)*

*“The subjects are taught in boxes. So, when you come into an OSCE, it’s because everything is so separated. When you come into an OSCE it’s hard to make the links between what you should be doing because you saw it in one tunnel vision mindset. And that’s the way our lectures and subjects have been structured. And the way they’ve been lectured by lectures, that students and me personally, I used to struggle to make the connections between things.” (Participant 7)*

*“Erm, I think yeah. They did prepare us well in terms of explaining why we do the examinations that we do and what reasons we need to do these but in addition to that, I feel that they lacked in a sense that they didn’t reinforce it that much for us to be tested on these things this extensively within the OSCE setting.” (Participant 12)*

*“Erm, I think that they do go over in class, like what you should know and whatever. I think they could maybe do a better or thorough, let me say that. In explaining what you should do in each station because they do like run the general tests in class, but they don’t say oh you must say this oh you must say that uhm yeah. And there is a big discrepancy between the different years between what you must know, what you must say and how you do the test.*

*So, if they could have like an OSCE manual that you could get in 3<sup>rd</sup> year of what you could do in each station that might be great.” (Participant 15)*

*“Yes, it did. Yes, it did. I would say, I don’t think you are ever lacking in know what you are going to be examined on. I just think the stuff we get examined on is a bit irrelevant. I think there are still better resources out there for what we are given in terms of you know, we obviously get told to go through McCloud’s and Bates, the big diag books for us. There are some better resources, and I would say it adequately prepares us for OSCEs.” (Participant 17)*

Participant 14 felt they had to get advice from senior students on how to approach the OSCE.

*“Erm, I would say that I did a lot of extra work behind the scenes that was not taught in class, as well as learn from older years. That prepared me more for OSCEs, just because of the situation they want and how they want things.” (Participant 14)*

Only Participant 5 mentioned that they were adequately prepared.

*“So, everything we get taught in an OSCE does come out in class we do discuss it. The lecturers can’t ever really prepare you for anything and everything. But I feel so far, it’s been stuff that we’ve covered or discussed, and they have made an effort to do like extra tutorial sessions to practice those skills.” (Participant 5)*

Another participant felt they were not adequately prepared at all.

*“No, I think the chiropractic course teaches you what you should expect to see in patients and the OSCE asks you, the one percenter that are going to come in and see you, so I don’t think that the course is adequately preparing us for the OSCEs. the OSCE should rather be changed to fit into what we’re being taught versus asking us for the rare conditions.” (Participant 6)*

#### **4.4.2 Role of Chiropractic Department in Supporting and Guiding Chiropractic Students’ Experiences with OSCEs**

A problem participants mentioned was that they were being tested differently from what they were taught. This means that participants were asked to perform

differently in the exam as to how they were taught in classes, as the participants believed that some clinicians or examiners feel they have a superior method of examining patients. This can negatively affect marks because, even though the method is different, it does not mean it is incorrect.

*“We are getting taught by 2 different people and getting tested by many different. Throughout our chiropractic degree, in the undergraduate programme, I have been taught by 6 different people. Erm with the exception of obviously tutoring, so it is a bit confusing you know? With what to expect and what to perform in the OSCE.” (Participant 6)*

*“It is a difficult one, because a lot of lecturers or clinicians, when they sit in stations, they do it differently in practice, so we can be either marked really by if that person taught it to us or really badly based by what they do in practice. I feel like everyone has their place, but I mean It is not fair sometimes.” (Participant 11)*

*“Different clinicians test differently, and we were told in a lot of our OSCEs that they don’t know what we are doing so we have been taught differently and yes we have been taught differently and its impacting on our marks because the clinicians don’t know what we are doing and we are told we are doing the wrong thing.” (Participant 16)*

*“So, I understand that students have to do their own work, you have to look at the textbook, we have to make our own notes which is totally understandable, and you have to do that when you are in university. You won’t get spoon-fed. However, a lot of the clinicians have very different ideas on what tests and how they should be performed and what should be done in each station. So, like for example, cerebellar, we have been told our whole life, cerebellar test have pronator drift. Now B\*\*\* who is in 4<sup>th</sup> year has told me no, some clinicians say that you actually can’t do pronator drift. So, I’m like what is right and what is wrong? I don’t know. There’s so many varying opinions.” (Participant 20)*

A participant mentioned how the Chiropractic Department lacked in preparing them for the OSCEs in third year.

*“In a sense, it has, I would say in the first 2 years, so first year and second year we were kind of learning in boxes and then in third year it was kind of an internal shock because everything is combined so I feel it prepared me for it in a sense but not as well as I would have liked. I didn’t think I would have to do so much because in the first year they explain what the profession does, like from the basics. You are basically learning in these boxes and then I feel if it would be helpful in first year, eventually you are going to do diagnosis is and introduce us from there. Don’t just say okay go to physiology, go to histology. I feel like maybe that would make a difference.” (Participant 19)*

## **4.5 THEME THREE: CHALLENGES FACED BY CHIROPRACTIC STUDENTS IN AN OSCE**

### **4.5.1 Challenges Encountered by Chiropractic Students in OSCEs**

A challenge many students faced was the clinicians who were testing them. Participant 3 mentioned clinician demeanour being one of the reasons.

*“I know sometimes maybe you’d get a clinician that isn’t maybe too friendly a clinician that’s just like, I don’t know if I can just say super serious and they just make you scared and make you doubt what you say, so I just say I guess that will be the only thing, other than that, No, I can’t think of anything.” (Participant 3)*

Participant 6 stated that some clinicians treat other students differently according to their relationship with them.

*“The clinicians are all obviously it’s different clinicians testing each station, which means that clinicians that have personal gripes with you may not help you as much as other people.” (Participant 6)*

Participant 8 and 12 shared a similar feeling to participant 3.

*“You feel like the clinician is uninterested with what you’re saying, you don’t know you’re not the right track or not. I know it that shouldn’t matter. But I mean, I’ve had clinicians like I’ve had stations, I’ve walked in the clinicians has not like looked up from their phone, and I’m like well you know I prepared for this thing, I’ve put in so much effort, I’m here, I am doing what I can, Like, the least you can do is give me the time of day and look up from your phone,*

*and actually watch what I'm doing because then I don't know if they've missed something.” (Participant 8)*

*“Challenges? Maybe in regard to specific clinicians. Just the type of questioning, some of them would be too lackadaisical and just read the question and not prompt you and some of them would be too polite and then prompt you too much.” (Participant 12)*

Participant 14 stated from personal experience that clinicians miss out marks on students which can have a severe impact on the students' marks.

*“Sometimes lecturers will be doing other things, and they will miss things you say, so I've noticed even as a patient in the OSCE, a person will say meet and greet, name and age and I will check bilaterally, and they don't get the mark for saying bilaterally or one of the tests they miss because the marker is eating or something. Like I know they have but maybe give them time in between the OSCE, so like missing out points is quiet a big one.” (Participant 14)*

Participant 15 expressed how the clinicians' attitude can affect the participants and how some clinicians being biased actually helped them.

*“The clinician's attitude sometimes, like if they are in a bad mood or if they are tired which everyone is in an OSCE they take it out on you. They make rude comments and super judge you because you do the wrong thing. I do think it is a bit biased but coming from my point of view it worked out great for me because when they see you are a top student and doing well, they will automatically give you good marks even though it benefitted me, it is unfair, but it does happen.” (Participant 15)*

*“I feel like sometimes the clinicians as well that we get. Like we are already under all that pressure. And then the clinicians are in their mood, I understand you are tired, but I am also stressed so I feel also the clinicians, the way they look at you and if you are doing attest and it's not necessarily right, they will be like just stop, stop. You don't need that because you have other stations to go to.” (Participant 19)*

*“I feel, personally I don't like how some of the clinicians are like, what are the nice term to put it, B\*\*\*\*\*. That's not a nice term ha-ha but they kind of look*

*at you like you are absolutely stupid when I can think clearly when I am not being examined so like if people are staring at me and looking at me like they are unimpressed, it makes me like panic a bit and then I can't think clearly and I just, it is not a true representation of how my brain works?" (Participant 20)*

The students mentioned the concept of transitioning from one room to the next being a challenge in OSCEs.

*"Time is a difficult thing, and like, especially running to each room is a bit difficult." (Participant 5)*

*"So, there's a lot of disorganisation. When it comes to even just transitioning from one room to the next room that often cuts into your time or five minutes." (Participant 6)*

*"Another one would be when the whole thing got messed up and I skipped a station and I had to stay behind because somebody took the theory sheet from the theory station and took it into a prac station and then when I went into the theory station, I thought it was a rest station. So, there was 3 students who didn't do that station, so we had to do it after the OSCE." (Participant 16)*

One participant mentioned how OSCEs are not suited to students with disabilities, particularly those which who require accommodations, such as 'extra time' students.

*"Okay so, I am an extra time learner, and no concessions are made for extra time learners within the OSCEs. You are expected to think at the rate of everybody else. So, I think that is a bit of a disadvantage. I understand in terms of you have to work well under pressure with the testing, right. But where does that concession come in when somebody has a genuine learning disability? Such as dyslexia, you know, they can scramble the words around like they don't really know what you're asking. Like for me, x-rays, I cannot look at them and tell you exactly what's going on. Like, I need the time. I take time to process reading through questions. That's why I have that extra time." (Participant 8)*

Some participants mentioned being tested on things that are not chiropractic specific, which was a challenge.

*“Some of the challenges I would say is not, you are expected to have known unknown aspects, but when you get tested on something completely out of your scope of practice and on things you cannot really do, in my opinion that is kind of not relevant.” (Participant 10)*

*“The non-specific things, I feel like just do more chiropractic things from time to time for us.” (Participant 11)*

A big challenge which the participants mentioned was having too much or too little time depending on the station.

*“Also with a bit of the time, some stations you are required to do a whole lot of assessments, for example the lumbar spine you do a whole lot of assessments and then still be asked theory questions and we are given those 5 minutes and some stations you are asked to do JACCOLD or vitals which you can do in 2 minutes and the rest of time you are cooling off.” (Participant 12)*

*“And also, cases, that are explained and there’s a lot you need to do in a short amount of time so you kind of need to choose what you need to do and that kind of is a challenge to kind of work out.” (Participant 13)*

*“As I said, you won’t be, okay so let’s put into perspective. A respiratory exam takes more than 5 minutes whereas a peripheral vascular exam will take you 2-3 minutes. Whereas if you were to have that time combined, you would be able to do both those assessments properly whereas in an OSCE you are not finishing your respiratory and you are sitting in your peripheral vascular exam for the next 2 to 3 minutes just waiting.” (Participant 16)*

*“Time constrains because in practice you are not necessarily only going to have 5 minutes to diagnose this patient and if you want proper diagnoses like in class, I feel we should have a little more time.” (Participant 19)*

#### **4.5.2 Factors Affecting Chiropractic Student Performance in OSCEs**

Most participants felt negative factors, such as anxiety and stress, affect their performances the most during OSCEs. These factors are usually induced by the time limitation placed on the students.



