Disability Inclusion in Graduate Competencies in Medical Education: What Competencies Matter?

Sarah Whitehead, Seyi Ladele Amosun, Theresa Lorenzo and Harsha Kathard

Abstract

In South Africa, negative attitudes of medical doctors towards persons with disabilities is evident. A doctoral study was carried out to explore medical doctors' current practices with persons with disabilities to determine their competencies in providing quality inclusive health care, guided through the lens of attitudes to ensure a very close link with knowledge and skills. The participants included persons with disabilities, medical doctors, medical students, and allied health professionals. Using the ICF framework and a mixed-method design that included focus group discussion, in-depth interviews, and a modified Delphi technique, thirteen disability-inclusive competencies and nine sub-competencies were generated. The article describes the process by which the competencies were generated, with three global initiatives providing the background. The proposed competencies can address the issues across the four different mechanisms that could negatively impact the quality of healthcare that persons with disabilities receive.

Keywords: competencies, disability-inclusive, persons with disabilities, South Africa, medical education training, attitudes

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Résumé
En Afrique du Sud, il existe des preuves tangibles que des médecins manifestent des attitudes négatives envers les personnes handicapées. Une étude doctorale a été menée afin d'explorer les pratiques actuelles des médecins envers les personnes handicapées et de déterminer les compétences dont un médecin a besoin pour fournir des soins de santé de qualité inclusifs.. Cette étude a été menée sous l'angle de l'analyse des des attitudes des médecins, afin d'assurer un lien très étroit avec les connaissances et les compétences. Les participants comprenaient des personnes handicapées, des médecins, des étudiants en médecine et des professionnels de la santé associés. À l'aide du cadre de la CIF et d'une méthodologie mixte comprenant des discussions de groupe, des entretiens approfondis et une technique Delphi modifiée, treize compétences inclusives en matière de handicap et neuf sous-compétences ont été identifiées. Cet article décrit le processus qui a permis d'identifier ces compétences, en s'appuyant sur trois initiatives mondiales. Les compétences proposées peuvent répondre aux problèmes liés aux quatre mécanismes différents susceptibles d'avoir un impact négatif sur la qualité des soins de santé prodigués aux personnes handicapées.

Mots clés: Compétences, inclusion des personnes handicapées, personnes handicapées, Afrique du Sud, formation médicale, attitudes.

Introduction

Disability competencies are the skills and attributes essential to providing quality healthcare to persons with disabilities (Singh et al., 2022). The absence of competencies (knowledge, skills, and attitudes) of medical doctors and other healthcare professionals regarding the needs of persons with disabilities represents one of the most widespread and impactful barriers in the health sector (Keller, 2022; Shumba and Tekian, 2024). The core of the medical profession is to provide care, devoid of bias and judgment toward individuals with whom the profession interacts (Trzeciak et al., 2020). In South Africa (SA), however, evidence indicates negative attitudes of health professionals (including doctors) towards persons with disabilities (Whitehead et al., 2019). Yet, the government, known for its progressive health and social policies that seek to achieve universal healthcare and address past inequalities (Kuperi and Hanass-Hancock, 2020), has been guided by the White Paper on the Rights of Persons with Disabilities (WPRPD) since 2015, to ensure that these individuals were not discriminated against (Department of Social Development [DSD], 2016). A review of the White Paper showed optimistic signals that the rights of persons with disabilities would be protected (Kamga, 2016). Still, the review recommended that stakeholders who contributed to its development

be empowered to monitor its implementation. Such monitoring enhanced the understanding of disability beyond a health and welfare construct to human rights (Department of Women, Youth, and Persons with Disabilities [DWYPD], 2023); Kamga 2016).

As a signatory to the United Nations Convention on the Rights of Persons with Disabilities [UNCRPD] (Africa Union, 2018), SA acknowledges disability as a long-term impairment that can limit a person's ability to participate in society. Adopting this description, this article seeks to reinforce the argument for a focus on disabilities in the medical curriculum by describing the approach used to generate competencies applicable to a medical graduate without critiquing the competencies the participants proposed. The data came from a doctoral study that explored medical doctors' current practices with persons with disabilities to identify requisite competencies to provide quality healthcare to the group. The objectives of the doctoral study were to:

1, identify and describe medical doctors' knowledge, skills, and attitudes that contribute to equitable practice in their clinical encounters with persons with disabilities;
2, describe the basic competencies, such as knowledge, skills, and attitudes required for equitable disability practices; and
3, develop an initial competency framework that could contribute to developing the undergraduate medical curriculum to provide a quality healthcare service to persons with disability.

Addressing Equity Issues of Persons with Disabilities

Over the years, many global initiatives have addressed the issues of persons with disabilities and three of these provide the background for this manuscript and include the first one, the World Report on Disability (World Health Organisation, 2011), and the World Health Organisation (WHO) Global Report on Health Equity for Persons with Disabilities (WHO, 2022), both of which indicate the relevance of the WPRPD meeting the needs of persons with disabilities as it reflects the human rights model of disability (DWYPD, 2023; DSD, 2016). The third one, the Missing Billion Initiative (www.themissingbillion.org/), was selected because of the 'missing billion' which, in the context of SA, signifies the large number of individuals with disabilities who are often excluded from healthcare systems (Carpenter et al., 2021; McKinney et al., 2021; Sherry et al., 2024;). Generally, these three initiatives complement each other: "World Report on Disability" providing foundational understanding of the global disability landscape, including prevalence, barriers to access, and key issues across different aspects of life like health, education, and employment; "Global Report on Health

Equity for Persons with Disability" providing specific, evidence-based recommendations for policymakers and healthcare providers to address the health inequities experienced by People with disabilities, including strategies to improve access to quality healthcare and promote inclusion within health systems; and "Missing Billion Initiative" drawing attention to the large number of persons with disabilities who are not accessing essential healthcare services.

