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Welcome to our first issue of the journal for 2007. It is the view of the editors that the papers presented in this issue are informative and address needs of the community across the lifespan. The articles relating to children and adolescents highlight the importance of intervention programmes relating to physical activity and smoking in improving the health of young people. In order to do health promotion and conduct successful intervention programmes in communities, it is important to instill a philosophy of care among health professionals and this is highlighted in the article titled: Teaching ethical issues in health care. Emphasis on successful training interventions is important and assists in the transition of students into the health professional world and this is highlighted in the articles presented in this issue as it relates to the nursing profession. However, many other allied health professionals can learn from these articles. In terms of the adult and ageing population and understanding their needs, there are three articles highlighting the challenges faced by the ageing population and the role of health professionals in assisting the elderly during this phase.

As assistant editor, I would like to thank the Editor, editorial assistants and reviewers for the invaluable contribution to this issue.

Prof José Frantz

The JCHS is a peer reviewed journal, published bi-annually. It covers a wide interest in community and health science related topics. The features that make JCHS so unique are:

- It offers a platform for debate between various disciplines which is essential in helping us to understand and learn from each other.

- The editorial team encourage original research but support the publication of scholarly papers and scientific systematic reviews.

- It offers a platform for novice researchers to share their research findings. The editorial team offers a platform for novice researches to share their research finding and offers “hands on” assistance with academic writing skills. We thank all the authors for submitting their work for publication and trust that, you, the reader, will find it interesting and gain knowledge from their publications and will want to feel part of the team by submitting your work for publication.

Prof. Jose Frantz
Assistant Editor
Journal of Community and Health Sciences (JCHS)
COMPARATIVE ANALYSIS OF RECOGNITION OF PRIOR LEARNING VS TRADITIONAL ENTRANCE TO A NURSING PROGRAM

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Abstract
Introduction
Recognition of prior learning (RPL) is one of several methods to measure the equivalence of access entry criteria into an educational program for mature adults. This study presents the reader with the results of a comparative analysis of the performance of students who accessed a basic nursing program through the process of recognition of prior learning (RPL) and those students who accessed the same program through the traditional routes of entry.

Aim
The overall aim was to establish a RPL program that could be implemented to allow students an alternative method of access to nursing programs.

Methods
Stuffelbeam’s Product evaluation was used to guide this phase of the research project. Two groups of samples were drawn, one from students who accessed the nursing programme through RPL and the others through the traditional route in each of the three Nursing Education Institutions in Kwa-Zulu Natal. The mean scores of the two groups were compared for significant differences using the Mann-Whitney U test.

Results
There were no significant differences in the performances between groups of candidates. Once in the basic nursing programs, the RPL candidates performed as well as the other candidates.

Conclusion
Mature adults who access educational programs via RPL are capable to perform at an equivalent level as those candidates who access educational programs via the traditional route.

Key words
Recognition of Prior Learning, traditional route of entrance, nursing programme, comparative analysis

Introduction
In nursing, the entry requirement is matriculation or equivalent. The development of a Recognition of Prior Learning (RPL) model was designed as a measure to determine equivalence for matriculation. The bridging program for nurses was thought of as a solution to historical problems in the education and training of nurses. Research into the effectiveness of the bridging program revealed several problems. Some of these were the duplication of knowledge previously gained through experience, and extension of training since enrolled nurses had to start from the beginning (Khanyile, 2001). Furthermore, these programs were centralized and not readily accessible to all. The cost of training also made the bridging program unattractive even to those who required it.
Countries such as the United Kingdom, the United States of America, Canada and New Zealand have implemented RPL policies in their education system. Problems experienced in these countries were the issue that policy makers who planned the innovation differed in perceptions from those who implemented them (Wolf, 1996:14). Another problem was the slow outrole of the program due to the lack of assessor training (Thomas, 1989; Peruniak, 1993). Thomas (1989), Butterworths and Edwards (1993), Clark, Irvanistkaya and Goodwin (2000) identified the lack of funding and capacity as reasons why RPL was not successful in these countries.

Literature on the South African context of RPL revealed that RPL was inextricably bound into prevailing social relations of power and knowledge. Different sectors (labor, business and education) held differing views and approaches to RPL practices (McMillan, 1997; Harris, 1999).

**Purpose of the study**

The purpose of the study was to develop and test a RPL model for nurses in South Africa. Phase one dealt with the development of the RPL model (Khanyile, 2005a). Phase two dealt with implementation of the RPL model guidelines (Khanyile, 2005b). Phase three dealt with testing the model by comparing RPL candidates with other candidates from traditional programs is presented. Phase three will be discussed in this paper.

**Aim and objective**

The overall aim was to establish a RPL program that could be implemented to allow students an alternative method of access to nursing programs. The specific objective of phase three was to evaluate whether students who completed a RPL program were able to access and succeed in a basic nursing programme.

**Research question**

Is the academic performance of students who accessed a basic nursing programme via RPL comparable to those who entered the normal route?

**Hypothesis**

A null hypothesis made was that there would be no difference between the mean scores of tests written by the two groups of students.