*“For me, I’m a nervous person, I get really nervous, like, nervous to the point where I blank out, like for example, so like, I think it just it’s just like, Yoh, OSCEs are just a stressful situation. Like they are just stressful.” (Participant 3)*

*“I don’t think in a sense is a competency because walking through the OSCE basically stimulates anxiety and stress and I tend to forget half my stuff because of the anxiety and stress. But I know that I can do the work properly in a controlled environment.” (Participant 4)*

*“It’s a very stressful environment. You’ve got five minutes to show your skills, but you actually don’t have time to show your skills. So, it’s kind of just like a regurgitation technique and stress gets to people so I don’t think it’s a true reflection.” (Participant 5)*

*“They are anxiety inducing. The timing of five minutes is ridiculous. It doesn’t make any sense to be testing us in five minutes, including how long the clinician has to explain the question and some of the questions are really long and some are really short. It just does not test the clinical knowledge or competency of any of the chiropractic students.” (Participant 6)*

*“They are incredibly stressful, which makes the students struggle with showing that they are competent, because when you’re under that stress, you sometimes struggle to think. Uhm, and in real life, sometimes you may have that stress but not the five-minute stress that you get within an OSCE.” (Participant 7)*

*“Uhm, overall experience. Well, I have extreme severe anxiety now due to these OSCEs and the pressure that is put on us to perform in these. Personally, for me, Look I can tell you, it is not an actual representation of what I can do, not even of what I know. Because I have such severe anxiety when I go into the room, my brain freaks. And I’m just debilitated. Basically, and I can’t perform anything that I practice, and I forget 90% of everything. When I’m looking at it, so yeah.” (Participant 9)*

Many students felt that the strictness of the marking rubric affects the way they perform in an OSCE, and this was not the way they would realistically approach a patient in practice.

*“One thing I have noticed is that the rubrics are very specific, which I don’t think is right because they should rather especially in the master’s level, and especially from sixth year on they because as you can now your clinical competency type of years, they should rather be assessing your train of thoughts, like your way of dealing with the patient going around a problem and not having said these specific things on a rubric. Because just what I would say and, on the rubric, but I might have a different knowledge on a different experience and working on side sports field and the way I’m going to do it doesn’t necessarily have to be the same as the rubric. It doesn’t mean it’s wrong. But I won’t get the right mark reflecting to my knowledge or way of doing things.” (Participant 1)*

*“OSCEs has always said A, B, C, D, E. So, you fill in their checkbox. As opposed to application of knowledge and so I remember in one of the OSCEs I actually argued with the clinician that you need to do ABCDE as well in addition to what you are asking me for and they actually has told me just to do this specific aspect of the station and it, told me and then it teaches or reinforces the idea that I just need to do this for my patient in real life as opposed to what needs to be done, so that gets reinforced by students and so I, while it is fair , I don’t think it should be the only way of testing.” (Participant 10)*

Participant 11 provided an example of this.

*“A good example I can give is from yesterday’s OSCE. The patient presents with fever, sore throat and muscle aches. Do the relevant exam. They wanted vitals, where I feel like I would’ve done other things, like do a throat exam, assess the neck and stuff. So, it is a bit vague in my opinion. The best example I can give is where the patient had a concussion and we had to assess them, I was like okay cool, cranial nerves, cerebellar, but most of the marks came from where we had to do cervical ortho. Whereas I felt, if a*

*patient had a concussion, I wouldn't even do range of motion or cervical ortho, so I feel that is a bit of an issue in that department.” (Participant 11)*

Participants 12 and 13 had similar feelings with regard to the way they would go about performing the examination, in comparison to the way the rubric is set out.

*“The clinicians testing us have specific guidelines on what they need so that creates a bit of grey area. They award marks for specific things, so sometimes in an OSCE, you may be given a case, and some examination protocols are actually relevant to the case but are not awarded marks. So, I think that's where it lacks testing our full medical capability as a health professional.” (Participant 12)*

*“I think recently getting to a station with a case presented but there are certain exams I would like to do first or certain I would want to do first but there was a certain exams I would want to do and in the case they were looking for something else whereas I would put more importance on certain exams to rule out certain things but the clinician wants something else and that is a bit of challenge because you have your way of doing things and your way you want to do things but it is not what they are looking for, so marks wise you might suffer.” (Participant 13)*

Participants 14 and 15 felt that, even though they knew how to go about if it was a real case scenario, they would not get the best marks, as it would differ to the way the memo was set out.

*“Sometimes in the OSCEs they have what they want down and even if you say a whole lot of stuff about the topic but you haven't said the one word then you won't get the marks and so it will be better to have an open-ended rubric instead of this exactly what the person has to say.” (Participant 14)*

*“Stuff that you say in the OSCE is not what the memo says. And often the memos have nothing to do with how you actually deal with the situation in real life, so I think that if there was some sort so system to capture marks based on the student's ability to apply knowledge rather than say exactly word for word on the memo. I mean, just for example in our recent OSCE that we had, you had to answer 4 questions, I mean the student has to ask the patient 4 questions and just because I didn't ask a specific question which*

*was so specific , I did not get the mark but meanwhile I already knew the correct answer but I didn't get the full mark because I didn't say the specific question. So maybe make it more application based.” (Participant 15)*

The participants found that the way questions are asked is a factor which affects their results in an OSCE.

*“They are too ambiguous. The fact that you've got five minutes to read the question, think it through try to perceive what they're actually asking of you, then you've got to do it.” (Participant 2)*

*“Because sometimes things are too vague for me sometimes and I am like okay yeah? And? What else? I feel like it would be better, funny enough my brain to kind of paint the stuff from the patient, it is too vague, and it is difficult to do it when you can't physically see it.” (Participant 11)*

*“The questioning style of the OSCEs are very vague, erm I understand that not everything is going to be given to us but in this testing scenario like not to be so vague because there's so many tests you can possibly do for a patient presenting with different pathologies.” (Participant 19)*

Patient demeanour is also a factor which affected a students' performances.

*“One thing when I was in third years so now, you're new to OSCEs. I think it was my first ever in person OSCE. So, it's stressful, and then the mock patient was an older year, and she just she was just sitting there shaking her head, which doesn't help and puts you in an extremely stressful like, you are doing it wrong, and then it makes you doubt then you don't know what to do and you go completely blank” (Participant 1)*

*“Patients being like extremely morbid, like they do not want to here, like but that also puts you off, it is pretty very stressful for you to try to perform in such a limited amount of time and then to have a student that is sort of being like they are dying by being here” (Participant 9)*

### 4.5.3 Recommendations or Suggestions

The majority of the participants suggested that the OSCE should be more chiropractic specific.

*“I think make it more like chiro specific. Obviously, there’s going to be diagnostic things because we’re going to have diagnostic things with patients one day but assess our thinking more than what’s on the rubric. Like the clinician should have the ability of okay, this person going down the right path, they would be able to deal with this in a real-life situation more than they haven’t said X, Y and Z on the rubric. I think bringing in more musculoskeletal stuff, we focus so much on diagnostic things that sometimes I feel like when are we actually going to leave chiro, we have a limited knowledge on musculoskeletal stuff compared to our diagnostic knowledge, which obviously is important, but we are musculoskeletal specialists.” (Participant 1)*

*“I just feel they should do more chiropractic-based questions in OSCEs.” (Participant 11)*

*“In my experience is that they are adjustment stations but out of let’s say 20 stations OSCE, we have only or generally only get 2 stations when in real life in a clinical chiropractic sense, I would guesstimate that 70% of what we do is adjustments and I think the weakness itself is that we don’t get tested enough on adjustments or they are not valued enough in a whole sense even though it is good that there is a range but I feel there should be more focus on adjustments and possibly more x-rays and orthopaedic assessments. More chiropractic-based examinations. I am not saying the diagnostics is bad but more focus on chiropractic is required. include chiropractic specific stations, more adjustment stations. More maybe case-based questions where you have to do orthopaedic testes and not so much diagnostic stuff, as well as maybe more focus on neurological questions.” (Participant 13)*

*“So there are a lot of good things in OSCEs, so we must keep those parts like doing adjustments, put them, we focus so much on the rare cases of things as well x-rays of lungs and all the diagnostic things when we are in clinic, like now our clinic OSCE should be more tailored to what we do in*

*clinic, so I think adding in stations about actual musculoskeletal conditions as well as common things like things we see every day, like facet joints, NREs and going deeper into those ones because most of us know surface level information.” (Participant 14)*

*“I think the OSCEs pretty much a lot of diagnostic questions that have nothing to do with chiropractic in general and it doesn’t test your ability to apply your knowledge which is what we need when seeing a patient. It is just a lot of regurgitation. so, there was a new way of assessing for diagnostics during Covid to reduce one on one interactions. To make it better to reduce the spread of Covid and in that they were given a case scenario, so like john would come to you with some neck pain. And if they were a patient in your room you would have to ask relevant questions and perform the relevant tests but there was no time limit, maybe half an hour to 45 minutes and you could ask them questions based on the conditions they have. I think that more even though there was a lot of complaints with the younger years struggling but I think that was way more beneficial in assessing your clinical competence because it tested our ability to think abstractly and apply any knowledge of a certain condition onto the patient.” (Participant 15)*

*“More chiro related things. Chiro are very musculoskeletal in what we manage. You know we are not going to see; we are not going to be managing people with cardiac disease, we might treat people with cardiac disease, but we are not going to manage them. If we could maybe tailor, it a bit more towards clinical stuff and then again.” (Participant 17)*

The majority of the participants suggested that the OSCE time limit per station be slightly increased.

