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South African Journal of Occupational Therapy

CONTENTS

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Editorial comment

In SAJOT Vol 45 no 2 (2015), I indicated that it was the last printed version of the journal. Well, we now enter the new area of electronic journals, this edition being the first of these, so again an historical edition of the South African Journal of Occupational Therapy (SAJOT). This is indeed the end of an era and the beginning of a new one. It is quite a change for those of us who like to hold in our hands a hard copy of what we are reading. However, SAJOT must move with the times and follow the world-wide trend of electronic publishing and so you will be able to read your copy of SAJOT on your ipad. I do hope that you will all enjoy reading this **on line version** of SAJOT Vol 45 No 3.

I would also like to draw your attention to the fact that we have now joined the ProQuest data base. ProQuest LLC is an American information-content and technology company founded in 1938 as University Microfilms. ProQuest provides products, mainly for libraries, but can also be used by researchers looking for specific subject content. We have joined ProQuest so that the content of SAJOT can be even more widely distributed and available to occupational therapists world-wide.

In this edition of SAJOT we are pleased to publish the 2014 Vona du Toit Memorial lecture which was given by Tshinetise Alfred Ramakumba[1] to commemorate Vona's outstanding contributions to the development of occupational therapy in South Africa. Not only was she, among other things, at various times, President of the South African Association of Occupational Therapists, the first Chairperson of the, then newly formed, Professional Board for Occupational Therapy of the Health Professions Council of SA and SA delegate to the World Federation of Occupational Therapists but she also made a massive contribution to the more scientific delivery of occupational therapy through the development of the Vona du Toit Theory of Creative Ability. Alfred himself has quietly and unassumingly made his own impact on the profession through the various important positions that he has held such as President of the Occupational Therapy Association of SA (OTASA) and Chairperson of the Professional Board for Occupational Therapy, Medical Orthotics, Prosthetics and Arts Therapy. His lecture bears testimony to his passion for the alleviation of one of the scourges in our beautiful country i.e. poverty and the role that occupational therapists can play by prioritising economic occupation in their treatment programmes.

The second article[2] introduces an exciting and relatively new (to SA at least) and much needed aspect to occupational therapy services. With the large number of accidents on the South African roads it is essential that means are developed to assess 'fitness to drive', not only to assess people with a disability but also to evaluate those among the general population who may require driving rehabilitation. This paper describes the validly of the Stellenbosch University on-road assessment. Although it is specific to a part of the country, the information could help in setting up other valid on-road driving assessments.

The results reported in the third article[3] are of importance to occupational therapists as they describe the prevalence of work-related musculo-skeletal disorders of the upper extremity found in secretaries and among those spending much of their day at computers. Although the study was conducted in Nigeria the results have widespread consequences for occupational therapy practice and the degree to which we should be applying ergonomic principles in helping people in the work place. The results are not only applicable to helping people at the work place, but also to each and every one of us as we all spend hours in front of a computer or hunched over a smart phone or ipad.

There follows three articles that focus on issues of training occupational therapy students. The first one attempts to determine the learning styles of students[4] and gives very useful information about the types of styles and therefore leads one in the direction of how to approach teaching. The second[5] examines the 'lived" experience from the perspective of both the clinical educator and the student, of issues around the supervision that students receive while undergoing clinical training. The education of the student in the clinical setting is an essential part of providing students with clinical expertise. The main issue brought up in this research i.e. fact that many clinicians are reluctant to teach students or help them to deal with patients in the clinical setting, should be of great concern to the profession. Hopefully these results will lead to greater emphasis being placed on the preparation of clinicians to fulfil this important teaching role. The third article looks at the factors[6] that cause stress in students undergoing a university course in occupational therapy and the ways in which they cope. This article provides information on the different stressors and therefore indicates the type of services that can be set up to provide support to the students. The information provided in all three articles, when looked at together should help teachers in occupational therapy to devise systems that will create much better learning environments for the students.

The next two articles focus on occupational therapy vocation practice. The first[7] one of these describes the detailed process of constructing a profile tool to use in occupational therapy vocational rehabilitation practices for the purpose of evaluating the service and to see which areas need attention and development in practice. The extensive stage by stage development of this tool which involved all possible stake holders means that the tool is valid, contextually relevant and will provide an essential tool to use in the setting up of and delivering and monitoring a vocational rehabilitation service. It should prove extremely helpful to all those therapists involved in vocational rehabilitation. The second article[8] on vocational rehabilitation describes the process used to determine the information that should form part of the syllabi for both undergraduate and post graduate students in vocational rehabilitation. Again, if the results of these research projects are viewed to together the information should provide the ideal platform whereby occupational therapists can deliver a comprehensive vocational rehabilitation service.

The last article[9] looks at the number of ethical misconduct cases brought before the Occupational Therapy Board of the Health Professions Council of SA between 2007 and 1013. The authors found that there were a fairly small number of penalties imposed, but this is no cause for complacency within the profession and therapists should take cognisance of the issues that were reported and ensure that they do not repeat the mistakes made.

Last but not least, we are pleased to publish, in this edition, the Occupational Therapy Association of South Africa's (OTASA) Position Statement on Occupational Therapy in Primary Health Care[10]. It makes very clear the stance of OTASA and the part that occupational therapy plays in primary health care with community based rehabilitation providing the framework and modus operandi for service delivery within this sector. It is an essential document for the Department of Health to understand and use the skills of occupational therapists appropriately as well as giving guidance to therapists.

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Editor
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The 23rd Vona du Toit Memorial Lecture
2nd April 2014

Economic Occupations: The 'hidden key' to transformation

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ABSTRACT

This lecture aims to acknowledge both individual and collective professional achievements by occupational therapists in South Africa. It highlights specific work done which contributes to the development of occupational therapy nationally and internationally. In line with the Congress theme, "Rooted in Africa: diverse realities and possibilities", it acknowledges the diverse realities and contexts in which occupational therapy is practised particularly in developing countries. The transformation process that is taking place in South Africa seems to be focussing on politics rather than on the economic needs of the majority of the population which result from poverty and unemployment. The lecture proposes that occupational therapists should prioritise economic occupations which could lead to greater economic freedom and empowerment of clients and their communities.

Key words: Economic occupations, transformation, diverse realities and contexts, individual and collective professional achievements

INTRODUCTION

It is a privilege and an honour for me to receive the 2014 Vona du Toit Memorial Lecture Award. Delivering the 23rd Memorial Lecture offers an opportunity to share my thoughts about the direction in which the profession should be moving more than 20 years since South Africa's democratic government was voted into power.

Contribution to the development of occupational therapy

I never had the opportunity to meet the late Vona du Toit, but I believe that I understand what she stood for in the profession of occupational therapy. Irrespective of the demands of her work as the Principal of the Pretoria College of Occupational Therapy and as head of the clinical services section at the H.F. Verwoerd Hospital[1], she managed to present numerous papers at national and international congresses. She also went a step further than most of us by developing what is commonly known as the Vona du Toit Theory of Creative Ability. This theory and supporting papers have been posthumously published in the book, "Patient Volition and Action in Occupational Therapy"[1]. Well known South African occupational therapists like Dain van der Reyden and Pat de Witt have published book chapters and/or journal articles centred on the theory[2,3]. In addition, since 2008/2009 the Theory of Creative Ability has been strongly promoted in the United Kingdom under the leadership of Wendy Sherwood and in Japan under the leadership of Yoshiko Nakano and Mengumi Sato[4]. The theory is also being further developed through ongoing research – for example, Daleen Casteleijn recently analysed Vona du Toit's theoretical assumptions, concepts and constructs in a 2013 journal article published in the South African Journal of Occupational Therapy[5].

Another of Vona du Toit's achievements was that, she was one of only three South African occupational therapists to have served as members of the Executive Committee of the World Federation of Occupational Therapists (WFOT). She and Rosemary Crouch served WFOT as vice-presidents, while I have had the honour to serve as a WFOT Education and Research Programme Co-ordinator.

I am convinced that Vona du Toit was always determined to champion the development of OT as a profession, even though the period during which she developed her theory (i.e. from 1962 onwards) would have coincided with the threat of international isolation due to apartheid and this may have impacted negatively on international recognition of her work. As pointed out in the submission made by the Occupational Therapy Association of South Africa (OTASA) to the Truth and Reconciliation Commission (TRC), from 1960 to 1994 South African therapists faced threats of being excluded from the WFOT[6].

It is thus fitting that we have gathered here today to remember and celebrate the contributions Vona du Toit made to the development of occupational therapy in South Africa and – even after her death – to the world-wide development of our profession. OTASA and the Vona and Marie Du Toit Foundation need to be commended for keeping her memory alive and her work ongoing. The value of celebrating our individual and collective professional achievements cannot easily be measured and should not be undermined.

Diverse contexts and realities

The Congress theme, "Rooted in Africa: diverse realities and possibilities", challenges us to reflect on our continent which is characterised by widely divergent realities and contexts[7]. Understanding the history of South Africa and the impacts of the apartheid laws leads to a full appreciation of the diverse realities and contexts that characterise our country today[8,9,10].

The key note address that I gave at the 2002 WFOT Congress in Sweden[11] focussed on the realities of classical Third World living conditions experienced by those of poor socioeconomic status, which stand in stark contrast to the much better socioeconomic status and living conditions experienced by those in the First World. During this key note address, I commented that even though

South Africa's democratically elected government has brought about political changes, there are areas in which progress is very slow or non-existent. In particular, we have made little progress in relation to "economic freedom, poverty eradication and land ownership"[11:40]. There is a tendency to consider South Africa as offering better livelihoods for its citizens than the realities which prevail in other African countries. Nevertheless, it must be noted that around 14% of the population still live in informal dwellings and 7% in traditional dwellings[12] and access to services remains a challenge particularly for people in these categories. Increases in the cost of living have also significantly worsened the living conditions of the poor. In my view, these realities can be addressed by a common solution, namely finding the economic means/capital to change the lives of the majority of the population. This is in line with Maslow's Hierarchy of Needs[13:286], which is familiar to occupational therapists and reflects that "low needs must be at least partially satisfied before needs that are higher in hierarchy become important sources of motivation"[13:286]. Thus, satisfaction of lower-order needs such as physiological and safety needs should precede higher-order needs such as social, ego and self-actualisation. We must ask ourselves, in this context, whether our occupational therapy philosophy fully addresses the areas of occupation which can satisfy clients' economic needs – the foundation upon which all other needs rest. For instance, when basic needs are not satisfied preference in OT intervention programmes should not be given to improving clients' participation in leisure activities – this is simply unworkable.

In developing countries like South Africa in which poverty remains one of the biggest challenges, we must reflect on our professional stance and focus and identify possibilities for making a difference and changing the lives of the majority of the population. Hence the topic of my lecture, "Economic Occupations: The 'hidden key' to transformation".

The impact of poverty
Barker[14] defines poverty as the state of being poor or deficient in money or means of subsistence. In South Africa, 41% of our population of 51.7 million people live under the poverty line[12]. The South African Government National Planning Commission acknowledges that:

"Poverty has many dimensions that shape people's lives. Poverty in South Africa is most evident in the lack of opportunities for economically active citizens to earn a wage. Income poverty affects individuals and households in ways that are often degrading and leads to precarious lifestyles …. Without access to quality health and education and income-earning opportunities, the lives of the vast majority of the poor wage a daily struggle to simply survive"[15:6].

Fourie, Galvaan and Beeton[16:70] have pointed out that "poverty has a devastating effect on occupational potential" in that it influences choices of occupations and restricts opportunities for participation. The 2001 World Bank Report[17] presents a multi-dimensional view of poverty – for instance, one must consider issues of material poverty, chronic poverty, intergenerational poverty and poverty of the capacity to aspire. The first – and most important – of the Millennium Development Goals[18] is "Eradicating Extreme Hunger and Poverty", and WFOT's[19] priorities for 2007 – 2012 include occupational therapists and occupational therapy associations supporting the Millennium Development Goals. Similarly, Fourie, et al [16:83] propose that "all occupational therapists – even those working with individuals in conventional clinical practice – need to keep in mind the issues raised by poverty for most people in the world".

Thus, both individually and collectively we need to embark on a new agenda and adopt a new vision regarding the use of occupations in our clients' lives. This implies a need to obtain knowledge and learn strategies, so that we can improve much needed resources. Before talking about the new vision, I would like to commend several authors of books, chapters and journal articles who have captured the practice of occupational therapy in Africa, particularly in South Africa. Their writing highlights the challenges resulting from

diverse contexts and suggests solutions to address such challenges. I must make mention of Watson and Swartz[20] for "Transformation through Occupation", Crouch and Alers[21] for "Occupational Therapy in Psychiatry and Mental Health" and Alers and Crouch[22] for "Occupational therapy: an African perspective", and Lorenzo, Duncan, Buchanan and Alsop[23] for "Practice and Service Learning in Occupational Therapy". Furthermore, I commend Kronenberg, Pollard & Sakellariou[24] for "Occupational Therapies Without Borders" as well as my fellow authors Asaba, Lesunyane and Wong[25] with whom I wrote "Globalization and Occupation: A perspective from Japan, South Africa, and Hong Kong".

We must acknowledge, as did Crouch[26:107] in 2010 that some African countries' resources "are being used in an attempt to alleviate poverty and to improve the quality of life by adequately satisfying fundamental human needs and by creating a difference", and indeed many articles on this subject have been published in the South African Journal of Occupational Therapy (SAJOT). However, each time I reflect on the contribution the occupational therapy profession is making in improving our clients' livelihoods, I realise that different approaches are necessary. We need to ask ourselves whether our profession is contributing maximally to community development and the transformation process. If not, we need a new vision regarding the use of occupations in a way which empowers individuals and communities, within our intervention strategies.

Economic occupations
Ikiugu[27:120] argues that "occupational therapists can contribute their knowledge of human occupation and occupational performance to help illuminate wider societal occupation-related challenges". There has been a consistent and shared vision regarding the use of occupation by occupational therapists over the years. However, Duncan[28:22] points out that the paradigm of occupation has evolved over time. Thus, from 1900 to the 1940s occupation was seen as being "essential to life and having an influence on peoples' health", from the 1940s to the 1980s the focus was on the functioning of the inner systems (intra-psychic, nervous and musculoskeletal) which led to occupational therapy adopting biomedical explanations and approaches to dysfunction. Since the 1980s occupation was perceived as having "a central role in human life by providing motive and meaning". Recent understandings place greater emphasis on access to occupations and their impact on quality of life[28]. In my opinion, this evolution has addressed the needs of society/communities at different periods of time. In post-1994 South Africa many of us hoped that, as part of the transformation process, the democratic government would address occupational risk factors such as Wilcock's[29] occupational imbalance, deprivation, alienation, insufficiency and injustice. However, my observations lead me to conclude that not much has changed for those who were historically disadvantaged. For this reason, occupational therapists have to 'think out of the box' and stop what is commonly referred to as 'business as usual'.

I propose that we should prioritise economic occupations. Participation in occupation which results in economic freedom could in turn, lead our clients to peace of mind and happiness. This proposal is in no way intended to challenge the acknowledged/accepted philosophy of occupational therapy and the use of occupation to promote health and wellbeing[30] or to bring meaning to an individual's life[31]. However, I am convinced that we need a paradigm shift as a profession, such that we prioritise economic occupations. This will be in line with what Estelle Shipham expressed in the nineties in her Vona du Toit Memorial Lecture. She stated that, "…the integral part of health care needs (in South Africa) are to be achieved through empowerment and development of individuals and their communities towards real independence - especially economic independence"[32]

Occupational therapy as a profession makes use of elusive, philosophical concepts and the challenge is that occupational therapists themselves often disagree on the meaning of these concepts. A good example is our usage of the word 'activities' versus the word

5

'occupations'. Complicating the situation, therapists differ in their first language, and may struggle to explain the differences between activities and occupations to clients from the various South African language groups. Those involved in teaching students who do not have English as their home language will fully understand the challenges to which I refer. It has been proposed that quality of life and meaningful occupations are the core of occupational therapy[33], but do these mean the same thing in different contexts? Similarly, concepts such as 'occupational justice' need to be viewed differently within different contexts. How then, should our professional philosophy accommodate these different meanings?

My own experiences reflect what authors have noted; regarding the value that meaningful occupations play in people's lives (see for instance De Witt[34]; Watson & Fourie[35]; and Christiansen & Townsend[31]). Often when life seemed to lack meaning, I have used occupations to bring meaning in my own life. I have also counselled family members, students and colleagues to use occupations to cope with life challenges and make their lives more meaningful, and the feedback I have received has always been very positive. Nevertheless, I believe that we must use a different approach when prioritising occupations, not just focussing on their meaning but also focusing on how they can address the needs of poor communities.

My reflections on the current realities of South Africa indicate that the transformation which has taken place since 1994 has taken place mainly at a social level and not at the level of communities and individuals. As a profession, how do we focus on empowering and addressing the needs of the majority of our population who live in poverty and are unemployed? What do we do to ensure improvement in their quality of life and create opportunities for them to engage in meaningful occupations? Watson[36:51] pointed out that "… reawakening of possibility for development may lead to transformation – enriching and redirecting lives". Yet how do we ensure that the process of transformation remains a priority for the poor and the marginalised who need it most? How do we empower individuals and communities, and develop and implement projects that could lead to economic independence? Transformation must include addressing the impact of deprivation by increasing productivity and empowerment[36:51], and this requires strategising to address barriers to individuals' economic independence. Such barriers include limited employment opportunities and lack of skills, training and experience. We must address these in order to keep the transformation process ongoing.

Thus, occupational therapy as a profession should look at different ways of approaching or utilising occupations, to facilitate, maintain and transform the lives of our poor communities. A paradigm shift is needed, so that we can change people's livelihoods in a valid manner – in this way, we will be seen to make a difference.

Charity and hand-outs should only be temporary measures, NOT a way of life as they have become in some developing countries like South Africa. Occupational therapists should heed the view of the Greek physician Galen (172 AD), namely that "Employment is nature's best physician and is essential to human happiness"[37:91].

Hence my proposal to the profession is that of a shift from an emphasis on employment of disabled to emphasis on employment (in income generating occupations) for all who are at risk of poverty which poses a threat to their health.

A CASE STUDY

To illustrate my proposal I will share with you the case of Mr A, aged 33. He was single and unemployed and lived with his parents and younger sister about two kilometres from the local hospital. He was diagnosed with Bipolar Mood Disorder and attended monthly treatment reviews, and at the time of my first meeting with him he had recently relapsed and was hospitalised. On assessment I found him to come across as very intelligent and motivated, with intellectual insight. His main concerns about his illness centred on stigma and isolation from his community – neighbours laughing at him left him feeling rejected, which contributed to his frequent relapses.

Two weeks after starting occupational therapy he was discharged and arrangements were made for him to continue with outpatient therapy on a daily basis. Through this, an opportunity was created for him to run a shoe repairing project, and he was able to generate income so that he could buy more materials and continue with the project. During a follow-up interview he revealed that his community thought that he was working full time in the hospital and as such showed respect to him. He was better accepted by his community and became a proud and happy man as a result of using occupations that were of value to him and brought meaning to his life when relating with his community.

Economic occupations and the "hidden key"

I am not viewing Mr A's case study in a simplistic manner. Like each of us, he is an occupational being[38] who should engage in occupation to find meaning and purpose[39]. At the same time, occupation can improve health and wellbeing[31] and restore occupational balance[40]. Meaningful occupations must be seen from an economic point of view, in relation to those who are underprivileged.

Developing countries like South Africa face the reality of diverse contexts characterised by communities with varied economic challenges. Whereas multiple factors influence occupational choices and availability of resources, including culture and poor economic conditions often lead to individuals opting specifically for paid occupations, which may not be to their liking, in order to survive[25,31]. As Crouch[22:53] states, "The value of the occupation will depend on the needs of the person and the needs of those in the social structure …". Western views of life and health have undoubtedly influenced the focus of occupational therapy as a profession, and I believe that our philosophy and focus will be different when we address the needs of communities in developing countries.

The choice of occupations depends on biological, psychological and contextual factors[31], but we have previously argued[25] that the influence of each type of factor depends on specific communities and individuals. Economic factors within an individual's context tend to determine the degree to which other factors impact on choice of occupation. Thus, where economic issues are less critical, the other factors can play a greater role. Bührmann[41:24] notes that to appreciate what influences occupational choices, one needs to "understand, respectfully or enter in the inner world of another". Yet, "the African continent is in a … dilemma because of (the) extreme pressure on its black inhabitants to develop a Western-originated society, a Western type of ego consciousness with Western goals and measures of achievement"[41:100]. Undoubtedly, the inner world of the majority of the population in South Africa is clouded by poverty and poor socio-economic conditions and income generation is viewed as a priority. Despite their harsh realities, both urban and rural South African communities strive to improve their lives by seeking employment and participating in income generating projects[25:397]. Arguably, then, some of the communities in which occupational therapists render services lack the luxury of free occupational choice. Yet my argument is that by addressing such communities' economic challenges we actually enable them to choose meaningful occupations.

Metaphorically, the 'hidden key' which we can use as occupational therapists is the application of our creative thinking to select and make recommendations in relation to economic occupations. We can advocate for and initiate and develop strategies that lead to sustainable economic empowerment, placing us amongst the professions which can make a difference in implementation of strategies to improve income generation for individuals living in poverty and consequently at risk of ill health. I believe that the use of economic occupations to address basic needs can address the occupational risks which tend to produce ill health and dysfunction in poor communities. Baum[42:xv] reminds occupational therapists that the public usually thinks of work when we talk about occupations, and notes that occupational therapists are "asked to respond and act on the needs of the society through the healthcare systems and community systems". We are well equipped to embark on a drive

to create occupational empowerment[43] on a larger scale, yet we have not explored community systems enough and even when we are aware of the needs we are not committed to this approach. As a profession, we tend to focus on approaches tried and tested in developed countries whose populations have completely different needs. Economic occupations are 'a hidden key' (a solution; the answer) which we can utilise to foster real transformation. A focus on such occupations is in line with the OTASA definition of occupational therapy, as published on SAJOT[44]. This definition makes it clear that we are bound as a profession to address the needs of ALL individuals and communities (living with disabilities or not) who are occupationally dysfunctional. As noted in a Special Edition on Human Rights[45], published by SAJOT in 2010, the United Nation Convention on the Rights of Persons with Disabilities includes the right to access rehabilitation. We as occupational therapists are well placed to promote the rights of persons with disabilities, particularly those related to education; habilitation and rehabilitation; work and employment.

CONCLUSION

In closing, I believe that it is essential that the profession should position itself so as to partner with government, non-governmental organisations and businesses to create opportunities and possibilities for our clients to become economically independent. This implies a need for greater training in the field of work, as part of our undergraduate curriculum and including the use of traditional and cultural activities as a means of earning a livelihood. Training centers need to review their curriculum in order to consider inclusion of these suggestions. While clients should have full ownership of the process, occupational therapists can serve as a link between them and their communities. In this way, we can empower individuals and focus on economic occupations in settings such as, income generating projects, farming/agriculture and businesses (including service businesses such as cleaning and gardening).

I would like to conclude by quoting Ruth Watson[46:13], who noted that "the value and power of an appropriate occupational therapy approach lies in its sensitivity and responsiveness to clients' expressed needs, and not in the therapist's assumptions". As we adopt a new agenda, develop new strategies and utilise occupations to empower our clients and their communities, let us find out directly from them what their priority needs are.

ACKNOWLEDGEMENT

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Validity of the Stellenbosch University On-road Assessment

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ABSTRACT

Background: *Internationally, occupational therapists are the professional group called upon to assess fitness to drive. Fitness to drive is assessed through a comprehensive driving evaluation consisting of a clinical battery of tests and an on-road assessment. The on-road assessment is the criterion standard for assessing fitness to drive. Such an assessment has not yet been developed or validated in the South African context.*
Purpose: *This study empirically quantified the face, content and construct validity of the Stellenbosch University on-road assessment.*
Methods: *Firstly face validity was established using feedback from peer reviewers, secondly, content validity using the ratings of expert reviewers, and thirdly construct validity was established by assessing between group differences in young drivers who drove the road-course.*
Results: *Peer review indicated acceptable face validity. Expert reviewers had an average rater agreement percentage of 94%, indicating favourable content validity. One (of two) on-road outcome measures, the Global Rating Score, discriminated between two groups of drivers, indicating construct validity.*
Conclusion: *This study introduced the first empirical on-road assessment in the South African context. The findings provided foundational information for occupational therapists interested in assessing in-traffic fitness to drive abilities. Implications for practice, research and policy were discussed.*

Key words: Fitness to drive, Measurement, South Africa

INTRODUCTION

Background

Traffic injuries were the ninth leading cause of death worldwide in 2004[1] and if trends continue it will be the fifth leading cause of injury and mortality in 2013. In 2010, the World Health Organisation initiated the Decade of Action on Road Safety[2], urging international inter-sectoral (transport, health, police, justice, etc.) collaboration to reverse the global trend of increased traffic fatalities.

Within South Africa, the lead agency, the Road Traffic Management Corporation (RTMC), reports 10 845 fatal crashes and 13 802 fatalities from 1 April 2010 to 31 March 2011[3]. The factors contributing to road crashes in RSA included human factors, e.g. aggressive and reckless driving patterns; vehicle factors, e.g. worn or damaged tyres; environmental factors, e.g. poor road maintenance. In 2009, human factors were the main contributor of the total number of fatal crashes in South Africa with 84.91%, with other factors being vehicle factors (5.79%) and the road environment (9.30%)[4]. Given these contributory factors to fatal crashes in South Africa, the country has a pressing and critical need to employ a system to identify at-risk drivers on its roads.

LITERATURE REVIEW

Driving, an instrumental activity of daily living (IADL), is a critical occupation enabling people to take care of personal needs, fulfil roles in society, participate in communities, and obtain access to goods and services[5,6,7]. In South Africa, with limited public transport, driving a vehicle is an advantage for individuals seeking and pursuing employment opportunities[8,9]. However, given the high crash statistics in South Africa, driving must be viewed as a potentially dangerous IADL that can result in adverse outcomes if incongruences exist, within the person (e.g. medical condition impairing judgment and reasoning), the vehicle (e.g. poor roadworthiness) and the environment (e.g. potholes and non-operational traffic signals)[7].

Occupational therapists are uniquely qualified to make a valuable contribution to the road user safety system of South Africa as they understand the phenomena and interactions between the person, the environment, and the contextual factors[10]. They analyse barriers and understand enhancers of performance in terms of driving[11]. Occupational therapists can apply their training to screen and assess the fitness to drive abilities of clients[7,12]; construct intervention plans to improve driving; adapt activities and/or vehicles; refer clients to other health care professionals; make recommendations; and communicate findings to stakeholders (e.g. medical doctor or licensing agencies). Ultimately, occupational therapists are agents of wellness and health promotion[5,6,11,13] and injury prevention[14], and given the critical road safety situation in South Africa, are ideally positioned to help prevent crash related traffic injuries and fatalities.

The assessment of fitness to drive occurs through administering the comprehensive driving evaluation (CDE)[15], which is also considered the industry gold standard[16]. The comprehensive driving evaluation is typically conducted by an occupational therapist who is a (Certified) Driving Rehabilitation Specialist (OT-CDRS)[17]. The comprehensive driving evaluation consists of a clinical battery of

visual (and other sensory functions), cognitive, and motor tests, as well as an on-road assessment. Occupational therapy researchers in developed countries have developed batteries of clinical tests for specific populations, including older drivers[18,19]; Parkinson's disease[20-22]; teens with Autism Spectrum Disorder or Attention Deficit Hyperactivity Disorder[23]; Epilepsy[24]; and mild traumatic brain injury (TBI)[25]. The On-Road Assessment (ORA) measures in-traffic fitness to drive abilities in varying environments i.e. parking lots, suburban, city and highways[26,27]. Road courses need to be specifically developed for the context of the geographic region.

Given that occupational therapists can make a substantive contribution to fitness to drive assessments and interventions and that no road course exists in the Western Cape, the main objective of this study was to validate the ORA, designed for the Western Cape.

An ORA must consists of a combination of[26-30] road conditions (e.g. a variety of roadways); driving conditions (e.g. varying levels of traffic and speed); and an opportunity to observe driving errors (e.g. visual scanning, signalling, vehicle positioning, lane maintenance, speeding and yielding/gap acceptance).

Rational and Significance

The impetus of this study derives from three fronts: South Africa is one of the leading countries in road traffic injuries and fatalities; prevention of on-road fatalities can take place through valid assessment and intervention; and occupational therapists are the preferred health professionals to address IADL's, including driving, yet no formal assessment for fitness to drive has been validated in South Africa[31].

Purpose Statement

This study empirically quantified the validity of an on-road assessment conducted at Stellenbosch University's Usebenza Assessment Centre in the Western Cape.

METHODS

This study was approved by the Stellenbosch University Health Research Ethics Committee and all participants provided informed consent before they were enrolled in the study.

Study aims

The study had three aims: To determine the face, content, and construct validity of Stellenbosch University on-road assessment.

Study design

This study employed a quantitative prospective measurement design, from classical test theory, examining three aspects of validity[32,33]. For face validity peer reviewers[33,34] provided feedback on the appearance, navigation instructions and the representativeness of the ORA route. For content validity expert reviewers provided feedback, on the representativeness of the individual items of the ORA, to real world driving[34,35]. For construct validity, the researchers employed a known groups methods to discriminate between two independent groups of healthy drivers' outcomes on the ORA[33].

Population and sampling procedure

Face validity

Purposive sampling was used to recruit a convenience sample of ten peer reviewers[35]. Their function was to provide objective feedback on components of the ORA, including the appropriateness (appearance) of the assessment to the concept of fitness to drive, the navigational instructions and the representativeness of the driving conditions in the Western Cape. The inclusion criteria were: having completed at least a Bachelor's degree in Occupational Therapy; registration with the Health Professions Council of South Africa; and having worked, and were still working, in the field of assessment, including administering standardised tools for assessing work, insurance and medico-legal issues, for at least five years. Using local professional databases the first author distributed an e-mail to recruit volunteer occupational therapists who fitted the inclusion criteria. The peer reviewers were contacted via e-mail, briefed on the study background, and after providing consent, enrolled into the study.

Content validity

Content validity was established through feedback from three inter/national expert reviewers with experience in driving assessment or measurement theory. Each one of the expert reviewers were known by the researchers and chosen, based on their credibility, inter/national stature and experience in the field of driving rehabilitation or measurement. The expert reviewers were contacted via e-mail, briefed about the study background, and asked to complete a consent form once they have agreed to participate in the study.