These three initiatives, also, build on earlier initiatives like (a) the International Classification of Functioning, Disability and Health (ICF) launched in 2001 (WHO, 2001), (b) the UNCRPD launched in 2006 (Rasmussen and Lewis, 2007), and (c) the United Nations Sustainable Development Goals (SDGs) launched in 2012 (UN, 2012). Though using the ICF was not mandatory in most countries, its use in African countries provided a biopsychosocial framework for policy development in health, functioning, and disability (Leonardi et al., 2022). Similarly, the protocol to the African Charter on CRPD (African Union, 2018), also known as the African Disability Rights Protocol, is committed to promoting, safeguarding, and ensuring the complete and equal exercise of all human and people's rights for persons with disabilities in Africa, ensuring their respect and inherent dignity (African Disability Forum, 2023). The protocol also acknowledged that the SDGs mentioned persons with disabilities under five of its seventeen goals: education (4); growth and employment (8); inequality (10); accessibility of human settlements (11); and data collection and monitoring (17) (Chataika, 2019).

World Health Report on Disability

The first-ever World Report on Disability (WHO, 2011) contributed significantly to a better understanding of disability, transitioning from an individual medical perspective to a structural, social perspective of disability as a human rights issue. The report provided the background of the transition from segregation in the 1970s to a gradual progression in inclusion. The report provided "a comprehensive description of the importance of disability" and recommendations, based on the best available scientific information, for action at national and international levels. The recommendations included ways to overcome barriers to healthcare and education, improve human resource capacity through effective education and training by integrating disability education into undergraduate training of healthcare professionals, and create environments that enable persons with disabilities to flourish.

WHO Global Report on Health Equity for Persons with Disabilities

This global report also noted that one in six people experiences significant disability (WHO, 2022), and the number continues to rise due to an ageing population and chronic health conditions, among others. The overarching aim of the report was to bring health equity issues of persons with disabilities to the attention of decision-makers in the health sector; document evidence on health inequities and country experiences on approaches in advancing health equity in the context of disability; and make recommendations that stimulate country-level action. While acknowledging the substantial progress in many countries, the global report portrayed that many persons with disabilities were still 'being left behind'. The following recommendations were made for the healthcare workforce to advance health equity for persons with disabilities:

1. develop competencies for disability inclusion in the education of all healthcare workers;
2. provide training in disability inclusion for all health service providers;
3. ensure the availability of a skilled healthcare workforce; and
4. include persons with disabilities in the healthcare workforce.

The Missing Billion Initiative

The Missing Billion Initiative (Kuper and Heydt, 2019), a founding partnership between the London School of Hygiene and Tropical Medicine, the Clinton Health Access Initiative, and the McKinsey Health Institute, was launched in 2020. The Initiative is committed to improving access to health for persons with disabilities by 2030, enabling them to live a healthy and independent life. Persons with disabilities generally face poorer access to healthcare in comparison to those without disabilities, contributing to worse health outcomes that include a 10 to 20-year-shorter life expectancy (Kuper and Heydt, 2019). Persons with disabilities in low to middle-income countries had a mean life expectancy of 49.3 years, compared to 68.5 years for the general population, with a median gap of 19.2 years (Rotenberg et al., 2023). The life expectancy gap also varied across countries, ranging from 9.6 years in Bosnia and Herzegovina (an upper middle-income country) to the highest in five African countries: Nigeria, 30.6; Chad, 30.3; Somalia, 30.1; South Sudan, 30.0; and Guinea, 29.1 years. These inequities present a serious threat to upholding the rights of persons with disabilities and achieving the SDGs. In line with the protocol of the African Charter on CRPD that acknowledged persons with disabilities under five of the 17 goals (African Disability Forum, 2023), the Missing Billion Initiative asserted that it is only by prioritising these individuals that the goals of SDG 3 (Good Health and Well-being) can be achieved. For this, the Initiative (Hogan, 2020) supported the recommendation in the Protocol to the African Charter (African Union, 2018) that "the training of healthcare providers

(including medical doctors) takes account of the disability-specific needs and rights of Persons with disabilities" (p. 13).

Developing Competencies for Disability Inclusion

Competencies are the observable abilities of a person, integrating knowledge and skills, as well as core values and beliefs in their performance of tasks (Shumba and Tekian, 2024). These competencies are durable, trainable, and measurable through the expression of behaviours. However, developing competencies for and providing training in disability inclusion has its challenges.