*“More time for testing in the examination, or even as well as when we are required to have given a diagnosis at the end of our stations.” (Participant 4)*

*“I think maybe they could make the station a bit longer, so make them maybe like six minutes instead of five and give a case that one could like fish out and one that is quite realistic instead of just expecting us to do giving us like an arbitrary case expecting us to do everything within five minutes.” (Participant 8)*

*“Firstly, I think they should increase the time limit, to be very honest I don’t understand why the time limits are so small. so that would be an improvement already.” (Participant 9)*

*“So, I think it should have an ability or space for the student to critically assess. Not just in a stress environment, so not having time limit as an example or allowing the student to think outside of the box to approach the situation. It would benefit massively.” (Participant 10)*

*“I think maybe a longer duration because they want to test we adequately know our work because in 4<sup>th</sup> year and 5<sup>th</sup> year when we are seeing patients we don’t want to be rushing through things because now you afraid you have a time constraint so I feel if we have a longer time period, even the clinician can say okay she knows her work she is taking her time and that’s how she makes an accurate diagnosis because we know if you make a wrong diagnosis or miss a diagnosis there is so many implications for that. I would say, maybe about 8 minutes because it makes a difference because by the time you walk into a door. sometimes I don’t even walk into the door and the 5 minutes has already started. They read it to you, this is your case study. You still need that time to process, what could possibly be wrong this is what I need to test. I don’t want to be standing there still trying to process, my 5 minutes are flying by.” (Participant 19)*

Some participants suggested a change in the format of the OSCE.

*“I say that it would be nice to have an examiner or clinician sit in on your entire treatment to like actually determine are you competent enough? Because like an OSCE situation, yes, you are kind of performing the test, but you aren’t necessarily actually doing the test.” (Participant 3)*

*“We only have had one, one on one OSCE, but I felt that that was a slightly better presentation of your skills that you can pull out because you had to, not say uncapped time but enough time and you chose which tests you wanted to do, you have to do them properly. So, it was a bit of a better situation.” (Participant 5)*

*“So, in my opinion, the way we should be assessed is we should have a clinician come into a full basically like an almost a full appointment. So, you*

*can have the fake patient if you want to. You could also do a real patient, I understand the limitations with that, is obviously each person is going to come up with something different, but to standardise it. You have a patient come in and you actually go through the paperwork as you've got a new patient. so a new patient presents to me and they watch you go through the all the new paperwork, do all the tests, including your physical exam and whatever regional exam, even if they choose and they say this patient has shoulder pain and you form a full diagnosis based on all of your assessments because that is what we are actually doing in clinic and we get the two hours to do that.” (Participant 6)*

*“This might be off topic but trying to bring back a full patient’s scenario like we did in hospital rounds. We look at the full patient and make the links between full patients. So maybe bringing that into an OSCE, amongst the five-minute stations just to have that as part of something, just the full patient scenario that we did with Dr\*\*\*\*\* during lockdown, where we’d have, she’d give us a full patient scenario, we could ask questions and she’d answer questions regarding that case. And then we had the full aspect.” (Participant 7)*

*“I really liked our Covid one on one OSCEs. I think they asked a really good aspect. I mean you are given one case, and you do your whole OSCE on one case. Obviously, it is difficult for a large group, but it really helps because you guys had hospital and we didn’t have that and it is a great exposure for thinking out the box and just do a respiratory exam, you know what I am saying?” (Participant 18)*

## **4.6 THEME FOUR: CHIROPRACTIC STUDENTS’ PERCEPTIONS OF FEEDBACK AND EVALUATION OF OSCES**

### **4.6.1 Chiropractic Student Perception on OSCE Feedback, Fairness and Consistency with OSCE Process**

Numerous participants said that they do not receive the feedback which they felt could benefit them.



*“Another thing, actually, I would say as a weakness is the fact that it’s a very objective situation. If you have a dispute and first of all, you don’t get your results to tell you where the issues were in your marks if you fail an OSCE, even if it wasn’t you might like to know which stations you did better. There is no ability like there’s no sense of recourse, There’s no one that you can go to say which stations did I not do well in and therefore I can practice on that and get better. But apart from that, if there is a dispute about a certain station for whatever reason, it comes down to he said she said there’s no like cameras or way to monitor it and make it completely fair to make it yeah that’s one big weakness.” (Participant 2)*

The participants mentioned that when they did receive feedback, it had a positive impact.

*“Okay, so I think the only two things that have been benefited from an OSCE was clinicians telling me I was either on the right track or they could see that I’ve improved which was a confidence booster, as well as once again being able to see where my weaknesses were to be able to try to surmise from the mark and also some my self-perceived performance to be able to improve. Dr \*\*\*\*\* was the clinician and it was a cardiac station and she told me at the very end of it. She told me herself that I’ve got full marks for that station, and it was one of the best feelings I’ve ever had. It’s kind of like to be acknowledged by a clinician was awesome.” (Participant 2)*

*“We don’t get feedback. So, if there’s areas for us to improve, and we don’t know where to improve or not or how we’ve done so it’s sort of it doesn’t benefit the student that much at all.” (Participant 7)*

*“I remember specifically with x-rays if I was right about the comments I made and the points but you never get feedback and you can sometimes ask the examiner but they would often say that they don’t want to give the answer and it is a challenge because it is not constructive, I don’t know if I was right or wrong and you get your marks and you don’t know where it came from.” (Participant 13)*

*“We get an overall class feedback, like this percentage of the class did this well in this station but I’d like to know individually but I know it’s harder because there’s so many different clinicians.” (Participant 16)*

*“We don’t get feedback in terms of like personal sit-down, each station this is what you said this is how to correct it. We just get thrown into the deep end and it causes me to make the same mistakes because no one told me.” (Participant 20)*

The participants felt a positive impact on them when the clinicians responded to them in a positive manner.

*“It’s Dr \*\*\*\*\* in the OSCE, no matter if you’ve done well or terrible or missed the plot or what not in that station. He will always leave you with like some new information, even if it doesn’t really, like fit to that station. He’s always like assisting in your further learning and interesting facts and it makes his station also a lot more friendlier. And I feel like I actually have learned something going forward and now I will remember that.” (Participant 5)*

*“I have had like a good experience with others where they can see I am like stressing because it is an OSCE and they are like juts take a breath and just like, not help you but reassure you and it makes a world a difference for when you are stressed for some to be like you are going the right direction, just carry on.” (Participant 14)*

*“So, there was a clinician, I still don’t know what his name is. He’s maybe in his, older white male, a bit short. I had him for a JVP station and I didn’t know certain causes or what causes a decrease in JVP, and I didn’t know some of them. He afterwards explaining to me how you can tell. So that was actually really nice. It wasn’t the first time he helped after assessing. And then he told me to rest and explained to me what I did wrong and how I can improve.” (Participant 16)*

*“Yeah, I know there was one in third year, my first because OSCE. My big prac station. It was a cerebellar test station, and the question was phrased to test this patient’s coordination. Obviously it is the same thing but when you are in third year and you learn in boxes and the heading was a cerebellar testing and not co-ordination and that stick me for a bit but I did get pushed*

*in the right direction by the clinician which was helpful and that sticks with me and also a few good interactions with clinicians where they, you are rushing so much and they just help you just slow down a little bit and collect your thoughts. Nothing too specific I would say.” (Participant 17)*

The participants mentioned inconsistency with the fairness in OSCE among clinicians.

*“Another thing is that the standards of the OSCE are different between clinicians. Some clinicians won’t waste your time by watching you do a whole examination that’s not needed whereas other clinicians, if they’re feeling particularly malicious that day will just sit in the corner on their phones and watch you do a whole say a cardiac exam, Meanwhile, they’re looking for peripheral vascular, which is not helpful. So there needs to be standardisation like of the rules for the clinicians as well.” (Participant 2)*

*“I’ve heard that clinicians prompt certain students when it comes to answering questions. And for other students, they don’t prompt, and I think that becomes very unfair. And the only way for that to change is for a moderator in every single station, which is obviously not able to happen with the number of stations they are.” (Participant 6)*

#### **4.6.2 Chiropractic Department Interaction and Communication Impact on Chiropractic Student Confidence and Performance**

Participants mention how a negative encounter had a negative impact on their performances in OSCEs.

*“In third year, my first full blown OSCE I’ll never forget a certain clinician who shall not be named shame. He got a lot better off. Because it’s a clinician who shall not be named told me that I was useless that I didn’t know what I was doing. And he was right. I didn’t know what I was doing because it was the first time that I’ve done that station. So, I just feel like it lacks compassion. It feels like the examiner is sometimes far removed from the students as well. They didn’t always have the skills and the expertise and the experience that they have. So, they have, my experience with OSCEs hasn’t been the greatest it’s gotten better over the years. I was devastated. I cried the rest of the OSCE because I again, like we had just been taught how to do so it was*

*assessing tone and mobility. we had just been taught how to do like neuro stuff. Just before that OSCE and it was the exam OSCE, And I was devastated. I it gave me such a bad taste in my mouth to the point where I afterwards for every OSCE as you can see, my nails are all bitten because it's still traumatised me to this day so for every other OSCE after that. It gives me such bad anxiety that I had bodily symptoms diarrhoea and inability to sleep, you know biting my nails high blood pressure at that point after that OSCE, like my blood I would analyse my blood pressure and it will always be over 130.” (Participant 2)*

*“Afterwards the clinician stated to one of the students that was in the OSCE station and told them how stupid our class was and that really spiked my anxiety from then onwards and I have really struggled because of that.” (Participant 9)*

Participant 6 mentioned they used the negative encounter in the OSCE with the clinician to help them improve the way they approach an OSCE.

*“Probably my first OSCE, when they test us on dermatomes myotomes and reflexes that was horrific. I didn't know it. That was my fault for not learning it. And my problem with it was the fact that as much as I didn't know it properly, the clinician that was testing me basically told me to my face that I was stupid. I did use that to go and learn it and I now know them, and I feel very confident with that station. So, it did have a positive impact there. However, every time I have any station with that specific clinician, I have a full panic attack inside which I don't have time for in 5 minutes.” (Participant 6)*

#### **4.6.3 Perceptions and Experiences with OSCEs Among Chiropractic Students in Different Academic Years**

The perceptions differed among the participants depending on the year they were in. They felt that as the years progressed, they got more in-depth questions.