Construct validity

There were two groups of participants for this part of the study. Group one consisted of five conveniently selected healthy novice drivers, ages 18-28, recruited from a local driving school who had undergone driver training in the two months prior to the onset of the study and who were selected by the driving school instructor. Group two consisted of six experienced drivers ages 18-28; with more than two years of driving experience; who were recruited by the first author using contacts within her stakeholder network. The drivers from these two groups were contacted via phone, briefed about the study background, and asked to complete a consent form once they had agreed to participate in the study. The drivers received no payment for participation in the study. Other key participants in the construct validity study were the driving school instructor and a licensing officer from City of Cape Town Department of Traffic. The role of the driving school instructor was to provide the driver with verbal navigational instructions and to ensure the safety of the driver and passengers in the vehicle using the dual brake system in the vehicle. The role of the licensing officer, as an experienced driving assessor, was to assess the drivers using the Stellenbosch University ORA.

Measures: Stellenbosch University On-road Assessment

The ORA route commenced in the parking lot of the Stellenbosch University Faculty of Medicine and Health Science and progressed over residential and urban areas and included a freeway. Driving occurred in "good" weather conditions, between 9.00 am and 4.00 pm Monday to Friday. The test vehicle was a dual brake manual transmission vehicle from a local driving school. The route covered a distance of 23.8 km with driving duration being 45 to 55 minutes pending on traffic flow and density. The ORA route included *road conditions* and *driving manoeuvres*.

The road conditions included:

❖ Low and middle socio-economic residential environments with narrow two-way roads and speed restrictions of 40 – 60 km/h. Environmental characteristics in the low socio-economic area included low volume motor vehicle traffic; dogs and children present in the road; speed bumps; and vandalised traffic signs. Environmental characteristics in the middle socio-economic area included low motor vehicle traffic, and enhanced controlled intersections such as a raised stop street. Joining the residential and the urban industrial environment (next discussed) was a two-lane traffic circle with four entrances.

❖ Urban industrial environments and a city centre with wide two-way roads and speed restrictions of 60-70km/hr. Environmental characteristics included medium to high volume motor vehicle traffic; pedestrians passing the road without using, or in the absence of pedestrian crossings; vehicles stopping at and entering roadways without using their indicator lights; and a 360 degree curvature in the road. The environment also included a freeway with a dual carriage and speed not exceeding 120km/h, therefore accommodating high speed and high volume motor vehicle traffic. Environmental characteristics included slow moving heavy duty tractor-trailer trucks.

The driving manoeuvres included:

* Nine left and eight right turns at controlled intersections;
* Two left and one right turns at uncontrolled intersections;
* Seventeen straight drives;
* Three lane changes to right and one to left;
* Entering and exiting a 180 degrees traffic circle;
* Pulling away on an incline;
* Merging into high speed traffic; and
* Exiting high speed traffic via a ramp of the freeway

Figure 1 presents a Google map of the Stellenbosch University ORA. The figure displays the entire route by the eleven road sections (used for content validity rating). The eleven road sections included a variety of road conditions in different environments.
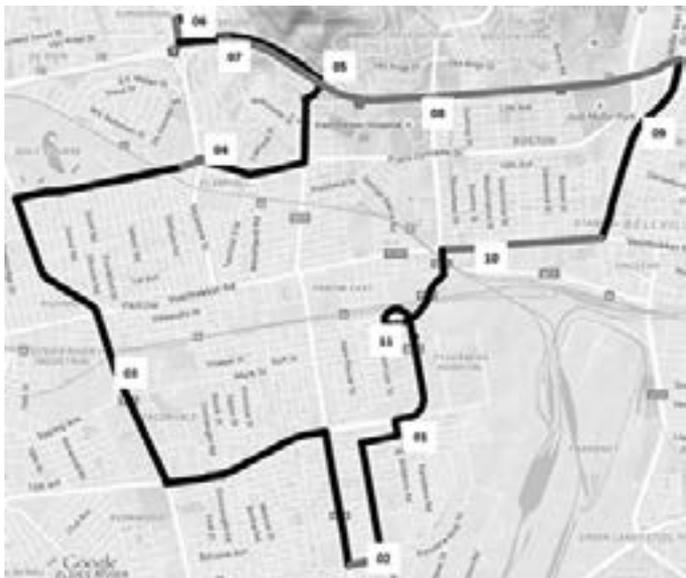
Legend: Road section 1: 1.6 km in a low socio-economic residential environment (urban area),
driving speed not exceeding 40 km/h; Road section 2: 0.28 km in an urban area, driving speed not exceeding 60 km/h; Road section 3: 6.5 km in an urban semi-industrial environment, driving speed not exceeding 60 km/h to 7 km/h; Road section 4: 1.8 km in a semi-industrial environment, driving speed not exceeding 70 km/h, approaching, entering and exiting a two-lane traffic circle; Road section 5: 3.4 km in a middle socio-economic residential environment, driving speed not exceeding 60 km/h; Road section 6: 0.1 km on a bridge connecting the freeway and the residential area, driving speed not exceeding 60 km/h; Road section 7: 0.2 km on-ramp onto the freeway; Road section 8: 4.6 km on a freeway, driving speed not exceeding 120 km/h and exiting the freeway onto an off-ramp bridge; Road section 9: 1.9 km in a semi-industrial urban area, driving speed not exceeding 60 km/h; Road section 10: 1.6 km in a city centre area, driving speed not exceeding 60 km/h; Road section 11: 1.4 km in a semi-industrial environment following a 360 degrees curve in the road, driving speed not exceeding 60 km/h.

Figure 1: Google map of the Stellenbosch University on-road route

Scoring

Existing validated on-road scoring criteria from the University of Florida ORA[26] informed the construction of the Stellenbosch University ORA scoring form. The route components

were accurately included in the sequence that they occur on the route. The driving errors, referred to in the literature review (e.g., visual scanning, vehicle positioning, etc.) were included for each driving manoeuvre on the ORA route. The driving errors were scored using a four level outcome rating scale, i.e.: 3 = zero errors; 2 = any errors; 1 = verbal cues were necessary to modify driving behaviour; 0 = physical intervention (e.g., driving school instructor hitting the brake to ensure safety). The driving errors were summed to produce the sum of manoeuvres score (SMS). The Global Rating Scale (GRS) provided an overall interpretation of the driver's performance, with the scale indicating 3 = fit to drive; 2 = fit to drive with recommendations; 1 = not fit to drive remediable; 0 = not fit to drive, unremediable.

Data collection and procedures

Face validity

The first author conducted structured interviews with the reviewers[35], collected their demographic information, and asked their opinions on three structured questions (see *Table I below*). Peer reviewers provided yes/no responses and/or comments to the questions.

Content validity

From the expert reviewers, the first author collected demographic information. Using a Visual Analogue Scale (VAS) the expert reviewers rated 11 items to judge the representativeness of the ORA to real world driving. Reviewer agreement less than 90% was deemed inadequate and content validity was inferred if the reviewer agreement was $\geq$ 90%[36].

Construct validity

The novice and experienced drivers provided demographic information and participated in the ORA. Using the test-vehicle, the driving school instructor sat in the passenger seat of the vehicle while providing verbal instructions for navigational purposes. The licensing officer was blinded to the status (novice vs. experienced) of the drivers. He scored the fitness to drive abilities of the participants using the ORA scoring form: i.e. 0-3 for driving errors, and by providing a GRS for each driver. The

Table I: Demographic variables and responses on the structured questions from the Peer Reviewers (N=10)

Peer Reviewers (PR)	Age	Years Practice	Years of experience in administering assessments	Experienced in administering driving assessment	Q.1.	Q. 2.	Q.3.
PR1	59	39	20	Some	Yes	Yes	Yes, with suggestions
PR2	41	19	19	Some	Yes	Yes	Yes
PR3	43	17	16	None	Yes	Yes	Yes, with suggestions
PR4	46	24	22	Some	Yes	Yes	Yes
PR5	48	26	26	Some	Yes	Yes	Yes
PR6	34	13	11	Some	Yes	Yes	Yes, with suggestions
PR7	34	12	9	None	Yes	Yes	Yes
PR8	49	27	27	Some	Yes	Yes	Yes
PR9	56	33	18	Some	Yes	Yes	Yes
PR10	40	18	13	Some	Yes	Yes	Yes

Legend: Q= Question; Q.1. = Does the ORA appear to assess fitness to drive? Q.2. = Does the navigational instructions on the ORA scoring form appear clear and unambiguous? Q.3. = Does it appear to you that the driving conditions included in the ORA route are representative of driving conditions in the Western Cape?

first author, not blinded to the status of the participants, sat in the back of the vehicle to ensure appropriate execution of the research protocol.

DATA CAPTURING

The first author collected and recorded all the validity data. The author devised a Microsoft Excel spreadsheet to capture the responses obtained from the content and construct validity forms. The data were discussed with members of the research team to ensure accuracy; monitored to ensure completed datasets; and stored in a central secure and password protected data repository, located on the server at Stellenbosch University.

Data analysis

Face validity

The first author integrated the peer review comments into the ORA. Because only minor suggestions (e.g. formatting suggestions) occurred a second round of peer reviews were not indicated.

Content validity

Based on the feedback of the expert reviewers, the first author calculated their agreement via the average congruency percentage (ACP) [36]. To determine the correlation on the representativeness of the items to real word driving the researchers planned to conduct an intra-class correlation coefficient (ICC) analysis [35]. However, due to the high ACP, an ICC analysis yielded invalid results and the ICC was therefore not included in the final analyses.

Construct validity

The normality of the data was examined with the Shapiro Wilks test [35]. If the Shapiro Wilks test demonstrated statistical significance, then the non-parametric Wilcoxon rank sum test is indicated for quantifying group differences. The researchers performed basic statistical analyses using Microsoft Excel. All other statistical calculations were performed by the statistician using Stata version 13 (StataCorp LP). Statistical significance was determined via a two–tailed test of significance with $p \leq 0.05$.

RESULTS

Face Validity

Table I displays the demographics and peer review feedback for each of the ten peer reviewers. The peer reviewers had 9 to 27 years of experience in administering standardised assessments. All peer reviewers were fluent in English and none requested a version of the consent form in any of the other official languages.

As indicated in *Table I* on page 11, the results showed positive responses from all the reviewers on all three questions. Three peer reviewers (PR1, PR3, PR6) proposed inclusion of a township environment, but this recommendation was not integrated as most of the road conditions and driving manoeuvres, that could have occurred within a township environment, were already included in the ORA route. Another peer reviewer (PR4) provided additional feedback on collapsing columns in the ORA form, but that suggestion was neither feasible nor practical and as such this recommendation was also not integrated.

Content Validity

Three expert reviewers (ages 43-51 years) completed the review. Their detailed demographic characteristics are displayed in *Table II*.

Table III indicates almost perfect agreement between the raters (average ratings $\geq$ 9.4) for all 11 individual items on the ORA. These findings indicate an ACP higher than the acceptable scale average of 90%. The ICC could not be calculated, due to the small variances (see small standard deviations [SD]), in scores among the different raters.

Table II: Demographic variables for the Expert Reviewers (N = 3)

Demographics	Expert Reviewer 1	Expert Reviewer 2	Expert Reviewer 3
Age	51	46	43
Gender Frequency (percentage)	Female 1 (33.3%)	Female 1 (33.3%)	Male 1 (33.3%)
Years' experience (field)	17 (driving assessment)	6 (driving assessment)	18 (measurement)

Table III: Ratings of the Expert Reviewers (N=3) using the Visual Analogue Scale (VAS) to rate 11 questions pertaining to the Stellenbosch University On-Road Assessment

Road Section	Expert Reviewer 1 VAS Score	Expert Reviewer 1 VAS Score	Expert Reviewer 1 VAS Score	SD	Average VAS Score
RS 1	9.80	9.40	10.00	0.25	9.70
RS 2	10.00	9.10	10.00	0.42	9.70
RS 3	10.00	9.40	10.00	0.28	9.80
RS 4	10.00	9.50	10.00	0.24	9.80
RS 5	10.00	9.70	10.00	0.14	9.90
RS 6	10.00	9.60	10.00	0.19	9.90
RS 7	9.80	9.60	10.00	0.16	9.80
RS 8	10.00	9.60	10.00	0.19	9.90
RS 9	9.80	9.50	10.00	0.21	9.80
RS 10	10.00	9.30	10.00	0.33	9.80
RS 11	10.00	8.20	10.00	0.85	9.40

<u>Legend</u>: Please see *Figure 1* for a display and description of each of the 11 road sections.

Figures 2.a. - 2.c. display the scatterplots for the paired reviewer (R) ratings: 1-R2, R1-R3 and R2- R3. The scatterplot for each of the reviewer pairs indicated an almost perfect correlation. A second round of reviews was thus not performed.
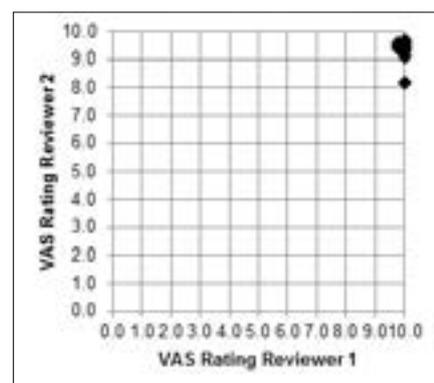

Figure 2a: Scatterplot indicating the VAS score correlations between Expert Reviewer 1 and 2

Construct Validity

After conducting the Shapiro-Wilk test the researcher observed that the SMS (Z = 3.17, p < 0.001) and GRS (Z = 3.43, p < 0.001) data were not normally distributed. Therefore, the researchers analysed the data with the Wilcoxon rank sum test.
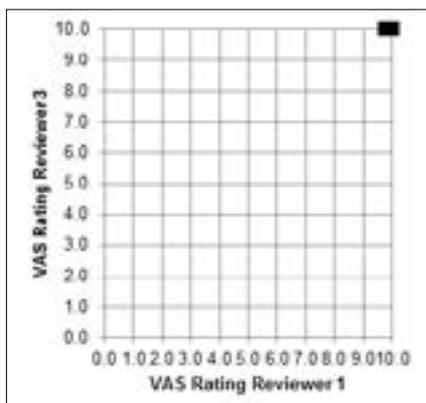
12

Figure 2b: Scatterplot indicating the VAS score correlations between Expert Reviewer 1 and 3
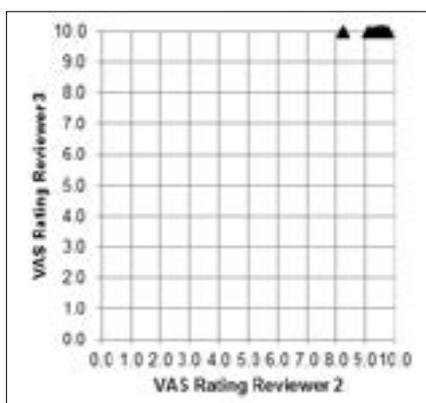

Figure 2c: Scatterplot indicating the VAS score correlations between Expert Reviewer 2 and 3

Table IV: Descriptive statistics and between group differences for demographics and driving data for experienced and novice drivers (N = 11)

Independent variables		Experienced Drivers (n=6)	Novice Drivers (n=5)	Test statistic	P-value
Age: Mean (SD)		24.3 (2.58)	19.2 (1.10)	-2.77[a]	0.005*
Gender: Frequency, (percentage)	Male	2 (18.18%)	0 (0)	2.037[b]	0.455
	Female	4 (36.36%)	5 (45.46%)		
Race: Frequency (percentage)	Black	0 (0%)	1 (9.09%)	1.42[b]	0.70
	Colour	1 (9.09%)	1 (9.09%)		
	White	5 (45.46%)	3 (27.27%)		
Years of owing a driver's license: Mean (SD)		4.33 (1.25)	0 (0)	NA	NA
Schooling: Frequency (percentage)	10 to 12 years	1 (9.09%)	4 (36.36%)	4.41[b]	0.08
	> 12 years	5 (45.46%)	1 (9.09%)		
Language: Frequency (percentage)	English	5 (45.46%)	3 (27.27%)	2.21[b]	0.14
	Afrikaans	1 (9.09%)	2 (18.18%)		
Driving Errors (Mean, SD)					
Visual Scanning		13.33 (3.77)	14.00 (6.81)	0.27 [a]	0.78
Signalling		1.33 (1.11)	1.20 (2.40)	-0.998 [a]	0.32
Vehicle Positioning		0.00 (0.00)	1.20 (2.40)	NA	NA
Speeding		1.33 (1.60)	3.20 (3.06)	0.86 [a]	0.30
Lane Maintenance		0.00 (0.00)	3.80 (2.86)	NA	NA
Adjustment to Stimuli		0.33 (0.47)	1.00 (1.26)	0.64 [a]	0.52
Yielding		0.00 (0.00)	0.40 (0.80)	NA	NA
Gap Acceptance		0.00 (0.00)	0.20 (0.40)	NA	NA

Legend: a = Wilcoxon rank sum test; b = Fisher's exact test (cells with less than 5 data points exist); * = statistical significance for p ≤0.05; NA = statistics could not be calculated because of 0 means values

Table V: Between group differences for driving outcomes in experienced and novice drivers (N = 11)

Dependent variable	Experienced drivers (n=6)	Novice drivers (n=5)	Test statistic (Z)	Statistical significance (p-value)
Sum of Manoeuvres Score: Mean (SD)	114.00 (6.73)	101.80 (21.55)	-0.46	0.65
Global Rating Scale: Mode	3	3; 2	-2.10	0.04*

Legend: * indicates statistical significance for p < 0.05; Z values indicted the statistic for the Wilcoxon rank sum test.

Table IV displays the descriptive statistics and between-group differences for the demographics and driving data for the 11 experienced and novice drivers. Generally, and compared to the experienced drivers, the novice drivers were younger, had fewer males, fewer whites, less schooling, and fewer English speaking participants. Overall, compared to the experienced drivers, and with the exception of signalling, the novice drivers made more driving errors. The between-group differences for the demographics indicated a statistical significant difference for age (experienced drivers were older). No statistically significant between-group differences were detected for driving errors.

Table V indicates the between-group differences for the dependent variables (SMS, GRS) in the experienced and novice drivers (N = 11). Despite the higher mean SMS for experienced drivers, the researchers did not observe a statistically significant difference between the SMS of experienced and novice drivers. However, a statistical significant difference between the GRS of experienced and novice drivers were observed. Based on the GRS, the Stellenbosch University ORA distinguished between novice and experienced drivers and therefore we can infer partial construct validity.

DISCUSSION

This study established face, content and construct validity of the conceptually developed Stellenbosch University ORA.

The peer reviewers, involved in face validity, provided positive feedback on all three questions to assess the characteristics of the Stellenbosch University ORA. Therefore, the findings suggested favourable face validity. Face validity is extremely important if fitness to drive, and ultimately licensing decisions, are to be made.

Participants undergoing the Stellenbosch University ORA may relate to being assessed in real world conditions, i.e. in a real vehicle and in real-time traffic, and as such may be more amenable to accepting the final fitness to drive decisions.

Even though face validity is essential for validity studies, it is not sufficient[35]. Therefore the content validity testing in this study invited the scrutiny of expert reviewers[36,37]. The findings suggested excellent agreement among the expert raters. Similarly, the ratings also correlated with the representativeness of the individual items of the Stellenbosch University ORA to real world driving. The correlations were so high that insufficient variance existed for calculating ICC

13

values. Thus, the high percentage of agreement ($\geq 94\%$) among the expert raters, coupled with the high level of correlation among the raters in the representativeness of the individual items, indicated content validity of the Stellenbosch University ORA.

Construct validity invites empirical methods to further improve upon the accuracy of the assessment tool[35]. As such, the descriptive findings suggested that although mean group differences existed in the demographics, only age (experienced drivers were older) was statistically significant. Likewise, mean group differences existed in the driving errors (experienced driving making fewer driving errors, except for signalling), but none indicated statistical significance. The absence of statistical significant differences may be explained by the small sample sizes and thus the emergence of a Type 2 error[35]. That means, if a difference between the groups really existed, we had too few subjects to detect such a difference. As such the research team cannot make definitive conclusions on the group differences (other than those indicated by the means) for demographics or driving errors.

The team employed inferential statistics to examine the two outcome measures, i.e. SMS and the GRS. The SMS is a summary score of the eight driving errors[26]. Based on the eight levels of this outcome variable, and given the study's small sample size, no between-group differences emerged. However, the GRS which had only four outcome levels (more likely to obtain meaningful differences in small samples), did show statistically significantly differences between the novice and experienced drivers. Based on the GRS findings, partial construct validity can be inferred for the Stellenbosch University ORA.

In summary, classical test theory proposes that assessment instruments should be validated to (1) measure what it claims to measure, (2) measure the specific construct accurately and objectively, and (3) prevent bias in the assessor[32]. The construct of fitness to drive[12] encompasses real-world driving in a real world in-traffic environment and the Stellenbosch University ORA was developed accordingly[26-29]. We surmised that inclusion of these components in developing the Stellenbosch University ORA resulted in peer and expert reviewers providing empirical support for face and content validity of the instrument. Likewise, findings from our between-group differences partially supported construct validity of the ORA.

The limitations of this study pertained to the small sample sizes used in the content (three expert reviewers) and construct validity (eleven drivers) studies. First, a larger number of expert reviewers might have provided responses resulting in more variant ratings. As such, more rigorous statistical procedures could have been employed (e.g. the content validity index, intra class correlation coefficient analysis) to yield stronger empirical support for the content validity of this study[34,38]. Second, due to the small sample of driving participants the findings can only be generalised to young drivers (ages 18 to 28), and to the specific road conditions and driving manoeuvres apparent in the Stellenbosch University ORA. As mentioned previously, Type 2 error likely obstructed our attempt to establish construct validity for the SMS outcome.

The strengths of this study included acceptable face and content validity, and the GRS indicated (partial) construct validity for the Stellenbosch ORA. As such, this study provided first steps towards empirically validating an ORA in South Africa. The study also laid the foundation for clinical practitioners to understand the components of an ORA as they wish to develop their own context specific on-road assessments.

The implications for occupational therapy practice are several. Driving rehabilitation is a complex, yet emerging specialty in occupational therapy. Little education in driving rehabilitation exists in current occupational therapy curricula and the authors invite occupational therapy practitioners to consider pursuing post-professional training in driving assessment and intervention (information available from sclassen@uwo.ca). Moreover, until now, occupational therapists in South Africa have had no local evidence-based research to guide clinical practice. This study introduced the components of road course development, the key construct of fitness to drive,

its related concepts (e.g. driving errors, driving conditions), and driving-related vocabulary to better describe driving related issues.

The research team is planning focussed research studies to address the limitations of this current study. Specifically, we will determine construct validity in a well-powered sample, representing different at-risk populations with medical conditions. To enhance the psychometrics of the Stellenbosch University ORA, reliability studies, specifically intra-rater (examining consistency ratings of trainee raters) and inter-rater reliability (examining consistency ratings of trained occupational therapists) are indispensable[35]. Additionally, the ORA as the criterion standard for fitness to drive assessments[7,16,39], provides opportunities for validating clinical batteries of tests, for at-risk populations, (e.g. older or neurologically impaired drivers) that may be predictive of real-world driving outcomes within the South African context.

This study has implications for policy. Conversations occurring during the course of the study indicated a pressing need to compliment the current Department of Traffic licensing procedures with fitness to drive assessments. After conducting the ORA, a licensing officer indicated that he gained insight into driving behaviours indicative of functional impairment, and as such realised the importance of referral to occupational therapists. A plausible opportunity is emerging for occupational therapists to partner with licensing officers, in conducting fitness to drive assessments, or to receive referrals of individuals with functional limitations and as such influence licensing policy.

CONCLUSION

This study is novel in that it is the first ORA developed and (partially) validated within the South African context. The findings provided foundational information for occupational therapists (and other health care professionals) interested in assessing in-traffic fitness to drive abilities. South African occupational therapists are facing a role emerging opportunity in the field of driving rehabilitation. As such, validated new measures have the potential to promote the clinical practice skills underlying driving assessment and intervention, enhance the evidence base of driving, and advocate for partnership with licensing agencies.

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14

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Work-related musculoskeletal disorders of the upper extremity with reference to working posture of secretaries

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ABSTRACT

Introduction: *This study investigated the prevalence of work related musculoskeletal disorders (WMSDs) of the upper extremity and low back among secretaries in a state public service and their associations with working posture.*
Methodology: *A cross sectional survey was carried out among 150 secretaries randomly selected within the Lagos State Civil Service Secretariat, Ikeja, Lagos, Nigeria, by using a 52-item questionnaire which captured information on work related musculoskeletal disorders (WMSDs). Working posture was assessed by measuring the variation in craniovertebral angle (CVA) and using Rapid upper limb assessment (RULA) scores of participants.*
Results: *The prevalence of WMSDs of low back, neck, shoulder and hand of the participants in this study was observed to be 71.3%, 59.3%, 48.0% and 28.0% respectively. The results of this study showed a significant difference in CVA and the RULA scores (p = 0.02), between participants with neck pain and those without neck pain, hand pain and those without hand pain (p = 0.003), low back pain and those without low back pain (p = 0.004).*
Conclusion: *This study shows a high prevalence of upper extremity and low back musculoskeletal disorders among secretaries in Lagos State Civil Service Secretariat, Ikeja, Lagos Nigeria. Neither CVA nor RULA scores were associated with shoulder pain.*

Key words: Occupational Health, Cranio vertebral angle, Rapid upper limb assessment, Musculoskeletal discomfort

INTRODUCTION

Technological advances, mainly, usage of computers, have revolutionalised workstations. Computers have become an integral part of life. However, its use is not free from health hazards. Literature indicates that intensive use of computers result in joint and muscle stress and strain, because of the continuous and repetitive nature of movements[1]. Literature further suggests that individual factors, prolonged awkward postures, poor workstation design and psycho-social environment can lead to development of symptoms of musculoskeletal discomfort[1,2].

Awkward posture increases the discomfort and pain experienced in different body parts such as back, neck and shoulders[3]. Musculoskeletal disorders are the most common reason for reported work-related illness, long term sick leave and disability pensions[4]. The index of prevalence of musculoskeletal disorders associated with work related awkward sitting postures is very high[5]. Physical risk factors (such as prolonged sitting and neck flexion) have been identified as predictive of neck, shoulder, hand and low back musculoskeletal disorders in the study of a mixed population of workers from various industrial, health and professional settings[6]. These and other physical factors (such as posture and neck muscle endurance) have not been prospectively investigated specifically among office workers. Studies by Adedoyin *et al.*[7] and Omokhodion and Sanya[8] reported high prevalence of Work-related Musculoskeletal Disorders among office computer users in Nigeria but no reports on its association with working posture.

Apart from personal suffering, these conditions impose a major financial burden on the community, on employers and on individuals[9].

Upper extremity musculoskeletal disorders (UEMSDs) are disorders affecting soft tissues of the neck, shoulder, arms, and hands[10]. The majority of UEMSDs are characterised by repeated episodes of pain accompanied by disability, varying in severity and impact[2]. Most of the episodes are self-limiting and subside within days or weeks, while some end up with long-term chronic problems[2]. Risk factors from physical, psychological, and social domains have been acknowledged, but the relative influence of the several risk factors on the onset and exacerbation of UEMSDs is not clear. As a result, arguments still exist regarding the degree of work-relatedness of UEMSDs[11].

A survey was done in Nigeria and reported that the prevalence of upper extremity musculoskeletal disorders was found to be Neck (66.8%) and shoulder (60.1%), followed by hand (32.6%), upper arm (32.0%), lower arm (31.5%), wrist (28.1%), and elbow (22.5%) among computer users in a bank[12].

Low back pain is a common musculoskeletal disorder affecting 80% of people at some point in their lifetime[13]. With conventional measures, the symptoms of low back pain typically show improvement within a few weeks from onset[14].

Maintenance of posture is a result of many underlying processes and tensional relationships throughout the body. As such, posture becomes a measure of the overall balance in the body

and can be used as a tool to assess if interventions have caused a change in overall body balance[15]. An ideal posture is stable, maintains the body's centre of gravity/mass over its base of support, minimises stress and strain on tissues, both statically at rest and dynamically during movement and minimises energy cost[16]. In the practice of physiotherapy, posture is a concept frequently used in examining people and determining if treatment, particularly for back and neck problems, has made any changes in a person. Posture is defined as 'the attitude or characteristic manner of bearing one's body' i.e. the relative arrangement of body parts for a specific activity[17].

The result from a prospective study by Ariens *et al*[18] showed a positive association between sitting at work for more than 95% of working time and neck pain; a trend was also observed for positive relation between neck flexion and neck pain. Non neutral postures of the shoulder (such as flexion and abduction) have been found to be associated with musculoskeletal symptoms[19]. Working with the body in a neutral position reduces stress and strain on muscles, tendons, and skeletal system and reduces the risk of developing a musculoskeletal disorder[20].

Various postural analysis methods using computer software and methods exist: such as Rapid Upper Limb Assessment worksheet (RULA), Ovako Working Posture Analysis System (OWAS), National Institute for Occupational Safety and Health (NOISH), Method Time Measurement (MTM) together with calculating energy expenditure. These can be used to evaluate working posture and physical workload to avoid work related musculoskeletal disorders[21]. RULA is a tool that assesses biomechanical and postural loading on the whole body with particular attention to the neck, trunk and upper limbs. Measurement of cranio vertebral angle, (CVA) is one of the common methods in assessing head posture[22].

In addition survey methods developed for use in ergonomic investigations of workplaces where work related upper limb disorders are reported[23] are also used. Apart from individual suffering; these conditions inflict a major financial burden on the community, on employers and on individuals[9]. Due to high prevalence of musculoskeletal disorders and its association with awkward sitting postures[5] it was decided that the aim of this study was to investigate the prevalence of work related musculoskeletal disorders of neck, shoulder, hand and low back and their association with working posture among secretaries in Lagos State Civil Service.

METHODOLOGY

Research design

A quantitative descriptive design was used.

Materials and methods

Subject Selection

A multi stage sampling technique was used in selecting participants for this study. In the first stage, 34 ministries representing two-thirds of all ministries (51) in the secretariat were selected by a simple random sampling technique using balloting method.

In the second stage, in each of the ministries selected in the first stage, 5 different units were randomly selected by balloting method and the secretaries in each unit were recruited for this study.

A total of 150 secretaries participated in this study. They were recruited from Lagos State Civil Service Secretariat, Alausa, Ikeja Lagos, Nigeria. Included were participants who make use of computers and work for at least 4 hours per day and who had at least 1 years work experience as well as secretaries who underwent neck and low back surgery.

Excluded from the study were participants whose tasks do not include the use of computer for at least 4 hours per day or who were not computer literate with less than 1 year work experience. Prior to the commencement of the study participants demographic data such as age, gender, weight and height, were obtained.

Ethical Consideration

Informed written consent was obtained by providing a consent form for the participants to complete. Ethical approval was sought and obtained from the Health Research and Ethics Committee of Lagos University Teaching Hospital, LUTH, Idi- Araba, Lagos.