South African Studies

In SA, there is a dearth of research on developing competencies for disability inclusion in the training of medical doctors. Only one study that explored the preparation of undergraduate civil engineering students in a local university to contribute to an inclusive society for persons with disabilities was identified (McKinney, 2016). The approach used to generate the competencies was uniquely referred to as the "production line model". This approach was intentionally named as it resonated with the key principle of quality assurance in tertiary education, in that the model provided the opportunity to gain insight into what was happening at every stage in the education process. The stakeholders providing the quality assurance oversight include the Engineering Council of South Africa, the higher education institutions, and the engineering industry. The study's outcome noted overlaps in the competencies proposed in two of the three competency domains (Skills, Resources, and Approaches).

International Studies

A systematic review of definitions of competence cited in the health sciences education literature identified similarities and differences between the definitions from a sample of 14 extracted from 17 selected articles (between 1948 and 2011), excluding articles in languages other than English or French (Fernandez et al., 2012). The definitions indicated a general acceptance that knowledge and skills were not the only components of competence, but there was little agreement on the nature of the other components. While this gives a trajectory of progress, efforts to make competence explicit and measurable still present difficulties, partly due to a tension between the need for standardisation and the acknowledgment that medical professionals should also be valued as unique individuals (Ten Cate et al., 2024).

One example of the tension in developing competencies manifests in the knowledge domain in the attempt to have a clear distinction between

knowledge and awareness (Trevethan, 2017). A partial resolution was that the notion of specific knowledge is at the high end of a continuum based on information specificity and accuracy, while general awareness is at the low end of the same continuum to represent people having little or very little knowledge about a topic at hand. Another source of tension is the possible overlaps in the competencies proposed when the circle of study participants is broadened to include those who conventionally do not take part in the process (Bobat et al., 2020 ; Singh et al., 2020).

Different approaches were also developed to provide training in disability inclusion for healthcare providers, integrating knowledge, skills, and attitudes, but with varying outcomes (Bania et al., 2023; Hay et al., 2024; Lefkowitz, Meitar, and Kuper, 2021; Parnell et al., 2023; Shakespeare and Kleine, 2013). It is perceived that the approaches have given more attention to knowledge and skills to the detriment of attitude, which may suggest that disability being a social issue, not only a medical one, is yet to be embraced by all (Shakespeare and Kleine, 2013). The approaches seem yet centred around conventional lectures by medical educators and persons with disabilities. With the ratification of the UNCRPD (UN, 2006), it makes sense that in developing disability-inclusion competencies and training, disability should be framed within the human rights context (Shakespeare and Kleine, 2013). In terms of attitudes, Bania et al., (2023) and Hay et al., (2024) acknowledged that the attitudes, perceptions, and inherent biases of healthcare professionals can influence and inform the health outcomes of persons with disabilities.

A systematic review identified interventions to improve healthcare professionals' attitudes, knowledge, and confidence in caring for persons with intellectual disability (Hay et al., 2024). The review of ten studies, from Canada, USA, and UK, concluded that training is valuable in achieving these competencies, broadening perspectives, and increasing confidence in managing these individuals. Similarly, earlier studies in Greece concluded that most healthcare students sampled yielded least and moderately positive attitudes towards persons with disabilities (Kritsotakis et al., 2017; Matziou et al., 2009). This prompted a more recent study that investigated the attitude of undergraduate healthcare students in various disciplines (Bania et al., 2023). The authors concluded that further actions were required to promote positive attitudes toward disability. Singh et al. (2022) recommended a social model in teaching that increases the contact of healthcare students with persons with disabilities.

Context in South Africa

With overall population increasing from approximately 51 million to 62

million between 2011 and 2022 (Statistics South Africa, 2024), some data relating to persons living with disabilities, aged 5 years and older, are presented in Table 1.

Table 1: Population Aged 5 Years and Older by Types of Impairment (Including Persons Who Were Uncertain), 2011 and 2022 (Source: Statistics South Africa Census 2024)

Disability	2011	2022
Prevalence [%]	7.4	6.0
Approximate number with disabilities and types of impairments (million)		
Sight	4.85	4.73
Hearing	1.56	1.82
Communication	0.57	0.89
Walking	1.53	2.06
Cognitive	1.90	1.76
Self-care	1.49	1.03

The UNCRPD, the first global legally binding instrument to uphold the rights of persons with disabilities, was adopted in 2006 (Rasmussen and Lewis, 2007) and ratified in 2007 by SA, accepting all the legal obligations it imposed (Heap, Lorenzo, and Thomas, 2009; Kamga, 2016). In line with the country's progressive policies, a National Health Insurance (NHI) scheme aimed to provide "access to quality healthcare services that are delivered equitably, affordably, efficiently, effectively and appropriately" was proposed (Michel et al., 2019). Unfortunately, there is yet little evidence that this has been achieved for persons with disabilities (Whyle and Olivier, 2023). This is different from what is obtained through the National Institutes of Health (NIH) in the USA where the importance and need for research to improve the understanding of the complexities that lead to disparate health outcomes and multilevel interventions are evident (Agurs-Collins et al., 2019).