*“So, I think in third year OSCEs are very necessary. Obviously, to help familiarise you with how to perform the examination. What are the relevant key things that you look for in a patient presenting with certain things? I think it just helps. But the pressure helps you think quicker, and it helps you well,*

*the OSCE itself helps you with actually performing the exam the correct way. So, I'd say in third year it's definitely necessary, fourth year as well. I think especially like when you start doing OSCEs like that's the main thing you do, like us now that we are in sixth year and whatever. We obviously we don't need to say we don't like to have to cram it because we know it's because we've done it so many times. It has helped me also remember tests like when it comes to orthopaedic tests and those sort of sort of things because you absolutely have to know them for the OSCE. So, your mind is able to like to retain all of that over time. I know in first in third year, that's not the case you just repeating whatever, but like as you go on the I think the importance of OSCEs then begins to like show." (Participant 3)*

*"I also am a tutor for the third years and what I tell them they are not looking at your higher and natural thinking in terms of looking at if you can perform the exams, so as long as you're proficient in that, that's fine." (Participant 8)*

*"Personally, I did OSCEs last year, and this year and this year we obviously had a problem with the clinicians and that has left us preparing so much work to do an OSCE and then we will have maybe 5 prac stations and the rest are theory." (Participant 9)*

*"So, the third year ones were less chiro specific but fifth year we get asked in certain stations, like adjustments and ortho, they are more specific, and I am like okay, it helps me remember what I have learnt from patients and actually do them in OSCEs." (Participant 11)*

*"I think that, one of the things our lecturers didn't prepare us for quite adequately because they ask us a lot of systemic stuff, fair enough we did Diagnostics, but I feel like in fifth year we don't really see a lot of variance in terms of our systematic presentation and stuff like that so it is a bit more difficult to keep knowledgeable about these things, about our systematic diseases and things like that. Although, we do see them from time to time, it is just a bit vague for us." (Participant 12)*

*"There is a big discrepancy between the different years between what you must know, what you must say and how you do the test. So, if they could*

*have like an OSCE manual that you could get in third year of what you could do in each station that might be great.” (Participant 15)*

*“Yeah, it is quite useful in doing that. Yeah, you get a good variety. Uhm and also because it changes, the OSCEs change from third year and fourth year to when you are in clinical. The usefulness of it when you are in those earlier years is very diagnostic and it changes once you get into the clinic, a little bit more clinical. Yeah, I think it is useful.” (Participant 17)*

## **4.7 THEME FIVE: OSCES LONG-TERM IMPACT ON CLINICAL COMPETENCE**

### **4.7.1 Correlation Between Success in OSCEs and Long-Term Clinical Competence**

Most of the participants felt the OSCE’s success or failure does not play a part in long term clinical competence.

*“I just feel like if they give you a case, if I had a patient in real life, I’d want to do a couple of exams or assess different systems to rule out things properly. But in a five-minute situation, you can’t do multiple examinations or whatever, so you literally just choose one. Again, making it more specific to our scope. Like we aren’t going to be EMCS in the field, assessing an unconscious person, uhm, how else? I think bringing in more musculoskeletal stuff, we focus so much on diagnostic things that sometimes I feel like when are we actually going to leave chiro, we have a limited knowledge on musculoskeletal stuff compared to our diagnostic knowledge, which obviously is important, but we are musculoskeletal specialists.” (Participant 1)*

*“In addition to that in our real-world experience as chiropractors and future rooms, we are not going to be given such an evident case but rather a person with jaundice or hepatitis would opt to go to their GP before going to a chiropractor instead.” (Participant 12)*

*“In a couple OSCEs I have had a prostate exam and after looking at literature and talking to clinicians and doctors even, a lot of people have not done a prostate exam in practice. Some of the times they give a false positive erm*

*and they are much easier ways, for example send for blood tests. I have never heard of any chiropractor do this which is why I don't understand why they come up for OSCEs. I understand the practice and the reason for doing this but in a practice sense, clinically I don't know if I'll ever do a prostate exam, I will be surprised if I do.” (Participate 13)*

*“Okay so, first of all they focus on the unusual cases, they focus on diagnostically things which are important, I understand that, but there are also a lot of things that we don't get tested on which we see more often, uhm like actual musculoskeletal conditions, so there will be one musculoskeletal but five of your diagnostic but in a sense they should put of our musculoskeletal stuff as well as like the x-rays and stuff. Stuff that we use. Because most of us know how to find things but not treat it and I think it would be a good way to bring it in in the OSCE.” (Participant 14)*

#### **4.7.2 Development of Critical Skills in Practice**

Most of the participants felt that the OSCE provides critical skills for practice in the future.

*“I think it builds up your confidence. I mean, I'm speaking personally but I mean, maybe some people, it doesn't. But personally, like it does build up your confidence and the being able to speak in a medical diagnostic way to like a clinician under pressure or something. It does make you think on the spot, so it's teaching that like quick response quick thinking type of situation. Maybe also preparing you for like an emergency situation or that you're like a deer in the headlights and something does happen.” (Participant 1)*

*“We're getting exposed to x-rays and stuff like that of patients is important because that it leads to x-rays, especially simulate real practice in clinic where you'd have sometimes patients come with x-rays and they don't even have an x-ray report. So, if you need to be able to show that you've got the clinical skills to be able to diagnose from an x ray, look at a skin picture and say this is my best guess, and therefore this would be the treatment that I go for.” (Participant 2)*

*“I think OSCEs are a good way of assessing somebody to think very quickly so I say under pressure, because if you have a patient that is like almost like*

*an emergency kind of situation, you know, you don't have time to like to play with you have to do it ASAP. Right. Um, so if you have a patient that you are dry needling them, and you give them a needle stick injury, or they start seizing on your bed or whatever, you have to know what to do. You have to be able to work in a high-pressure environment.” (Participant 8)*

*“It tests your gut reaction of different aspects of clinical assessments and treatments or whatever and protocols. I guess is because every clinician and patient are different you get to learn that social dynamic and how to interact with different types of people, so I guess that is a positive in that result, so you are faced with different situations so you kind of learn how to navigate in that.” (Participant 10)*

*“I think it helped me with realising the actual scope of practice and what we need to focus on as chiropractors and what we need to look out for in terms of patient presentation especially in our own practices one day.” (Participant 12)*

*“I think, firstly they are very valuable, erm I think the clinical examination, especially the practical side of it, it is important for us to be examined in it and at the end of the day it is a very hand on, and we are dealing one on one with patients. There is not a lot of sit downs theoretical aspects but there are theoretical components that prepare us for it even though it is not written down. But I think the hands-on approach erm dealing one on one with people, erm doing one on one examinations, it is a lot of how we practice so I think it is very valuable and important to be assessed in that sense. I think they're very broad because it doesn't just cover our scope as chiropractors, in a sense there is a lot of diagnostic examinations which we have to do as well so that is good for our profession, so it gives us more a bit, not validity but a better understanding or general understanding, and not just adjustments for example.” (Participant 13)*

*“I found that I am able to think more logically on my feet, so like a patient will come to me and I may not know the answer exactly but I can piece together things a lot quicker than if you have time to sit by yourself in test and think about it, you have to come up with things on the spot as well to explain things*



*out loud because in a test you have time to write out properly but sometimes in person if you fumble out your words and then patients get confused. So, the OSCE gave you a way of like talking without having to re-explain things and tell them properly.” (Participant 14)*

*“You have to be more clinically minded which is good and you know you are being tested on like these few things, they do variant which is good. Yeah, and almost like the time thing, which is 5 minute a station is also useful because it teaches you to think on your feet which is something you learn to get better and so those things are quite good.” (Participant 17)*

*“I think it’s important because I think it’s nice that, erm in a sense we are exposed to possible patients that we can get and it’s a nice practical aspect because erm it can also teach me, like this is how I would actually approach a patient in reality and not just like practicing in class. So, I find that’s a nice aspect and it gives you a chance to really take whatever we have learnt and apply it in a clinical context. as a chiropractor the OSCEs help you because you can assist your patient, it’s all about your patient and wanting what’s best for your patient. Even though most of the time you are dwelling with the restrictions with a patient, most of the time you know what you have, diabetes, hypertension, this is what I found, and I can refer you and we are all about helping patients in all aspects.” (Participant 19)*

These participants felt that the OSCEs at the DUT are completely opposite to what is found in private practice.

*“I think OSCEs are testing your recall knowledge. I think it’s testing what can you remember in this moment, from what you studied which in real life, is not what we’re supposed to be practicing, we’re supposed to be practicing based on our experiences and our knowledge of treating patients. I don’t think that OSCE is actually testing how competent you are when it comes to treat your patients. I think it’s literally just testing learn off by heart and can I reproduce that.” (Participant 6)*

*“No, not at all. I think the OSCEs pretty much a lot of diagnostic questions that have nothing to do with chiropractic in general and it doesn’t test your*

*ability to apply your knowledge which is what we need when seeing a patient. It is just a lot of regurgitation.” (Participant 15)*

## **4.8 CONCLUSION**

In this chapter, the study’s findings are presented. Extracts from the interviews provided substantial support for each identified theme and its corresponding sub-themes.

The following chapter will delve into a comprehensive discussion of these findings, elucidating their connections to existing literature.

# CHAPTER FIVE

## DISCUSSION OF RESULTS

### 5.1 INTRODUCTION

This chapter provides a comprehensive overview of the results obtained from the study on the perceptions and experiences of chiropractic students in relation to the OSCEs. By integrating these findings with the existing body of literature, a clearer understanding of the topic emerges.

Salawu, Stewart and Daud (2023) state that an assessment is a method designed to measure students' attainment of learning outcomes deemed crucial for meeting the requirements of their academic programme. Globally recognised as the benchmark, OSCEs are the pre-eminent method for assessing clinical skills in healthcare. These evaluations empower educators to appraise students' proficiency in clinical knowledge, communication, and problem-solving within a simulated environment that is time-sensitive, thereby introducing a more heightened level of rigor than traditional written examinations (Lim *et al.* 2020:7920).

Although a vast body of literature exists regarding OSCEs in different medical fields, there is an evident gap with regard to OSCEs in chiropractic education. Long and Chen (2020) state that previous chiropractic research has explored the relationship between average academic points, course performance, and licensing exams. Consequently, it is a necessity to re-examine the current literature and offer a contemporary perspective reflective of the 21<sup>st</sup> century.

Hence, it is imperative to explore the present-day perceptions and experiences of chiropractic students concerning OSCEs. This investigation aims to contribute to bridging the gap between students and examiners regarding the examination process and methodologies to get the best out of the examination and the students.

### 5.2 OVERVIEW OF THE RESEARCH DISCUSSION

The aim of this study was to explore the perceptions and experiences of chiropractic students towards the OSCEs at a South African university of technology.

The data revealed five main themes:

THEME 1: Effectiveness of an OSCE in chiropractic education.

THEME 2: Preparation and training for an OSCE.

THEME 3: Challenges faced by chiropractic students in an OSCE.

THEME 4: Chiropractic students' perceptions of feedback and evaluation of OSCEs.

THEME 5: OSCEs long-term impact on clinical competence.