Also, approval was sought from the management of the ministries at Alausalkeja. A letter stating the purpose of the study, assuring participants of confidentiality and seeking informed consent was distributed with each copy of the questionnaire.

Procedure for data collection

Participants were requested to firstly complete a biographic questionnaire, secondly, the cranioverterbal angle was obtained, and lastly the RULA was administered.

The **biographical questionnaire**, titled Work Related Upper Extremity and Low Back Musculoskeletal Disorders Questionnaire[24], consisted of 52 questions divided into 4 sections. This was used to collect information on personal characteristics, working condition and musculoskeletal pain:

SECTION A: collected information on the personal characteristics of the participants, and this include; age, sex, marital status, educational qualification, grade level, years spent on job, weight, height, body mass index (BMI), cranio vertebral angle (CVA).

SECTION B: collected information on the working conditions.

SECTION C: collected information on the musculoskeletal complaints such pain, discomfort and stiffness of neck, shoulder, hand and low back.

Assessment of **craniovertebral angle**, was done with a plumb line set 1 meter away from the participants' work station with the tripod stand and camera set just behind it (*Figure 1*). After this, the participants were asked to expose their ear, the neck to its base and the shoulder. The lateral landmarks were marked at the tragus of the ear, spinous process of the seventh cervical vertebrae and the acromion process of the shoulder with adhesive paper contrasting the skin. The plumb line was expected to fall in front of or through the tragus of the ear and in front of the acromion process. Participants' photographs were taken whilst they were working on their computers without their knowledge at the time. The pictures were imported to Corel draw X5 evaluation version to measure the cranio vertebral angle.
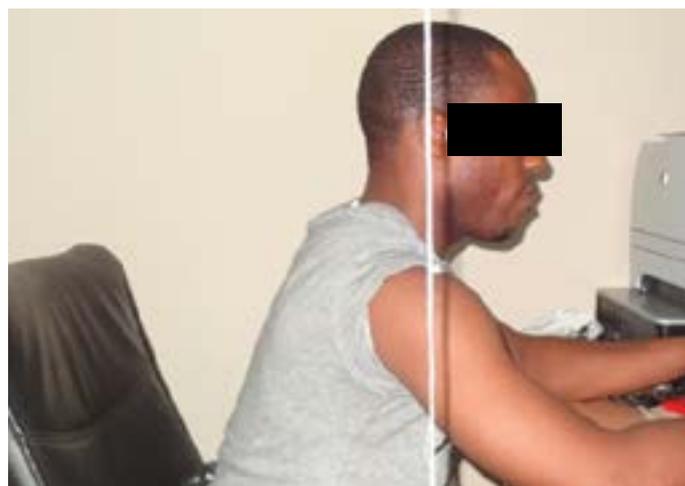
Figure 1: Assessment of participant's cranio vertebral angle

To measure the cranio vertebral angle (head protrusion angle)[22], a horizontal line starting from the spinous process of the 7th cervical vertebrae was drawn using the angular dimension of the Corel draw X5 evaluation software. Also a diagonal line was drawn through the tragus of the ear to the spinous process of the 7th cervical vertebrae. The cranio vertebral angle (*Figure 2*) formed

at the point where these two lines met (spinous process of the 7th cervical vertebrae) was measured and recorded. The smaller the angle, the greater the forward head posture (FHP) indicating a greater shift of the head from the sagittal plane (plumb line). The larger the angle the more it is representative of an 'ideal' sagittal plane of the head and neck alignment[22]. Yip *et al.*[22] concluded that patients with smaller CVAs had greater FHP and the greater the FHP, the greater the neck disability.
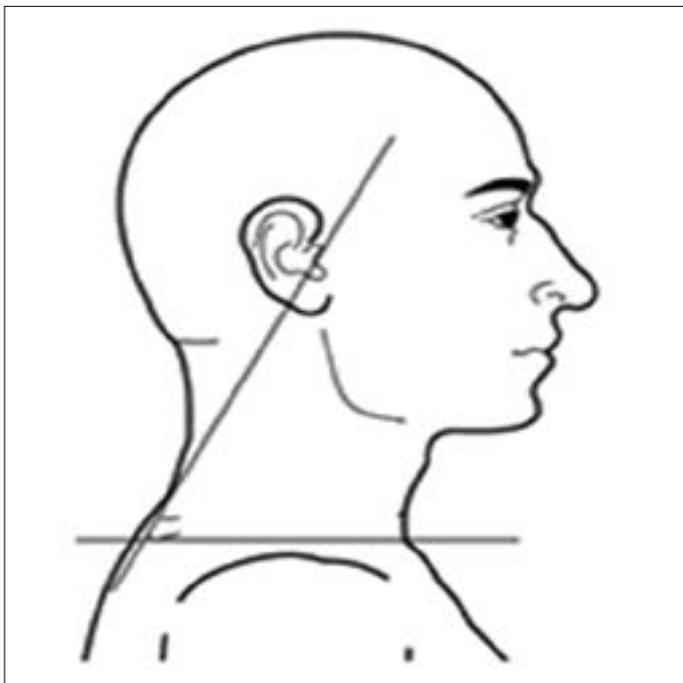

Figure 2: Craniovertebral angle [25]

The **RULA** employee assessment worksheet [26] was completed for each participant by the researcher whilst at their computer stations.

RULA is a quick survey method for use in ergonomic investigations of workplaces where musculoskeletal disorders are reported. It is a screening tool that assesses biomechanical and postural loading on the body. It focuses on the neck, trunk and upper limbs, and is ideal for sedentary workers e.g. computer workplaces. It has been validated on groups of computer users and sewing machine operators. It is quick and easy to complete. RULA scores indicate the level of intervention required to reduce musculoskeletal disease risks. It requires no special equipment and provides a quick assessment of the posture of neck, trunk, upper limbs and lower limbs [22], scores range from1-7. A score of 1 or 2 indicates an acceptable posture; 3 or 4 indicates that further investigation is needed and changes may be required;5 or 6 indicates a need for investigation and changes to be made in the near future. A score of 7 indicates immediate investigation and changes[23].

This employee worksheet consists of 7 sections:

SECTION A: measures the position of the upper arm with score ranging from 1-6, SECTION B: measures the position of the lower arm with a maximum score of 3, SECTION C: measures the position of the wrist, with a maximum score of 6, SECTION D: measures the position of the neck, with a maximum score of 6, SECTION E: This section measures the position of the trunk with a maximum score of 6, SECTION F: measures the leg score; time spent of the computer at a stretch, with a maximum score ranging from 1-2, SECTION G:This section measures the force/load score and hours spent on the computer per day.

Summations of these scores give the RULA score. To measure the RULA scores, the researcher observed and scored the positions of neck, trunk, upper limbs and lower limbs.

A high score indicates immediate investigation for musculoskeletal disease risk, while a low score indicates acceptable posture.

STATISTICAL ANALYSIS

Data analysis was performed using the statistical package for social science SPSS version17. Descriptive statistics of mean, standard deviation, frequency, percentages and bar charts were used to summarise the results. Inferential statistics of paired t-test and Mann-Whitney U test were used to find the relationship between the variables. The level of significance was set at $p < 0.05$.

RESULTS

The Sample

A total of 150 secretaries participated in this study. One hundred and twenty two (81.3%) of the participants were female while 28 (18.7%) were male, with ages ranging from 22 to 57 years. The mean values of age, height, weight and body mass index (BMI) were 43.45±7.6 years, 1.63 ± 0.06m , 72.30 ± 14.1kg, 27.59 ± 5.5kg/m^2 respectively (see *Table 1*).

Table 1: Demographic characteristics of the participants

VARIABLES	X ± SD
Age (years)	43.45 ± 7.55
Weight (kg)	72.30 ± 14.07
Height (m)	1.63 ± 0.06
BMI (kg/m^2)	27.5 ± 5.54
KEY: X = Mean; SD = Standard deviation; BMI = Body mass index	

Working history/habits of participants

The participants had worked between 1 and 35 years with a mean of 15.33 ± 9.6 years; they work an average of 8.19 ± 1.7 hours per day and 5.05 ± 0.3 days per week.

The Majority, 109 (72.7%) took a break from work, 8 (7.3%) took a 10 minute break, 52 (47.7%) took a 20 minute break, 34 (31.2%) took a 30 minute break, 15 (13.8%) took an 1 hour break, while 41 (27.3%) did not take any break (*Table II* on page 19).

Prevalence of Musculoskeletal Disorders

In the 12 months preceding this study, participants' prevalence of neck, shoulder, hand and low back pain was 59.3%, 48.0%, 28.0% and 71.3% respectively (*Figure 3*).

The point prevalence of neck, shoulder, hand and low back pain was 39.3%, 24.0%, 14.7% and 51.3% respectively (*Figure 3*).
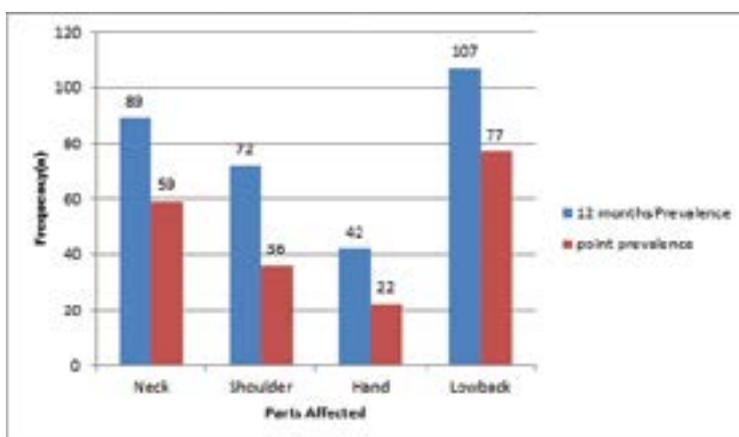

Figure 3: 12 month's prevalence and point prevalence of neck, shoulder, hand, and low back pain of the participants

18

Table II: Working History of the Participants

VARIABLES	FREQUENCY (n)	PERCENTAGE (%)
Work experience		
(1-10) years	58	38.6
(11-20) years	49	32.6
>20 years	43	28.8
Total	150	100.0
Working hours/day		
<8 hours	40	26.7
8 hours	60	40.0
>8 hours	50	33.3
Total	150	100.0
Days/Week		
4 days	3	2.0
5 days	139	92.7
6 days	6	4.0
7 days	2	1.3
Total	150	100.0
Break at work		
No	41	27.3
Yes	109	72.7
Total	150	100.0
Length of break		
10 minutes	8	7.3
20 minutes	52	47.7
30 minutes	34	31.2
1 hour	15	13.8
Total	109	100.0

Table III: Characteristics of pain in various body parts

VARIABLES	FREQUENCY (n)	PERCENTAGE (%)
Characteristics of neck pain		
Severity		
Acute	16	26.2
Sub-acute	40	65.6
Chronic	5	8.2
Total	61	100
Pain radiation		
Yes	37	60.7
No	24	39.3
Total	61	100
Characteristics of shoulder pain		
Frozen Shoulder		
Yes	17	23.6
No	55	76.4
Total	72	100
Severity		
Acute	9	5.0
Sub-acute	23	63.9
Chronic	4	11.1
Total	36	100
Duration of Pain/Recurrence		
One spell	17	47.2
Recurrent	19	52.8
Total	36	100
Characteristics of hand pain		
Severity		
Acute	8	36.4
Sub-acute	11	50.0
Chronic	3	13.6
Total	22	100

Characteristics of Neck, Shoulder and Hand pain

Sixteen (26.2%) participants had acute pain in neck, 40 (65.6%) had sub-acute pain and 5 (8.2%) had chronic pain, 37 (60.7%) participants had pain radiating to the elbow or wrist, while 24 (39.3%) had localised pain (*Table III*).

Fifty-five (76.4%) had no history of frozen shoulder while 17 (23.6%) had a history of frozen shoulder (*Table III*).

Nine (25%) participants had acute pain, 23 (63.9%) had sub-acute pain and 4 (11.1%) had chronic pain, 17 (47.2%) participants reported one spell of shoulder complaints while 19 (52.8%) had recurrent episodes (*Table III*).

Eight (36.4%) had acute pain in the hand, 11 (49%) had sub-acute pain and 3 (13.6%) had chronic pain (*Table III*).

Characteristics of low back pain

The 12 months prevalence of low back complaints among participants in this study was 107 (71.3%) out of which 7(6.5%) were hospitalised and 2 (1.9%) changed jobs due to their low back pain. Fifty-seven (53.3%) participants had a history of low back pain while, 50 (46.7%) had no history of lumbago.

The point prevalence was 77 (71.9%); 26 (33.3%) had acute pain, 39 (50.6%) had sub-acute pain and 12 (15.6%) had chronic pain. 34 (44.1%) of the participants reported one spell of low back pain while 42 (55.9%) had recurrent episodes.

Participants described the nature of their back complaints: as feeling extremely tired, stiffness, nagging feeling, numbness, tingling, loss of strength, cramp or spasm and pain. 34 (44.2%) experienced pain only; 32 (41.6%) experienced pain and tingling sensation; 8

(10.4%) experienced pain, tingling sensation and stiffness; 2 (2.6%) experienced pain, tingling sensation, stiffness and spasm; 1 (1.3%) experienced all 5 problems.

Thirty (39.0%) participants had low back pain radiating to the knee or ankle while 47 (61.0%) had localised pain; 22 (28.6%) participants had sudden onset of low back pain; while the majority, 55 (71.4%) had gradual onset of the low back pain.

Relationship between Cranio vertebral angle (CVA) neck, shoulder, hand and low back pain

Participants without neck pain had a higher CVA (see *Table IV* on page 20). The paired t-test showed a significant difference (p = 0.02) between the CVA of participants with neck pain and those without neck pain.

Participants without shoulder pain had a slightly higher CVA than those with shoulder pain (*Table IV*). However the paired t-test showed that this difference was not significant (p = 0.14).

Participants with hand pain and those without hand pain had approximately the same CVA (*Table IV*). The paired t-test showed that this difference was not significant (p = 0.81).

Participants without low back pain had slightly higher CVA than those with low back pain (*Table IV*). The paired t-test showed that

19

Table IV: Cranio-vertebral angle (CVA), Neck, Shoulder, Hand and Low back posture assessment

CVA	X ± SD (Degrees)	t-value	P-value
Neck pain			
YES	45.85 ± 6.44	-3.20	0.02*
NO	49.95 ± 8.32		
Shoulder pain			
YES	46.66 ± 7.02	-1.46	0.14
NO	48.86 ± 8.08		
Hand pain			
YES	48.70 ± 7.25	0.23	0.81
NO	48.28 ± 7.99		
Low back pain			
YES	7.91 ± 7.78	-0.67	0.50
NO	48.78 ± 7.99		

* = significant at p < 0.05

KEY
CVA = Cranio vertebral angle
X = Mean
SD = Standard deviation

Table V: Relationship between RULA employee assessment worksheet and neck, shoulder, hand, low back pain

RULA	X±SD	U-value	P-value
Neck pain			
YES	4.42 ± 0.91	-3.02	0.002*
NO	3.84 ± 0.95		
Shoulder pain			
YES	4.28 ± 0.91	-1.89	0.06
NO	4.01 ± 0.99		
Hand pain			
YES	4.86 ± 1.04	-2.93	0.003*
NO	3.94 ± 0.89		
Low back pain			
YES	4.39 ± 1.00	-2.84	0.004*
NO	3.75 ± 0.82		

* = Significant at p<0.05

KEY
RULA = Rapid Upper Limb Assessment, Employee assessment worksheet
X = Mean
SD = Standard deviation
U = Mann-Whitney Test

this difference was not significant difference (p = 0.50).

The relationship between RULA scores and pain experienced

Participants with neck pain had higher RULA scores (see *Table V*). The Mann-Whitney U test showed that there was a significant difference (p = 0.002) between the RULA scores of participants with neck pain and those without neck pain.

Participants with shoulder pain had a slightly higher RULA score than those without shoulder pain but the difference was not significant (p = 0.00).

Participants with hand pain had higher RULA scores There was a significant difference (p = 0.003) between the RULA scores of participants with hand pain and those without hand pain.

Participants with low back pain had higher RULA scores. There was a significant difference (p = 0.004) between the RULA scores of participants with low back pain and those without low back pain.

Treatment received and sick leave of participants

At the time of this study; 3 (2%), 3 (2%), 1 (0.6%), 13 (8.6%) participants had consulted more than one specialist for their neck, shoulder, hand and low back pain respectively; while 18 (12.0%), 11 (26.0%), 6 (4.6%), 25 (18.6%) had consulted a physiotherapist for neck, shoulder, hand and low back pain respectively (see *Table VI*).

Table VI: Treatment and sick leave of participants

	NECK	SHOULDER	HAND	LOWBACK
Treatment				
A	40 (26.6%)	22 (14.6)	15 (10%)	39(26%)
B	18 (12%)	11 (26%)	6 (4.6%)	25 (18.6)
C	3 (2%)	3 (2%)	1 (0.6%)	13 (8.6%)
Sick leave				
Yes	9 (6%)	3 (2%)	2 (1.3%)	11(26%)
No	52 (34.6)	33 (22%)	20 (13.3%)	65(43.3%)

KEY
A = No treatment
B = 1 specialist, Physiotherapist
C = more than 1 specialist

Some had taken a sick leave due to neck, shoulder, hand or low back pain. 9 (6%) took leave due to neck pain, 3 (2%)due to shoulder pain, 2 (1.3%) due to hand pain and 11 (26.0%) due to low back pain.

DISCUSSION

The purpose of this study was to determine the prevalence of work related musculoskeletal disorders of upper extremity and low back and their association with working posture among secretaries in Lagos State Civil Service, Lagos Nigeria.

The prevalence of WMSDs of low back, neck, shoulder and hand of the participants in this study was found to be 71.3%, 59.3%, 48.0% and 28.0% respectively, making low back the most frequent area of discomfort among the participants. This result agrees with the result of the study by Adedoyin *et al.* [7], who reported the prevalence of WMSDs in the low back, neck, shoulder, wrist and fingers to be 74%, 73%, 63%, 67% and 65% respectively among computer users in 6 federal universities in Nigeria. These results also support the study by Shikdar and Al-kindi[27] that reported the major complaint of WMSDs among computer users to include shoulder (45%), low back (43%), neck (30%) and wrist (30%) complaints. Omokhodion and Sanya[8] reported 46% and 38% as the prevalence of low back pain among office workers in Ibadan, Nigeria.

Findings from this study, reveal that there was a significant difference in CVA between participants with neck pain and those without neck pain corresponding with the study of Yip *et al.* [22], who found out that subjects with neck pain had a significantly smaller CVA than asymptomatic subjects. The smaller the angle the greater the protrusion or forward head posture[22]. The smaller the angle, the greater the forward head posture (FHP) indicating a greater shift of the head from the saggital plane (plumb line). The larger the angle the more it represents of an 'ideal' sagittal plane of the head and neck alignment[22]. Yip *et al.* [22] concluded that patients with smaller CVAs had greater FHP and the greater the FHP, the greater the neck disability.

The result of the study by Rahmatalla and Deshaw[28] shows that musculoskeletal discomfort increases with forward head posture.

20

This is supported by the results from this study.

It seems that previous studies have only used CVA, also known as the head protrusion angle[22,] to investigate its relationship with neck pain. This study included the effect of CVA on pain of the shoulder, hand and low back.

Results from this study failed to show that the CVA had an effect on reported pain at the shoulder and hand. The same was true for low back pain. CVA therefore may not be a sensitive measure in assessing hand, shoulder or low back pain.

High RULA scores in this study also seem to be able to differentiate between 'good' and 'bad' postures with participants with a higher RULA scores reporting neck pain. Participant with pain had a higher RULA score. This is consistent with findings from a study by Choobineh*et al.*[29.] They established that a very high RULA score of action level of 3 & 4 indicated that further investigation is needed and changes may be required.

The lack of significant difference in RULA scores between participants with shoulder pain and those without shoulder pain agrees with the study of Marcus *et al*[30], which found that non neutral postures of the shoulder were not associated with shoulder pain. Therefore this suggests that RULA may not be a sensitive measure for assessing shoulder posture.

The results of this study showed that participants with musculoskeletal disorders and those without musculoskeletal disorders have a RULA score of 3 or 4 and above. This agrees with the study by Choobineh*et al.*[29] that found that a high RULA score of 3 or 4 and above was obtained when the Nordic musculoskeletal questionnaire[24] and RULA were used to establish the presence of WMSDs. This, according to the RULA guideline implies that posture assumed by participants is poor. This could be as a result of section G of the RULA sheet which measures the hours spent on the computer per day.

The high prevalence of low back pain among the participants may be as a result of awkward posture and prolonged sitting patterns assumed while working on the computer and the kind of chairs used by the participants. Therefore computer workers should be educated on ergonomics, posture, taking a break in between work and relaxation. This will ultimately improve job satisfaction and performance.

Further studies should be carried out to access a posture assessment tool that is specific to shoulder posture.

CONCLUSION

There was a high prevalence of low back, neck, shoulder and hand musculoskeletal disorders among secretaries in Lagos State Civil Service, Lagos Nigeria. The lower back is the most commonly affected body part among the participants. Poor posture is a high risk factor for the prevalence of neck musculoskeletal disorders among computer users.

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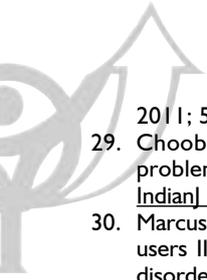
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Learning styles of first year occupational therapy students studying at a university in South Africa

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ABSTRACT

Introduction: *Occupational therapists by the very nature of their scope of practice have to apply an evolving broad spectrum of knowledge and skills to be able to fulfil their various roles as therapists. In order to understand how occupational therapy students learn, learning style studies have been conducted in various countries. Due to differing terminology used by the various measurement instruments, it is difficult to compare findings to allow for generalisation of the results. The aim of this study was to identify the learning style profiles of first year occupational therapy students at a university in South Africa. These profiles are used to broaden their self-knowledge in order to become socially and professionally well-adjusted therapists that take responsibility for their own continual learning.*
Method: *A descriptive study to determine a learning style profile by means of the instrument known as the Felder-Soloman Index of Learning Styles was undertaken. A convenience sample of 114 first year occupational therapy students between 2009 and 2011 was used.*
Findings: *Results indicated sensing, visual, active and sequential learning styles as the most representative learning styles. The active learning style being the most dominant.*
Conclusion: *Occupational therapy students should be encouraged and assisted to determine their own learning styles. Understanding their own learning style profiles may equip students better to fulfil the need to become lifelong learners. Further studies may identify possible changes to this learning style profile due to the changing demographics of occupational therapy students.*

Key words: Learning styles, occupational therapy students, teaching and learning

INTRODUCTION

Enabling occupational therapy students to both meet the educational requirements of their undergraduate degree and continue to meet the professional requirements of being lifelong learners is important, yet remains a challenge. Occupational therapists by the very nature of their scope of practice have to apply an evolving broad spectrum of knowledge and skills to be able to fulfil their various roles as therapists[1]. It is thus important to provide occupational therapy students with opportunities to broaden their self-knowledge in order to become socially and professionally well-adjusted therapists that take responsibility for their own continual learning. One method that may be employed to increase self-knowledge is to provide them with an opportunity to understand their own learning styles[2].

Learning and more specifically <u>how</u> people learn has been questioned and studied since the early 20th century[3]. It has been theorised that the factors shaping learning styles are varied and may be influenced by the socialisation process, educational background, language, existing skills and learning preferences[4,5]. A definition given by Dunn[5:88] stating that "Learning styles are a biologically and developmentally imposed set of personal characteristics that make the same teaching method effective for some and ineffective for others", appears to capture the conclusions reached by many of these researchers[3,5].

Understanding their own learning style preferences could provide occupational therapy students with an understanding of how they may maximise their own learning and how to adapt to teaching methods that are not dominant in their existing learning style profile. This understanding of their own learning style preferences may lead to an increased ability to integrate information, resulting in cognitive maturity and the stimulation of a deep approach to learning[6]. Not only will it benefit the occupational therapy students to have insight into their learning style preferences, but their educators would also gain insight into the teaching methods preferred by their students. This insight could enable the educator to accommodate the learning style requirements of all their students in their teaching methods. In South Africa as in many other countries, students go through a selection process for admission to the study of occupational therapy. Insight into the learning style profile of occupational therapists may assist in the selection of these students.

The use of learning styles for optimising the interaction of occupational therapy students with information, has been investigated internationally by various researchers[6,7,8,9]. Even though a degree of overlapping of the learning requirements or styles of occupational therapy students was evident in some of the international studies, there is insufficient information to assume that a similar learning style profile exists for occupational therapy students worldwide. As a profession it therefore appears that there is a lack of a universal learning style profile for occupational therapy students.

In order to determine if the first year occupational therapy students at a university in South Africa have a similar learning style profile a study was conducted from 2009 to 2011. The aim of this study was to explore the learning style preferences of these first-year occupational therapy students and to provide these students with a deeper

23

insight into their own learning style profiles. This paper reports on the finding of the study and makes a number of recommendations.

LITERATURE REVIEW

During the early 20th century, Jung[3] began asking questions about the effect of the environment combined with cognitive abilities on learning, and learning requirements of students. These questions were expanded on and resulted in a large number of instruments for the assessment of learning styles being developed over the years. Litzinger et al[10], for example, reported that 71 learning style instruments aimed at the post-16 age group, could be identified in 2007.

The purpose and how learning styles are categorised for each of these learning style instruments appear to differ according to the point of view held by the developer of each instrument. For example, the Myers-Briggs Type Indicator[11], is based on the theories of Jung, and indicates how individuals process information linked to their personality. Others, like Kolb[12], focus on how information is processed. Dunn[5], in turn, focuses on the perceptual aspects of learning. No common framework appears to have been used in the formulation of these learning style instruments. In addition, many learning style instruments cover similar ground without using common terminology. This lack of common terminology results in confusion for those who set out to identify and compare the learning styles of specific groups or individuals, it also makes it difficult to compare the outcomes of research.

Another confounding factor is that there are two opposing commonly held views about learning styles. The first is that learning styles are fixed, i.e. learning styles remain the same throughout life. This in turn leads to the understanding that education should be adapted to adhere to the identified learning style(s) in order for successful learning to be achieved. The opposing view is that learning styles change or broaden over time according to the content and demands of the information being received[13]. According to this view, the students should be encouraged to become more sensitive to understanding and broadening their learning style preferences, and to potentially adopt or assimilate other learning style preferences that are fit-for-the-purpose at the time[14]. In support of this opinion, research undertaken by Katz and Heimann[7], reported that there was a shift in the learning style profiles of first-year occupational therapy students as compared to therapists who had more than two years of work experience[7]. In the same study similar shifts in learning styles were also noted amongst physical therapists, nurses, social workers and clinical psychologists[7]. The results of this study by Katz and Heimann[7] seem to confirm the notion that learning styles do in fact change over time.

Several studies have been conducted on the learning styles of occupational therapy students[6-9], but the use of different measurement instruments complicates the comparison of findings. However, similarities in the key-words used in some of the measurement instruments, make it possible to deduct possible commonalities between the findings in order to draw comparisons. The Kolb Learning Style Indicator instrument was used in two of these studies undertaken with occupational therapy students in United States of America and Israel[6,7]. Both these studies identified abstract-conceptualisation, (indicating logical analytical thinking) and active-experimentation (indicating active learning or doing) as the preferred learning styles of occupational therapy students. A study conducted in Australia with occupational therapy students combined the Kolb Learning Style Indicator instrument with the Visual-Aural-Writing-Kinaesthetic (VARK) instrument in order to add information on the teaching method of the students[8]. The findings of the Kolb instrument once again indicated abstract-conceptualisation and active experimentation as the dominant learning style preference for their occupational therapy students. A different study conducted on occupational therapy students in Israel by Katz[9] used the Felder-Soloman Index of Learning Style as their measurement instrument[9]. The most dominant learning style identified in this study was the 'global' learning style, indicating abstract analytical thinking[9]. Due

to the lack of uniform terminology as discussed earlier, it is difficult to compare or extrapolate the results of these four studies in any meaningful coherent way. The use of different measurement instruments does not, therefore, provide a satisfactory conclusion about the learning styles of occupational therapy students globally.

The measurement instrument used for this study

The Felder-Soloman Index of Learning Styles instrument was used to determine the learning styles of first year occupational therapy students at a university in South Africa. Felder and Silverman developed the original Index of Learning Styles instrument in 1988[14]. The Felder and Silverman Index of Learning Styles instrument was originally developed to determine the learning styles and teaching requirements of engineering students. This instrument consisted of five domains with a corresponding teaching style for each[14].

The five domains as described by Felder and Silverman were the following:

❖ **Perception:** focus on sensory-intuitive learning with teaching methods consisting of concrete <u>or</u> intuitive and abstract teaching.

❖ **Presentation:** focus on the visual-verbal-means of learning with teaching methods consisting of verbal <u>or</u> visual teaching methods.

❖ **Organisation:** focus on inductive-deductive learning with teaching methods consisting of inductive <u>or</u> deductive teaching methods.

❖ **Processing:** focus on active-reflective learning with the teaching methods consisting of active <u>or</u> passive participation in the teaching methods.

❖ **Understanding:** focus on sequential-global learning with the teaching method consisting of sequential <u>or</u> global teaching methods[14].

In 1995, the original Felder-Silverman instrument underwent adaptation by Felder[15]. Although the article was written by Felder, the adaptations were made by both. It was decided to remove the organisation domain from the instrument[15]. The Felder-Soloman Index of Learning Styles instrument thus now consists of only four domains, with eleven dichotomous questions allocated to each domain[16,17]. The eight learning preferences representing the four domains are:

❖ **Sensing-Intuitive (Perception):** The <u>sensing</u> learner learns through more concrete hands-on experience like sight, sounds and other physical sensations while the <u>intuitive</u> learner is more comfortable with theories and models based on thoughts, memories and insights.

❖ **Visual-Verbal (Presentation):** The <u>visual</u> learner prefers to interact with information through pictures, diagrams, demonstrations, animations and other visual stimuli while the <u>verbal</u> learner prefers the written or spoken word. Cognitive scientists have established that the brain converts the spoken and the written words into the verbal equivalent, thus spoken and written words are included in the same category.

❖ Active-Reflective (Processing): The <u>active</u> learner processes information through physical engagement or discussion while the <u>reflective</u> student processes information through introspection.

❖ **Sequential-Global (Understanding):** The <u>sequential</u> learner prefers the progression of understanding to be a logical linear process, and functions well with partial understanding. The <u>global</u> learner wants to have the "big picture" to be able to think in a system-orientated manner and in order to achieve full understanding. All the information must therefore be available and understood, resulting in a holistic perspective[16,18].