The South African Medical Research Council (SAMRC), in a press release dated 30 Nov 2023, acknowledged its leadership role in the Sub-Saharan Africa Team of the Disability Data Initiative (SAMRC, 2023). The Council also expressed its determination to contribute towards knowledge generation aimed at improving healthcare access for persons with disabilities to help advance their rights. However, the Council reported widespread gaps in the availability of disability-specific care. For example, more than 70% of South Africans use government healthcare facilities, and records indicate a shortage of medical doctors in the system—which has about three doctors for every 10,000 patients—and inequitably distributed services, with rural areas being the most deprived. These are part of the frustrations captured

in the submissions from persons with disabilities in local communities to the Parliamentary Portfolio on NHI (Parliamentary Communication Services, 2019) and highlighted inaccessibility to healthcare facilities, insufficient aides for persons with disabilities, and poor behaviours of healthcare workers towards them.

Medical doctors are integral to healthcare systems, not only as clinicians and evidence-based practitioners, but also as leaders, advocates, and health system reformists, working to improve healthcare provision and equity to all. Insufficient knowledge and skills, and negative attitudes towards persons with disabilities may adversely affect the services available and the health outcomes for this group (Bania et al., 2023). There is an increasing need to better equip medical students with the proper training to provide holistic care for persons with disabilities with one approach to standardise the undergraduate disability curriculum for medical students.

There is evidence of disability inclusion in the undergraduate curricula of rehabilitation professionals (Ohajunwa et al., 2014; Ohajunwa et al., 2015) and inclusion of persons with disabilities in the training of the healthcare workforce in SA (Ndlovu, 2019; Steyl, 2010; Whitehead et al., 2024). Unfortunately, there is still a dearth of information about medical education, though there have been recommendations on strengthening available learning opportunities for medical students to acquire the knowledge, skills, and attitudes required to provide effective services to persons with disabilities (Amosun and Taukobong, 2010; Amosun, Volmink, and Rosin, 2005; Whitehead et al., 2019).

Therefore, to provide persons with disabilities with the quality of healthcare comparable to the rest of society (able-bodied people), medical doctors need to be equipped with sufficient knowledge and skills related to disability-inclusive practice. However, their training remains aligned mostly with the 20th-century healthcare focus on acute conditions (Frenk et al., 2010). As a result, medical doctors are well-versed in the traditional models of acute care but are not equipped with the knowledge and skills needed to treat and manage the current pressing world health problem of chronic conditions and resultant impairments (Frenk et al., 2010; Horton, 2024; Ljuslinder et al., 2020) and consequential increase in disability prevalence. The prevailing number of persons with disabilities requires that medical students, society's future medical doctors, understand disability as being wider than just the health conditions that lead to impairments.

Globally, there have been several calls for changes in training healthcare professionals (including medical doctors) to ensure that future healthcare

professionals are 'fit-for-purpose' in providing appropriate care to all, including persons with disabilities.

What Could be Delaying the Transformation of Medical Education in South Africa?

Three of the many possible limitations to the perceived delay in the transformation of medical education in SA are presented. First, while there are efforts to widen access to medical education in SA, there is still persistent under-representation of students with disabilities in the medical programme, and subsequently, in the medical profession (Burch and Reid, 2011; Machado et al., 2022; McKinney et al., 2021; Whitehead et al., 2024). Unfortunately, students with disabilities still make up a tiny percentage of the overall student population in South African universities, including medical schools, and encounter challenges relating to reasonable accommodation (Mutanga, 2017; Whitehead et al, 2019).

While government policies aim to promote the inclusion of all South Africans in the equal exercise of all rights and freedoms provided by the constitution, medical students with disabilities are problematised with uncertainties about their abilities in clinical practice. This suggests a gap between the formulation of progressive policies and implementation, especially in tertiary education (Mayat & Amosun, 2011). While academics and medical students should have the necessary knowledge, skills, and attitudes to interact with persons with disabilities in a sensitive and caring manner, traditional undergraduate medical education is still mostly focused on curative approaches to illnesses and injuries with little urgency for the transformation of the curriculum (Amosun & Taukobong, 2010; Frenk et al., 2010).

A second challenge is the resistance to change within the medical profession (Turner, Wolvaardt, & Ryan, 2023; Varpio, 2023; Wolvaardt & Ryan, 2023). Ankham et al. (2019) asserted that limited advocacy for disability inclusion was the most significant barrier to including disability-specific competencies in medical education. As a qualified and registered medical doctor, the lead author of this article (henceforth referred to as the researcher), acting as a catalyst for change (Whitehead et al., 2019), took an initiative similar to the student-led reforms to advance anti-racism within medical education in Canada (Warnock et al., 2023), intending to improve medical education and practice in SA (Singh and Meeks, 2023). In a doctoral thesis, the researcher set out as an advocate to add to the body of knowledge that would facilitate disability inclusion in the undergraduate medical curriculum in SA, using the ICF framework to develop competencies that would enhance

the understanding of undergraduate medical students about persons with disabilities (Heyman et al., 2020; Volmink, 2018; Whitehead, 2023).

The third limiting factor relates to the concept of ableism in medical practice in SA (Whitehead et al., 2024) and was confirmed recently from the experiences of a medical doctor with disabilities while interacting with an able-bodied doctor (Whitehead et al., 2025). Given this awareness, the researcher was not ignorant of the pending challenges (Etieyibo, 2022; Ndlovu, 2021; Whitehead et al., 2024) despite a global orientation toward supporting qualified medical doctors living with disabilities (Singh and Meeks, 2023). There are four primary mechanisms through which the epistemic schema of ableism distorts communication between nondisabled physicians and disabled patients (Peña-Guzmán and Reynolds, 2019), namely:

1. Testimonial injustice is where the patient's testimony is unfairly downgraded because of the physician's prejudice.
2. Epistemic overconfidence is where there is an excess of self-assurance of the physician's knowledge.
3. Epistemic erasure is where the physician deliberately ignores or discounts the patient's insights and perspectives because they do not fit the physician's dominant way of thinking.
4. Epistemic derailing is when the assumptions or biases about the patient's identity or background prevent the physician from paying attention to the patient's experiences or knowledge.