The forthcoming section examines the identified themes and their respective subthemes. The discussion is complemented by the integration of current and relevant literature to substantiate the interpretations.

### **5.3 THEME ONE: EFFECTIVENESS OF AN OSCE IN CHIROPRACTIC EDUCATION**

The primary goal of any chiropractic programme is to ensure the graduation of chiropractors who possess clinical competence, enabling them to embark on a successful professional career (Kobrossi and Schut 1987: 21). The OSCE functions as a clinical assessment aimed at strengthening practical competencies (Ha and Lim 2023). Its purpose is to assess students' abilities in managing situations and responding to questions within a simulated clinical environment. Furthermore, the OSCE evaluates theoretical and practical skills, encompassing leadership, situational awareness, resource management, and teamwork (Baena and Portero 2023).

Participants were asked to describe how the efficacy of OSCE in chiropractic education prepares them for real life scenarios. In general, most of the participants indicated that OSCEs are essential. However, a few of them indicated that it needs to be closer to the scope of practice than just a general diagnostic OSCE. Evaluation techniques play a crucial role in assessing students' learning outcomes and their mastery of a subject. Among these techniques, the OSCE is recognised as one of the most effective methods.

### **5.3.1 Chiropractic Student Perception of Effectiveness of OSCEs in Assessing Clinical Skills**

According to Hijazi and Downing (2008), the OSCE has proven its effectiveness in assessing physician performance under examination conditions, serving as a vital precursor to real-life practice. According to Banduras (1977), in first stage of the self-efficacy theory, the mastery experience comes into effect: OSCEs afford students the chance to showcase their clinical skills and knowledge within a simulated and controlled environment. Proficiently navigating OSCE stations can contribute to an increased sense of mastery and self-efficacy among students. As they accumulate experience and attain positive outcomes in OSCEs, their confidence in effectively executing clinical tasks may grow, ultimately resulting in enhanced performance in subsequent assessments and real-life scenarios.

The consensus among the participants showed that OSCEs are essential to the chiropractic course as an examination as it builds their confidence in how they show their skills as chiropractors. The variety which the OSCE provides allows the students to become competent in various skills.

### **5.3.2 Accurate Reflection of OSCEs with Respect to Chiropractic Student Preparedness for Practice**

In a critical examination of OSCEs, Barman (2005) argues that the assessment method has limitations in accurately reflecting a student's performance in real-life patient-care situations. The critique suggests that OSCEs evaluate skills in isolation across various simulated patients, rather than comprehensively assessing the student's ability in the context of a single patient.

Due to the OSCE being simulated, the majority of the participants felt that it did not prepare them well enough for practice as it is deficient in or lacks the assessment of skills closer to the scope of chiropractic. Kolb's experiential learning theory (1984) explains this in its first stage, concrete experience. This stage entails actively participating in an experience or confronting a novel situation, marked by direct observation, involvement, and sensory and emotional engagement. The OSCEs commonly feature simulated patient encounters, allowing learners to actively partake in clinical activities. This aligns with the experiential learning process, offering students hands-on experiences to hone their clinical skills.

### **5.3.3 Chiropractic Student Perception on Overall Implementation of OSCE in Chiropractic Course**

In a study conducted by Kumar *et al.* (2023) indicate that the OSCE is a reliable and valid format for assessing clinical skills. Moreover, the study revealed that both students and faculty members perceive the OSCE as a fair assessment tool.

Similar to a study by Kumar *et al.* (2023), the participants of this study felt that the OSCE is essential and imperative, but they simply needed to be modified to help bring it closer to the current scope of practice of chiropractic. This will help the students become more proficient in their everyday practice. Educational providers bear the responsibility of imparting the requisite knowledge, skills, and behavioural models to guarantee that students attain the minimum requirements specified for entry-level chiropractors upon graduation (Fong *et al.* 2019).

## **5.4 THEME TWO: PREPARATION AND TRAINING FOR AN OSCE**

In contrast to written examinations, in which students can readily access practice questions online or through faculty resources, the OSCEs pose a distinctive challenge, as arranging simulated OSCE practice proves to be a complex undertaking for students (Bevan, Russell and Marshall 2019). The chiropractic course at a South African university of technology includes multiple and intense modules of general and chiropractic medicine. This means that there is less time for students to practice for these examinations under clinician supervision.

### **5.4.1 Adequate Training and Preparation Provided to Chiropractic students for OSCEs**

The majority of the participants felt that they were prepared well for the OSCE in terms of *what* to know but not *how* to go about performing in the OSCE. Some of the participants who felt they were prepared believed it was because they either got advice from senior years or from extra resources such as videos and textbooks. Within chiropractic education, instructional and procedural videos have been incorporated into certain programmes to enhance skill acquisition and support learning. The students highly appreciated these videos and research indicates that they are either equal to or superior to some of the more conventional teaching methods (Fong *et al.* 2020).

#### **5.4.2 Role of the Chiropractic Department in Supporting and Guiding Chiropractic Students' Experiences with OSCEs**

As part of their student training, chiropractic students are mandated to attain a comprehensive set of competencies spanning various diagnostic domains. Educational providers bear the responsibility of delivering the essential knowledge, skills, and behavioural models to ensure that students meet the minimum requirements stipulated for entry-level chiropractors upon graduation (Fong *et al.* 2019).

The principal factor mentioned was that participants believed that, while they were taught adequately by the department, they were being tested differently by external clinicians and/or moderators. While OSCEs are commonly perceived as objective and impartial, documented cases of human error, inconsistency, non-uniform grading, and inter-rater variability have been noted. These factors can contribute to unfairness in the overall clinical assessment of students (Nyangeni *et al.* 2023).

### **5.5 THEME THREE: CHALLENGES FACED BY CHIROPRACTIC STUDENTS IN AN OSCE**

Bandura's self-efficacy theory emphasises the influence of the individuals' own beliefs in their own capabilities on their own motivation, performance, and behaviour. Physiological and emotional states, such as anxiety and stress, can influence self-efficacy and performance. Performance in in-training examinations may serve as a predictor of students' final OSCE scores. Consequently, it becomes crucial to offer students appropriate interventions early on to mitigate the risk of failure rates (Al Rushood and Al-Eisa 2020).

Gupta, Dewan and Singh (2010) mention that leveraging OSCEs for formative assessment holds significant promise, as it provides learners with valuable insights into the components constituting clinical competencies, along with feedback on individual strengths and weaknesses. Nevertheless, the effectiveness of OSCE is contingent upon the sufficiency of resources, encompassing factors such as the number and construction of stations, the method of scoring (utilising checklists and/or global scoring), the volume of students being assessed, and the availability of ample time and financial resources.

### **5.5.1 Challenges Encountered by Chiropractic Students in OSCEs**

While OSCEs are commonly viewed as objective and unbiased, documented cases of human error, inconsistency, non-uniform grading, and inter-rater variability have been noted. These occurrences can contribute to unfairness in the overall clinical assessment of students (Nyangeni *et al.* 2023).

A common challenge among most participants were the clinicians testing them. The students felt they were answering to the clinician's satisfaction rather than to their own correct beliefs on how they would approach a similar situation in real life practice. The demeanour of the clinicians testing them also played a considerable role in their experiences in OSCEs; some participants even mentioned unfairness due to personal "gripes" (Participant 6).

Another common challenge noted by the participants was the transitioning from room to room. They felt it was not as smooth as it should be because it would take up their next station's allocated time if they were running late. One error noted was a participant not going into the correct room or removing question sheets from stations, which resulted in an increase in difficulty of the OSCE, but this was a rare occurrence.

A study by Zamanzadeh *et al.* (2021), conducted in Iran, identified several associated challenges in OSCEs, such as the absence of clear assessment standards, inappropriate structure and organisation, insufficient facilities for conducting examinations, and concerns regarding the validity and reliability of these assessments. These factors played a major role in the performance of the students.

An uncommon challenge noted by one student, was that no consideration is given to students who have any sort of academic disability. They cannot approach the OSCE in the same way as other students do and this can result in those students being more at a disadvantage than other students. In a study by Patwari *et al.* (2021) to help find a way to accommodate students with learning disabilities in OSCEs, it was noted that the population of medical students with disabilities is increasing, and these students encounter unique obstacles in the clinical segment of their curriculum, which can lead to substandard performance when their disability-related requirements are not adequately accommodated.



Another uncommon challenge from students was that they felt they were being tested on things which were uncommon or out of their scope of practice. They felt that they could not prepare well enough for the OSCE, resulting in them not being able to answer the OSCE to the best of their ability. Robbins and Hoke (2008) state that in the realm of nursing education, a modified OSCE was employed to evaluate basic nursing skills among undergraduate nursing students. The study reported favourable feedback from students regarding the process, which encompassed student self-assessment, faculty guidance, and a concise post-assessment discussion period. This modified OSCE was based specifically on the nursing curriculum which allowed them to improve on it.

The most common challenge noted from the majority of the participants was the time allocation per the station. Some participants stated there was too much questioning in one station, but too little in other stations. This meant they were not able to fully answer in stations even though they knew the answers to the questions due to the time allocation provided.

Mihevc *et al.* (2022) indicate in their study that adjusting the weighting of the checklist based on both time and difficulty could enhance OSCE quality metrics and mitigate the disparity between the analytic checklist score (reflecting what was done) and the holistic global score (reflecting how well it was done). The OSCE assessors commonly employ two types of assessment methods. First, analytical assessment utilises a checklist scale to evaluate each anticipated action individually. Second, holistic assessment is employed to evaluate the entire process, which is particularly suitable for assessing skills where quality is of paramount importance (Mihevc *et al.* 2022). If both are used, their results should show a strong agreement between the two allowing for a good weighting system. This is where differential weighting is introduced and is defined as weighting each option according to its perceived relative clinical importance. Differential weighting has been shown to outperform dichotomous or partial-credit algorithms due to its ability to incorporate more comprehensive information regarding the examinees' abilities into the assessment process.

### **5.5.2 Factors Affecting Chiropractic Student Performance in OSCEs**

In addition to the advantages for students, OSCEs also has disadvantages. These may include the potential compartmentalisation of a candidate's skills and knowledge, thereby undermining holism. The idealised nature of OSCEs may not entirely replicate real-life scenarios. Furthermore, student performance can be influenced by factors such as the sequence of examination stations and the accuracy of standardised patient simulation (Shirwaikar 2015). A recurring theme observed in students who encountered challenges during their initial exposure to the OSCE is a manifestation of "stage fright" or performance anxiety (Chan *et al.* 2015: 1).