Each domain consists of two opposing learning preferences but one is usually more dominant. The more dominant learning preference for each domain is determined by adding the scores representing each learning preference. The extent of the difference between the two preferences may vary, indicating the degree of dominance

24

of the one learning preference in comparison to the other.

Kolb[12] as well as Felder and[19] emphasise that learning styles identified by the learning style instruments only <u>suggest</u> behavioural tendencies and should be regarded as a continuum and not as a separate either/or learning style preference. Each learning domain represents a different characteristic of learning; e.g. cognitive, psychological, and behavioural. For identification of the learning style profile of a student, each of the four domains should be determined[20].

Various studies to determine the reliability and validity of the Felder-Soloman Index of Learning Styles instrument have been conducted internationally. Litzinger et al[21] conducted a study that found reliability of p=0.05 and one even as low as p=0.01 for the Felder-Soloman Index of Learning Styles instrument. The reported coefficients for reliability are active-reflective 0.61, sensing-intuitive 0.77, and visual-verbal 0.76 with the sequential-global scale weaker at 0.55, with the minimum requirement for being reliable being r>0.05 which would indicate a significant lack of reliability. The construct validity of the instrument reported is more than 90% for active-reflective, sensing-intuitive and visual-verbal. Sequential-global is weaker but still above 80% [21]. Litzinger et al.[21] cited the results published by Liversay et al. and Zwanenberg et al and compared these with the results of their own study and reported similar results with only marginal differences confirming the reliability and validity[21]. Another study conducted by Cook[22] on the reliability of the Felder-Soloman Index of Learning Styles instrument for medical education reported coefficients for reliability as: - active-reflective 0.61, sensing-intuitive 0.78, and visual-verbal 0.70 with the sequential-global scale weaker at 0.67 with the minimum requirement being p<0.05 to indicate a significant lack of reliability[22]. The test results of Litzinger et al[21] and Cook[22] are reflected in *Table 1*.

Table I: A comparison between the reliability coefficients as reported by Litzinger et al[21] and Cook[22]

Source	Sensing-Intuitive	Visual-Verbal	Active-Reflective	Sequential-Global
Litzinger et al[21]	0.77	0.76	0.61	0.55
Cook[18]	0.78	0.70	0.61	0.67

METHODOLOGY

Design
A descriptive study with the use of a sample of convenience was used, while employing the Felder-Soloman Index of Learning Styles instrument[23] as measurement tool. The sample consisted of all the first-year occupational therapy students studying at a university in South Africa between 2009 and 2011.

Study population
The first year occupational therapy students from 2009 to 2011 (n=114) were invited to participate in the study. Information regarding the purpose of the study was provided in an information leaflet. Informed consent forms were provided for signature as well as a basic demographic questionnaire. Voluntary participation was emphasised and consent forms signed. Confidentiality was assured by allocating students with numbers from a predetermined range. All data were collected according to these numbers in order to maintain the anonymity of the participants. The Felder-Soloman Index of Learning Styles instrument is available on the internet with permission for individuals and researchers to use the instrument without cost. The Felder-Soloman Index of Learning Styles instrument was transcribed to the Umfundi programme that is used to enter information on the intranet before manual submission to the internet by the researcher. This method enabled the researcher to have access to the raw data to simplify statistical analyses.

Ethical clearance was obtained for the study from the Ethics Committee of the Faculty of Health Sciences at the University of Pretoria.

Data analysis
Questions in the Index of Felder-Soloman Learning Styles instrument are answered in a dichotomous manner, with a choice between two statements[24]. The binary nominal data was calculated according to the number of replies allocated to each learning preference. Data were analysed to identify the dominant learning preference in each of the four learning domains for each participant as per the Felder and Soloman adaptation[15]. Descriptive analysis was carried out with the use of the following analytical processes: - Analysis of variance, Cronbach's alpha, and the non-parametric Mann-Whitney test.

To confirm the reliability of the Felder-Soloman Index of Learning Styles for the South African context a reliability study was conducted on the 2009 group of students. To determine the internal consistency of each scale the Cronbach's alpha was calculated for each year group after which the non-parametric Mann-Whitney test was conducted to compare the alpha coefficients of the 2010 and 2011 year groups to determine any significant variations between these two year groups. An analysis of variance was used to provide a simple frequency distribution table reflecting the number of responses representing each learning preference according to the four domains. The frequency values for each scale were determined for each year group after which the data of the three year groups were combined to reflect the total sample group. The statistical tool used for analyses was the STATA 11.

RESULTS

Population demographics
The demographics of the participants in the study are reflected in *Table II*. Gender: female 99.2%, male 0.8%. Home Language: English 31.5%, Afrikaans 63.1%, and other languages 5.7%. Cultural differences: White South African 95.8% and other SA cultural groups 4.2%.

Learning styles of population / students
According to the frequency distribution of the learning style preferences the dominant preferences of the participants were sensing, visual, active and sequential. These results indicate that a

Table II: The demographic distribution of the participants to the study

		2009	%	2010	%	2011	%	Total%
Gender:	**Male**					01	02.3	00.8
	Female	33	100	39	100	41	97.6	99.2
Language	**Afrikaans**	20	60.7	26	66.7	26	61.9	63.1
	English	13	39.3	10	25.6	13	29.5	31.5
	Other			03	7.7	04	09.5	05.7
Culture	**White**	32	96.9	38	97.4	39	92.8	95.8
	Other	01	03.1	01	2.5	03	07.1	04.2

Table III: The distribution of learning styles of first year occupational therapy students at the University of Pretoria N=114 (2009 - 2011)

Learning style	N	%	Learning style	N	%	Total N
sensing	83	72.8%	intuitive	31	27.2%	114
visual	96	84.2%	verbal	18	15.8%	114
active	71	62.2%	reflective	43	37.8%	114
sequential	81	70.0%	global	33	29.0%	114

25

large percentage of the sample group falls within this learning style profile. The intuitive, verbal, reflective and global learning style preferences are represented by a smaller percentage of the sample group. It must be remembered that the learning style preferences vary according to each individual in the sample group, there are many different combinations of learning style preferences that are beyond the scope of this study to analyse in detail. The results of the identified learning preferences of the study group over the three year-groups (N=114) are reflected in *Table III* (page 25).

Reliability of the Questionnaire

The alpha coefficients for the 2009 sample group (n=33) in terms of reliability were determined for this study. Each of the four domains are reflected in *Table IV* indicating similar reliability for all the learning style domains as reported by Litzinger *et al*[24]. These results indicated that the Felder-Soloman Index of Learning Styles instrument is suitable for the South African population. Results of the non-parametric Mann-Whitney test indicated no significant difference between the results of the 2010 and 2011 groups. Results found were: active-reflective 0.52, sequential-global 0.09, sensing-intuitive 0.43 and visual-verbal 0.89 with a requirement set at $p < 0.05$.

Table IV: Coefficients for each learning style scale for 2009 - 2011 with the minimum standard $r < 0.05$ compared to the values as published by Litzinger et al[21]

Year group	Sensing-Intuitive	Visual-Verbal	Active-Reflective	Sequential-Global
Litzinger et al[21]	0.77	0.76	0.61	0.55
2009	0.71	0.50	0.62	0.77
2010	0.75	0.68	0.60	0.47
2011	0.76	0.70	0.61	0.49

Table V: Comparison of the variation between 2010 and 2011 learning style domains

Learning style domain	Probability score
Sensing / Intuitive	p=0.43
Active/ Reflective	p=0.52
Visual / Verbal	p=0.90
Sequential / Global	p=0.10

DISCUSSION

The Felder-Soloman Index of Learning Style instrument identified the most dominant learning style preferences for the sample group as sensing-visual-active-sequential. The intuitive-verbal-reflective-global learning style preferences were represented to a less dominant degree. The visual learning preference was the most frequently represented in the sample group.

After completing the Felder-Soloman Index of Learning Styles, feedback of the results were given to the individual participants. Feedback consisted of an information leaflet explaining the implications of their own results and suggestions on how other learning style preferences may be cultivated. This information leaflet is provided as a part of the electronic interpretation of the Felder-Soloman Index of Learning Style instrument[23]. The benefit to participants in the identification of their learning styles lies in providing self-knowledge. An understanding of their own learning requirements may lead to an increase in their ability to integrate information, resulting in cognitive maturity and stimulation of a deep approach to learning. Cognitive maturity and a deep approach to learning will assist the occupational therapy student to master the broad spectrum of knowledge and skills required to fulfil their various roles as occupational therapists and result in the development of lifelong learners.

Insight gained by educators from the learning preferences of the students may direct their teaching methods used in educating these occupational therapy students. The results indicate that teaching should follow a logical order (sequential) building knowledge from basic to more complex, concrete (sensing) examples should be used in a visual active manner to establish a good basis for ground level knowledge. The existing sensing-visual-active-sequential learning style requirements may thus be employed but according to Felder it is possible to stimulate the development of the less dominant learning style by employing diverse sources of information like articles, class notes, discussions and textbooks to stimulate expansion of especially the global, intuitive and reflective learning styles[14]. It is thus essential to develop the less dominant learning preferences to provide the students with an opportunity to expand on their own learning preference. Gradual expansion to providing the bigger picture (global) allowing the student to reflect, search for information (verbal), and integrating (intuitive) different sources of information should thus be introduced in the teaching methods used.

Due to the lack of common terminology it is difficult to compare the learning preferences identified by this research with the findings of other studies. Some similarity to the learning preferences of occupational therapy students in other countries may be deducted, especially the results of the studies conducted with the use of the Kolb Learning Style Index instrument[6-8]. The combination of the Kolb Learning Style Index instrument and the VARK[7] tests identified the active (active-experimentation) and sequential (abstract-conceptualisation) learning preference. However, the study carried out by Katz[9] in Israel by means of the Felder and Soloman Index of Learning Styles measurement instrument identified the most dominant learning styles as; intuitive-verbal-reflective-global, of which the global learning preference is the most frequently represented[9]. The results of this Israeli study are directly opposite to the findings of this study. It is not possible to explain the difference in the findings between the Israeli and South African studies, both of which used the Felder-Soloman Index of Learning Styles instrument, without more in-depth information on the criteria as well as the geographic information of the participants e.g schooling, race and teaching methods for the Israeli study[9].

Since the learning style profiles identified in the research for each of the three year-groups are similar, it could be concluded that the identified learning style profile is representative of the present population of first-year occupational therapy students at one university in South Africa. It is, however, not possible to generalise the findings of this research in terms of a bigger population because the demographic distribution at the different universities in South Africa may vary. The gradual increase in especially Black, Coloured and Asian students being interested in and qualifying for selection to study occupational therapy may result in a change in the learning style profile due to different cultural and schooling backgrounds.

RECOMMENDATIONS

A longitudinal study on learning style profiles that explores cultural/gender/schooling differences may assist lecturers in educating students from different backgrounds. It is recommended therefore that learning style preferences of the first year occupational therapy students continue to be determined so that possible changes may be identified in each new group. The information will enable educators to be informed about changes in the teaching and learning requirements of he students so that they might stay in step with appropriate teaching and learning methods. More importantly self-knowledge might lead occupational therapists to become life-long learners, a pre-requisite to remain on the cutting-edge of their chosen profession.

Repeating the Felder-Soloman Index of Learning Styles instrument test at the end of the four-year course, or after the student has qualified and started working as a therapist, might determine possible changes in the learning style profiles of the individuals. The results of such retesting may provide insight into the effect

of personal growth and the development of different learning methods.

CONCLUSION

The learning style preferences representative of the first-year occupational therapy students studying at a university in South Africa were found to be sensing-visual-active-sequential. In order to facilitate more effective interaction with information, occupational therapy students should have an understanding of their own learning styles. Occupational therapy students should thus be encouraged and assisted to determine their learning styles at the beginning of their first year of study. Determining the representative learning styles on a regular basis will identify possible changes in the teaching and learning requirements of the occupational therapy students. This will indicate to educators possible changes needed in the teaching methods that will satisfy the learning style requirements of the majority, as well as areas that need stimulation in order to extend the personal growth of the students to benefit from teaching and learning methods other than their own preferred requirements.

Further studies determining learning style profiles on different racial groups, language groups, and even rural and urban groups may provide valuable information on possible changes in the learning style profile of occupational therapy students. To establish a learning style profile for South African occupational therapy students, more extensive studies at different universities will need to be conducted with the same measurement instrument.

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Clinical education of occupational therapy students: reluctant clinical educators

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ABSTRACT

Clinical education is essential to the development of clinical and professional competencies in occupational therapy students during the mandated 1000 hours of clinical practice. Students' concerns about the quality of their clinical education were raised during a routine HPCSA accreditation visit. These concerns resulted in a qualitative study which used hermeneutic phenomenology as the strategy to explore, examine and understand the 'lived experiences' of clinical education within the context of occupational therapy practice by those who provide it and who receive it.

Focus groups were used to collect the data. The purpose of the focus groups was for the participants to discuss and reflect on their experiences and to identify the factors that framed those experiences and perceptions. The three groups of eight participants from each of the following: the final year students (n=32), the on-site clinical educators who had supervised final year students (n=43) and from the university clinical educators (n=12), were invited to participate.

Data from the focus groups were analysed within and across the focus groups using open and then axial coding. Three themes emerged. This paper only reports on the code: Reluctant Clinical Educators within Theme 2: Challenges to quality.

Reluctant Clinical educators were highlighted in each focus group and the impact of this reluctance on clinical education is described.

Key words: quality of clinical education, poor role models, time, students as learners

INTRODUCTION

The University of the Witwatersrand (Wits) was the first university in South Africa to offer an occupational therapy undergraduate education programme. The programme has evolved and currently runs as a four year, full time, BSc programme using a hybrid problem-based learning (PBL) teaching strategy which aims to graduate a generalist occupational therapist with entry level skills and competence.

The programme is designed so that the clinical curriculum is embedded in the theoretical curriculum, with students completing blocks of clinical work at strategic periods within the coursework. This aims to facilitate the transitioning of theoretical knowledge into clinical skills and competence. Students do clinical work from year one, but the time spent at clinical sites increases throughout the programme, with most of the final year being spent in a variety of clinical sites. Students complete 256 more than the mandatory 1000 clinical hours[1,2]. Each block of clinical work is designed as a discrete clinical learning experience with its own learning outcomes and requirements, collectively leading the students towards achieving the exit level outcomes for the programme. Final year students complete eight clinical blocks throughout the year in order to gain experience in the main fields of practice: occupational dysfunctions in clients with mental health problems, occupational performance dysfunction in clients with physical health problems, occupational dysfunction in children, and occupational therapy for individuals or groups at risk for occupational dysfunction or with occupational dysfunction on the primary care platform (public health).

Throughout the programme students complete their clinical work under the guidance of a clinical educator (CE)[3]. In the first three years the clinical education of students is largely the responsibility of university employed staff, while in the final year this is the responsibility of on-site occupational therapists employed by the clinical education sites. The university staff visit the final year students only twice during a block at the time of the students' formative and summative evaluations.

During the 2009 Health Professions Council of South Africa (HPCSA) visit to accredit the Wits occupational therapy programme, final year students raised concerns regarding the quality of their clinical education as well as their experiences at some of the clinical education sites. Due to the nature of the concerns the occupational therapy department conducted a survey amongst the final year students to document these concerns. Although students recognised that some on-site clinical educators had contributed greatly to their learning, their three greatest concerns were: **limited availability** of the CE (reported by 74% of the class) which raised questions about a lack of learning opportunities and how clinical performance was evaluated if the CE was not around to observe the student; **CEs having limited teaching** and **evaluation/assessment skills** (67%) with students reporting that CEs could not help them translate classroom theory into practice due to lack of, and inflexibility about, the new knowledge and therapy techniques that they had been taught, and a disregard for the importance of evidence-based practice. In addition students perceived CEs as having very little sensitivity to, and understanding of, their inexperience and emerging competency in the skills they were

supposed to be developing, with CEs expecting students to have the same knowledge and skills as themselves. A number of students believed that their clinical marks were influenced by the CE's perception of them as individuals rather than on the quality of work they did; **negative attitudes** towards the students (reported by 56%) included using students to do the jobs CEs did not like, and giving to students clients that CEs could not cope with or disliked, negative attitudes about the university and the information that they were being given, and insensitivity to student difficulties and clinical anxieties. This was perceived by the students as a lack of professionalism on the part of the CEs.

These concerns had been raised previously at the regular student-staff meetings with students and had been a consistent topic at the end of block debriefing sessions run by a psychologist from the Wits Counselling and Careers Development Unit (CCDU) over a four year period. Similar concerns were raised by colleagues from other universities at inter-university professional meetings. However there was no concrete evidence to support these concerns and reports were based on hearsay and therefore difficult to address and resolve[4,5].

In order to deal effectively with these problems which compromise the quality of students' clinical education, it was important to collect empirical evidence in the context of professional practice so that the problems could be understood and solutions explored from the perspective of all role players: students, on-site CEs and the university staff. Only then would it be possible to introduce interventions to ensure that the clinical education that students receive is fair, appropriate, effective, efficient and manageable.

LITERATURE REVIEW

Clinical education is recognised as being essential in the process of learning to be an effective professional[6,7]. It is an educational process that involves the translating of occupational therapy classroom knowledge into clinical knowledge, skills and attitudes that are appropriate to individuals and groups of clients and service delivery in a variety of different practice settings[7-9]. This learning process takes place under the guidance of a CE who is a key role player in the success of this process. Costa[8] and Higgs and McAllister[10] recommend that health professionals should not take on clinical education until they are experienced and professionally ready.

The HPCSA and the World Federation of Occupational Therapists (WFOT) provide a time-linked guideline of between 6-12 months of clinical experience before undertaking clinical education[1,2]. The American Occupational Therapy Association (AOTA) has developed a set of CE role competencies which describe the knowledge, skills and attitudes needed by an occupational therapist before undertaking the role of CE. These include: knowledge about clinical education; clinical reasoning needed to promote the clinical education process, the interpersonal skills to develop an appropriate CE-student relationship; proficiency in the skills related to planning, executing, reflecting on and evaluating a clinical education experience; and identifying and analysing ethical issues and problems associated with clinical education that need to be managed in a teaching and learning context[8,11]. Research by Mc Allister[12] suggests that professional readiness to be a CE is far more complex than just attaining knowledge and some experience, and is dependent on the development of one's professional sense of self (self–awareness, self-knowledge and self-acceptance). Costa recommends that occupational therapy clinicians should supervise their first student only when they have achieved a competency level of professional development which is the third level Dreyfus's model of skill acquisition. At this competency level, they are regarded as a self-confident, competent or proficient practitioners[13]. However, Costa cautions that being a good clinician is no guarantee that the individual will be a good CE, as clinical education is an intervention in its own right that is supported by its own body of knowledge[8].

In South Africa, while some occupational therapists may choose to take on the role of CE, in many instances this role is

an expected requirement of the job in public sector facilities, especially if the therapist is working at a site on the Wits clinical training platform. It is problematic that, relatively inexperienced community service therapists, especially those working on the primary care platform, often become CEs when they are not ready for this critical role. The reality is that of the 43 CEs contributing to the final year clinical education in 2013, 42% had less than three years of experience (n=18) and a further 7 (16%) had less than 5 years of experience.

The study reported in this article was the first step in a larger sequential explorative mixed methods project which aimed to study clinical education in the context of service delivery[14]. The purpose was to examine the perception from the perspective of the three groups of role players: students, on-site CEs and the university staff of the factors which influence quality clinical education.

RESEARCH METHOD

A qualitative research method of inquiry involving hermeneutic phenomenology as the strategy was used to explore, examine and understand the 'lived experiences' of clinical education in the complex world of occupational therapy practice by the participants who gave clinical education and those who received it[14-16].

Focus groups were used to collect the data because focus groups provided a safe and social context in which to think, talk and reflect on experiences of, and feelings related to, clinical education[17-19]. The purpose was for participants to discuss and reflect on their 'lived experiences' of clinical education (whether positive or challenging) to try to identify the factors which framed their experience and perceptions.

Population and sample

The population from which the participants of this study were drawn consisted of all clinical education stakeholders on the Wits clinical training platform: final year OT students (n=32), on-site CEs (n=43 estimated) and university staff (n=12).

Eight participants were selected differently for each of the three stake holder groups. The student group was randomly selected from the females in the final year class. In terms of the ethical clearance requirements the two male students in the class had to be excluded from the study as they could be easily identified. Purposive and stratified sampling was used to select the on-site and university CEs. Purposive sampling was used as the participants needed to have been involved in the clinical education of final year students. The sampling was stratified to ensure that CEs of all fields of practice were included in the participant groups so as to gain deep and rich data[20]. The recruitment process used with these two stakeholder groups was also slightly different. To recruit the on-site CE group all the final year student clinical sites (n=22) were listed on slips of paper. The sites were colour coded according to the main fields of practice and placed in a box. The departmental secretary was asked to draw out two site names for each colour and telephone the head of department. The head was asked to identify willing participants from her site. This process was continued until there were eight participants, two from each field of practice. The university staff stakeholder group was selected from the university employed permanent staff. The departmental secretary drew names out of a hat, one per field of practice, until there were eight consenting participants and each field of practice was represented.

Data Collection

The data collected in the focus groups were audio-taped to record the contextual information, and a socio-gram was used to record the group process, conversation exchange and group dynamics[21]. A group protocol was developed for the focus groups, not to direct the group discussion but to ensure that the group process in each of the focus groups was similar and to stimulate group interaction. The 'funnel design' described by Hennink, Hutter and Bailey was used to structure the focus group[22]. No questions

were prepared to direct the discussion on clinical education as the researcher did not want to bias or lead the discussion in any way. Her role was to facilitate discussion and clarify issues. In view of the sensitive nature of the subject special attention was given to the development of a safe and accepting group climate and the group process, which was recorded as field notes on a socio-gram by a co-researcher. The 'warm up activity', which was used to effect the emotional climate of the focus group and introduce the topic, was completed in dyads, aimed to assist participants to reflect on their 'lived experience' of clinical education and identify their thoughts, understandings, feelings, concerns, expectations and views. Each dyad was asked to select two factors which they believed influenced the quality of clinical education. These factors formed the basis of the group discussion but were not used as priori codes when the data were analysed. The data were considered saturated when no new issues related to the quality of clinical education were introduced across the three groups, even if the views that were held were variant[23].

Ethical considerations and trustworthiness

This research was approved by the University's Human Research Ethics Committee. Permission for on-site research was also granted by the Gauteng Departments of Health and Education, and the Dean of the Faculty of Health Sciences approved the participation of the final year students as well as the staff of the Department of Occupational Therapy. All participants gave written consent to participate and for the focus groups to be audio-taped.

The trustworthiness of the research was assured by applying the principles of credibility, dependability, transferability and confirmability[24,25]. Reflection was used during the data analysis by considering the contextual data together with the group conversational and group dynamic data so as to consider both the latent and manifest content of the focus groups[26]. An audit trail recorded all the steps and decisions that were made during the research process[27].

Data Analysis

The demographic characteristics of the focus group participants were described using percentages, means and ranges.

The focus groups were analysed within and across the stakeholder groups. To achieve this all transcripts were read carefully by the researcher to reduce and distil the data by identifying first open and then axial coding units[23,24]. A process of aggregation followed whereby the coding units were grouped into inductive and in vivo codes[24]. These were listed in a code book together with a description of each code. A research assistant followed the same process and independently developed a set of codes. These were compared to those of the researcher and the codes and descriptors were modified on the basis of a discussion to confirm the validity of the codes[22].

The data were then entered into QSR International N Vivo 9 version 9.2.70.0(32-bit). The data were re-analysed, some codes were merged into other codes and the codes were organised into themes and categories within each theme which were considered to be the "structures of experience"[28:78]. A roadmap was drawn as a visual representation of the themes that emerged from the data. On the basis of the roadmap the themes were again reorganised and a data search was undertaken to ensure that the text supported and verified the emerging themes and categories, and all issues that were raised by the participants were classified[22]. Finally transcripts were re-analysed and compared with socio-grams to obtain thick and rich data by describing the meaning, perspectives and concerns about clinical education that were raised within their social context[22].

RESULTS

Three focus groups were completed, one for each group of stakeholders. Although a sample of 24 was planned and additional on-site CE attended the focus group thus a sample of 25 participants was included in the focus groups.

Demographic characteristics of focus group participants

Student Stakeholder Group (n=8)

All participants were female and their ages ranged from 21-23 years with mean age of 21.7 years. Six students reported that occupational therapy was their first choice of career and six had entered the programme directly from school. One student had failed a year, thus seven students were in their final year in the minimum time. Most students rated their own academic and clinical performance in the middle third of their class.

Clinical Educator Stakeholder Group (n=9)

Although eight CEs had confirmed attendance, nine CEs arrived and participated in the focus group. All participants were female; eight were between 21 and 30 years while the remaining one was one year older. Seven participants had graduated from Wits and were therefore familiar with the course structure and the clinical block requirements. Two participants had completed post graduate diplomas. Their clinical experience varied from less than one to ten years with a mode of five years. All participants worked full time, eight worked in public sector CE sites and one in a private hospital. The fields of practice were equally represented in the sample. The group had collectively been responsible for the clinical education of 47 students during the academic year with a mean of 5.9, although the most senior CE had supervised no students in the year and the most-inexperienced CEs had been responsible for the highest number of students (n=21).

University Stakeholder Group (n=8)

Again all participants were female. Participants in this group were older than the group of clinical educators, with only one below 30 years, five between 31 and 40 and two over 50. Four had Masters level qualifications and one a PhD. Four participants had had more than 5 years of academic experience and 2 had been lecturing for more than 20 years. Seven participants worked full time and one part time and the only field of practice not represented was public health. During the past academic year the university staff had been involved in the clinical education of 109 final year students (formative and summative evaluations) the number varying from 7-20 students with a mean of 13.6.

Findings of the Focus Groups

Three themes emerged from the collective data from the three groups of participants. These themes described the participants' perceptions of the factors impacting on the quality of clinical education. The themes were:

❖ Theme 1 - **Pockets of excellence**. The essential features of this theme were that good CEs formed excellent CE-OTS relationships, facilitated student learning in a positive way and role modelled good practice.
❖ Theme 2 - **Challenges to quality**. This theme recorded the participants' perceptions of the factors which negatively influenced quality clinical education on the Wits clinical training platform. All the concerns that were reported by the students during the 2009 HPCSA accreditation visit were raised in each focus group, but these will not be reported in this paper.
❖ Theme 3 - '**Grapevine**'. The essential features of Theme 3 was that there is an informal and sometimes instant communication system within each stakeholder group that informs and misinforms members about CE education issues which create misperceptions and biases.

However this paper will only report on a single code that emerged from Theme 2: Reluctant CEs. This code is of particular importance because 54% of CEs on the Wits teaching platform reported that clinical education was an expected part of their job which they did not really want to do. This would classify them as reluctant CEs. This topic thus appeared to be worthy of an independent report.

Table 1: Theme 2 Challenges to clinical education

Theme	Categories	Sub-categories codes
Theme 2: Challenges to quality of clinical education	2.1 Poor role models (in vivo code)	Is this Occupational therapy?
		The ethos of work
		Sinking into the quagmire
		Experience versus competence
	2.2 Reluctant CEs (inductive code)	Lack of desire to teach and facilitate learning
		Use of power and authority
		I suffered so you will too
		Disempowering students
	2.3 The clinical curriculum (inductive code)	What do the requirements mean?
		Marks versus learning
	2.4 Students as learners (inductive code)	Student diversity
		Poor coping skills
		How students learn
		Why do students not know?
		Role of marks
	2.5 Time (in vivo code)	Time to learn
		Time to help students learn

The lack of desire by CEs to teach and facilitate students' clinical learning was reported by participants of all three focus groups as one of the factors that influenced the quality of clinical education. As can be seen from Table 1 this was one of the categories that emerged from Theme 2: Challenges to the quality of clinical education. Four sub-categories emerged from this category, the first being: a **lack of desire to teach and facilitate learning**. Conversations reflecting this sub category were evident in each of the three focus groups:

Clinician 9 reported *".one of the OTs in our department... she hates the students. She doesn't let our students know because she can't, but she just hates them. I think that some people are naturally able to get their knowledge across to other people and others just aren't"*. Another clinician stated that she believed that *"some people have the ability to teach and other people do not"* [Clinician 2].

This sentiment was also echoed by the university participants: *"...the clinical teaching is happening by people who are not teachers and who have not chosen to be teachers 'Oh the students again: do I have to do it.?' But they are in a position where they are expected to teach students where that is not their main focus or need or want"* [University participant 4]. *"They are good at their clinical work but they are not able to teach.* [University participant 6]. *"Is it because they don't have the supervisory skills that they can't supervise or is it just that they are disinterested?"* [University participant 3].

Students perceive that clinical education"*…may be a lot of work (for supervisors) and that it is a chore ...and that is why maybe I don't think a lot of them love supervising"* [Student 6]. Students perceive this reluctance in the attitude of clinical educators towards students. *"I feel like they almost do not want to get involved, they don't want to know, they do not want to get too involved with you, they do not want to know you and what you are going through or help you"* [Student 8]. Students perceive that they *"…cannot learn without supervision"* [Student 1] and that they need feedback. *"I did not get any feedback before my final...like my theory was wrong. So in that sense I thought it would be really helpful to get in my practical"* [Student 5].

Students interpreted this reluctance as the CE being unapproachable and unavailable which negatively influences the CE-student relationship and ultimately the learning experience. *"...it is all about the supervisor being approachable...if a supervisor is approachable you have respect for them ... you can ask questions...and ask will this work?"* [Stu-

dent 2]. *If they are not approachable ...I mean you have so many questions you don't know where to start.....you just try to figure it out by yourself'"* [Student 3]. *"You get* [supervisors] *that just think that they can crush you and you can take on their work on top of what your requirements are and that is not cool, it's just like they don't want to help you"* [Student 6].

The second sub-category '**The use of power and authority**' was reflected in students' perception that reluctant supervisors use their power and authority to control and put students down. *"... some supervisors like that power because they want you to know that you are down there and subordinate and they are up there and have the power and you have to respect them."* [Student 2]. Supervisors also use their authority to criticise students' appearance. *"…you have nail polish on; you will take it off. And you have too much makeup on. And those of you who know me really know that I do not wear a lot of makeup."* [Student 6].

The third sub category was: **I suffered so you will too**.

The perception that CEs treat students as they were treated was expressed in the focus groups. *"How do you supervise somebody when the role model [supervisor] you had was terrible and you were beaten to pulp as a student. You do the same to the student!"* [University supervisor 4]. The students supported this view: *"Because they are working as a community OT supervisor they give you hell when they were just there last year. I can't understand it* [Student 7].