Measures against epistemic injustices in general and against schema-based medical errors, in particular, are ultimately issues of justice that must be addressed at all levels of health care practice. Sometimes, this bias is unconscious. Based on the study of Groene, Ehrhardt, and Bergelt (2022), the researcher hypothesised that the development of the disability competencies for medical education in SA should give necessary attention to attitudes to ensure a very close link between knowledge, skills, and attitudes (Whitehead, 2023).

Methodology

Research Paradigm

A paradigm is a researcher's unique worldview, made up of a set of basic assumptions (beliefs and ideas) and norms that guide the research actions (Kivunja and Kuyini, 2017). For the doctoral research, the researcher's paradigm informed the methodological aspects which included research design, identification and recruitment of research participants, data collection methods, analyses of the data collected, and ensuring the trustworthiness and rigor of the study.

Many factors informed the researcher's paradigm (Whitehead, 2023; p.73).

> Importantly, I am a medical doctor and a person with a disability. I live in SA, a global South country, and I am female and white. I received my undergraduate medical training from a South African university whose Eurocentric medical curriculum was a legacy of colonialism (Louw, 1979) like all medical curricula in the country (Hirsch, 2018).
>
> Rather than seeing myself as the producer of first-hand knowledge in this research, my position is more of an interpreter of the knowledge my participants have shared. My role was to interpret and shape the participants' knowledge contributions into an acceptable and formal academic format. My decision to select the participants in Phase One of this study aligns with the conceptual position I have taken in this study. I consciously chose to give value to and elevate the voices of those who have typically had less influence/power in medicine and medical education, which aligned with the views expressed by Singh et al. (2020).

Research Design

To address the objectives of the doctoral research (Human Research Ethics Committee approval 043/2019), an exploratory descriptive study that used a mixed-method design of data collection (Berman, 2017) was implemented. The study used focus group discussions (FGDs), in-depth interviews, and a modified Delphi technique. To ensure the rigour of the qualitative component of the mixed method, careful consideration was given to all variables that could influence the internal validity or induce a bias while utilising the FGDs or the Delphi technique (Ahmed, 2024; Nyumba et al., 2018; Toma and Picioreanu, 2016).

Sample

Following the guidelines of Palinkas et al. (2015) purposive sampling was used to select the participants for the FGD who were recruited through personalised emails. This involved identifying and selecting individuals or groups of individuals who were knowledgeable about or experienced the phenomenon of interest. Following the examples of Singh et al. (2020) and Bobat et al., (2020), the profile of study participants was broadened to include those who conventionally do not take part in the process (Bobat et al., 2020; Singh et al., 2020). Consideration was also given to the participants' availability and willingness to participate, and their ability to communicate experiences and opinions in an articulate, expressive, and reflective manner. All the participants selected for the different study phases gave their consent.

Twenty-one participants selected for the FGDs were organized in four groups (Table 2).

Table 2: Participants in the FGDs

Groups	Participants
Persons with disabilities (n=5)	-Three females and two males, aged 38-55 years. -Two were active board members of well-known disability related groups; one was a trauma counsellor at a private physical rehabilitation unit, and the remaining two were self-described as "a successful business person" and "independently mobile on a good day". -Three tetraplegics secondary to spinal cord injury, one visually impaired, and one with fibromyalgia.
Medical doctors (n=3)	Two males and one female, aged 51-71 years; registered with HPCSA; with 35-52 years' experience in Physical Rehabilitation Medicine.
Therapists and nurses (n=8)	-All females, aged 25-65 years; registered with HPCSA/ SANC; with 6-45 years' experience in physical rehabilitation, working with persons with disabilities in consultation with medical doctors. -They were divided into 2 groups of four participants as of the time of availability: 1) two physiotherapists; one speech therapist; one registered nurse; 2) two occupational therapists; one speech therapist; one registered nurse.
Medical students (n=5)	Three females and two males, aged 22-24 years, were in the clinical years of training; three got relatives with disabilities; one involved in disability rights advocacy; and one engaged in a curriculum-change working group.

Data Collection

The data were collected in two phases. In the first phase, two trained research assistants facilitated the FGDs, guided by the guidelines of Guest et al. (2017) to curtail biased responses, given the researcher's profile. The FGD sessions were conducted in English, audio-recorded, and transcribed, each lasting between 1 and 1.5 hours.

FGDs

The questions to prompt discussion in each FGD are presented in Table 3.