Majumder *et al.* (2019) state that it is widely recognised that even in formative and minor settings, OSCEs have been identified as anxiety-inducing for students and as a demanding and labour-intensive process for examiners and organisers. The major factors that participants mentioned which affect their performances in OSCEs are anxiety and stress. This is usually influenced by one of the challenges the participants mentioned, which is the time limitation and duration per OSCE station. Stress and anxiety are widespread among healthcare students globally, with performance examinations being a significant contributor to such stress and anxiety. Situations that demand high levels of achievement in testing can induce a fear of unfavourable evaluation, triggering negative physiological, emotional, or behavioural responses (Reis Ferreira *et al.* 2020).

The next major factor noted was that students felt the rubric of the OSCE was too strict and prevented them from answering to the best of their ability. They felt it was not how they would go about doing the tests and examinations in real life practice. This affected their performances as they felt it lacked simulating real life clinical scenarios. Assessing competency poses a challenge for educators in the health field. The OSCE is specifically crafted to evaluate students' performance in targeted clinical scenarios (Chavira *et al.* 2022). To uphold its validity and reliability, the OSCEs employ standardised scoring rubrics along with rater training and peer-review feedback mechanisms (Ogunyemi and Dupras 2017). In a critique study of OSCEs, Barman (2005) states that the OSCE has limitations in its capacity to gauge a student's actions in real-life situations for patient care as the OSCE shows the

students skills in isolation of several different patients instead of comprehensively examining one single patient.

### **5.5.3 Recommendations or Suggestions**

Evidence is available that numerous OSCEs might be too brief to yield reliable results. Additionally, no well-defined standards are presently established for passing an OSCE. The perception exists that OSCEs assess students' knowledge and skills in a compartmentalised manner, rather than considering the patient as a holistic entity (Gupta, Dewan and Singh 2010: 911). This means that due to the OSCEs style of examination, it may not test participants to the best of their ability in terms of clinical competence.

The participants provided three recommendations to help improve the OSCE in chiropractic to help better assess the students' clinical competence. The two major recommendations were to ask more questions closer to the chiropractic scope of practice and to slightly increase the time limit per station. These two recommendations would allow the students to be tested in a manner to which they are more likely exposed in real life clinical practice, allowing them to become more clinically competent in their day-to-day experiences as a chiropractor.

Khan *et al.* (2013) agree with this by stating that the validity of an OSCE is influenced if the questions are not realistic and mapped according to the teaching programme and learning outcomes of the curriculum. Khan *et al.* (2013) further state that the organisation, administration, and execution of a successful OSCE programme require significant knowledge, experience, and meticulous planning. Various teams responsible for different facets of the OSCE must collaborate effectively to develop a robust question bank, provide comprehensive examiner training, and conduct standardised patients' training. Quality assurance is an iterative process that occurs continuously throughout the entire OSCE cycle.

The third recommendation was to completely change the OSCE format to make it such that it is one-on-one, with a standard one patient in one room, which the student would fully assess a patient and come to a final diagnosis in the end. The students would still be shadowed by the clinician through the entire process. Even though OSCE is considered as the benchmark for assessing clinical skills, a study of 258 junior medical students in Sao Paulo, Brazil, showed that the students

expressed comfort with the cases and tasks presented during the OSCE; however, nearly half (48%) of them voiced criticism regarding the organisational aspects of the examination. A significant portion of students reported challenges with time management (70%) and stress control (70%). Although improvements were made to several exam aspects, and the proportion of students criticising organisational issues reduced to a minority (5%), nonetheless, the proportions of students encountering difficulties with time management (40%) and stress control (75%) during the exam remained largely unchanged (Troncon 2004). This means that timed stations play a large role in how students go about performing in an OSCE and this can negatively impact their clinical skills as they will not perform as optimally as they would like to.

## **5.6 THEME FOUR: CHIROPRACTIC STUDENTS' PERCEPTIONS OF FEEDBACK AND EVALUATION OF OSCES**

According to Hijazi and Downing (2008), the outcomes of an OSCE can serve dual purposes, with one of them functioning as a formative assessment. In a formative capacity, it facilitates the provision of feedback to trainees and the training programme, highlighting areas that require improvement. Chan (2009) mentions that one of the advantages of OSCEs is that it generates formative feedback for both learners and the teaching programme. Reflective observation, which is one of the stages in Kolb experiential learning theory (1984), suggests that this can happen when learners have time to reflect, often through feedback from assessors.

Banduras self-efficacy theory (1977) connects with this through verbal persuasion, wherein it states that providing constructive feedback, encouragement and positive reinforcement can significantly impact students' self-efficacy. Conversely, negative, or overly critical feedback can undermine self-efficacy.

### **5.6.1 Chiropractic Student Perception on OSCE Feedback, Fairness and Consistency with OSCE Process**

Hecimovich, Maire and Losco (2010) mention that feedback involves furnishing information to students with the aim of reducing the disparity between their current and desired performance. It has been demonstrated to be efficacious in honing communication skills, particularly in areas such as patient interviewing and history taking. Feedback serves as a catalyst for students to reflect on their performance,

consider areas for improvement, and ensure that mistakes are addressed, while commendable performance is reinforced. Without feedback, errors may go uncorrected, and the attainment of clinical competence becomes a process based solely on empirical experience or may not occur at all.

The majority of the participants felt they did not receive any feedback at all and when they did it was a generalised, overall feedback of the entire class rather than individual. Those students who did receive a little feedback during their station, felt positive from it as it gave them confidence to go into the next station. The participants also mentioned that because of the lack of feedback they felt unsure of where to improve in the OSCEs.

The participants also mentioned inconsistency with fairness among clinicians in the OSCE. They felt that all clinicians react very differently to each individual which creates a bias to some rather than others. This creates a level of unfairness resulting in some students gaining better marks than others. According to Sheppard *et al.* (2023: 158), teachers can unintentionally convey biases that might impact student performance. This phenomenon has been demonstrated in instances where teachers create self-fulfilling prophecies, influencing students' interest in a subject matter, and affecting their future effort levels beyond the course. Additionally, instructors may exhibit implicit biases based on students' gender, either favouring or disadvantaging students based on their gender.

### **5.6.2 Chiropractic Department Interaction and Communication Impact on Chiropractic Student Confidence and Performance**

The participants mentioned that negative encounters with clinicians resulted in a negative impact in their future encounters in OSCE. This was due to the inconsiderate way of the feedback provided to them. This resulted in severe anxiety and stress in the participants for future OSCEs, resulting in a negative impact on their marks.

### **5.6.3 Perceptions and Experiences with OSCEs Among Chiropractic Students in Different Academic Years**

The perception and experiences of the participants differed depending on the year of study in which they were. They understood the necessity of the OSCE, but they also felt the importance of how it changed in terms of content as the academic years

changed. Content becoming more and more chiropractic specific helped the students become proficient for clinical years. The diagnostic OSCEs in third year gave the students more opportunities to practice those tests under an examination environment.

## **5.7 THEME FIVE: OSCEs LONG-TERM IMPACT ON CLINICAL COMPETENCE**

Hijazi and Downing (2008) assert that the OSCE has proven to be effective in assessing physician performance under examination conditions, acting as a crucial precursor to real-life practice. As a valuable component in multi-method assessment, it complements other evaluation tools like multiple-choice tests and subjective ratings. Notably, the OSCE eliminates the need for less reliable assessment data derived from oral clinical examinations.

In this theme, the final two stages of Kolb's experiential learning theory (1984), is processed. Abstract conceptualisation and active experimentation allow for the students to use their experiences to help them decide which is the best way forward. These final stages emphasise applying the concepts and theories developed in the previous stages to new situations and/or future experiences.

### **5.7.1 Correlation Between Success in OSCEs and Long-Term Clinical Competence**

The cultivation of confidence in patient communication and clinical skills typically commences during the academic journey of healthcare providers at the university level (Hecimovich and Volet 2009). Most of the participants felt that the OSCE outcome has no part in long-term clinical competence. This was mainly due to the students feeling that the way they did things the OSCE is not the way they would go about doing things in a real-life clinical scenario. They would rather opt to do things differently which they learn from working field side or at the CDC at the DUT. It is widely acknowledged that healthcare professionals should employ evidence-based practice (EBP) in decision-making during clinical care. This involves integrating pertinent research findings with clinical expertise and considering patient values to make well-informed decisions (Sarkar *et al.* 2019).

### **5.7.2 Development of Critical Skills in Practice**

The OSCE, as outlined by Ha and Lim (2023), is a clinical assessment specifically crafted to enhance practical competencies. Its primary objective is to utilise a simulated clinical environment for evaluating students' adeptness in handling situations and responding to questions. Additionally, the OSCE assesses a range of skills, including theoretical and practical proficiency, leadership, situational awareness, resource management, and teamwork, as highlighted by Baena and Portero (2023). Most of the participants felt that the OSCE provides critical skills for the future, such as responding to emergency situations, thinking on the spot, exposure to various x-rays and working well under pressure.

## **5.8 CONCLUSION**

In this chapter, the study's results were discussed to elucidate the perceptions and experiences of chiropractic students at a South African university of technology concerning the OSCE. Many of the findings aligned with the existing consensus in research on the OSCE. However, this study offered a more in-depth understanding of the OSCE as an assessment tool for clinical competence. Specifically, it brought attention to the perceptions and challenges faced by chiropractic students in South Africa regarding the OSCE. This discussion underscored the scarcity of literature addressing OSCE experiences among chiropractic students.

The subsequent chapter will encapsulate the study's conclusion, encompassing limitations and recommendations for future research.

# **CHAPTER 6 CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS OF THE STUDY**

## **6.1 INTRODUCTION**

In this chapter, the study's purpose is succinctly summarised, the research questions are revisited, and the initial intentions stated at the study's outset are addressed. The researcher's reflections, along with the strengths and limitations of the study are also outlined.

The chapter concludes with additional recommendations for the ongoing progress of this study.

## **6.2 SUMMARY OF THIS STUDY**

The aim of this study was to explore the perceptions and experiences of chiropractic students at a South African university of technology who have been examined in at least three OSCEs. The evaluation of the research questions provided insight into the achievement of the research aim.

### **6.2.1 Research Question One**

Research Question One was "How do you perceive the value and importance of OSCEs in assessing your clinical competence as a chiropractic student?".