The final sub-category reported how students feel disempowered in the clinical education situation. *"We as students… really don't have much power to say [anything]. It would backfire on us second to none if we did so"* [Student 8]. *"Even though we have been taught to assert ourselves and even if you feel not happy with your supervisor... you dare not open your mouth because at the end of the day...every single thing you do is marked. If you open your mouth once, not even to be rude but to say I do not think this is right or something, they take notes ...and I would rather suck up to the supervisor and do well than open my mouth and say what I have to say and do badly"* [Student 7].

Students also perceive that at some sites the marks that are achieved have no reflection on their clinical performance. *"If you are at X (clinical site) everybody knows ... if she likes you pass, if she doesn't you fail and I don't think that's fair at all..."* [Student 3].

DISCUSSION

Professional literature affirms that the only way students learn the necessary professional skills and competencies is in an appropriate

31

clinical setting[29]. The key contributor to quality clinical education is the nature of the clinical education process and the engagement of both the student and the CE in this process[11,30]. Health professionals have always been expected to teach, motivate and ensure that students have the required competencies for practice. This role is included in the job description of all public sector occupational therapists although the job descriptions do not detail what this should include or the percentage of time that that should be dedicated to this[31]. However the service delivery pressures and the increase in student numbers has in turn increased the demands of this dual role on on-site clinical educators[8,31,32]. Clinical educators reported that clinical education takes time and takes them away from their primary role of treating patients. Clinical managers in a later stage of this study also expressed concern at the time clinical education takes[33].

The findings suggested that CEs may not know how to help students transition their classroom knowledge into practice and in some case may not wish to be involved with students at all. Clinical educator's knowledge and skill may be limited to how they were taught in the context of their clinical experience as students and that this may be a source of their reluctance. Clinical education itself has a developing body of knowledge, and knowledge of educational principles and processes are becoming essential for professionals involved in the professional development of students in the clinical setting. Most health professions including occupational therapy are advocating that clinical educators attain basic knowledge and skill in teaching and learning when they become clinical educators[11,31,32,34,35].

A Canadian study identified stress as being a major factor in why physiotherapy clinicians were reluctant to be involved in the clinical education of students. The stresses went beyond time and service pressures and included the stress of being judged by students as being underprepared as CEs, being intimidated by the new knowledge that students bring, and clinical experience being challenged in the light of new evidence and professional developments[36].

Since the clinical education process is not seen by clinical staff to be a valuable source of future staff, the link between good clinical education and good clinical outcomes as a professional investment appears not to be well recognised or valued by the occupational therapists on the Wits teaching platform. Given similar anecdotal feedback at inter-university professional meetings, it appears that this problem is not unique to Wits. This is contrary to findings in other countries where clinical departments actively participate in clinical education for staff recruitment purposes[36,37] and may relate to the fact that new graduates completing their community service year are assigned to occupational therapy departments rather than being selected and clinical heads report having little influence over the appointment of staff to other vacant posts.

While there is literature describing the reasons why on-site clinical educators agree to or do not wish to be involved in clinical education, there is little literature on those who do not wish to be involved but are pressured to do so due to the mandatory requirements of their job description. International literature also suggests that this should not happen until the individual clinician is ready to do so[8,38]. While it may be advantageous to wait for clinical staff to be professionally ready to take on the clinical education of students the reality of the South African situation, for the foreseeable future, is that this will remain a problem until there are sufficient clinical staff with experience in the public sector clinical education sites willing to deal with the increasing student numbers.

In the quantitative aspect of the mixed study that followed the qualitative study reported here most CEs believed that it was their professional responsibility to contribute to the clinical education of students. In spite of this belief many are reluctant although the precise reason for the reluctance is uncertain. One can speculate that in the light of the profile of the CEs on the Wits teaching platform, the fact that many of these clinicians are young, and still in the beginner-stage of their professional development that they may therefore not be quite ready to be involved in clinical education. However this reluctance was also expressed by 50% of the experienced CEs that participated in the study, and although this number is small and not generalisable to all CEs it is never-the-less of concern and much higher than was expected and may need considerable attention in the future to mitigate this.

There is a perception that the divide between university and the clinical services in terms of practice and the theoretic requirements for practice is wide, in spite of the co-operative relations that are in place. This view suggests that on-site clinicians believe that it is the universities' responsibility to educate and therefore clinical education is also their job. This is to some extent supported by the reluctance of clinical staff to take responsibility for the junior students (1st to 3rd years) and the university department providing outside tutors to take responsibility for these students. There are a number of clinical placements, especially the school for children with special needs, who have offered to accommodate students but will not do any clinical teaching or activities associated with this role. The implication is that the university staff should do this. It raises the question as to how effective it is to teach clinical competence if the teacher does not know the client or have access to the school records and information that might inform practice and what would be the ethical implications of this?

Financial rewards for clinical education have also been a consideration, which have been raised from time to time by the university and on-site clinical educators. The Hall study on Canadian physiotherapists also explored this but the result demonstrated that clinical educators did not want to be paid but to be acknowledged and thanked[36]. Currently CEs can be credited with a maximum of 16 Continuing Education Units (CEUs) in a year depending on the number of students in their care. Access to the university library and reduced costs for short and formal courses have also been frequent requests but this is not possible unless there is a formal joint appointment. In this context the reluctance of CEs to entertain the possibility of honorary university posts (joint posts) and more collaborative activity around service, research or education is difficult to comprehend.

Students are aware that some CEs are reluctant. This reluctance impacts on the CE-OT student relationship, their clinical learning as well as their experience within the clinical block. Students believe that they have to be extra careful in the way they behave, and in what they do and say as this has a direct influence on their evaluation and block marks. They experience this as an additional stress over and above the stress of their clinical learning. While professional learning and attaining a degree inherently promotes an increased level of stress, the promotion of a desire to be a life-long learner will be negatively influenced if the stressors in the clinical learning environment are extreme.

The results of this qualitative aspect of the study were expected to start an exploration of the factors influencing the quality of the clinical education provided on the Wits teaching platform rather than draw precise conclusions. The sample for a qualitative study was by nature small and in this case limited by the fact that the sample was not representative in terms of gender, although the number of males in the profession is very small.

CONCLUSION

Clinical education is essential to an OT student developing the appropriate competencies, but the process is complex. Clearly the on-site clinical staff are the best placed to ensure that students attain these professional competencies and clinical teaching is essential to this. In addition the role that CEs play as professional gate-keepers cannot be overemphasised. While there are many CEs that enjoy this role and contribute greatly to the clinical education programme, the fact that so many do not wish to do this and this reluctance is played out in how this role is executed is of great concern to the students in training but also in the longer term for the development of the profession.

32

One of the aims for the larger mixed methods study was to explore whether a specific CE preparation programme to better prepare on-site clinical staff for the educational components of this process, as is done in many countries in the world. Considerable work is needed before this can be done and the effectiveness of such a programme will have to be carefully and consistently monitored. This may not greatly reduce the number of on-site CEs who are reluctant but perhaps better prepare those who are reluctant for this role. Further research into understanding the causes and effects of reluctance amongst OT on-site CE is needed so as to ensure the quality of clinical education for all students in the production of an effective occupational therapy work force.

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33

OT student's experiences of stress and coping

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ABSTRACT

Background: *It is well known that tertiary education is highly stressful for students, particularly in the medical and health science fields. Studies have indicated that occupational therapy students are no exception, experiencing stressors in many areas of their life.*
Objective: *This study explored the sources of stress & coping mechanisms employed by all levels of undergraduate occupational therapy students within a four-year degree programme at a tertiary institution in South Africa, more specifically to determine the types and frequency of stressors and coping styles employed.*
Method: *A descriptive survey design was utilised using a demographic and stress survey and a standardised coping questionnaire. 101 undergraduate students enrolled for the year under review were selected via saturation sampling of which 99 formed the sample. Participants ranged between 17-28 years of age, the majority of which were English speaking females.*
Results and Conclusions: *Amongst first year students, personal stressors were the most significant overall stressor whereas academic stressors were the most highly ranked stressors in the second to fourth year students. Both problem-focused and emotion-focused coping was utilised by students. The results of this study provide a snapshot of a cohort of students' experience of stress and the coping mechanisms employed. This may be a starting point for student support services in identifying the presence of stressors and types of coping in order to explore more deeply the consequences of this on students' overall well-being and performance.*

Key words: stress, coping, students, occupational therapy, health science students

INTRODUCTION

Stress is understood to not only be a universal phenomenon but also a universal experience, and the way in which people respond to and cope with stress differs[1]. Entry into tertiary education poses new challenges for students and the transition from school to university often brings with it new stressors, and requires adequate coping. Students are expected to handle academic stressors, including integrating academic and clinical workloads; personal stressors that involve 'juggling' the responsibilities of this phase of life and more general university-related stressors, like accessing resources and those relating to peers. Educational programmes in the medical and health science fields are geared towards producing skilled and competent graduates; however studies[2,3,4,5] have shown that varying degrees of stress experienced by students may affect their overall functioning and performance. Whilst stress is considered a necessary part of life towards personal development, not all students are able to cope adequately. An example from our current context is a study undertaken with medical students from three universities in South Africa in which the presence of major depressive disorder, reports

of suicidal ideation and prior suicide attempts were reported by the student's sampled[6].

Anecdotally, the authors of this study noted within their occupational therapy (OT) programme, an increasing number of students being hospitalised during their student years, with stress-related states being the primary reason for admission. A high number of students were also reportedly on anxiolytic and antidepressant medication, with some students resorting to maladaptive behaviours, including substance abuse and para-suicides. Given these observations, and an assumption by the authors that students may have not been equipped to adequately cope with the demands of tertiary education, this study emerged as a starting point, to determine what stressed the students enrolled in a specific OT programme and what coping mechanisms were employed by students.

LITERATURE REVIEW

Lazarus and Folkman[3] define stress as a particular relationship between the person and the environment, appraised by the person, as taxing or exceeding his or her resources, and endangering his or

her well-being. A stressor can be considered a trigger that causes a stress response. However, all persons experience stressful situations differently, and there may not always be a negative reaction associated with the stressful situation[4]. If one views an event or situation as a challenge, it is more likely that a positive outcome will be achieved, whereas, if the situation was viewed as a burden or threat, it is more likely that a negative outcome will be reached[5].

The studies conducted over the last two decades in Australia[1], United Kingdom[7], India[8], Nepal[9] and Zimbabwe[2] provide evidence that tertiary education is highly stressful and that tertiary students face stressful demands in their student life. It has also been widely reported that health science students are exposed to and experience high levels of stress[6,8,9,10]. The challenges faced by OT students appear no different to other health science students.

From a review of the literature the authors identified stressors experienced by students as falling into one of three broad categories, namely personal, academic and university-related stressors. Personal stressors experienced by students are well documented[1,2,7,8,9,10,11,12] and include physical problems or impairments, family difficulties, financial difficulties, access to resources, social issues, managing relationships and transitioning through adolescence to adulthood. Academic stressors experienced by students include high academic expectations, rigorous class schedules, integration of classroom and clinical learning, tests and examinations, the amount of class work and poor grades, time management, clinical fieldwork, relationships with supervisors, amongst others[8,13,14,15,16]. University related stressors included adjustment to university life, access to resources e.g. library resources and peer or colleague conflict[17,18]. Due to the continually changing nature of the university environment students can potentially experience high levels of stress that can affect their health and academic performance.

Coping has been defined as a process of constantly changing ones cognitive and behavioural efforts in order to manage specific external or internal demands that are appraised as taxing or exceeding the resources of the person[3]. Coping strategies are considered those specific efforts, both behavioural and psychological, that an individual employs to master, reduce or minimise and tolerate stressful events[9].

Lazarus and Folkman[3] provided a useful theoretical framework that described the process of coping. A number of studies researching stress and coping have been conducted since the theoretical framework was first introduced and presented[1,4,7,8,12,19,20,21]. Lazarus and Folkman[3] describe eight broad types of coping strategies that individuals may employ in stressful situations. These eight types of coping are further classified into two broad categories,
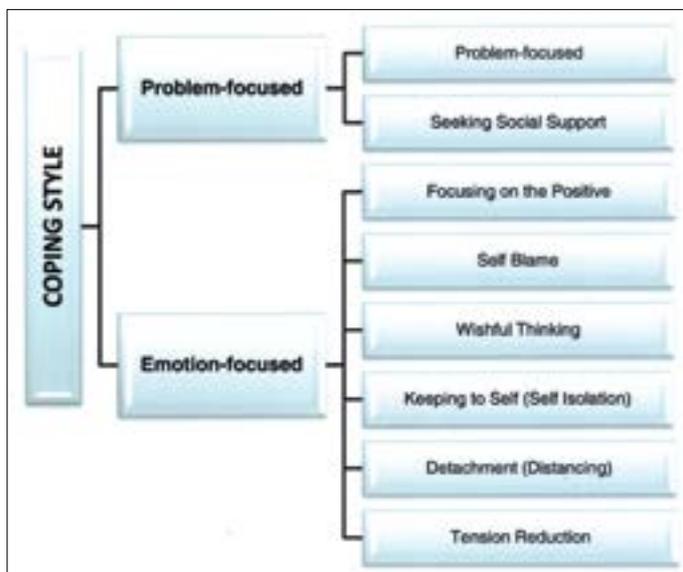
viz. problem-focused and emotion-focused coping strategies. Problem-focused coping strategies include seeking social support and problem-focused coping. Emotion-focused coping strategies include focusing on the positive, self-blame, wishful thinking, keep to self, detachment and tension reduction (*Figure 1*).

Both types of coping strategies are utilised by individuals in stressful events and will be discussed briefly.

Problem-focused coping is when the individual interacts with the environment through direct action, problem solving and active decision making[3]. Holland[22] added that the direct action involves changing the situation/event or changing the self in order to remove the source of stress. Overall, problem-focused coping strategies are aimed at reducing the demands of the situation or stressor by expanding the resources for dealing with the stressor[3] and are often used when the person believes that the demand/stressor is changeable[3].

Problem-focused strategies and positive thinking methods of coping are considered to be adaptive coping strategies which reduce stress[4]. Problem-focused coping strategies[3,22] include:

❖ Identifying, planning how to confront the stressor and planning one's coping efforts. The individual engages in problem solving behaviour.
❖ Seeking social support.
❖ Taking assertive action, analysing the situation to arrive at solutions and take direct action to correct the problem.
❖ Trying to change the environment or by focusing on something unrelated to the stressor in order to change their mind or avoid thinking about the situation or stressor.

Previous studies[1,2,9,11,23] highlight that coping strategies used by health science students are either problem-focused such as problem solving, planning, acceptance, active coping, managing their time, seeking information and sport and recreational activities or they employ emotion-focused strategies such as tension reduction strategies such as exercising, balanced diet, getting enough sleep, and engaging in constructive leisure activities strategies.

Emotion-focused coping strategies are all the efforts directed at alternating emotional responses to stress[7]. The efforts are directed at minimising the negative effects of the stressor, therefore the individual feels better but the problem is not solved[22]. Thus emotion-focused coping strategies are aimed at reducing the impact of the perceived stressor if the stressor cannot be altered or avoided, or if the individual perceives the stressor as extremely threatening, unchangeable and uncontrollable.

Emotion-focused coping strategies[2,3] include:

❖ Avoidance, loss of hope, minimisation, distancing, selective attention and positive comparisons,
❖ Positive reappraisal and rationalisation,
❖ Smoking, substance abuse, sleeping and eating,
❖ Wishful thinking and self-blame,
❖ Denial, social withdrawal and avoidance.

Emotion-focused strategies such as avoidance and negative thinking in response to a stressor are considered to be maladaptive methods of coping[4]. When coping with stress, focusing on emotions can negatively impact an individual's adjustment to his/her situation[5] and avoidance coping styles may lead to psychological distress[4,5]. Dependent on the situation, a particular coping response may be effective for some individuals while it is detrimental to others[5]. Studies have shown that there is a link between emotion-focused coping and symptoms such as depression and anxiety[24,25]. Although these methods of coping may reduce an individual's stress levels, it promotes long term ill health[4]. Additionally, the consequences of maladaptive coping may lead to decreased self-esteem, increased alcohol consumption and smoking, reduced functioning of the immune system[26], increased suicidal tendencies, poor academic performance and drop outs[27]. A study done in a medical school in Pakistan indicated that most students presented with symptoms of low moods, inability to concentrate, short temper, change in sleep

Figure 1: Coping Styles according to Folkman & Lazarus (1984)

35

patterns and loneliness and others presented with headaches and stomach-aches[28]. In a local study done in Pretoria[6] students reported the use of medication to alleviate their depression, regardless of whether a prescription was obtained.

METHOD

A quantitative descriptive survey design was used in this study. The target population comprised all undergraduate students, in all four years of study, enrolled in an OT programme at a tertiary institution in South Africa in 2011. Saturation sampling was thus employed with the target population comprising 101 students.

Permission was granted by the relevant institutional ethical committee in addition to gatekeeper permissions from the relevant Dean and head of department.

A covering letter and consent forms were distributed to all the OT students within the first week of the second semester of the 2011 academic year with an invitation to attend the specific sessions in which data collection had been arranged. Informed consent forms were collected prior to questionnaires being distributed by the academic development officer (ADO) assigned to the discipline of occupational therapy. The questionnaire was handed out to the class groups during these pre-arranged sessions. Students were given 45 minutes in which to complete the questionnaires, which were returned to the ADO at the end of the session. No identifying data were requested so that anonymity was maintained.

Data was collected via a demographic questionnaire (A), a descriptive stress survey (B) and the Ways of Coping Checklist[19,21] (C). Sections A and B were developed by the authors. The demographic questionnaire (A) covered the participants' year of study, age, gender, home language and their current living situation. The stress survey (B) consisted of 17 items exploring stressors ranked on a 5-point likert scale *(Never, Almost never, sometimes, fairly often, very often)*. Of these 17 items, seven were related to personal stressors *(family issues, relationship issues, other personal/social issues, health concerns, transport related stressors, accommodation related stressors, financial issues)*; another seven were related to academic stressors *(tests and examinations, time management, lecture content, practical fieldwork, demands at each level of study, conflict with supervisors and lecturers, and language barriers)* and three were related to university-related stressors *(adjusting to university life, peer/colleague conflict and library resources)*. The inclusion of these stressors and the grouping into the three categories were based on stressors indicated in the literature as described in the literature review.

Section (C) consisted of the 'Ways of Coping Checklist' (Student Version)[19,21]. This 66-item, validated, self-report measure covers a broad range of cognitive and behavioural strategies people generally use to manage stressful demands[19,21]. Subjects are required to respond using a 4-point Likert scale ranging from 0 *(does not apply and/or not used)* to 3 *(used a great deal)* as to the extent to which the item was used in the specific stressful encounter[21].

The questionnaires were sent to a pilot group of 10 students (in any year of study) within the discipline of Speech Language Pathology and Audiology to highlight potential ambiguities prior to the main data collection process. No changes were necessary following the pilot study.

Data Analysis: The Statistical Package for Social Scientists (SPSS) version 19, was used to analyse the data. Descriptive statistics were used to determine the main source of stress experienced by the participants as well as the frequency of each stressor, in addition to the most frequent coping styles employed by the participants as a collective group as well as per year of study.

RESULTS

The sample population consisted of 101 students. The overall response rate was 99% with a total of 99 questionnaires completed. One student was unavailable and one questionnaire was not considered for analysis due to missing data.

The results will be highlighted as follows. Firstly an overview of the demographic profile (A) of the sample is provided, followed by the reporting of stressors identified in this study from results of the stress survey (B). This is highlighted by findings pooled within the three categories of personal, academic and university related stressors, followed by a description of each of the specific items for the overall sample (n=99). The results are concluded with a description of the different coping strategies employed within the sample.

Demographic Profile of OT Students

Of the participants, 91.9% were female and 8.1% were male. The mean age of the respondents was 20.5 years with a range of 17-28 years. 29.3% of the sample were in their first year of study, 29.3% in second year, 24.2% in third year and 17.2% in fourth year. The majority of the participants in this study (75.8%) spoke English as a home language. Other first languages spoken by the participants in the study included isiZulu (15.2%), siSwati (3%), Afrikaans (2%), isiXhosa (1%), seSotho (1%) and Tshivenda (1%) with 1 student (1%) not specifying his/her first language. The majority of students (62.6%) was living at home with parents or guardians; 18.2% were living in an on-site campus residence, 17.2% were living in private accommodation off-campus and 2.0% boarded with friends or family. There were no statistically significant relationships between the demographic variables and stressor and coping employed.

Types of Stressors Experienced by OT Students

A summary of the overall findings are presented in which the three categories of academic (*Figure 2*), personal (*Figure 3*) and university-related stressors (*Figure 4*) are depicted.
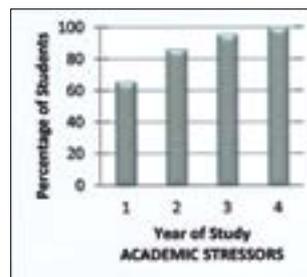

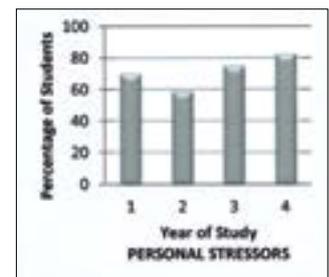**Figure 2: Academic Stressors per each level**

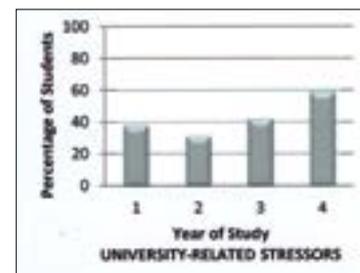**Figure 3: Personal Stressors per each level**

Figure 4: University related Stressors per each level

Generally, the results reflected the highest percentage of students with stressors as the fourth year students, viz. academic (100%), personal (82.4%) and university-related stress (58.8%) as compared to the other levels of study. This was followed by third year students, where 95.8% reported academic stressors, 75% personal stressors and 41.7% reported university-related stressors. A smaller percentage of students in first year as compared to third and fourth year students, reported academic stressors (65.5%), with the least percentage of second year students reporting personal (58.6%) and university-related stressors (31%) as compared to all other levels of study.

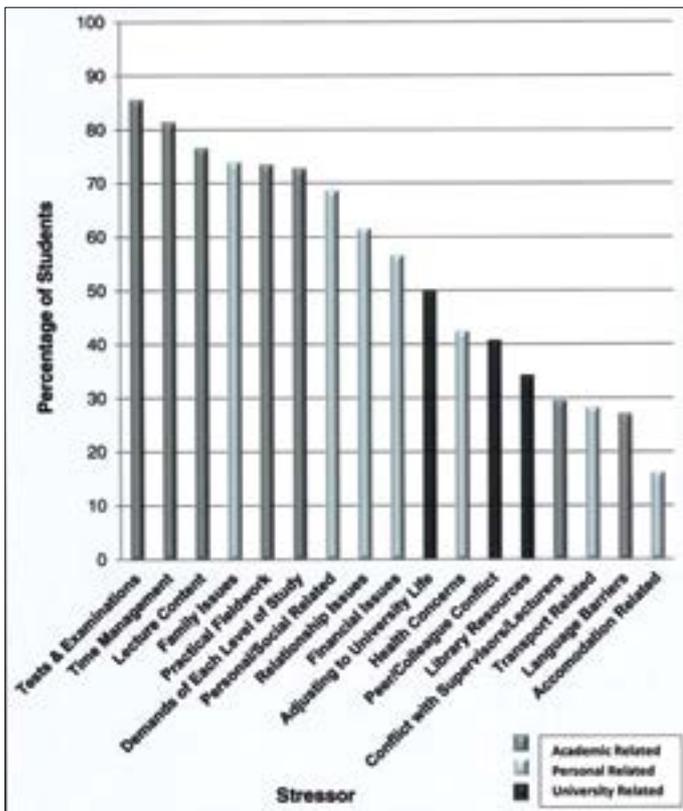*Figure 5* on page 37 provides more specific detail on the fre-

Figure 5: Stressors Experienced by all students (n=99)

quency of each of the individual stressors as experienced by the total sample (n=99).

Coping Styles Employed by OT Students

The Ways of Coping Checklist[19,21] has 66 items that are divided into specific coping strategies that fall either into problem-focused coping or emotion-focused coping (described in *Figure 1*). Overall problem-focused coping was utilised more frequently by students on average (89.9%) as compared to emotion-focused coping (72%). Specific coping strategies employed by the students (*Figure 6*), ranked in descending order were as follows: problem focused coping (92.9%), focusing on the positive (91.9%), seeking social support (86.9%), self-blame (86.9%), wishful thinking (73.7%), keeping to self/self isolation (66.7%), detachment/distancing (57.6%) and tension reduction (55.6%).
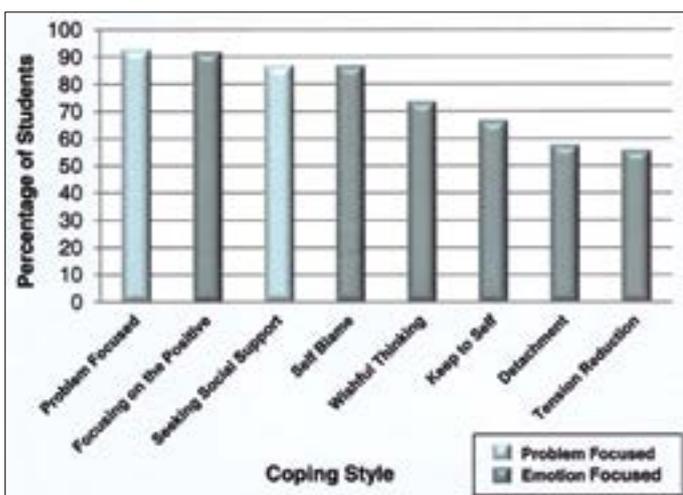

Figure 6: Coping Styles employed by all students (n=99)

DISCUSSION

This study reports the findings of stressors and coping in a cohort of students within an occupational therapy programme. Overall, academic stress was reported more frequently as compared to person-

al stress amongst second, third and fourth year OT students. This is supported by studies by Kauser[23] as well as Kumar and Jejurkar[8] who found a positive correlation between academic workload and perceived stress among students in their respective studies. The most common academic related stressors in this study included tests and examinations, time management and the demands of each level of study (*Figure 2*). These findings are supported by other studies[8,9] in which the vastness of the academic curriculum and frequency of examinations were amongst the highest experienced stressors as well as stress related to time management[14]. Academic stress also appeared to be reported by a greater percentage of students in higher levels of study (i.e. third and fourth year students) which may be as a result of the increasing demands placed upon the students at each level of study. A greater number of fourth year students ranked academic related stress higher than other stressors as compared to the first, second and third year students (*Figure 3*). This may additionally be accounted for by demands placed on the students to meet the expectations of the fourth year requirements in terms of close to full time practical fieldwork, research requirements as well as other academic commitments.

Personal stressors were experienced by students in all levels of study, with the greatest percentage of students in fourth year reporting stressors related to their personal life. Personal stressors experienced by students remain well documented in the literature[1,2,7,8,9,10,12,13].

University related stressors were the least named stressor reported by all students. University related stressors included adjustment to university life, library resources and peer or colleague conflict. A greater percentage of fourth year students experienced university related stress, specifically with respect to access to library resources or study material and conflict with peers, as compared to the first, second and third year OT students. Students in fourth year are placed at practical fieldwork sites for extended periods of time and as a result are not on campus to access library resources or study material. Additionally, students are completing their honours level research projects and are in contact with their peers for a large part of their day which may lead to frustration and conflict with each other.

The most frequently utilised coping strategies by the OT students were *problem focused coping, focusing on the positive* and *seeking social support* and the least utilised being *keeping to self, detachment* and *tension reduction*.

Problem focused coping is utilised through students making a plan of action, weighing out different solutions and putting a plan into action. Students are said to potentially use this type of coping strategy when they have gained knowledge and greater clinical experience which may be utilised in identifying and handling problems[16]. Other authors of studies done with students[9,23] found that taking action and planning formed the top three highly used coping strategies utilised by these students as well as solving specific problems and seeking information. Seeking social support was utilised by 86.9% through praying, talking to someone and asking for advice. In a student's life, support through family and friends may be the most desired. Pfeifer and colleagues[14] in their study done on OT students found that many students utilised friend and family support systems as a coping strategy and Lo[1] in a study on nursing students indicated that the students coped better through social support.

Emotion-focused coping most frequently used by students in this sample included *focusing on the positive, seeking social support, self-blame, wishful thinking* and *keeping to self*, with *detachment* and *tension reduction* reported less frequently as compared to the other strategies. Focusing on the positive was utilised by 91.9% of the OT students. Looking for the silver lining, trying to look on the bright side of things and rediscovering important things in their life are examples of this coping style. 73.7% of students engaged in wishful thinking in an attempt to cope with stress when they may have used daydreaming, having fantasies or hoping for a miracle. In a study with nursing students in Hong Kong, staying optimistic was found to the second highest utilised coping strategy[6]. In a study[17] in Iran, authors

37

highlighted that nursing students frequently used daydreaming as a coping strategy. Difficulties experienced by the students in this study may have been seen as learning experiences with the promise that things would get better, given that the life of a student is filled with both rewarding and challenging experiences. 86.9% of the students utilised self-blame when faced with a stressful situation. In a student's life, this may be due to poor time management and procrastination, having not prepared adequately for tests and examinations as well as conflict with supervisors and peers[13,14]. 66.7% of the students keep to themselves when dealing with stressful situations, for example keeping feelings to themselves, avoiding being with people in general or keeping others from knowing how bad things are. Detachment was employed by 57.6% of the students when confronted with a stressful situation. Students utilized these through trying to forget the situation, going along with fate or going on as if nothing is happening. This may be due to a high amount of students utilising positive thinking as a coping strategy. Other studies done in Nepal[9] on medical students and Australia[1] on nursing students' utilised avoidance and denial through an attempt to reject the reality of the event as though it never existed to deal with their stressors. Tension reduction was employed by the fewest number of students. Tension reduction methods of coping include positive methods such as relaxation and exercise and negative methods such as substance use. The study[1] with nurses in Australia highlighted that nursing students utilised tension reduction as a method of coping and these included smoking, drinking, crying, meditation and yoga. Students often complain of not having adequate opportunity for social and recreational activities given their demanding schedules, which may have contributed to fewer students using this strategy for coping.

CONCLUSION

This descriptive study was conducted in the pursuit of determining stressors and coping strategies utilised by a cohort of OT students within an undergraduate programme. Amongst the sample, there was a high percentage of students who reported stress related to academic work within all four levels of study. Problem-focused coping strategies were mostly utilised by the OT students through facing the stressor and attempting to reduce it through direct action of making a plan and implementing it, with a number of emotion-focused coping mechanisms also being employed. Students' mental health and overall wellness are considered essential to cope with the demands of tertiary education and that of a health science programme. Anecdotally, the authors have observed an increasing number of students who are experiencing stress-related states requiring medical intervention. An assumption of the authors, in undertaking this study was to determine the type of stressors and coping in students in their programme in order to highlight potential markers that may be contributing to these observations. Perhaps this would be a starting point for greater exploration into the coping mechanisms utilised by students, identifying what may be adaptive and maladaptive to inform wellness and support programmes for students within health science programmes, given that stress in tertiary students and more specifically health science students remain well documented.