Table 3: Questions to Prompt Discussions

Groups	Questions to prompt discussion
Persons with disabilities (n=5)	1) Based on personal experiences, what positive or negative things do most doctors do when treating patients with disabilities? 2) What makes treatment by a doctor a positive experience for you? 3) What makes treatment by a doctor a negative experience for you? 4) What basic knowledge, skills, and attitudes should a doctor have to adequately treat patients with disabilities?
Medical doctors (n=3)	1) What is your thinking about disability? 2) How do you know a person has a disability? 3) How do you approach the consultation and treatment? 4) Give examples of your practice with specific cases without mentioning the patient's name. 5) What basic knowledge, skills, and attitudes should a doctor have to adequately treat patients with disabilities?
Allied Health Professionals (n=8)	1) What have you observed in how doctors manage/treat persons with disability? 2) What are the strengths and challenges? How can the practice be developed further? 3) What have been your observations/experiences of doctors managing/treating persons with disability? 4) How do doctors approach their medical treatment with persons with disability? 5) What basic knowledge, skills, and attitudes should a doctor have to adequately treat patients with disabilities?
Medical students (n=5)	1) Have you been exposed to disability issues in your undergraduate medical curriculum? If so, what, when, and how? 2) Do you think it's important to include disability issues in the undergraduate medical curriculum? Why? 3) Do you feel adequately equipped/prepared by your undergraduate medical curriculum to treat and manage persons with disability appropriately? 4) What basic knowledge, skills, and attitudes should a doctor have to adequately treat patients with disabilities?

After an initial review of the FGD data, six participants were selected and invited to an in-depth interview which was also audio recorded (Eppich, Gormley & Teunissen, 2019). These included three from the group of persons with disabilities and three from the allied health profession group.

Delphi Study

In phase two of data collection, a modified Delphi technique combining closed- and open-ended designs (Torres-Alzate et al., 2020) was utilised.

An expert panel (n=12) was constituted (Table 4) to develop a competency framework that could enrich the undergraduate medical curriculum in providing quality healthcare services to persons with disabilities.

Table 4: Members of the Expert Panel

Profile of members	Participants
Persons with disabilities who are academics in Disability Studies	4
Able-bodied persons who are academics in Disability Studies	1
Medical doctors (excluded participants in phase one)	2
Medical Educationists	3
Disability Rights Activists with health professional backgrounds	2

For the first part, the experts were asked to rate the initial list of competencies generated in phase one according to their importance and language clarity, using a closed-ended design. A Likert scale ([1] Strongly disagree; [2] Disagree; [3] Neither agree nor disagree; [4] Agree; [5] Strongly agree) was utilised to reflect the level of agreement with the competencies generated. For the second part, as information about the competencies was now readily available, open-ended questions (Table 5) were posed to the expert panel.

Table 5: Questions for Expert Panel

Closed-ended	1) Is this competency important for undergraduate medical students? 2) Is the language of each competency, clear and easy to understand?
Open-ended	1) Do you feel that any of the competencies don't need to be included in the list? 2) Do you feel that any of the competencies overlap and could be combined? 3) Do you have any other comments?

Data Analysis

The transcripts of the FGDs and in-depth interview data were given to an external person for proofreading and verification to ensure accuracy. Using an inductive content analysis approach, the researcher selected the six stages of Braun and Clarke (2006), namely familiarisation, code formulation, generation of themes, themes review, defining and naming themes, and report formation, in identifying the themes. In this process, the researcher focused mainly on the knowledge, attitude, and skills generated from the data on what doctors should be competent in.

In the first part of the Delphi study, the process was iteratively extended to two rounds when Bowen et al.'s (2020) framework was used to select competencies with 75% or more scores to presume a consensus was reached. In the second part of the Delphi study, responses to the open-ended questions were analysed qualitatively to identify patterns or themes in the dataset.

Results

In addressing the first two objectives of the doctoral research, four themes (namely experience of disability; attitudes towards disability; knowledge about disability; and what medical students must know) and preliminary competencies were generated from the data gathered from the FGDs and in-depth interviews. These preliminary competencies, other literature, and discussions with the thesis' supervisors assisted the researcher in compiling a list of initial competencies that was later presented to the expert panel of the modified Delphi technique in addressing the third objective.

After two iterations, a final competency set (13 competencies and 9 sub-competencies) was generated. The proposed competencies and sub-competencies, 1-6, are clustered as knowledge competencies (Table 6), 7-10 as attitudes (Table 7), and 11-13 as skills (Table 8).