Out of the 20 participants, a variety of responses was noted: 14 participants felt that OSCEs were essential and valued, while six participants mentioned it was not valued at all and felt it needed to be amended. A common response was the concern that the OSCE at DUT for chiropractic students should be more closely tailored to the chiropractic scope of practice to help assess the clinical competence of the student better. The participants also mentioned that they were adequately taught about the contents of the OSCE but not about how to perform in the OSCE itself. This negatively impacted the participants in the way they approached OSCEs.

The participants also felt that the OSCEs do not simulate a real-world clinical scenario and, thus, are not adequately preparing them for private practice. This was because the participants believed that the way they are tested is not the way they would go about performing in real life practice.



### **6.2.2 Research Question Two**

Research Question Two was “Can you describe your overall experience with the OSCE in the chiropractic programme?”.

Most of the participants described their experiences as negative, stressful, and full of anxiety. This was mainly due to the time constraints and the clinicians who were testing them. The time constraints were a challenge for the participants due to the time frame either being too little or too much. This means that they were either being examined with too many or too few questions within the same time frame.

Additionally, the clinician’s demeanour was a major challenge to the participants. The participants believed that the clinicians showed disinterest in their method of examining and were rude or unfriendly to the participants. These factors played a substantial role in how students went about the examinations as the students would sometimes have to repeat answers to disinterested clinicians which would ultimately take up the students’ time. These negative encounters play a considerable role in the severe levels of anxiety and stress for the participants as they face OSCEs in the future.

Another major factor which played a role in the students’ experience was being taught by one clinician and then being tested by other clinicians. The participants claimed that sometimes the other examiners have a different method of doing certain examinations which resulted in the examiners feeling their methods were superior. This created a bias and resulted in students being negatively affected.

Due to the participants’ belief that the OSCE were not being closely associated to the scope of chiropractic practice, they felt that success or failure in the OSCE had no impact on long-term clinical competence. This means that some participants answer to please the assessor, rather than how they would go about in a real life clinical setting. However, the participants still felt the OSCE provides critical skills which they will use in private practice.

Some of the benefits which the participants mentioned were learning how to work well under pressure and being able to build up their confidence as they were exposed to a lot of unprepared questions which helped them to become more clinically orientated.

### **6.2.3 Research Question Three**

Research Question Three was to “Explain if You Feel the Chiropractic Course at DUT Adequately Prepared You for OSCEs”. The participants expressed that while they received sufficient instruction on the content of the OSCE, a lack of guidance is available on the practical aspects of performing in the OSCE. The participants further mentioned that they would have to consult students in the senior years on how to go about with this.

The participants went on to recommend that the OSCE should be closer aligned towards the chiropractic scope of practice to help them become clinically competent. The participants also suggested to change the format of the OSCE to facilitate individual attention as this would better assess students as it would alleviate the challenge of time which most of the participants faced. Another suggestion was to slightly increase the time limit per station to help give the participants time to make their way to and settle into the station.

The participants went onto describe particular and impactful moments in the OSCE. A number of these encounters were negative, but the participants used these encounters to help improve and become better or well versed in those examinations. Conversely, positive encounters had a positive impact on the participants. In the instances where feedback was provided in a good manner, it was remembered and cherished by the participants.

## **6.3 STRENGTHS OF THE STUDY**

This qualitative study contributes towards the scientific literature of chiropractic students' educational experience in South Africa. The researcher was able to obtain detailed responses to various aspects in chiropractic examinations. The study aimed to identify specific issues faced by chiropractic students in a university. Furthermore, the cohort used in this study was unique in comparison to other studies with regard to OSCEs as it focused on undergraduate and postgraduate programmes of chiropractic students in a South African university of technology.

## **6.4 LIMITATIONS OF THE STUDY**

The study took place during the examination period of the academic year which resulted in few junior level students finding the time to participate in the study. More

senior level students were willing to participate in the study as they had no examinations at the time. The research findings are exclusive to the sample population which was registered chiropractic students who had been examined in at least three OSCEs at a South African university of technology.

The outcomes of a similar study conducted in another university might vary for chiropractic students due to the distinct academic programmes and curricula that all universities implement. The perceptions and experiences of registered chiropractic students may differ in all institutions.

## **6.5 REFLECTION**

The researcher believes that this study is the first of its kind among chiropractic students in South Africa and, therefore, the researcher was gratified to be able to conduct and present this study. The researcher expresses gratitude to the participants for their involvement in the study as every participant conformed to the interview requirements and shared their views openly and honestly. Given the scarcity of published literature on the educational experience of chiropractic students in South Africa and internationally, the researcher had to depend on the existing literature, despite its lack of up-to-date information.

## **6.6 RECOMMENDATION OF THIS STUDY**

An educational institution, along with all stakeholders in chiropractic education, bear the responsibility of addressing the challenges faced by chiropractic students to help assess their clinical competence better as students and future chiropractors. The following recommendations are proposed to facilitate this process:

### **6.6.1 Recommendations for the Institution**

The study's findings should be communicated to both the university and the Department of Chiropractic. This will draw attention to the factors identified in the study that, when addressed, could contribute to a better experience and assessment of chiropractic students in OSCEs.

It is recommended that the Department of Chiropractic provide a more comprehensive and individual way of providing feedback to students who are assessed in the OSCE. This will allow for the students to prevent shortcomings in

the future, allowing them to become more competent. If students know where they are lacking, this will allow them to prepare better for an OSCE assessment. Better preparation may also aid students in completing the OSCE stations timeously.

It is also recommended that more 'mock' or trial OSCEs should be prepared for students. This can be accomplished by making tutors available and making those classes compulsory for the students.

Another recommendation would be to tailor assessments more related to musculoskeletal conditions as this section is closely related to the chiropractic course. This will allow the students to become more clinically competent.

Another suggestion is to alter the OSCE format and make it an individual assessment with clinicians shadowing a full patient evaluation, physical, and treatment. This could either be real life clinical patients or simulated patients. This will then allow for students to perform with less stress, due to the challenge of time being eased.

It is recommended that more external clinicians are brought in for the assessment of OSCEs so that students face less bias from clinicians. It will also allow for clinicians to be more interested in the assessment.

### **6.6.2 Recommendations for Future Research**

This study should be repeated outside of an examination period. This would allow for participants to not express their emotions strongly (not be "venting"), as well as allow a greater range of participants.

Furthermore, it is recommended to replicate this study at other chiropractic educational institutions to explore potential similarities and differences in the findings, contributing to the enrichment of the literature on chiropractic education.

Additionally, the results of this study should undergo periodic reassessment to determine whether any implemented changes have had a positive or negative impact on the outcomes.

## **6.7 CONCLUSION**

This qualitative study delved into the perceptions and experiences of chiropractic students regarding OSCEs at a South African university of technology. The results

of this study indicated that chiropractic students in South Africa are not exempt from the challenges faced by most medical students with regard to the OSCE. However, it was emphasised that they experienced additional challenges and difficulties. The advantages and positive reactions were also noted.

While it was observed that most of the findings aligned with existing literature on OSCEs and chiropractic in a university setting in South Africa and internationally, it is noteworthy that limited literature within the context of chiropractic education is available to make comprehensive comparisons with the study's findings.

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# APPENDICES

## APPENDIX A: REQUEST FOR PERMISSION TO CONDUCT RESEARCH: RESEARCH DIRECTOR

18 October 2023

Dr Vaneshree Govender  
Acting Director Research & Postgraduate Support Directorate  
Durban University of Technology

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### **Request for Permission to Conduct Research**

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Dear Doctor Govender

My name is Nabeel Vawda, a Chiropractic student at the Durban University of Technology. The research I wish to conduct for my Masters Dissertation involves The perceptions and experiences of Chiropractic students towards the Objective Structured Clinical examination (OSCE) at a South African university of technology.

I am hereby seeking your consent to use registered Chiropractic students who have been examined in at least one OSCE in the Durban University of Technology as participants in my study.

I have provided you with a copy of my proposal which includes copies of the data collection tools and consent and/ or assent forms to be used in the research process, as well as a copy of the approval letter which I received from the Institutional Research Ethics Committee (IREC).

If you require any further information, please do not hesitate to contact me (cell: 079 605 0285 or email: navawda@gmail.com). Thank you for your time and consideration in this matter.

Yours sincerely,

Nabeel Vawda  
Durban University of Technology

## **APPENDIX B: REQUEST FOR PERMISSION TO CONDUCT RESEARCH: HEAD OF DEPARTMENT**

18 October 2023

Dr Desiree Varatharajulu

Head of Department of Chiropractic

Durban University of Technology

### **Request for Permission to Conduct Research**

Dear Doctor Varatharajulu

My name is Nabeel Vawda, a Chiropractic student at the Durban University of Technology. The research I wish to conduct for my Masters Dissertation involves The perceptions and experiences of Chiropractic students towards the Objective Structured Clinical examination (OSCE) at a South African university of technology.

I am hereby seeking your consent to use the Chiropractic boardroom or a Chiropractic clinic room at the Durban University of Technology to conduct interviews for this research project.

I have provided you with a copy of my proposal which includes copies of the data collection tools and consent and/ or assent forms to be used in the research process, as well as a copy of the approval letter which I received from the Institutional Research Ethics Committee (IREC).

If you require any further information, please do not hesitate to contact me (cell: 079 605 0285 or email: navawda@gmail.com). Thank you for your time and consideration in this matter.

Yours sincerely

Nabeel Vawda

Durban University of Technology

## APPENDIX C: LETTER OF INFORMATION



### LETTER OF INFORMATION

**Title of the Research Study:** The perceptions and experiences of Chiropractic students towards the Objective Structured Clinical examination (OSCE) at a South African University of Technology

**Principal Investigator/s/researcher:** Nabeel Vawda BTech: Chiropractic.

**Co-Investigator/s/supervisor/s:** Dr Desiree Varatharajullu PhD: Health Sciences, M.Tech: Chiropractic, Adv. Dip: Business Administration

**Brief Introduction and Purpose of the Study:** This study will explore and identify the perceptions and describe the experiences of Chiropractic students towards Objective Structured Clinical Examinations within a Chiropractic curriculum at a South African university of technology. Chiropractic students will be interviewed on various aspects with regard to your experiences in an OSCE. The interview will be approximately 30 minutes in duration and data will be captured via a digital audio recording device. The participant is only required to answer interview questions. Any Chiropractic student who has been examined in at least one OSCE will be eligible for this study.

Good day. I would like this opportunity to welcome you to my research study.

Dear valued Participant,

I am a sixth year Chiropractic student at DUT doing my research for my Masters of Health Sciences degree in Chiropractic. I would like to invite you to participate in my research study and I would like to thank you for your interest in participation.