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AUTHORS CONTRIBUTION

P.G. was the project leader and supervisor of the study and was responsible for the conceptualisation of the study, as well as drafting and review of the manuscript. M.H., S.M., K.J. and C.J. were final year students who conducted the study and assisted in the first draft of the manuscript.

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39

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An Action Research Approach to Profile an Occupational Therapy Vocational Rehabilitation Service in Public Healthcare

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ABSTRACT

The need for occupational therapists to profile their vocational rehabilitation services, initiated an action research project, within a PhD study. The PhD study was aimed at transforming vocational rehabilitation services in occupational therapy departments in Gauteng public healthcare through action research. The aim of the project was to develop a tool that would allow occupational therapists doing vocational rehabilitation, to systematically and comprehensively profile their services. The profile tool could be used for practice reflection, research, to assist with planning, policy making and/or quality management. It will be used in the final phase of the PhD study to allow for critical reflection on vocational rehabilitation practice transformation in Gauteng public healthcare.

The profile tool was designed and developed during action research cycles in public healthcare vocational rehabilitation units. It was refined through further action research cycles with occupational therapists that offer vocational rehabilitation services in Gauteng's public healthcare. The service profiles generated from these cycles were presented for participant validation. The final profile tool was sent for critical appraisal to a panel of experts acting as 'critical friends'.

The processes of designing, developing, refining, validating and disseminating the tool are presented in this article as a contribution to the practice of vocational rehabilitation and to conclude the dissemination outcome of action research.

Key words: occupational therapy, vocational rehabilitation services, public healthcare, action research, profile tool

INTRODUCTION

Background

Vocational rehabilitation is a multi-professional service provided to individuals of working age with health-related impairments, limitations or restrictions within work functioning. The primary aim of such a service is to optimise work participation in spite of illness or activity limitations[1]. In occupational therapy, concern with functional ability and purposeful activity are unique features[2] that allow the profession an important place in vocational rehabilitation practice[3]. An effective occupational therapy vocational rehabilitation service assists the transition between injury, illness, impairment, disability and return to optimal functional ability in a work sphere. It bridges the gap between health institutions, which are usually the point of entry for an injured or sick worker, and the labour market[4].

South Africa's Gauteng province has a high demand for vocational rehabilitation services. It is the hub of the country's commerce and industry. Home to 30% of South Africa's (SA) total population, its age distribution shows that 73% of this population is of working age[5]. In South Africa, 68% of the population depend entirely on public healthcare[6]. The effect of no or poor vocational rehabilita-

tion in public healthcare is obvious in a commerce and industry driven province such as Gauteng, with a high prevalence of injury at work, crime and motor vehicle related injury, the impact of Aids and pressure to return to work as quickly and effectively as possible.

In the National Health Amendment Bill debate on the 14 August 2012 Dr Aaron Motsoaledi, South Africa's Minister of Health said: "The deteriorating quality of healthcare in our public hospitals has been a thorn in the flesh of our country for quite some time"[7]. Occupational therapy services within public healthcare are included in this and services that require specialised knowledge and experience, like vocational rehabilitation are most affected. A Vocational Rehabilitation Task Team (VRTT) was convened, in 2010 in Gauteng with the aim of resuscitating the province's vocational rehabilitation services. The VRTT is a group of occupational therapists, working in Gauteng's public healthcare sector and concerned with occupational therapy vocational rehabilitation services in the province. In 2013 the first author, a PhD candidate from the University of the Witwatersrand, joined the group with the research aim of transforming occupational therapy vocational rehabilitation services in Gauteng through action research.

In keeping with the cyclical nature of action research (i.e. ob-

serve, plan, act and reflect)[7] the first phase of the PhD. research was to observe and ask: 'What is going on in occupational therapy vocational rehabilitation services in Gauteng's public healthcare?' If occupational therapists were able to subjectively compile a comprehensive and accurate profile of their own vocational rehabilitation service, their insight and understanding could be a transformative agent for service development. A comprehensive service profile drawn up at the beginning of a research intervention could also be used to compare with a service profile at the end of the intervention. This could allow objective macro post-reflexivity to answer the question: 'What was the impact of action research on occupational therapy vocational rehabilitation services in Gauteng's public healthcare?'

Searching for a means to profile a vocational rehabilitation services in public healthcare left the researcher with insight into the importance as well as the problems of service measurement[8]. Selecting an appropriate method to facilitate a collaborative approach with occupational therapists working in the services was an important point of departure. Audits, quality surveillances or observation style inspections are easily interpreted as judgmental and could exaggerate power relations which prohibit the emancipatory effects of action research[9]. The first author wished to engage in a profile process that would not only support practice development but actively involve practitioners in the process. She opted for action research methodology as it provided the cooperative development of a non-threating and non-invasive tool. A tool that therapists could potentially use to profile their vocational rehabilitation services at a certain point in time. Such a profile would allow them to critically reflect on their practice and identify areas that needed improvement and thus it holds the potential to transform a vocational rehabilitation service.

It was decided to develop the tool through action research cycles within and with the population it would be used for[10]. This tool would be designed and developed by gathering data from multiple sources and in different ways about all aspects of vocational rehabilitation by occupational therapists considered to be experts in the field. Practitioners were incorporated as fellow researchers in the refining and validation of the tool. This allowed them to experience ownership of the tool, the service profiles generated by the tool and by extension the actions that would follow to improve and transform their vocational rehabilitation practices[11].

The aim of this article is to describe the process and outcome of designing, developing, refining, validating and disseminating a tool that occupational therapists working in public healthcare can use to profile their vocational rehabilitation services.

LITERATURE REVIEW

The four sources from literature that principally influenced the development of this profile tool were Donabedian's work[8,13-14] the Gauteng Department of Health's 'Allied Health Care Professionals Standards and Audit Tools'[15,16]; and research by Buys[17] and Beukes[3]. Various other frameworks and bodies of knowledge measure healthcare outcomes[18-23], but the selected sources best embodied the purpose and context for which the profile tool was developed. Mant[24], commenting on performance indicators in assessing quality of healthcare, states that the context and purpose in which indicators are used should be considered. He cautions that using only an outcome measure as performance indicator is a mis-demeanor. He feels that outcome measures only focus on the impact of therapy but do not consider lifestyle and socio-economic factors (as vocational rehabilitation services do).

Donabedian developed a model in the 1960's that provided a framework for examining healthcare services and evaluating quality of healthcare that is still widely recognised and referred to. The model has three categories: structure (the context in which healthcare is delivered), process (the sum of all actions that make up healthcare) and outcome (the effects of healthcare on patients and relevant communities)[8]. Donabedian developed his

model to be flexible enough for application in diverse healthcare settings and at various levels of service delivery[12]. He perceived healthcare as consisting of technical tasks, interpersonal exchange and amenities of care (the circumstances under which the task is performed) and that the quality of healthcare in practice was the product of these factors. He felt that every form of interaction in a healthcare setting is "the measure of the humanity and dignity of us all"[14:248]. This resonates well with action research methodology and the service occupational therapists render within the field of vocational rehabilitation.

Occupational therapists working in Gauteng's public healthcare identified a need to implement standards for the profession in public healthcare and developed an audit tool for this purpose[16], of which a section was published in 2006. The Gauteng Department of Health's 'Allied Health Care Professionals Standards and Audit Tools (Hospital)' is for use in occupational therapy, physiotherapy, speech therapy and audiology and social work professions and acknowledges Donabedian's work. It comprises four audit tools; the environment, equipment and facilities audit tool; the client record keeping tool; the management audit tool; and the client satisfaction audit tool. The Head of Departments are meant to ensure that these audits are done at least once a year, summarised, compliance and non-compliance areas identified with a work plan attached and submitted to a profession specific quality assurance coordinator in head office. At present there is a 75% submission compliance rate. The results of the audits are used as a management tool to improve service delivery. To ensure compliance, the head office staff conduct random spot clinical audits[15].

Several authors in South African literature provide valuable contributions to vocational rehabilitation services in terms of professional competences, quality and standards of service. Buys[17] identified 16 professional competencies required by occupational therapists who deliver vocational rehabilitation services in South Africa. Beukes[3], developed a standard statement and measurement criteria for an effective and efficient occupational therapy service, regarding the assessment of work abilities (vocational assessment). Robinson[25] notes that setting standards from within a profession is fundamentally positive, as standards will be relevant, achievable and realistic if set by those who understand the challenge and emphasis of the profession. She also notes that occupational therapists often work in relative isolation both in government and in private practice and that these practitioners may find it more difficult to implement quality measurement, improvement or management techniques.

'Batho Pele' (People First) is a South Africa initiative to improve the quality, accessibility, efficiency and accountability of service delivery in the public sector[26]. The National Health Insurance (NHI) was launched to ensure that everyone living in South Africa gets access to quality healthcare, regardless of their socio-economic status[27]. The research method and aim of this study are in line with these initiatives.

METHOD

Study design

Action research phenomenology forms the basis of this study and a multi-collaborative and interpretivist action research approach was used[28,29]. Action research is practice based and done by people who want to find out more about their practice with the view of improving it[30]. It places practitioners at the center of an enquiry[31] allowing them to be fellow researchers and participants, learning from their experiences and producing knowledge that is relevant to their practice situations and to which they can relate[32]. Action research is an emancipatory intervention that brings about shared responsibility and open accountability[33]. Reason and Bradbury[34,] and Reason[35] offer three strategies of action research practice; first-person action research which is a personal inquiry approach, second-person action research which is an ability to inquire face-to-face with others into issues of mutual concern and third-person practice which aims to extend the research to a wider community of enquiry. They suggest

that the most compelling and enduring kind of action research will engage all three strategies, as this study does.

Critical reflection is an essential component of action research[36]. It brings about the conscious questioning of practice[35], a collective analysis of action[37] and allows enquiry that leads to learning[32]. In so doing it contributes to personal and professional development and improvement[30]. This critical reflection can be done individually or as a group with the distinguishing factor being to change practice[38]. McNiff [30:33] notes that "Action researchers are real-life people who wish to investigate their practices and offer explanations for what they are doing so they can show how they hold themselves publically accountable".

Population

Dick[11] uses the term 'stakeholders' in action research to describe the population. He describes stakeholders as persons who have a stake in a programme and who are affected by or able to affect practical change.

In this research the first author, applying first-person action research, researched and designed a concept profile tool (see step 1).

There were two developing stakeholders: The first and fourth authors, using second-person action research, developed the profile tool through several action research cycles at four academic hospitals in Gauteng where vocational rehabilitation services are offered. They were also the field researchers and acted as catalysts, informed observers[32] and data collectors throughout the research process (see step 2).

There were 127 refining-stakeholders involved as third-person researchers. They were occupational therapists working in Gauteng's public healthcare, who were interested in and/or offered vocational rehabilitation, were invited to host workshops called 'Profiling a Vocational Rehabilitation Service' within their practices. The first author presented three workshops as action research cycles and the tool was refined during each cycle. (see step 3).

There were two groups of validation stakeholders:

The refined profile tool and the service profiles that resulted from the developmental and refining cycles were presented to the vocational rehabilitation task team (VRTT) of Gauteng. They critically reflected on the tool and provided participant validation of the practice profiles (see step 4).

A group of 39 pre-selected vocational rehabilitation experts were identified by the authors for use as 'critical friends'. In action research the concept of 'critical friends' is used to indicate stakeholders who are invested in the field of knowledge and can offer objective and expert feedback[39]. The criteria for inclusion into this group were occupational therapists with previous experience of working in South Africa's public healthcare and current experience of more than five years of working in and/or teaching vocational rehabilitation. The refined profile tool was sent to them for critical reflection (see step 4).

All participants were informed verbally and by a written pamphlet that they could keep, that this project was part of a larger PhD study. How this project fitted into the study was explained, how the generated knowledge will be used was discussed and consent forms were signed. The PhD research had university and hospital clearance.

Data gathering

Throughout the research, data were gathered in the form of field notes, reflective journaling, critical reflection, written and verbal feedback from stakeholders and experts.

The process

There were five steps to the research: the designing, the development, the refining, the validation and the dissemination of the profile tool.

Step 1: (See *Figure 1*) *The designing of the profile tool* was done by the first author, engaging in first-person action research. A systematic search and study of literature relevant to objective observation of occupational therapy and vocational rehabilitation services was done. This included; audits, models, frameworks and instruments concerned with quality control, practice standards, service and outcome measurement tools and performance indicators. Four sources as discussed above were identified[3,13,15,17] to be relevant to the context and methodology. Donabedian's framework[13] was chosen to guide the systematic plotting of all elements of occupational therapy vocational rehabilitation services within the three categories of structure, process and outcome. The elements were compiled based on information from competencies identified by Buys[17]; suggestions by Beukes[3]; the Gauteng Department of Health's standards and audit tool[15]; and the first author's 20 years' experience in the field of vocational rehabilitation. Confirmation and expansion of these elements were supplemented through additional (verbal and electronic) discussions with Buys, Beukes, some of the authors of the Gauteng standards and audit tool and in consultation with colleagues of the first author who have experience in vocational rehabilitation. A concept profile tool with three parts, namely the structure, the process and an outcome was designed.

Continuous first-person action research cycles were used throughout the designing stage. The first author reflected on the need and circumstances for the use of a profile tool, all available information was gathered and considered; a draft tool was drawn up and critically reflected on through continuous action research cycles until the tool was to the satisfaction of the first author. Reflective journaling was done throughout this stage. In the final cycle of the design step journaling guided planning, of the next step of the tool development.

Step 2: *The profile tool* was developed during four action research cycles. The first and fourth author, using second-person action research, put the concept profile tool through an action
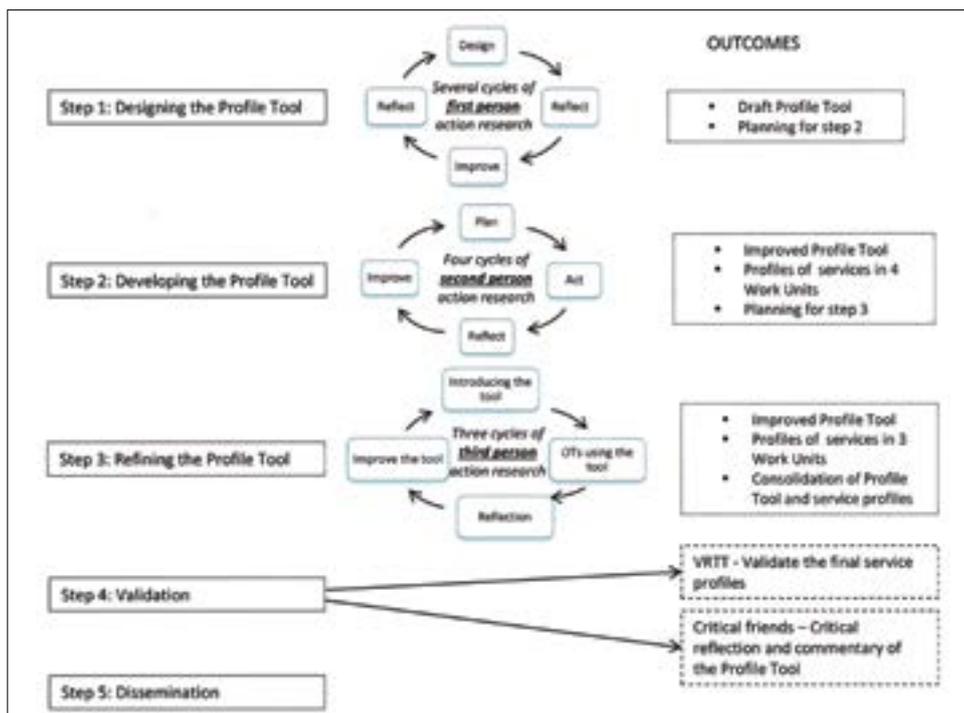

Figure 1: A graphical representation of the five research steps

42

research cycle at each of the four academic hospitals in Gauteng that offer vocational rehabilitation services.

The authors planned unannounced visits during working hours, to the four academic hospitals in Gauteng who had occupational therapy departments with work units. Working in the area where the vocational rehabilitation services were offered the tool was used separately by each author to profile the service. Field notes were kept. Reflective journaling done separately by each author was completed post profiling, while still on the premises. This was followed by a face-to-face critical reflection, discussing their findings and experiences with each other. Specific attention was paid to the design and content of the tool, improving and changing it for the next visit. The final step of the visit was to compile an agreed upon profile of the visited vocational rehabilitation service. In this way their collective experience, skills and knowledge contributed towards improving the tool and compiling a profile of the vocational rehabilitation service offered.

After each cycle the first author studied the field notes and reflective journals, made the necessary changes to the profile tool, sorted, saved and stored all data. Additional ideas or comments between the visits were shared electronically between the first and fourth authors and changes incorporated as necessary. Each new cycle thus started with an improved profile tool.

Step 3: *To refine the profile tool* a workshop introducing the profile tool with a practical session of applying and critically reflecting on it, was planned and presented by the first author. The workshop was for any clinical occupational therapists interested in vocational rehabilitation. The third-person research aims of the workshops were to incorporate the wider community of clinical occupational therapy practitioners in Gauteng's public healthcare as partners in the development of the tool and to expand and authenticate the vocational rehabilitation service profiles that emerged from the developmental step.

An invitation to host the workshop within their practices was extended to the four academic hospitals in Gauteng who had been used for the development of the profile tool. They were requested to invite all occupational therapists in their departments and surrounding hospitals and clinics that referred clients and made use of the specialised vocational rehabilitation equipment and services offered at the hosting hospital.

Each workshop was presented in the form of an action cycle. Firstly, the profile tool was introduced by providing the background and contextual information. Participants then used the profile tool, applying it specifically to their vocational rehabilitation services, while maintaining an open dialogue on an individual and/or group basis with the presenter. They then divided into small groups to critically reflect and discuss the design and use of the tool as well as the service profiles that were generated by the use of the tool. They were asked to consider how its use and results could impact on their vocational rehabilitation practices. Verbal feedback from each group was provided. The workshop concluded with anonymous individual critical reflection on the workshop and the tool forms.

The expected outcome of the workshop was to enable clinical occupational therapists to profile their vocational rehabilitation services which holds practical, theoretical and research value. Implementing a comprehensive and contextually relevant profile tool that effectively indicates what a vocational rehabilitation service looks like, and/or should look like, would be helpful to occupational therapists that are offering, or wish to offer, vocational rehabilitation services in public healthcare. The profile tool could also be used for research, to assist with planning and policy making and quality management of occupational therapy vocational rehabilitation services. The workshop was registered and accredited with the Health Professions Council of South Africa's (HPCSA) continuing professional development units.

After each workshop the first author analysed and sorted the contributions, feedback and information. The tool was revised and improved before presentation at the next workshops. Information

was added to expand the vocational rehabilitation service profiles of the hospitals that were developed during step two. These profiles were used in the next step.

Step 4: *The validation of the profile tool* was done in two sections.

The vocational rehabilitation service profiles that emerged from the development and refining steps of the research were presented to the VRTT for validation, by the first and fourth authors. The therapist(s) received the profile of the hospital she/he was working in and was given 30 minutes to study it and ask questions if necessary. The instruction was to provide comments and participant validation of the profile handed to them. This was collected in the form of written comments, reflective journaling, verbal interaction with the primary and/or secondary author and general discussion in the group.

To further validate and enrich the credibility of the profile tool it was sent for objective critical appraisal and expert opinion to a panel of pre-selected 'critical friends'. The selection criteria for these critical friends were that they should be South African occupational therapists that had experience of working in public healthcare and had more than five years of current experience in vocational rehabilitation. The experts were sent electronic formats of the tool and asked to consider it, use it and comment on it within two weeks.

All data from this step were considered, reflected on and selected changes were made to the tool.

Step 5: The final step of *dissemination of the tool* was undertaken. The VRTT decided that the profile tool would be taught at the annual vocational rehabilitation orientation workshop, an event attended by newly appointed occupational therapists to Gauteng's public healthcare. The first author made an electronic format of the tool available to share with any interested occupational therapists working in vocational rehabilitation. The fourth author introduced the tool to all occupational therapists working in Gauteng public healthcare through official public healthcare forums. The development process and tool content are intended for publication in the form of a scientific paper to a South African peer reviewed journal with national and international circulation.

Data analysis

The field notes, reflective journaling, written and verbal feedback from the workshops and from the experts were systematically analysed by the researcher through thematic and discourse analysis. In keeping with good research practice and in support of action research principles[32,40], thematic analysis of the raw data was manually analysed immediately after gathering. Data were summarised and categorised. These thematic summaries influenced the next action research phase.

'Authentic voices'[41] used in this article will be indicated as FN for field notes, RJ for reflective journaling, CR for critical reflection, WFS for written feedback from stakeholders, VFS for verbal feedback from stakeholders, WFE for written feedback from experts and VFE for verbal feedback from experts acting as critical friends.

RESULTS

In *step one* the tool was designed using first-person action research strategy. Through several action research cycles the first author continuously reflected on her actions and incorporated new information into the development of the concept profile tool.

"This tool must have a variety of data capturing methods like listing, interviews, sliding scales, photos. Like Donabedian says[42] - variety should give better validity." (RJ)

"I wish I had something like this when I was a young OT, I would have gotten the bigger picture instead of getting bogged down with the small stuff." and *"It (the tool) must be easy to understand and use so the most inexperienced occupational therapist can use and benefit from it."* (RJ)

During step one a technical action research process directed the initial design of the tool. The first author was instrumental in

designing the draft format of the tool and prepared it for the action research process engaged in during step two.

In step two the visits to vocational rehabilitation services at four academic hospitals and the use of the tool in these services brought development of the tool through using second-person action research strategies. Areas identified for changes related to the duplication of data gathered; ambiguous instructions; and time concerns. Therefore the tool had to be simplified, shortened and language and grammatical errors addressed. The time it took to administer the profile tool depended on the size and extent of the vocational rehabilitation service as well as familiarity with the tool. The times varied between two to five hours. The action research cycles of implementing the tool and reflecting on it provided a profile of each service. Simultaneously the profile tool emerged as a standardised instrument.

"What we have with this tool is the ideal vocational rehabilitation service. It will be nice to use as a measurement in future." (FN)

"We must not immobilise a service with paperwork. The core business of therapists is to see patients." (RJ)

It was decided to get clinical occupational therapists to use it and in so doing incorporate their feedback into the development of the tool and existing profiles. The planning of a workshop ensued; it was registered with the Health Professional Council of South Africa (HPCSA) as an approved continued professional development (CPD) activity and marketed to occupational therapists at the four academic hospitals.

The workshops offered in step three were to refine the tool and include additional aspects to the profile, using third-person action research strategy. Three of the four academic hospitals in Gauteng who had been used for the development of the profile tool accepted the invitation. The fourth hospital declined the invitation, stating that their occupational therapists were not interested in vocational rehabilitation.

Overall the feedback from therapists participating in the workshops was that they enjoyed an opportunity to use the tool and apply it to their own situations. They felt this offered them the opportunity to reflect and discuss specific aspects of the service and to plan and set goals. They also enjoyed discussing their practice with the researcher and their peers, valuing the impartial feedback. The primary contribution of the workshop was that it captured an authentic picture of the challenges and concerns clinical occupational therapists on grassroots level experienced. For example:

"You cannot use part two (process profiling) if you do not know vocational rehabilitation and understand the aspect of a vocational rehabilitation service and some of us were not trained sufficiently in vocational rehabilitation." (WFS)

In *step four* the validation of the tool was undertaken. The profiles of the vocational rehabilitation services that emerged in step two and three were consolidated into a single profile of each hospitals vocational rehabilitation service. At a VRTT meeting occupational therapists familiar with a relevant profile contributed to the validation of its authenticity. Discussion in the group and individual written feedback showed that all profiles were accepted to be true reflections of the services being offered. The group discussion and written feedback also reflected a dimension of greater transparency in the group.

"Now that we know what the problems are we can work together to fix them and need not worry about trying to keep up a front." (WFS)

Reflection on the profile tool itself showed that they felt the first part (structure profile) is long and tedious and the second part (process profile) was more enjoyable to complete. The outcome profile instigated an animated discussion. There were strong feelings expressed regarding the absence of student training, marketing of services, research and publication.

"It is impossible to get ethical clearance to do research if you are a clinician and there is nobody to help you or give advice if you find yourself

stuck. The only way you can do research as a clinician is if you enroll for a university post grad degree or course and why should we do that! It will not affect our promotion or our salary and nobody has time." VFS

"You put hours and hours of work into it (writing a journal article) and then it's not good enough. We don't really know what we are doing anyway. It is easier to write for the FOCUS (newsletter) but can that be considered publication?" (VFS)

"This is just about it. This shows exactly what our problem is; we have the motivation but not the know-how." (WFS)

Very few changes were suggested for the tool content and layout. It appeared as if the group lacked confidence and expressed that their opinions on the tool might not be "*good enough*". They suggested that it be sent to 'academics' to take a look at it. Suggestions of sending it to a panel of experts were unanimously supported.

The tool was sent to 39 critical friends for critical appraisal and expert opinion. Thirteen of them responded within the requested timeframe. Changes suggested were grammatical in nature and no shortfalls were identified. A critical friend in a private vocational rehabilitation practice noted: "*It makes you realise that in private practice we run assessment units and not a vocational rehabilitation service.*" (WFE)

A critical friend in a public healthcare management position from another province indicated:

"We need this kind of tool to critically evaluate and improve our (vocational rehabilitation) services in public healthcare. Thank you to everyone in Gauteng for all the hard work and sharing it with us."

The *fifth and final step* of dissemination then followed. As a result interest and enquiries into the tool were received from the provinces of KwaZulu Natal, Free State and the Western Cape.

Summary of the content of the finalised profile tool

The Vocational Rehabilitation Profile Tool is written in easy to understand English so that therapists of all levels of experience could find it accessible and useful. It consists of four sections; an introduction, structure profiling, process profiling and outcome profiling. The time it takes to complete the tool will be influenced by the size of the work practice. It should take two to five hours to complete the tool for the first time. Thereafter an occupational therapist familiar with the tool and the work unit would take less than an hour to update and expand it.

The introductory section is four pages long. It includes a cover letter written in a personal tone suggesting why occupational therapists might consider using the profile tool to reflect on and enhance their vocational rehabilitation practices. They are asked to use the tool and send suggestions, ideas and questions to the author so that the tool can continue evolving and maintain relevance. Contact details for such feedback are provided. Background and general information on the research and reason for the development of the tool is given. A discussion on how to use the tool and suggestions on what to do with the information generated from the profile follows. It concludes with references, recommended reading and the last review date.

The structure profiling section (see *Table 1*) enquires about the context within which vocational rehabilitation services are offered. These include resources available, accessibility to the service, appearance of the area, tests tools and activities available, staff, managerial and maintenance support for the service.

The process profiling section (see *Figure 2*) enquires about the occupational therapy practice of vocational rehabilitation and the scope of the service occupational therapists offered. It works on the premise that in their vocational rehabilitation service, occupational therapists offer prevention of injury and awareness of good practice programmes; screening and assessment of functional ability; various forms of intervention; involvement in the placement of persons with injuries/disabilities into open, sheltered, protected and other alternatives in the labour market; and offer follow-up services. Investigation of these services is done in the form of sliding scales and comments.

Table I: A section from the Structure Profiling – An investigation of resources available to the vocational rehabilitation service

6. Resources to support the Vocational Rehabilitation Service	
Are the following resources available to the Vocational Rehabilitation Service?	**Describe and discuss**
Social work services (For referral of social intervention, grants etc.)	
Referral resources for skills development, (Training facilities etc.)	
Open labour market placement support (Placement or personnel agencies etc.)	
Alternative placement options and support. (Sheltered/protected workshops, self-employment.)	
Motor vehicle driving assessment and adaptations/customisation.	
Other	

Table II: A section from the Outcome Profiling – An investigation of student training in the vocational rehabilitation service

3. Student training		
Are there any undergraduates and/or post-graduate students being trained in the Vocational Rehabilitation Services? Yes/No		
If 'Yes':	Answers and Comments	
From which institution? How many are undergraduates and how many are post-graduates?		
How many students does the service have in a year?		
How often does the service have students in a year?		
How long are they here at a time?		
Who supervises them?		
If 'No': Why not?		

3. Intervention

3.1 Are work visits being done as part of the vocational rehabilitation service?

0 ------|------|------|------|------|------|------|------|------|------10

None is begin done	Excellent and comprehensive service.

3.2 Are there work-hardening, work-readiness, conditioning and return to work programs offered?

0 ------|------|------|------|------|------|------|------|------|------10

None is being done	Excellent and comprehensive services

3.3 Are there job-seeker programs and related support?

0 ------|------|------|------|------|------|------|------|------|------10

None is offered	Excellent and comprehensive programs exists

3.4 Are there pre-vocational skills training programs and support offered?

0 -----|------|------|------|------|------|------|------|------|------10

No such programs exists	Excellent and comprehensive programs exists

3.5 Are occupational therapists trained, mentored and supported in such programs?

0 ------|------|------|------|------|------|------|------|------|------10

No training/ mentoring support is provided	Excellent comprehensive training/mentoring/ support exists

Discuss and describe your opinions:

Figure 2: A section from the Process Profiling – An investigation of the intervention aspect of the vocational rehabilitation service

The outcome profiling section (see *Table 11*) enquires about the effect of the services offered. Service outcomes that were identified to be indicators of a matured and comprehensive occupational therapy vocational rehabilitation service are: general awareness of the services, user satisfaction, student training, research, publication, statistics and future plans of the service and auto-reputation. Auto-reputation being a form of self-evaluation described by Donabedian[13].

DISCUSSION

The notion of profiling is to record and analyse the current status of services in a non-judgmental, objective manner. Donabedian suggests that in studies of quality one needs to ask 'What goes on here?" rather than "What is wrong?"[13:721]. The profile tool offers public healthcare occupational therapy vocational rehabilitation practitioners a structured and systematic observation of their practice. It gives them information that they gather themselves to critically reflect on their practices to manage, plan and improve their vocational rehabilitation service, using a tool they were instrumental in developing. In addition the tool and resulting profiles will be used in further research aimed at improving vocational rehabilitation services in these practices. It will also be used to measure the effectiveness of the research intervention at the conclusion of the research.