Table 6: Knowledge Cluster of Competencies and Sub-Competencies for Doctors

	Competencies	Rationales
1	Must demonstrate an awareness of how the United Nations (UNCRPD 2006) defines persons with disability as well as an understanding that the many definitions of the types of disabilities (e.g., mental health issues, physical and intellectual) are not finite, often changing, are extensive and should be interpreted differently for each presentation of disability	The knowledge of these definitions will assist medical graduates in practicing medicine inclusive of all disabilities, whether visible or invisible.
2	Must demonstrate knowledge of the resource constraints and context for persons with disability and understand that the person with a disability or the parents/guardians of children with disabilities, must be included in a participatory dialogue about these resources.	Doctors must be aware of the available resources/options that could greatly enhance their patient's quality of life.
3	Must demonstrate an awareness that persons with disability are susceptible to the same medical conditions as their able-bodied peers, in addition to those medical conditions that might be associated with their disability (e.g., pneumonia is not associated with a particular disability, whereas autonomic hypertension is directly associated with a physical disability caused by a spinal cord injury).	This knowledge is important for doctors so that the risk of medical harm (e.g., misdiagnosis or mismanagement) can be avoided as much as possible.
4	Must demonstrate knowledge about the occurrence and treatment of the common secondary complications of various impairments that have led to disabilities (e.g., renal stones commonly occur in spinal cord injury patients or complications of cigarette smoking, which is common in people living with cognitive or psychosocial disabilities).	This knowledge will ensure that doctors can give their patients with disabilities quality, inclusive healthcare.
5	Must be able to work in a multidisciplinary team and the context of disability; Must also be knowledgeable about how other members of the multidisciplinary team contribute to comprehensive person-centred care.	Often, persons with disability need the services of different healthcare professionals. These professionals must work together as a team, contributing to the outcome of the person's treatment plan and ultimately the quality of all aspects of their lives.
5.1	Must be aware of the roles, skills, and competencies of the healthcare professionals in a multidisciplinary team who work with persons with disability.	Knowledge about the multidisciplinary team will help doctors work effectively and efficiently in the team.
5.2	Must demonstrate the ability to appropriately refer to the different multidisciplinary team members, showing an awareness of the potential contribution of each member, during clinical care.	Inappropriate referrals can waste the time of the healthcare professional receiving the referral and of the persons with disabilities.
5.3	Must demonstrate an awareness and understanding that a medical doctor is not necessarily the leader of a multidisciplinary team.	This will assist with the facilitation of effective teamwork because the outcome being sought is not necessarily biomedical. It could be psychosocial.

6	Must understand how persons living with disability form part of families and communities, have equal human rights, and participate in society in diverse ways (exactly like able-bodied people) including educationally, economically, and politically.	In the context of SA, doctors must understand and accept disability as a form of diversity within a diverse society. Intercultural perspectives on health and disability and intervention choices should be considered as they can influence the treatment and management outcome of persons with disability.
6.1	Must display knowledge, awareness, and understanding about the intersection of culture, medicine, gender, sexuality, and disability in a South African context.	

Table 7: Attitude Cluster of Competencies and Sub-Competencies for Doctors

	Competencies	Rationales
7	Must be reflexive and demonstrate that they understand and value the humanity and individuality of persons with disability, bearing in mind the South African context in which they live (i.e., develop an empathic, person-centred approach towards persons with disability).	An empathic approach facilitates rapport building and positive clinical interaction between doctor and patient.
8	Must demonstrate an awareness of how understanding the lived experience of persons with disability is key to both the assessment and management approach to persons with disability (i.e., during any clinical interaction, medical graduates must regard persons with disability as sources of knowledge and treat them as equal partners in the healing/rehabilitation process).	Disability is multifaceted and affects a multitude of aspects of the life of a person with a disability (medically, psychosocially, and spiritually). Theoretical knowledge must be supplemented by the lived experience of persons with disability. This combination of knowledge will strengthen and deepen medical graduates' understanding of disability.
8.1	Must be able to compile contextually relevant treatment and management plans using a holistic approach for persons with disability (i.e., the focus must be on the individual's physiological, psychological, social, and occupational needs and inclusive of the support network of each person with a disability, to promote community integration.)	This increases the likelihood of adherence.

9	Must demonstrate the awareness that a meaningful clinical engagement with persons with disability is more likely to take place when the doctor acts and behaves as an equal partner (i.e., does not take an authoritarian view).	This contributes to the overall enhancement of mutual respect during consultation.
10	Must demonstrate a good understanding of why empowerment through knowledge is necessary and important for persons with disability and their families. They must also demonstrate the skill to doing so.	As doctors are not necessarily always accessible, if persons with disability are not empowered with the knowledge to manage their disability, they could potentially face many struggles negotiating everyday life.
10.1	Must be advocates for the rights of persons with disability in any society, particularly in the South African context.	How doctors treat persons with disability can have a major influence on how society at large treats persons with disability.

Table 8: Skill Cluster of Competencies and Sub-Competencies for Doctors

	Competencies	Rationales
11	Must be able to set clear professional boundaries and create an environment of trust, where the person with a disability feels comfortable sharing personal information.	Creating an environment where rapport grows between the doctor and the person with a disability is critically important for individuals to feel comfortable sharing personal information.
11.1	Must demonstrate good skills, encompassing the skill of active listening, as well as positive non-verbal communication (such as eye contact, nodding, giving the person time and space to talk) in interacting (history taking, examination, and treatment/management) with persons with disability in a clinical consultation setting.	If doctors are unsure of how to interact with their patients with disabilities in a clinical setting, then there is the potential for miscommunication between the doctor and the patient which increases the patient's risk for medical harm.

11.2	Must demonstrate an awareness of the need to assign adequate time where necessary to ensure that all the needs of persons with disability are met in their clinical encounters.	Persons with disability may be slower than able-bodied patients, in either movement or speech. If a doctor were to rush them due to time constraints, this could lead to miscommunication and poorer healthcare quality.
12	Given the multifaceted and evolving concept of disability, medical graduates must adopt an attitude of reflexivity to create self-awareness of their knowledge limitations. A commitment to lifelong learning assists them in providing good care to persons with disability.	Disability is an extensive subject with evolving information. A doctor can't know everything about every possible impairment and resultant disability. By being aware through reflection of their own knowledge limitations and then adding to their knowledge base, doctors will enhance the standard of healthcare services that they give patients.
12.1	Must demonstrate a willingness to critically evaluate any of their assumptions, as well as any feelings of discomfort about persons with disability, how these relate to more broadly held societal attitudes, and how they might impact upon their assessment and management of persons with disability.	If such biases are left unchecked, they can contribute greatly to the issue of ableism in medicine.
13	Must demonstrate a willingness to adapt assessment, examination, and treatment/management techniques to meet the needs of persons with disability.	The ability to think about and implement creative assessment, examination, and management techniques will contribute to decreasing the risk of misdiagnosis or mismanagement.