**What is Research:** Research is a systematic search or enquiry for generalized new knowledge. You may ask as many questions as you wish as it is important that you fully understand the purpose and procedures of this study. You are under no obligation to commit to participation in this study as this stage. You are entitled to discuss this study with whomever you wish and a copy of the letter of Information will be available for you to take with you.

**Outline of the Procedures:** If you are willing to participate and have signed the letter of informed consent, the interview will be scheduled to your convenience. It will approximately take around 30 minutes in duration and will take place in the Faculty research room.

**Risks or Discomforts to the Participant:** There are no risks/discomforts involved from your participation in this study.

**Explain to the participant the reasons he/she may be withdraw from the Study:** The study may be terminated under particular circumstances such as non-compliance, illness or government ruling avoiding personal contact between people. You may withdraw from the study at any time should you wish to do so. I, as the researcher, under certain circumstances, may decide to withdraw you from the study.

**Benefits:** This study will be useful in the Chiropractic curriculum as the findings may result in modification and improvement of this important examination in the curriculum. This could allow more competently produced new graduated Chiropractors.

**Remuneration:** As this study is completely voluntary, there is no remuneration awarded.

**Costs of the Study:** There will be no costs incurred onto the participant.

**Confidentiality:** The information obtained through the interview process will be treated with utmost confidence. The only exception will be the letter of information. No personal identification details are required and personal identity will only be known by the researcher and supervisor. You may withdraw at any time.

**Results:** The transcribed data will be placed in the Chiropractic programme archive and stored for five years, after which it will be destroyed.

**Research-related Injury:** Due to the nature of this study, any form of injury is unlikely to occur.

**Storage of all electronic and hard copies including tape recordings** The interview will be recorded and transcribed onto a computer. The data will then be transferred onto a USB flash disk. This will only be allowed access by the researcher and supervisor. All personal details be omitted to ensure confidentiality and professionalism. The data will then be placed in the Chiropractic programme archive and stored for five years, after then it will be destroyed. If you have any further queries, please do not hesitate to contact me or my supervisors. Your time, opinions, experiences and assistance in this study is greatly appreciated.

**Persons to contact in the Event of Any Problems or Queries:**(Supervisor and details) Please contact the researcher Nabeel Vawda on 079 605 0285, my supervisor Dr D Varatharajullu on 031 373 2533 or the Institutional Research Ethics Administrator on 031 373 2375. Complaints can be reported to the Acting Director: Research and Postgraduate Support Dr V. Govender on [researchdirector@dut.ac.za](mailto:researchdirector@dut.ac.za).

**General:** A copy of the information letter should be issued to participants. The information letter and consent form must be translated and provided in the primary spoken language of the research population e.g. isiZulu

## APPENDIX D: INFORMED CONSENT



### CONSENT Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher, Nabeel Vawda, about the nature, conduct, benefits and risks of this study - Research Ethics Clearance Number: \_\_\_\_\_.
- I have also received, read and understood the above written information (Participant Letter of Information) regarding the study.
- I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerised system by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.
- I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

\_\_\_\_\_  
Full Name of Participant  
Signature/Right Thumbprint

\_\_\_\_\_  
Date

\_\_\_\_\_  
Time

I, \_\_\_\_\_ (Name of researcher) herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the above study.

\_\_\_\_\_  
Full Name of Researcher

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Full Name of Witness  
(if applicable)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Full Name of Legal Guardian  
(IF APPLICABLE)

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

## APPENDIX E: SEMI STRUCTURED INTERVIEW GUIDE

Pre OSCE

### **1. How do you perceive the value and importance of OSCEs in assessing your clinical competence as a chiropractic student?**

Probes:

- Do you think that OSCEs are essential in the Chiropractic course? Explain why.
- In your opinion, what are the strengths and limitations of OSCEs as an assessment method in chiropractic education?
- In your experience, do you believe that OSCEs adequately simulate real-world clinical scenarios? Why or why not?

### **2. Can you describe your overall experience with Objective Structured Clinical Examinations (OSCEs) in your chiropractic programme?**

Probes:

- Elaborate on what you may have benefitted from OSCEs.
- Mention any challenges you encountered in the OSCE?
- Do you feel an OSCE is a true reflection of your skills as a Chiropractic student? Please elaborate on your answer.

Post OSCE

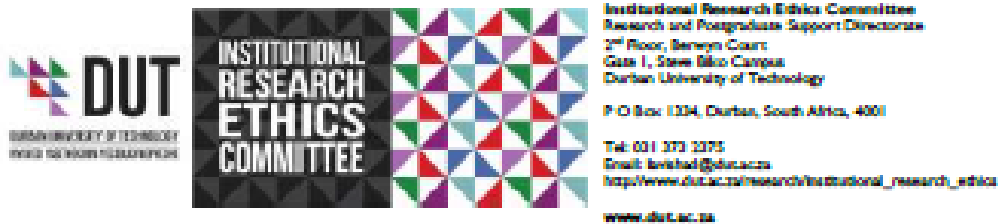
### **3. Explain if you feel the Chiropractic course at DUT adequately prepared you for OSCEs.**

Probes:

- How do you think OSCEs could be improved or enhanced to better assess your clinical competence as a Chiropractic student?
- Describe your feelings towards the theoretical component of the OSCE?
- Describe your feelings towards the practical component of the OSCE?
- Can you describe a particularly memorable or impactful OSCE encounter that you have had? How did it contribute to your learning and development?



## APPENDIX F: IREC APPROVAL



9 November 2023

Mr N Vawda  
45 Shannon Drive  
Reservoir Hills

Dear Mr Vawda

**The perceptions and experiences of Chiropractic students towards the Objective Structured Clinical Examination at a South African University**  
**Ethical Clearance number IREC 186/23**

The DUT-Institutional Research Ethics Committee acknowledges receipt of your gatekeeper permission letters.

Please note that FULL APPROVAL is granted to your research proposal. You may proceed with data collection.

Any adverse events [serious or minor] which occur in connection with this study and/or which may alter its ethical consideration must be reported to the DUT-IREC according to the DUT-IREC Standard Operating Procedures (SOP's).

Please note that any deviations from the approved proposal require the approval of the DUT-IREC as outlined in the DUT-IREC SOP's.

It is compulsory for a student or researcher to apply for recertification on an annual basis. The failure to do so will result in withdrawal of ethics clearance. It is the responsibility of the researcher and the supervisor to apply for recertification.

Please note that you are required to submit a Notification of Completion of Study form together with an abstract to the DUT-IREC office on completion of your study.

Yours Sincerely

Prof J K Adam  
Chairperson: DUT-IREC

## APPENDIX G: PERMISSION FROM HEAD OF DEPARTMENT

### MEMORANDUM

To : Prof Adam  
Chair: IREC

From : Dr Desiree Varatharajulu  
Head of Department: Chiropractic; Clinic Director: Chiropractic Day Clinic

Date : 22.10.2023

Re : Request for permission to use the Chiropractic Day Clinic and Chiropractic boardroom for research purposes

Permission is hereby granted to:

**Mr Nabeel Vawda (Student Number: 21611027)**

**Research title:** "The perceptions and experiences of Chiropractic students towards the Objective Structured Clinical Examination at a South African University"

Mr Vawda is hereby granted permission to conduct data collection in the Chiropractic Day Clinic and Chiropractic boardroom for research purposes. Mr Vawda, is requested to submit a copy of his FRC/ IREC approved proposal along with proof of his MHC: Chiropractic registration to the Clinic Administrator/s before he starts with his research in order that any special procedures with regards to his research can be implemented prior to the commencement of him seeing participants for the purposes of data collection.

Head of Department: Chiropractic; Clinic Director: Chiropractic Day Clinic: Chiropractic

Cc: Mrs Linda Twigg: Chiropractic Day Clinic

Dr. D. Varatharajulu: Supervisor

## APPENDIX H: PERMISSION FROM RESEARCH DIRECTOR



Directorate for Research and Postgraduate Support  
Durban University of Technology  
Open House  
P.O. Box 1334, Durban 4000  
Tel.: 031-3732576/7  
Fax: 031-3732948

23 October 2023

Mr Nabeel Vawda  
c/o Department of Chiropractic  
Faculty of Health Sciences  
Durban University of Technology

Dear Mr Vawda

### PERMISSION TO CONDUCT RESEARCH AT THE DUT

Your email correspondence in respect of the above refers. I am pleased to inform you that the Institutional Research and Innovation Committee (IRIC) has granted **Gatekeeper Permission** for you to conduct your research "The perceptions and experiences of Chiropractic students towards the Objective Structured Clinical Examination at a South African University" at the Durban University of Technology. **Kindly note that this letter must be issued to the IREC for approval before you commence data collection.**

The DUT may impose any other condition it deems appropriate in the circumstances having regard to nature and extent of access to and use of information requested.

Upon completion of your research project, you are requested to share the summary of your key research findings.

Kind regards,  
Yours sincerely

---

DR V GOVENDER  
ACTING-DIRECTOR: RESEARCH AND POSTGRADUATE SUPPORT DIRECTORATE

## APPENDIX I: EDITOR'S CERTIFICATE



**Helen Bond**  
IMPELA EDITING SERVICES  
impelaediting@gmail.com  
079 395 5873

21 March 2024

### CERTIFICATE

Nabeel Vawda

Dear Nabeel

Thank you for using Impela Editing Services to edit your Master's thesis entitled "*THE PERCEPTIONS AND EXPERIENCES OF CHIROPRACTIC STUDENTS WITH REGARDS TO OBJECTIVE STRUCTURED CLINICAL EXAMINATIONS AT A SOUTH AFRICAN UNIVERSITY OF TECHNOLOGY*".

I have proofread for errors of grammar, punctuation, spelling, syntax and typing mistakes. I have formatted your work and checked the references (this means checking the formatting).

PLEASE NOTE: Impela Editing accepts no fault if an author does not accept the corrections suggested or makes changes to a document after a certificate has been issued. A client may choose to accept none, some, or all of the editor's editorial changes and/or suggestions.

I wish you the very best in your submission.

Kind regards

Helen Bond (Bachelor of Arts, HDE)

## APPENDIX J: PLAGIARISM REPORT

### Masters Dissertation Nabeel Vawda

#### ORIGINALITY REPORT

<b>9%</b>	<b>9%</b>	<b>3%</b>	<b>3%</b>
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<b>9</b>	<b>www.jcdr.net</b> Internet Source	<b>&lt;1%</b>