In action research the researcher is considered an equal partner within a team, contributing knowledge and/or experience and acting as a catalyst in addressing practical problems[36]. Action research is also essentially practitioner and practice-based research[35] and focuses on change and participation as an interactive form of knowledge development[43]. The cyclical process of continuous and structured planning, action and reflection characterise action research[30,43]. Incorporating these elements in the design, development and refining of the profile tool was brought about in a manner sensitive to context and perspectives of those directly involved[28]. In addition the potential benefits of participant empowerment and accountability[44] were incorporated.

As with all tools the question of standardisation and validation arises[25]. Literature showed that 'standardisation' is a term generically used by occupational therapists when discussing validity and reliability features of test and tools. Shenton[45] describes the use of all the above terms as 'positivist terminology' and propagates the use of Guba's constructs and terminology[46] for discussions of rigour in qualitative research (such as action research). Guba addresses criteria that ensure trustworthiness/ rigour similar to that pursued by positivists but compatible to qualitative research[46]. This paper chooses to align itself with this and use the word 'trustworthiness' to indicate the generic use of standardisation, 'credibility' in preference to internal validity, 'transfer-

ability' in preference to external validity, 'dependability' in preference to reliability and 'conformability' in preference to objectivity[45].

The following criteria of trustworthiness were addressed during the development of the profile tool:

The *credibility of the tool* (i.e. Does the profile tool measure/show what it is intended to show?) was considered and addressed. Participant validation of the ensuing profiles was done. A variety of data collection methods and overlapping methods and data sources were used with the generating of the tool and designed in the administration of the tool itself. The intention was to obtain peer scrutiny through critical appraisal of experts and publication in a peer reviewed journal. The background, experience and qualifications of the authors qualify them as experienced practitioners in occupational therapy, vocational rehabilitation and tool development.

The *transferability and generalisability of the tool* (i.e. To what degree can the tool be applied to other situations?) is affected by the methodology used. The critique that the knowledge generated by action research is generalisable only within the context of the research population[28] is noted by the authors. The tool is restricted for use in vocational rehabilitation practices for occupational therapists. Within this practice context the authors believe that the tool is generic enough to hold potential for use in vocational rehabilitation services outside of the public healthcare setting in which it was developed. The dissemination of the findings of this research was done within the South African context as it could be of interest to occupational therapists who are interested in vocational rehabilitation or practice in similar contexts. The process of generating the profile tool could be useful at local or international level for those who wish to apply the ideas and findings within similar contexts or to replicate the study.

The *dependability of the tool* (i.e. Would similar results be found if it was used by different occupational therapists?) was attended to by using simplified instructions and offering workshops where therapists were introduced and instructed in tool use. The tool went through design, development and refinement phases and was practically implemented by a variety of therapists during several action research cycles. Participant validation of the resulting profiles showed no dispute of the resulting practice profile.

The *conformability of the tool* (i.e. What efforts towards objectivity and restriction of researcher bias are in place?) was attended to through purposeful transparency. Critical reflection is a key element that defines action research[36] and an openness to feedback from 'critical friends' enhances the conformability of the research[47]. In this research it was applied throughout the action research cycles and enhanced with participant validation, constantly inviting peer review and experts' critical appraisal. The knowledge generated through action research has to be fed back to the participants[28] and made public as this constitutes its characteristics of being scrutinisable[32] which is encapsulated in the dissemination of the development of the tool.

The profile tool has not been in use outside of the developmental stage and the authors acknowledge that many of its trustworthiness characteristics will only come to light once it is being used extensively and in different contexts. Use in different contexts would stimulate further research and strategies aimed at testing the trustworthiness.

We do believe that although developed within a public healthcare context and for specific research purposes it has the potential for more extensive use. The authors would like to encourage colleagues to use the profile tool, test it, improve it and expand its usefulness by sharing their findings on public forums. The hope is that eventually the tool can be used in vocational rehabilitation services to help therapists do quality management and provide information for planning and policy making. Tool dissemination could also raise an awareness of the scope of vocational rehabilitation services that occupational therapists can offer as so many practices are doing only the assessment aspect of vocational rehabilitation[48].

Donabedian has contributed significantly to strategies for quality of healthcare but his work is not without criticism. Carayon et al[49] and Coyle and Battles[50] caution that using the sequential progression from structure to process to outcome is too linear a framework and limits the understanding of how the three aspects influence each other. They propose that users acquire an understanding of how the three aspects of service influence and interact with each other and with such consideration use them in varying orders as circumstances dictate. They also criticise the model for failing to incorporate antecedent characteristics e.g. environmental factors, cultural, belief and attitudinal influences. All of which are important precursors to quality, especially in a South African situation.

CONCLUSION

The ultimate aim of healthcare work is to enhance the quality of provision for the users[28]. Managing and addressing the quality of service in public healthcare is an international and ongoing concern[51]. In South Africa there are accreditation committees, national care standards, audits and guidelines in place to address the quality of service in public healthcare[15,52,53]. All of them were developed and function externally to the practice setting they hope to improve and are not service specific. The authors have the experience and are of the opinion that it is very difficult to address the standard of a service by 'remote control'. By sharing the process of development of a tool that profiles a vocational rehabilitation service using action research allowing scrutiny, peer review and inviting feedback, authenticity is demonstrated which are important aspects of rigour in action research [28,32].

Action research allowed the practitioners offering the service to be part of the process of developing a tool they can use to profile the services they offer. Being able to profile a vocational rehabilitation service holds practical, theoretical and research benefits. Having a comprehensive and contextually relevant tool that effectively indicates what a vocational rehabilitation service looks like, and/or should look like, will be helpful to occupational therapists that are offering, or wish to offer, vocational rehabilitation services in public healthcare as well as in private practices. This allows them to set goals and develop their practices in a systematic and mindful manner.

Donabedian, citing various studies to support his opinion, states that people are good judges of the effectiveness of the organisations in which they work[13] and the services they render. Allowing occupational therapists to measure their own services within certain guided constructs brings about the action research benefits of identifying and owning the problem[28] which in most cases leads to the motivation to look for solutions of practice problems.

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47

Professional competencies in vocational rehabilitation: Results of a Delphi study

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ABSTRACT

Introduction: *Opportunities for South African occupational therapists to deliver appropriate vocational rehabilitation services to workers with disabilities in the open labour market, increased within the context of current South African disability equity legislation. However research into the identification of professional competencies required to practise in this area of work had not been undertaken and this is necessary to ensure that occupational therapy curriculum content presented at South African universities are aligned with practice requirements. Research was therefore undertaken as part of the study for a master's degree, to identify these competencies.*
Method: *A Delphi technique was employed using a panel of 35 occupational therapists representing various practice settings and meeting pre-determined expert criteria. Three rounds of questionnaires were sent to the research participants requesting them to identify knowledge, skills and values reflecting professional competencies.*
Results: *Following a process of data analysis, 16 professional competencies were identified as being necessary to deliver vocational rehabilitation services to workers with disabilities in the South African open labour market.*
Conclusion: *Based on the results of this study, recommendations are made for inclusion of professional competencies in an under- and postgraduate curriculum level. The results of this research should be further communicated to the Professional Board for Occupational Therapy, Medical Orthotics, Prosthetics and Art Therapy for consideration by the Education Committee.*

Key words: Vocational rehabilitation, Delphi technique, experts, professional competencies

INTRODUCTION

The World Federation of Occupational Therapists (WFOT)[1] of which South Africa is a member country, recognises the right of people with disabilities to participate in work-related activities. The WFOT also acknowledges that occupational therapists have expertise in vocational rehabilitation[1]. Provision of vocational rehabilitation services in South Africa prior to 1994 posed many challenges to occupational therapists as the existing legal system was not inclusive of people with disabilities – one of the main client groups who benefit from vocational rehabilitation.

This discrimination changed with the enactment of the Constitution of the Republic of South Africa in 1996. The provisions of human rights, equality and non-discrimination including those of disability are explicitly stated in Chapter One of the Constitution (1996)[2]. The new Constitution led to a revision of the Labour Relations Act (1995)[3] and the passing of the Employment Equity Act (1998)[4] in order to provide legislation to implement some of the rights contained in the Constitution. Although only a white paper and not enacted into legislation, the Integrated National Disability Strategy[5] was developed with the intention of integrating and sustaining disability protocols in all government strategies.

The evolving human rights perspective and changing South African legal and health contexts led to renewed interest in occupational therapy in the area of vocational rehabilitation during the late 1990s. Numerous workshops were presented; vocational rehabilitation interest groups were established and the first skills-based programme in vocational rehabilitation was implemented by the University of Pretoria[6]. Despite this increase in field related activity, limited research was conducted and published in vocational rehabilitation during this time. A few articles on vocational rehabilitation in occupational therapy were published in the South African Journal of Occupational Therapy that described the changing role of the occupational therapist and vocational rehabilitation services[7-11].

The implementation of disability equity legislation appeared to be making an impact on service delivery in vocational rehabilitation[12] and was evident in publications but no evidence was noted in publications related to academic preparation at a university level for this area of practice.

Educational and training programmes presented at the South African universities should facilitate the acquisition of knowledge, skills and values enabling students to become professionally competent for practice[13]. Practice expectations and educational preparation should therefore be aligned. One way of aligning practice and academia would be to seek the opinion of clinicians in identifying professional competencies[14,15].

The purpose of this paper is threefold: firstly to provide a brief historical overview of vocational rehabilitation in South Africa; secondly to describe research undertaken to identify professional competencies required by occupational therapists who deliver vocational rehabilitation services to workers with disabilities in the South African open labour market and thirdly to provide suggestions for curriculum inclusion which could be considered by the Education Committee of the Professional Board for Occupational Therapy, Medical Orthotics, Prosthetics and Art Therapy and which could form the basis for further research in this area.

LITERATURE REVIEW

Vocational rehabilitation in South Africa

The development of occupational therapy vocational rehabilitation services in South Africa is not well published. The literature reflects the use of different terms when referring to the delivery of work-related services to clients. Work re-orientation[16], industrial therapy[17,18] and work therapy[19] were used during the 1950s and 1960s. Work preparation[20-23] and work rehabilitation[24,25] appear in the 1980 occupational therapy literature with vocational rehabilitation becoming a more frequently used term during the 1990s[7-10, 26-29].

Publications during the 1960s indicate that occupational therapists used sub-contract work from local businesses as well as institution based work to therapeutically intervene in the work abilities of their clients[16,18]. Occupational therapists shifted focus in vocational rehabilitation during the late 1970s and 1980s and appeared to develop initiatives in an effort to improve the economic independence of their clients as employment in the open labour market (competitive employment) was not achievable[12]. South African occupational therapists attempted to solve this by becoming involved in preparing their clients for home industries to supplement their income[30-34]. In 1983 Priscilla Stevenson, an occupational therapist, established Access College which offered business training for people with disabilities thereby facilitating placement in the open labour market[35]. This college was unique in South Africa and the first attempt to improve the skills of people with disabilities in an environment which catered specifically for their needs. In a further attempt to improve the economic independence of people with disabilities, MODE (Medunsa Organisation for Disabled Entrepreneurs) was established in the early 1990s by Vivienne Zwennis, also an occupational therapist[36]. The programme provided business training to people with disabilities and their families. MODE further assisted their clients in obtaining business loans and to establish viable small businesses at community level.

Despite the above initiatives, anecdotal information suggests that occupational therapists were increasingly frustrated with both vocational rehabilitation service delivery as well as successful placement of people with disabilities in the open labour market. In an attempt to address this aspect, the then Transvaal Provincial Government established a Vocational Rehabilitation Work Group in 1989 with the purpose of improving service delivery within provincial health services. A flurry of activity within vocational rehabilitation was noted with the inception of the group, and many workshops presented during the early 1990s[12]. A position paper on "The Role of the Occupational Therapist in Vocational Rehabilitation" was compiled by the group members in collaboration with a variety of occupational therapy clinicians and submitted to the professional organisation for publication in 1992 but this was never published[12]. In addition the group also facilitated the establishment of the South African Society of Vocational Rehabilitation (SASVR) in 1993 which attempted to include various vocational rehabilitation stakeholders including representation from business to promote and enhance networking, promote vocational rehabilitation and improve the employment outcomes of people with disabilities. It was difficult for the SASVR to achieve its vision in a society undergoing substantial political, social and economic changes and it disbanded in 1996.

Randall[31] stated as early as 1988 that occupational therapists should continue with efforts to promote employment opportunities and fair labour practices for their clients, and despite the professional activity in vocational rehabilitation; open labour market placement for people with disabilities remained difficult to achieve. Although a number of factors could be attributed to this according to the Integrated National Disability Strategy[5], discriminatory and ineffective South African labour legislation was seen as contributing to high levels of unemployment amongst people with disabilities[5].

Following South Africa's first democratic elections and the subsequent acceptance of a democratic government, existing South African labour laws were reviewed with new laws enacted in order to embrace the principles of the Constitution[2]. The Labour Relations Act specifically the Code of Good Practice Dismissal (Schedule 8) was one of the first laws to address the issue of managing employee incapacity on the grounds of ill-health and injury[3] and laid the foundation for the assessment of employees' ability to perform their work as well the implementation of adaptations to sustain employment. The Employment Equity Act[4] promulgated in 1998 was the first act to specifically address disability in the work place by defining disability and providing the framework for reasonable accommodations to both retain people with disabilities at work (existing employees) as well as to facilitate entry into the open labour market by job seekers with disabilities. The legal platform was therefore established for the provision of vocational rehabilitation service delivery by occupational therapists but professional competencies required for service delivery were not yet determined.

Professional competency

Professional competence is not an easy concept to define[13,37,38] with no generally accepted description. Grossman[38] states that competence includes a person's knowledge, skills and clinical judgement as well as practice environmental demands. For the purposes of this research, professional competencies refer to the sum total of capacities which an occupational therapist possesses and which are believed relevant to the field of vocational rehabilitation practice[12]. Professional competency includes knowledge, skills and professional values.

METHODOLOGY

Design

In the absence of relevant published information specifically on professional competencies, various consensus methods are suggested to seek the opinion of experts[39-41]. In order to obtain consensus and facilitate input from experienced occupational therapists over a wide geographical area in an equitable manner, the Delphi technique was used. Characteristics of this technique include making use of a panel of experts or informed individuals who complete sequential rounds of written questionnaires anonymously. Controlled feedback is provided to panel members between rounds in order to keep them informed of the collective response of the panel. The number of rounds varies according to time, research aims and other factors, from two to five rounds until consensus of opinion is achieved on the research topic[41,42].

Ethical clearance

Ethical clearance was obtained from the Ethics Committee of the Faculty of Health Sciences of the University of Pretoria. All research participants completed informed consent forms, a copy of which was returned to them for record keeping purposes.

The expert panel

The use of experts as members of the panel is a key characteristic of the Delphi technique[41]. Experts are described as knowledgeable and experienced and the panel should reflect diversity of experience, diversity of expertise and diversity of interests[43]. Literature differs on the number of panel members with 10 to 50[44] and more than 100[45] being used thus there is little agreement concerning the expert panel size[41]. In two South African occupational therapy studies, the expert panel size was 20[46] and 45 members[47]. A panel size of 35 expert occupational therapists was decided by the researcher as this number was used by Stokes[48] in a related study.

Two-hundred-and-fifty-six occupational therapists working in the field of vocational rehabilitation were identified. Potential panel members were compiled from lists of private practitioners from the Occupational Therapy Association of South Africa (OTASA) membership list and its affiliated organisations. Potential panel members from occupational therapists in the insurance industry, postgraduate diploma students in vocational rehabilitation and attendees of continuing professional development workshops were also identified. Contact was made with all eight South African universities that trained occupational therapists, to identify lecturers whose key responsibilities were teaching vocational rehabilitation. The contents of the South African Journal of Occupational Therapy and insurance-related publications were reviewed to identify occupational therapists who had published on vocational rehabilitation topics after 1995 following the implementation of disability equity legislation as these authors would be viewed as experts[41]. Use was made of a snowball sampling technique in order to identify as many occupational practitioners as possible.

Non-probability sampling was applied to the total population to enable the selection of a 35-member panel representing a variety of practice settings, experience and expertise using predetermined

criteria thereby limiting selection bias[48]. First quota sampling was conducted in order to ensure maximum variation. Ten different groupings of occupational therapists were identified from the list of 256 occupational therapists. These groups comprised occupational therapists working in private practice, in hospitals, and schools, in insurance, in training and in supported employment settings. The remaining four groups of occupational therapists were those who had published, were actively involved in the implementation of related disability equity law, held postgraduate qualifications and who were teaching in the area of vocational rehabilitation at a South African university. Purposive sampling was then applied and 35 potential panel members were selected on the basis of percentage representation in the group of 256 occupational therapists.

All 35 potential panel members were telephonically contacted by the researcher to explain the research purpose and methodology. Emphasis was placed on how lengthy the process was anticipated to be in order to obtain assurance that they would have adequate available time to participate in the process[41]. Permission was obtained to send potential panel members informed consent forms. Three potential panel members were not able to participate, which resulted in the selection of three other panel members applying the same selection criteria. On receipt of all forms, the research commenced.

Pilot study

Once the expert panel had been identified, a pilot study was conducted to obtain feedback and suggestions on the informed consent form, first round Delphi questionnaire, definitions of terminology and biographical forms in terms of layout, clarity and completion time frames. The purpose of the pilot study was to eliminate potential research problems[40-42,48,49]. A convenience sample was selected from the initial group of 256 occupational therapists (excluding the identified panel members) to reflect diversity of practice settings and ability to give constructive feedback to the researcher. After informed consent had been obtained, written and verbal feedback was collected from the five pilot study participants during individual interviews. Appropriate improvements were made to all the research documents.

Delphi rounds

Three Delphi technique rounds were conducted with sequential questionnaires based on data from the preceeding one. Each questionnaire was accompanied by an information letter, which included definitions of terminology, researcher contact details and (where appropriate) feedback/results from the previous questionnaire. Quasi anonymity was assured with tracking numbers allocated to all Delphi questionnaires[41].

The first round Delphi technique questionnaire was qualitative in nature and consisted of open-ended questions requesting panel members to identify knowledge, skills and values in each vocational rehabilitation phase. These phases, described by the International Labour Office[50], were regarded as a generally accepted framework for South African occupational therapists working in vocational rehabilitation[12]. The vocational rehabilitation phases used by occupational therapists for the purposes of this research were: (i) *evaluation/assessment* of workers, (ii) *vocational guidance* – seen as an interpretation and planning phase in terms of achieving work and/or return-to-work, (iii) *vocational preparation* including both treatment/intervention such as work hardening, stress management and other interventions which would improve a client's ability to work, as well as training – both formal and informal skills training, (iv) *placement*, and (v) *follow-up*. Panel members were also requested to identify knowledge, skills and values that did not fit into any of the identified vocational rehabilitation phases in order to generate further ideas regarding vocational rehabilitation.

Data from the first round Delphi questionnaire resulted in 896 knowledge, skill and value items in the vocational rehabilitation phases. Content analysis was applied and data were manually coded by the researcher into categories and items[41]. The process of data analysis resulted in 11 categories with 405 items. In addition to the vocational rehabilitation phases, four new categories of information emerged from this process. These were legislative (related to the employment of people with disabilities), employment settings (placement possibilities), general management and embedded knowledge, skills and values (not specifically related to vocational rehabilitation). Themes were not identified at this stage to ensure that each item could be considered in order to achieve consensus[41].

The second round Delphi questionnaire was developed using the categories and items generated from the first questionnaire. Panel members were asked how strongly they agreed or disagreed, on a five point Likert Scale[41,51], with each item. For each item provision was made for qualitative comments.

Both quantitative and qualitative data analyses were applied to the round two Delphi questionnaire. Data from this questionnaire were statistically analysed together with a statistician from the University of Pretoria. The mean and standard deviation were calculated[41,51]. Items for possible inclusion for the third round Delphi questionnaire were selected, provided that the mean minus one standard deviation was greater than 3,5 (out of 5), ensuring agreement between panel members[39,52-55]. This list of items was organised in rank order of their means. Content analysis was applied. The ranked items were systematically analysed by the researcher in order to logically combine items of similar meaning in order to collapse the total number of items. Qualitative comments provided by panel members were considered during this process.

The process of content analysis resulted in the 11 categories being collapsed into three categories and 212 items in the third round Delphi questionnaire. The new categories which emerged were knowledge, skills and values as 86% of the panel members were of the opinion that these were essential to all phases of vocational rehabilitation. This was a significant change in the Delphi questionnaires. Data were statistically analysed with a consensus rate set at 80%[39, 56,57].

Trustworthiness of data

The various strategies of Lincoln and Guba's Model of Trustworthiness[58] were applied to ensure research rigour. Prolonged engagement was obtained through the lengthy and iterative nature of the Delphi technique. Researcher credibility was established and all research processes and documentation were subjected to peer examination. A feedback and planning interview on the completion of each Delphi questionnaire were held with the supervisor. Both a confirmability and dependability audits were conducted by a research consultant not directly involved in the research process. All raw data, process notes and working documents were used for this process.

RESEARCH RESULTS

Questionnaire response rate

There are no clear guidelines in terms of Delphi response rates but in order to maintain research rigour, a 70% response rate was set by the researcher in order to maintain research rigour[59]. This was achieved by telephonically following up panel members at regular intervals and providing feedback on the results of the questionnaires. Of the 35 panel members, 29 (83%) returned the first round Delphi questionnaire. All 29 (100%) members returned the second round Delphi questionnaire and 28 (97%) of the 29 panel members returned the third round Delphi questionnaire.

Biographical profile of expert panel

Biographical information requested during the first Delphi round indicated that nine (31%) of the panel members were involved in full-time private practice; five (17%) were employed in the insurance sector; three (10%) in full-time academic posts with representation in all the other strata. Nineteen panel members had more than 10 years vocational rehabilitation experience. Panel members obtained their occupational therapy degrees from six

of the eight South African universities, with 12 (42%) graduating from the University of Pretoria. Twenty six (90%) panel members had postgraduate qualifications, with 18 (51%) of the panel having obtained their Post Graduate Diploma in Vocational Rehabilitation at the University of Pretoria.

Knowledge, skills and values

Using an 80% consensus level, agreement was obtained amongst the participants on knowledge, skills and professional values required for service delivery. Consensus was achieved on eleven knowledge themes with 64 items; 13 skill themes with 93 items and 47 value items (no themes logically emerged in the skill category). They include, but are not limited, to the following knowledge and skill themes and value items[12]:

❖ **Knowledge** of various health related conditions; vocational rehabilitation (general aspects); employment settings; disability related legislation; various team players and their roles; evaluation; vocational guidance; intervention strategies; training; placement and follow-up.

❖ **Skills** in general vocational rehabilitation aspects; communication; legislation – application of skills within legislative and scope of practice parameters; team work; evaluation; job analysis; vocational guidance; intervention; training; placement; follow-up; general aspects (but not specific to vocational rehabilitation only) and management.

❖ **Values** include ethical behaviour, objectivity, insight, integrity, consistency, confidence, respect, commitment, dedication, adaptability, empathy, determination, professionalism, using client centred approach, quality assurance and perseverance.

Development of professional competency statements

The work of Coursey et al,[60] was considered during the formulation of professional competency statements required by occupational therapists who deliver vocational rehabilitation services to workers in the open labour market. Knowledge, skills and values items identified during the research process were combined into professional competences. Sixteen professional competencies emerged:

Professional competencies (see *Table* on page 52)

1. **Has knowledge of a variety of health related conditions.** Occupational therapists should understand the condition, its impact on the client's ability to work and related prognostic indicators. An understanding of inappropriate illness behaviour is necessary.

2. **Understands and implements various vocational rehabilitation services.** Services include injury prevention, health risk management, disability management, disability equity consulting and case management.

3. **Understands the requirements of various employment settings in order to facilitate employment/placement for people with disabilities**. These employment settings include the open labour market, sheltered-, protected- and supported employment. Occupational therapists should be able to use various work classification systems including those of the physical demands classification.

4. **Understands aspects of labour, disability equity, health and safety, skills development and related legislation appropriate to vocational rehabilitation**. These include the Labour Relations Act and its Code of Good Practice: Dismissal; the Employment Equity Act and its accompanying Code of Good Practice and Technical Assistance Guideline on the employment of people with disabilities; the Skills Development Act as well as the Occupational Health and Safety Act. Occupational therapists should understand how insured and government funded benefits are structured for people who become ill, injured or disabled – both whilst performing their work duties as well as off-duty. These include workman's compensation, the Department of Labour's Unemployment Insurance Fund, various social grants including disability grants administered by the South African Social Security Agency, as well as group insured benefits. Knowledge of building regulations for people with disabilities is essential. Occupational therapists should be able to deliver vocational rehabilitation services within the legal context given the occupational therapy scope of practice.

5. **Communicates appropriately using various media in diverse settings including business**. Compiles timeous written reports and communicates effectively on an individual and group level using appropriate presentation media.

6. **Collaborates with various team members and role players during the provision of vocational rehabilitation services**. These role players include human resource managers, employers, work supervisors, safety representatives and union members.

7. **Evaluates work related abilities and skills of clients requiring vocational rehabilitation services**. Conducts comprehensive functional capacity evaluations in various settings, for various purposes using a variety of standardised and non-standardised tests. Formulates appropriate conclusions and recommendations.

8. **Conducts job analysis through work place visits, job description review and interview of relevant stakeholders**. Matches the requirements of the work with the abilities of the client and recommends reasonable accommodations where appropriate.

9. **Understands and applies the vocational guidance process**. Facilitates client's insight into their abilities and work requirements thereby enabling participation in decision making and planning.

10. **Understands various treatment/intervention strategies and plans, implements, grades, evaluates and manages work readiness/work preparation programmes that facilitate return to work or employment for clients.** Strategies include on-site treatment using job trials and transitional work programmes, work hardening, work conditioning, work simulation, back hygiene and ergonomic principles, life skills, stress management, prevocational skills and job-seeking skills training.

11. **Facilitates training/skills acquisition and re-skilling in order to facilitate placement in the open labour market**. Knows of informal and formal education and training programmes for people with disabilities and refers clients appropriately. Sensitises trainers to disability when required.

12. **Facilitates placement/employment or return to work for clients who have disabilities/injuries or who are ill**. Understands potential employment barriers and how to bridge them. Knows of job finding and job search resources and networks appropriately. Sets up support systems during the placement process.

13. **Implements follow-up processes to determine success of vocational rehabilitation services**. Understands the purpose of follow-up and conducts follow-up with both client and employer. Closes the case.

14. **Possesses management skills**. Exhibits time management, business planning, project management, financial management, human resource, and administration skills.

15. **Reflects professional behaviours and attributes which are considered necessary to deliver vocational rehabilitation services**. Displays clinical reasoning and interpersonal skills. Is able to think proactively and laterally; works creatively and innovatively with confidence; is a dedicated and adaptable practitioner who is determined to overcome barriers.

16. **Reflects values consistent with the "Guidelines on ethical conduct, rules, regulations and policy documents"** as reflected in the 15 guideline booklets published by the Health Professional Council of South Africa[61].

51

Table 1: Curriculum recommendations

Professional competency	Undergraduate curriculum	Postgraduate curriculum
1	Understands the theoretical aspects of various health related conditions; the impact thereof on the performance of work as well as related prognostic indicators.	Has a deeper understanding of a large variety of health related conditions including inappropriate illness behaviour coupled with appropriate field-work (clinical) experience.
2	Understands various vocational rehabilitation services, and applies the vocational rehabilitation process within the hospital, school and community contexts.	Conducts the identified services within a variety of contexts such as the business and industry-type environments.
3	Has knowledge of selected work classification systems, the requirements of the open labour market as well as knowledge of employment settings other than the open labour market.	Has knowledge of the employment process as well as applying this process to his/her clients. Understands the role of various role players in the employment context.
4	Understands the purpose of the related Disability Equity laws, as well as a general understanding of the laws in order to refer a client for assistance when appropriate.	Applies and integrates these laws to vocational rehabilitation service delivery i.e. has working knowledge of these laws. Advising clients on their legal rights is not a requirement of this competency.
5	Compiles reports addressed to appropriate role players with guidance. Visual presentation skills should be developed as part of undergraduate training.	Communicates with various industry-related role players regarding vocational rehabilitation services.
6	Develops in various contexts in which a student conducts field-work.	This is linked to the previous professional competency and is developed with experience.
7	Conducts work related assessment, with guidance, in work, school and community settings. Requires guidance in the interpretation of the results and formulating a conclusion and recommendations.	Conducts work related assessments in a variety of contexts as well as for various purposes such as insurance benefits, compensation purposes as well as return-to-work determination.
8	Conducts job analysis with guidance.	Matches client's abilities to the requirements of the work using a variety of job analysis methods. Makes recommendations regarding reasonable accommodations and implements these. Is able to assess a broad range of occupations.
9	Understands the vocational guidance process.	Applies the vocational rehabilitation process.
10	Understands various intervention strategies and can implement these for individual and groups of clients in schools, hospitals and community settings. Has skills in the following programmes: life skills training, stress management, pre-vocational skills training, facilitation of motivation and action, treatment of client factors and performance skills as well as rehabilitation aspects.	Implements treatment and prevention strategies in the work place for individual and groups of clients. Demonstrates skills in the following types of programmes: work hardening, work conditioning, work simulation, ergonomics, counselling and job seeking skills training.
11	Has knowledge of various skill training programmes and refers clients appropriately.	Implements training programmes for clients to facilitate return-to-work and/or employment.
12	Has knowledge of the placement process.	Implements placement procedures in order to facilitate return-to-work and/or employment.
13	Has knowledge of the follow-up process.	Implements follow-up procedures.
14	Manages time and organizes work load.	Has knowledge and skills in the following: business planning, costing, managing projects, managing staff and clients, administration skills and marketing.
15	Professional behaviours are developed and nurtured.	Professional behaviours are further developed.
16	Ethical behaviours are developed and nurtured.	Ethical behaviours are further developed. Accountability for ethical behaviour is developed.

DISCUSSION

Although there are no universally accepted guidelines for the application of the Delphi technique and researchers remain critical of the limitations thereof[41,62-64], it was an appropriate technique for this study. It facilitated equal say from the panel members which would not have taken place with other consensus techniques.

All possible actions were taken by the researcher to overcome the shortcomings of the Delphi during the research process. Careful attention was paid to the selection of panel members to reflect diversity of experience and commitment to the field of vocational rehabilitation. Various authors[41,62-64] report that there is no consensus in literature regarding the optimum number of panel members. Hsu[63] argues that a small panel might not be considered representative of the population whilst a poor response rate could be associated with a larger panel. Sandrey and Bulger[62] conclude, following their literature review, that the panel should at least include 10 members with no significant changes in results in panels larger than 25-30 members. The panel size selected by the researcher appeared to bridge these limitations and was manageable. A higher response rate than 70% (which as the highest rate suggested in literature) was achieved by implementing various strategies including maintaining constant contact with the panel through reminders, content of letters, frequent emails and feedback[41,62]. This assured a very low attrition rate and contributed towards panel/sample motivation[41] both necessary for research rigour.