Overlap of Competencies

In determining whether each competency could be labelled as knowledge, attitude, or skills, it quickly became clear to the researcher that separating many of the competencies into one of the three clusters (knowledge, attitudes, skills) was difficult. This resulted in a perceived overlap in participants' accounts of the competencies they deemed essential for a doctor to effectively treat persons with disabilities.

Discussion and Conclusion

While definitions of competence still abound, mostly referring to the adequacy of qualification, ability, skill, and knowledge, a multilayered conceptualisation of competence has been proposed to address the discrepancies (Ten Cate et al, 2024; Fernandez et al., 2012). However, acknowledging that disability is no longer simply a medical issue but a human rights one, the researcher presumed that the development of disability-inclusive competencies in SA should be guided through the lens of attitudes to ensure a very close link between knowledge, skills, and attitudes.

However, is the environment in SA supportive of such noble goals? The government's commitment to international policies to enhance the inclusion of persons with disabilities, and efforts to introduce the NHI to eliminate a healthcare system where those with the greatest needs have the least access should be applauded (Heap et al., 2009; Michel et al., 2019; Whyle and Olivier, 2023). Through this, SA made clear its intention to improve the inclusion of persons with disabilities in the health system through its legislation and policy. However, inappropriately trained human resources, among many factors, still fuel the policy-practice gap, leaving persons with disabilities among those still experiencing health disparities.

The description of the overall approach used in generating the competencies indirectly proposes an approach to teaching and learning about disability inclusion for medical students. A key feature of this study was the inclusion of persons with disabilities in the FGDs, in-depth interviews, and the panel of experts. Singh et al. (2020) argued that disability-specific competencies should not be generated without the input of persons with a lived experience of disability. First invoked by the South African Disability Rights Movement in the 1990s, "Nothing About Us Without Us" became the clarion call of activists to overcome systemic oppression and empower persons with disabilities to take control over decisions affecting their lives (https://www.ndi.org/our-stories/nothing-about-us-without-us-nothing-without-us). Since then, the concept has anchored the work of the global disability rights movement and its demand for the full and equal inclusion of persons with disabilities.

Acknowledging that the valuable lived experiences of persons with disabilities cannot be taught, though vital to their access to quality healthcare (Parnell et al., 2023), their willingness to share their unique experiences in the doctoral study should be commended. This is similar to the appreciation expressed in the continuing efforts of the NIH to designate persons with disabilities as a population with health disparities

(Agurs-Collins et al., 2017), using the phrase "To the disability community, we hear you and thank you for sharing your lived experiences with NIH" (NIH, 2024).

Given the concept of ableism in medical practice in SA (Etieyibo, 2022; Ndlovu, 2021; Whitehead et al., 2024; Whitehead et al., 2025), the negative attitudes towards persons with disabilities endanger their inclusion (Bania et al., 2023; Peña-Guzmán and Reynolds, 2019). The researcher intended to ensure that the final competencies that the panel of experts developed would address the four mechanisms by which ableism leads to medical error (Peña-Guzmán and Reynolds, 2019) as expressed earlier.

A perusal of the proposed set of disability competencies and sub-competencies in Tables 6, 7, and 8 reveals that they are well distributed to address the issues across the four different mechanisms that could negatively impact the quality of healthcare that persons with disabilities receive. These competencies would be valuable in the training to improve knowledge, broaden perspectives, and increase confidence in caring for persons with disabilities (Hay et al., 2024).

Although all the study participants were united by common interests and goals—through disability experience (personal, professional, or academic) and/or the transformation of medical education—neither phase was without tension or challenges in thoughts and ideas. In the effort to merge the responses of participants from the four FGDs to the common question "What basic knowledge, skills, and attitudes should a doctor have to adequately treat patients with disabilities?" , the researcher noted the similarities and differences in the development of the preliminary competencies. This tension was higher among the panel of experts, which stemmed from differences of opinion that attitudes are too difficult to teach and assess and should therefore be excluded from the competency set. Lefkowitz et al., (2021) argue that teaching attitudes—such as professionalism and empathy—are as important as the hard sciences being taught already in medical schools. The decision to broaden the profile of study participants could have contributed to the perceived tension. However, an absence of the focus on teaching attitudes can have a major impact on the quality of care by doctors. The insufficient knowledge among medical doctors about the experience and needs of persons with disabilities contributes to healthcare disparities (Ankam et al., 2019). Coupling this with limited skills in providing ongoing care for persons with disabilities perpetuates the healthcare disparities further.

Finally, these proposed competencies open other parts of the curriculum relating to how the proposed disability competencies should be refined, taught, and assessed. This should be interrogated and addressed through further research.

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