52

Given the above discussion, providing the demographics of the panel, the results of this research process appear to provide a valid opinion[41] of occupational therapists in South Africa.

The results of this research further appear consistent with published international studies[65-67]. Aspects which did not appear to be identified by the research participants as clearly as in the international studies include injury prevention[65-67], health promotion[65], evidence based practice[66] as well as injury and illness management and rehabilitation[67].

RECOMMENDATIONS

Based on the research process recommendations are made for inclusion in the occupational therapy curriculum on both an under- and postgraduate level (*Table 1* on page 53).

CONCLUSION

This research process appears to be the first in the area of South African vocational rehabilitation in terms of identifying professional competencies required to deliver vocational rehabilitation services. This contributes to the body of authentic South African research in the area of vocational rehabilitation as there does not appear to have been previously documented related research, or research published after this research was completed. Further research is currently being conducted by the author to determine whether these professional competencies are reflected in South African undergraduate occupational therapy curricula. During this process it would also be essential to determine to what extent the identified professional competencies are reflected in the Health Professions Council of South Africa's Professional Board for Occupational Therapy, Medical Orthotics, Prosthetics and Art Therapy - Minimum Standards of Training for Occupational Therapists - as all universities are required to comply with these standards.

Ongoing and further research in vocational rehabilitation and in particular in the education and training of occupational therapists in this area of practice is of paramount importance. Many occupational therapists enter this area of practice and anecdotal evidence appears to suggest that other health professionals are as well. We need to as an occupational therapy profession to ensure that we provide competent, professional, contextually relevant vocational rehabilitation services to clients which enables them to fulfil their roles as independent citizens in a democratic South Africa free from disability discrimination.

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54

Ethical misconduct of HPCSA registered Occupational Therapists in South Africa

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ABSTRACT

In South Africa, the health care professions are regulated by statutory bodies which are organs of the state and can enforce laws such as the Health Professions Act. The Health Professions Act provides the parameters within which the Health Professions Council of South Africa (HPCSA) can sanction members if they are in contravention of its regulations. During the period under analysis i.e. between 2007 and 2013, only three penalties were imposed against two occupational therapy practitioners. Although the number of penalties can be viewed as insignificant the value of the research is in the fact that cognisance needs to be taken by the profession of the relevant ethical issues in these cases.

It is recommended that occupational therapists should always inform their clients appropriately and should also form informal mentoring groups.

Keywords: ethical transgressions, fraud, ethical standards

INTRODUCTION

In South Africa, the health care professions are regulated by statutory bodies, such as the South African Nursing Council and the Health Professions Council of South Africa (HPCSA). Registration with the regulatory bodies is mandatory and it is a criminal offence to practise a regulated profession without a current registration, as it is a contravention of the Health Professions Act 56/1974 (HPA)[1] and other relevant legislation. The HPA provides the parameters within which the HPCSA must act in its regulation of the health care professions and among other functions, enables the HPCSA to sanction the contravention of its regulations. In addition, the health professionals could join non-statutory professional bodies, such as the Occupational Therapy Association of South Africa (OTASA), of which membership is voluntary.

When a patient, client, family member, care provider or colleague holds the opinion that an occupational therapist's behaviour has had a negative impact on him or her, the person has the right to lodge a complaint of unethical behaviour with the HPCSA against the particular occupational therapist. Once a complaint has been received by the HPCSA, the Legal Services Department, on behalf of the Registrar, will send a formal letter to the person against whom the complaint has been lodged to notify him or her that a complaint was lodged, and that an explanation is required. The accused practitioner's explanation is reviewed by the Legal Services Department and considered by the Professional Board's Preliminary Enquiry Committee. The preliminary enquiry committee can make decisions on minor transgressions such as issues pertaining to advertising. If the committee decides that the matter is serious, it is referred for a full enquiry, to be heard by the professional conduct committee, which should have some representation from the profession of the accused. If the accused practitioner disagrees with a guilty finding from the Preliminary Enquiry Committee, he/she can request that it be referred to a full enquiry. Should the accused be found guilty of misconduct a number of potential penalties can be imposed, for example a reprimand, fine, suspension or even removal from the register. The HPCSA cannot however, institute criminal sanctions (i.e. imprisonment) against a guilty party[2,3,4]. See *Figure 1* for the HPCSA disciplinary process.

Legal, ethical and liability concerns are disconcerting in healthcare professions at large, but also for the occupational therapy profession. The possibility of a complaint being lodged against a practitioner is an increasing risk for most healthcare practitioners as the South African population becomes more aware of its rights and are influenced by the media which provides greater accessibility of information on disorders/diagnoses.

The objectives of this article are the following:

❖ To examine the content of all guilty verdicts related to professional standard breaches and ethical misconduct against HPCSA-registered occupational therapists in the period 2007 to 2013. Although cognisance should be taken that the preliminary committee has had two different chairpersons during this time, the data are presented in one cohort as historically significant since the functioning of the committees was guided by the same standards.

❖ To examine the penalty content of all guilty verdicts related to professional standard breaches and ethical misconduct against HPCSA-registered occupational therapists in the period 2007 to 2013; and

❖ To recommend potential intervention strategies.

METHODOLOGY

Research Design

The study is primarily a descriptive study while it specifically focuses on a historical research approach, using archival material (e.g. documents and records) as the primary data source[5]. In this study the *archive* was the publicly accessible information pertaining to complaints, alleged misconduct and outcomes of formal hearings as published on the official website of the HPCSA[6].

Data Gathering Process

Since 2007 the HPCSA has published an annual list of all the guilty verdicts related to professional standard breaches and ethics misconduct against registered health practitioners under its jurisdiction. These annual lists are published in the public domain on the official HPCSA website[6]. These lists contain the name and registration number (as well as category) of the guilty practitioner, a summary of the misconduct, a summary of the penalty, as well as the geographical area.

Data Analysis

Only data pertaining to healthcare professionals registered as Occupational Therapists in the HPCSA's Professional Board for Occupational Therapy, Medical Orthotics and Prosthetics and Arts Therapy were analysed in this study. In the first phase of data analysis, annual frequency tables were compiled for the following variable combinations: 1) total number of guilty occupational therapists; and 2) total number of specific penalty types imposed between 2007 and 2013.

Ethics Approval

Research projects that exclusively focus on the analysis of publicly available documents are generally exempt from the requirement for ethics clearance from a registered research ethics committee.[7] As such, no formal ethics clearance was sought for this project. Note that even though the identities and HPCSA registration numbers of the sanctioned health professionals are provided in the HPCSA annual lists of guilty verdicts, they are already within the public domain, they are however deemed to be irrelevant to the project objectives. As a result the data are reported anonymously and the identifying information not given.

RESULTS

The total number and overall relative percentage of the different penalties imposed to guilty occupational therapists in South Africa in the period 2007 to 2013 is very low with only three penalties imposed against two practitioners in the reported time. Although these penalties can be viewed as insignificant, given the average registered number of professionals (3,480) between 2003 and 2013, the value of the research lies in the fact that cognisance needs to be taken by the profession of the relevant ethical issues in these cases. The fact that the data only refer to guilty verdicts do not suggest that these were the only complaints received from the public.

Penalties imposed to guilty practitioners

The different penalties imposed to guilty occupational therapists[6] in the period 2007 to 2013 were the following:

Table 1: Penalties imposed against ethical misconduct in specific year

Penalties	Nature of transgression	Year
Fine of R7,000	Submitted report without assessing patient	2008
Six month suspended suspension (where the practitioner may not be found guilty of a similar transgression within the time)	Fraudulently submitted a report to a Financial Services company, whilst knowing and/or ought to have known that it was not compiled by the transgressor	2008
Reimbursement to complainant	Fraudulently submitted a report to a Financial Services company, whilst knowing and/or ought to have known that it was not compiled by the guilty practitioner	2008

Transgressions committed by guilty practitioners

The transgressions can be classified in general terms as unprofessional conduct, where the cases involved the submission of a medico-legal report without actually assessing the patient and the compilation of a fraudulent financial report. According to the data the only ethical misconducts which were penalised in the period 2007 – 2013 took place during 2008.

DISCUSSION

The findings of the current study indicate that only a small fraction of the occupational therapists registered with the HPCSA have been found guilty of ethical misconduct, with 2008 being the only year with reported misconducts (*Table 1*). One possible reason could be that the preliminary committee mediated effectively between the professional and the members of the public who submitted the complaint.

In this study, unprofessional conduct was characterised by the following two areas: submitting a report without assessing the patient; and fraudulently submitting a statement to a financial services company (i.e. medical aid). As a healthcare professional one is held in a position of trust by the public as well as fellow health care professionals. Not honouring the trust put in one's professional capacity and integrity could negatively impact the therapeutic relationship. The latter constitutes a direct form of disrespect for patient dignity. Exhibiting respect for patients' inherent human worth (dignity) is one of the main responsibilities of health professionals in South Africa. Also, it is universally regarded as a principle of bioethics and human rights; for example Article 2(c) and Article 3(1) of the Universal Declaration on Bioethics and Human Rights[8], and in keeping with the stipulations of the Constitution of the Republic of South Africa 108/1996 on Human dignity [S10]; Privacy [S14(d)]; Health care [S27].

In South Africa the rules for good practice in the healthcare professions are described in the *Ethical and professional rules of the Health Professions Council of South Africa as promulgated in Government Gazette R717/2006*.[2] This document provides the general ethical rules of conduct for all practitioners registered under the Health Professions Act[1]; it is referred to as the *General Ethical Rules*. A companion document published by the HPCSA[9], namely the General Ethical Guidelines for Health Care Professions essentially provides the Code of Ethics that all practitioners should subscribe to. OTASA[10] also has a very helpful set of guidelines namely the Code of Ethics and Professional Conduct which by implication members of the association subscribe to.

CONCLUSIONS AND RECOMMENDATIONS

Although only a small fraction of occupational therapists have been found guilty of ethical misconduct the influence of the media (internet, social, talk shows and printed) and electronic advances (connectivity to information via cell phones and tablets), along with on-line diagnosis and therapy[11], cannot be negated as clients may have better access to resources of varying authority and reliability, possibly giving them more confidence to question the practices of their service providers. Occupational therapists need to appropriately inform clients with relevant and reliable information whilst respecting their clients' opinions in an ethical manner.

Registered professionals should firstly acquaint themselves with the HPCSA guidelines to ethical conduct, but also join/establish a regular discussion group reflecting on ethical issues which might occur. These informal groups often act as a sounding board where more established professionals can guide/mentor less experienced colleagues in a safe environment and where relevant experiences can be shared. These groups can furthermore also invite subject experts if they find some members of the group have common problems.

In conclusion, the Health Professions Act[1] (Rule 21) does not require from registered professionals to practise perfectly; rather,

it requires from them to have the knowledge and skill comparable to others registered in the same category and to act reasonably in accordance with the established standards.

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POSITION PAPER

Occupational Therapy Association of South Africa (OTASA)

Position Statement on Occupational Therapy in Primary Health Care (PHC)

INTRODUCTORY STATEMENT

This position statement is the response of the Occupational Therapy Association of South Africa (OTASA) to the Re-engineering of Primary Health Care (PHC) and the Green Paper on the National Health Insurance. It serves to articulate the profession's commitment to equity and social justice through a transforming health-care system in South Africa.

PHC shares its core principles with Community-Based Rehabilitation (CBR), the rights-based and multisectoral philosophy on which South African disability legislation is based (including the Integrated National Disability Strategy 1997, Draft Policy on Mainstreaming the Rights of People with Disabilities 2015 & National Rehabilitation Strategy 2015). In reaffirming our commitment to PHC as OTASA, we are also expressing our support for CBR as the overarching framework within which health rehabilitation should be provided.

Statement of OTASA position

OTASA subscribes to the comprehensive definition of health as described in the Alma Ata Declaration[1]. Occupational therapists believe that health, well-being and development is shaped by the ordinary things people do every day, including work, play, learning, caring and socialising. This perspective informs occupational therapy practices which address people's health needs within their own context. This is done by taking account of the social determinants of health, and often acting directly on the social determinants of health (e.g. by helping an injured breadwinner to return to work, it often enables the continued education and adequate nutrition of dependents).

The unique contribution of occupational therapy lies in understanding the complex relationships between the things people do (occupations), their environment and their health. Occupational therapy intervention aims to create a better fit between these, so that people are able to meet the challenges they face, and their health is promoted, restored and maintained. Occupational therapy essentially forms a bridge between biomedical health services and an understanding of social realities, for productive and meaningful living in society.

In this way, occupational therapy embodies the spirit of PHC, offering local interventions that address injustices and promote productive and healthy lives and communities, and "not merely the absence of disease or illness"[1]. At all levels, occupational therapists are committed to multi–professional teamwork, intersectoral collaboration, and partnerships with people and communities.

OTASA expresses its support of the principles of PHC in the interest of facilitating the right to health of all South Africans, as follows:

❖ *Right to access:* OTASA embraces the partial shifting of re-sources (including human) away from institutions and into the District Health System, bringing services closer to where people live. OTASA calls for special measures to address the access challenges faced by people with disabilities, especially in rural and remote areas, including dedicated therapist transport for outreach and home visits.

❖ *Effectiveness:* Occupational therapists at PHC level promote screening, early intervention, prevention and health promotion, through population-based programmes that seek to reduce the incidence and impact of serious disability and morbidity. OTASA commits itself to the continued development of the evidence base for PHC-based occupational therapy practice.

❖ *Appropriateness:* Occupational therapists strive to make their services responsive to the complex needs of the people with whom they work and are committed to deepening the cultural fit and sensitivity of practice.

❖ *Equity:* Through appropriate provision of medical, educational, psychosocial and vocational rehabilitation services as well as assistive devices, occupational therapy seeks to overcome the barriers to full participation of people with disabilities. OTASA recognises the need for special measures to address equity for vulnerable groups such as the very poor, women, and people who live in rural areas.

❖ *Affordability:* OTASA calls for sufficient ring-fenced funding for occupational therapy PHC services, so that scarce human and financial resources can be optimally utilised. This will reduce the hidden but significant costs to society of people living with unnecessary disabilities.

Implications of this OTASA position to the profession

This position will require reorientation of the profession, from undergraduate curriculum to the professional community:

1. Graduates must be equipped with the necessary broad clinical, managerial and training skills to work in complex new environments, in non-traditional roles, and to plan and deliver services at population level;

2. Targeted support is needed for the professional development of new graduates, who currently deliver the majority of PHC occupational therapy services;

3. Continuing professional development must target the skill-base needs of generalist practitioners, and should be both physically and financially accessible;

4. Creative approaches to service delivery must be considered, taking account of resource constraints and the level of need. Task-shifting, for example to appropriately trained and supported mid-level rehabilitation workers and other categories of community based workers, may be included.

5. Intersectoral collaboration must become a reality, under the overarching vision of CBR.

Impact of the OTASA position to society

By making occupational therapy services accessible to the broader population through re-engineered PHC, the following can be expected:

❖ Greater life expectancy, well-being and productivity for at-risk populations[2-9].

❖ Mitigation of the physical, social and economic impact of many health conditions, resulting in:

- Reduced burden of care, both economic and social, to family and state[2,10].
- Cost savings in health care through the prevention of complications, e.g. pressure sores, mental health relapse[11-14]; and
- Increased rates of social and economic productivity, through occupational therapy interventions which target education and employment for injured workers, people with disabilities and vulnerable groups[15,16] e.g. youth living with HIV.

CONCLUSION

This statement positions occupational therapy as an essential service provider within the context of the National Department of Health's (DOH) vision for transformed service delivery. We commend the DOH for the steps they are taking to achieve universal coverage, and commit ourselves to supporting the transformation this implies. We invite the Department's further engagement with OTASA and other relevant stakeholders over post structures, financial commitments and other resource allocation necessary to realise occupational therapy's contribution to "a long and healthy life for all South Africans"[17].

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[Author. "Document Title." *Title Complete Works.* Date/last revision. <http address> (Date of visit)]

Please note that care must be taken to format the references correctly as given in the examples above.

Format

Manuscripts must be clearly typed in Word Perfect, double-spaced with a legible font (Arial size 11 is preferable). Authors should not assume that the readers know the context in which the article is set. This needs to be clarified by providing definitions of key terms and concepts. The context needs to be organised in a coherent and logical manner. Conclusions must be brief, drawing the article to a close and containing no new information.

Reviews

All manuscripts undergo an anonymous peer review process and are sent to at least two reviewers for comment on the scientific worth of the article and it's suitability for publication in SAJOT. The comments are returned to the authors. Articles may be accepted without change, changes may be requested or the article may be rejected.

Editing

Please note that the article will be edited prior to printing. If you wish to read the final copy before publication please confirm this with the editor once the manuscript has been approved for publication.

Checking

Please ensure that you have done the following prior to the submission of the article to SAJOT:

- Checked all referencing
- Given complete addresses for all authors
- Made sure that the article author cannot be identified
- Checked for plagiarism
- Asked a colleague to read the article and give a critique
- Submitted the Multiple Choice questions covering the content of the article
- Asked somebody proficient in the English language to edit the article. Authors are strongly encouraged to have their manuscripts reviewed by their colleagues and a language editor prior to submission to the journal.

Multiple Choice Questions

All submissions must contain 10 Multiple Choice Questions (MCQs) together with the answers covering the content of the article so that readers may receive CEU points for reading the article and answering the questions.

CEU Points

CEU points accredited as follows:

- **As an Author of a SAJOT article**
  Principal author of an article   (15 CEUs)
  Co-author(s) of an article   (5 CEUs)
- **Reviewer of an article**
  3 CEUs per article
- **Answering Multiple Choice Questions**
  3 CEUs per article
  The MCQs can be found on www.otasa.org.za

Points can be obtained by applying to the OTASA office. Paid up members of OTASA will receive their points free of charge.

1. GUIDELINES FOR AUTHORS OF SCIENTIFIC ARTICLES

Articles submitted to the SAJOT must be original and must not have been published elsewhere. Articles should contain new information, add to existing knowledge, resolve controversy or provoke thought and discussion. The content of the article must justify the length, which should be about 14 -16 pages, double-spaced or approx. 2500 – 5000 words in length. Please ensure that for all submissions contact details are in a **separate** document entitled 'Title Page' – see above.
    The article must contain the following:
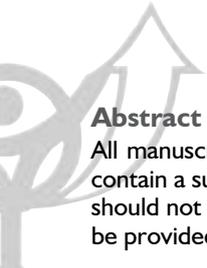
Abstract and key Words

All manuscripts submitted to the SAJOT must be accompanied by an abstract not exceeding 200 words in length. The abstract must contain a succinct structured summary of the study using the headings: Introduction, method, results/findings, conclusions. The abstract should not contain abbreviations or references. The abstract may be in the language of the author's choice. Up to five keywords should be provided to assist with the indexing of articles.

Introduction

This should provide a brief rationale for the study and an outline of the aims or questions

Literature Review

This should be a **critical** appraisal of the current relevant literature identifying the limitations in the work already conducted on the subject and a rational for the study. A maximum of 35 references should be included.

Method

This should contain the following: Aims, study method and data collection procedures, population and sampling procedure, methods of analysis of data, information on validity, reliability trustworthiness and credibility. Details of the the ethical clearance and informed consent must be provided.

Results

The results must be presented in a way that makes them accessible to the readers and are clearly linked to the aims and methods of the research.

Discussion and Implications

The implications for occupational therapists must be outlined and the contribution that the study makes to the current state of knowledge of the profession stated. Limitations must also be discussed.

Conclusion

There should be a clear summary of the main points of the paper.

Illustrations

Articles may include up to eight tables, graphs or diagrams and should be numbered and clearly labelled with their place in the text indicated as a guide to the editor. Figures should carry Arabic numerals (1, 2, 3 etc.) and labelling must be at the base of the figure. Tables should have Roman numerals (I, II, III etc.) and be placed at the top of the table. Figures and tables must be on separate pages. Please ensure that illustrations are clear and have printed well so that they can be easily scanned. All figures must be in JPG format. Please note that coloured figures and photos do not print well in the black and white format of the Journal.

Photographs

Photographs may be of any size. They must be very sharp, taken close up, with a lightish over-all tone and without dark backgrounds. If the photograph photocopies well, it will print well. Please check this before you send photographs.

2. GUIDELINES FOR AUTHORS OF SCIENTIFIC LETTERS

Letters submitted to the SAJOT must be original and must not have been published elsewhere. Letters should contain new information, add to existing knowledge, resolve controversy or provoke thought and discussion.

The requirements of a scientific letter are as follows:

- The letter must have the same scientific form as an article, but is much shorter i.e. 1500 – 1 700 words, to fill only one to two pages of the Journal but does not have an abstract.
- It may have only one table of results.
- There should be not more than 5 references.
- It must be original research.
- Peer evaluation will take place as with all other articles submitted to SAJOT.

3. GUIDELINES FOR PUBLISHING AN INVESTIGATION / CRITICAL REVIEW OF THE LITERATURE

Literature investigations submitted to the SAJOT must be original and must not have been published elsewhere.

The requirements of a critical review of the literature review is as follows:

- The review should provide reasons for choosing to review the topic and give the method used to conduct the survey along with the sources consulted.
- The review must cover the topic thoroughly i.e. it must include all or most of the major studies that have been conducted on the topic of interest within a given time frame. The most recent literature must be included.
- The publications referred to must be the primary source and the review should not rely on secondary sources. Articles reviewed should also not rely on opinion articles but should emphasise research articles.
- It should not be merely a summary of past work but must critically appraise and compare the key studies as well as discuss weaknesses and strengths. Important gaps in the literature should be identified.
- The review must conclude with a brief synopsis of the current state of the topic and give recommendations for future work.
- The format of the review must follow that for all scientific articles i.e. it must contain the following:
  · An abstract
  · Introduction
  · Method. In this instance the approach taken to search the literature, the data bases searched, the search parameters and

key terms used, the inclusion and exclusion criteria, and the criteria used for the appraisal and how they key information was extracted must be provided.
- Results: this should present the main evidence and a summary of its quality
- Implications: An outline of the implications for occupational therapy, the methodological limitations of the review, identify gaps and make recommendations.
- Conclusion - a clear summary of the main findings.

4. GUIDE LINES FOR WRITING AN OPINION PIECE

Opinion pieces provide authors with the opportunity to express an opinion concerning any aspect of occupational therapy. They are designed to encourage topical debate and the exchange of ideas. Contributors may discuss specific aspects of occupational therapy practice or debate the impact of occupational therapy on the health of people. These may also deal with health care and relevant social practice/issues in general such as consumer rights that may impact on the profession. They may also debate the impact of the current political and financial climate on the practice of the profession and its ability to meet all in need.

Irrespective of the topic discussed, opinions should be supported by evidence or theory. They should include:

- An abstract
- Headings which give structure to the paper
- References (a maximum of 15)

Opinion pieces are subject to the same critical review process that other submissions undergo.

Opinions are not necessarily those of the Occupational Therapy Association of South Africa nor The South African Journal of Occupational Therapy and its Editorial Committee.

5. GUIDE LINES FOR WRITING A COMMENTARY

These are similar to Opinion Pieces and are as follows:

- A commentary is written on a current event or topic by a person with the background to make an informed comment.
- A commentary should report on an issue or topic of interest and relevance to OT practitioners, educators and researchers.
- Irrespective of the information being commented upon, commentaries should include:
  - An abstract
  - Introduction
  - Coherent body with headings which give structure to the paper
  - Recommendations and conclusion
  - References (a maximum of 15)

Commentaries are subject to the same critical review process that other submissions undergo.

6. INSTRUCTIONS FOR REVIEWERS OF BOOKS

A book review should contain the following information:

- The full title of the book
- The full name of the author(s) and their qualifications and the position that they hold
- Details of the book
  1. Name of Publisher.
  2. Whether it is a paperback or hard copy and the number of pages.
  3. The publication date.
  4. The ISBN number.
  5. The Price (in SA Rand if possible).
- A review of the content which should include:
  1. The aim of the book.
  2. The way in which the information is structured.
  3. A brief summary of the content of each chapter.
  4. A comment on its relevance to SA occupational therapy.

The name, qualifications and work position of the reviewer.

7. GUIDELINES FOR WRITING A BIOGRAPHY

A biography has been defined as "a written account or history of the life of an individual" and "the art of writing such accounts"[1]. The biography should have a focus on occupation and/or views on occupation.

Approach to the interview

- Try to get a conversation going rather than a 'question and answer session'. Very good information is available in Rubin and Rubin[2].
- Start by explaining what SAJOT is and why biographies are included in the journal. The interviewee might be told that occupational therapists are interested in the impact of chosen occupations on personal development – which we believe people are shaped by the occupations they do. Another point of interest would be the impact of the interviewee's occupations on other people (this is usually only relevant to their work-occupation), for example, teachers or politicians.
- Explain what the intended product at the end will look like (or show an example).
- Give your assurance that the draft biography will be returned to the interviewee for 'checking' accuracy and that suggested changes will be made (ensure that this is done).
- Start your conversation with issues that are more public before asking questions that are more private.
- A good first question might be: "Tell me your story as you would like it to be remembered."

Issues to consider

Brief discussion of family and early life

Provide some information on the background of the person you're interviewing. Use questions below as a very loose guideline, in other words, do not ask questions that do not seem appropriate given the background and current status of the person being interviewed.

- Parents: where they came from, their occupations and roles in the family.
- Brothers, sisters and childhood friends: children's responsibilities, games and leisure activities.
- Local geography: the community, village or town; communal areas, land rights and ownership; markets, meeting places and other significant places; neighbours, important people and interesting characters.
- Social and cultural life: religion and politics; education and instruction at home, school or work; important friendships, influences and ambitions.

Questions above were adapted from Slim & Thompson[3].

Working life

The interviewee might feel more comfortable to start the interview with a discussion of work life. This is usually also the part that is already known and therefore not necessarily the most interesting.

- Occupation(s) inside and outside the home: domestic, agricultural, vocational, professional, formal, informal, paid and unpaid.
- How the skills were learnt; the work environment; what the work involves and who with; formal or informal training or apprenticeship.
- Important influences at work: mentors, colleagues, friends.
- Wider changes affecting work: environmental, industrial, political etc.

Questions above were adapted from Slim & Thompson[3].

Other occupations

It would be very interesting to know a range of occupations the person is involved in; the meaning and purpose of these in their lives.

- Leisure activities: hobbies; music, religious or cultural festivals and entertainments.

Future perspectives

Ask questions that will allow an opportunity for the person to share future directions (pertaining personal, career or broader issues) he/she would hope for / aim at achieving / advise others to take.

References:

1. Denzin, N. K. *Qualitative Research Methods: Interpretive Biography,* SAGE publications, Inc, Newbury Park, California, 1989.
2. Rubin, H. J. and Rubin, I. S. *Qualitative Interviewing: The Art of Hearing Data,* SLACK, Thousand Oaks, 1995.
3. Slim, H. and Thompson, P. *Listening for Change: Oral Testimony and Development,* Panos, London, 1993.

GUIDE TO SUBMITTING AN ARTICLE ON LINE

Email the title page of the submission to M Concha at sajot@mweb.co.za. A user name and password will then be provided to enable the author to complete the on line article submission.

Go to www.sajot.co.za. Log in using the "user name" and "password" that has been provided.

Step I – Starting the submission

Journal Section - Select the relevant category of the submission in this section from the drop down box.

Submission check list - Ensure that you have done all the things mentioned in the submission check list and confirm this by placing a check in the relevant box. i.e.

- The submission has not been previously published, nor is it before another journal for consideration (or an explanation has been provided in Comments to the Editor).
- The submission file is in Microsoft Word, or WordPerfect document file format.
- All references are checked to see that they comply with the requirements (see author guidelines). Where available, URLs for the references have been provided.
- The text is 1.5 spaced; employs italics, rather than underlining (except with URL addresses); and all illustrations, figures, and tables are placed on a separate pages with their place in the text clearly indicated.
- The text adheres to the stylistic and bibliographic requirements outlined in the Author Guidelines, which is found in "About the Journal".
- The instructions for Ensuring a Blind Review have been followed.
- The article has undergone a plagiarism check
- A colleague has read the article to check for inconsistencies, spelling and grammar.
- Multiple Choice Questions have been emailed to sajot.co.za. In addition it is advisable to attach these in the supplementary data section. Please note that the article will not be published until these have been received. They are used for continuing education points for the readers
- The details of all the authors have been included in the Step III - Entering the submissions metadata and includes the following:
  - Full names and all qualifications of all authors and where these were obtained eg BSc OT (Wits), MSc OT (Wits), PhD (UCT)
  - Place of employment / affiliations of all authors.
  - Contact details of all authors including email address, phone number and address
- Ethical approval for the study has been sought and explained and an approval number is given.
- The title of the article is on the article submission

NB You must email the 10 Multiple Choice Questions to sajot@mweb.co.za. You should also attach these as part of the supplementary information. The article will not be published until these have been received.

- **Copyright notice** – click to accept copyright.

- You may also send a note to the editor in the box provided.
- Click **save and continue** at the bottom of the page, this will enable you to move on to the next stage of the submission process

Step 2 – Upload the submission

Submission File
- Follow the steps for uploading your article.

NB it is important that you upload the file containing the complete article here. Do not include any information about the authors on the article. To upload - Click on the browse button, locate the file containing the article on your computer, click on it so that the name of the file appears in the window, and then click the "**upload"** button. This is the only place where the main article can be uploaded.

- Click **save and continue**

Step 3 - Entering the submissions metadata
- **Authors** – Information about **all** the authors must be provided here.
- The bio statement box should be used to complete the details of the qualifications of the authors (i.e. degree and where obtained and their place of practice in full.)
- **Title and abstract** – Please copy / type in the full title of your article into the box provided. Paste in a copy of the abstract into the block provided.
- **Indexing** – we are still working on this section so ignore
- **Supporting agencies** – complete if relevant
- Click **save and continue**

Step 4 – Uploading supplementary information
- You may upload tables and figures here if they have not been uploaded with the main article. You do not have to complete this section but must click save and continue to go to the next step. Photographs should be also be loaded here. Please note that there are two steps here **Step 4 and Step 4a.** In step 4 the file/files containing the tables should be uploaded. Click save and continue. This will bring up step 4a where you can add any information needed to identify the supplementary information. The only compulsory window is the title window.
- Click save and continue. This will bring you back to step 4 here another file can be uploaded.

Step 5 – confirming the Submission
- Click **Finnish Submission**. Please remember to do this otherwise your submission will not be recorded. It is very important to note that once you have confirmed the submission you will be unable to make changes to your documents. Any changes that you wish to make will need to be done via a completely new submission.

Help with this submission process can be obtained by phoning the editor M Concha at 011 783 2589.

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