**Research design**

The study adopted a multiphase decision-oriented evaluation research design. Product evaluation was used to compare the performance of the RPL candidates with that of the candidates that accessed the programme from the traditional route of entry. Product evaluation occurs during and after implementation of an intervention. Product evaluation provides information about whether the objectives of the study were achieved or not thus providing a basis for replication or recycling of the decisions (Denzin & Lincoln, 1998:270).

**Validity and reliability**

Validity and reliability of the study was ensured. All the students in both groups took the same tests. Content validity was ensured by testing only the theoretical knowledge covered by the lecturers. Well established valid and reliable assessment tools were used and all the test papers were moderated.

**Ethical considerations**

Permissions to conduct the study were sought from the regional director of Kwa-Zulu Natal Department of Health, the Acting Registrar of the South African Nursing Council and the principals of the three participating institutions. The research proposal was presented to the Senate of each of the three institutions for their approval. For the RPL students, it
was agreed that each institution would recruit and select students, and their registration was voluntary. The other students also gave consent to participate in the study. Only codes were used during data collection. The fact that the names of the three institutions that participated were not revealed was also in line with the ethical guidelines for research as described by Polit and Hungler (1991:354).

**Data collection procedures**
The coordinators from the three institutions kept accurate records of the students’ performance. The main source of data was the results of their monthly assessments scores over a period of six months.

**Data analysis**
The Statistical Package for Social Sciences (SPSS) was used to determine the relationship between the two students’ groups. The mean scores of the two groups were compared. The Mann-Whitney U test was used to determine the differences between the mean scores.

**Results**
A total of 110 students participated in the study. Twenty-seven students (24.5%) gained entrance via RPL and 83 students (75.5%) via the routine access route. Institution C had the highest proportion of RPL students (34.4% vs 65.6%), Institution B had 24.2% vs 75.8% and Institution A had 17.7% vs 82.3% (Table 1).

<table>
<thead>
<tr>
<th>Access route</th>
<th>Institution A</th>
<th>Institution B</th>
<th>Institution C</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>RPL</td>
<td>8</td>
<td>17.7</td>
<td>8</td>
</tr>
<tr>
<td>Traditional</td>
<td>37</td>
<td>82.3</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>45</td>
<td>33</td>
<td>32</td>
</tr>
</tbody>
</table>

Three tests were done at each institution. No significant differences were found between the groups for test 1 and test 2. There was a trend that the RPL group did slightly better in test one at institution C (p=0.007). A significant difference was observed between the RPL and the traditional students at test 3 at institution A and C. The mean score was also higher for RPL group at Institution B but did not reach a significant level (Table 2).

<table>
<thead>
<tr>
<th>Test</th>
<th>Institution A Test scores</th>
<th>Institution B Test scores</th>
<th>Institution C Test scores</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RPL</td>
<td>Trad.</td>
<td>P value</td>
</tr>
<tr>
<td>1</td>
<td>20.38</td>
<td>23.57</td>
<td>.532</td>
</tr>
<tr>
<td>2</td>
<td>27.38</td>
<td>22.05</td>
<td>.298</td>
</tr>
<tr>
<td>3</td>
<td>38.19</td>
<td>19.72</td>
<td>.000</td>
</tr>
</tbody>
</table>

Legend: Trad = Traditional route of entry RPL = RPL route of entry
**Discussion of findings**

The RPL candidates continued to perform as well as the traditional entrants. In fact, the RPL candidates performed significantly better than the traditional entrants in two of the tests. The following reasons may be attributed to the higher scores for the RPL group:

- The process of RPL, which encourages self-directedness, might have benefited the RPL candidates. The reflection process could have motivated the candidates to take control of their learning process.
- The RPL candidates were selected from a pool of nurses who had waited a long time for training, and therefore may have been more enthusiastic. Once in the programs this group (RPL) seized the long awaited opportunity for continuing education.
- The traditional entrants may have been over confident of themselves because they met the entrance criteria, and they became more relaxed than the RPL candidates.

The null hypothesis that there would be no difference between the two groups was rejected in favour of the RPL group. The positive results of the RPL candidates confirmed those from other studies done by Freers (1994), Pearson (2000) and Portier & Wagemans (1995). These authors conducted studies to evaluate the effectiveness of prior learning assessment to the students’ progress and persistence in advanced programs. According to them, students from RPL programs progressed at a faster rate than those from traditional routes of entry.

**Where are the RPL route candidates now?**

A follow up was done to establish what happened to the RPL candidates after the project. Their progress was good from all three institutions. At institution A, two dropped out due to personal reasons. The six remaining candidates were all practicing as professional nurses after passing their final examination in 2004. At institution B, all eight candidates wrote the SANC Bridging course examination and they obtained 100% pass rate. All eight continued their education and registered for the one-year diploma in Midwifery. They all were practicing as professional nurses during the follow up period. At institution C, two out of eleven failed their first year examination, the rest progressed and wrote their SANC Bridging course examination with 100% pass rate. They also continued their education and registered for the one year diploma in Midwifery. It is worth mentioning that at this institution, 50% of the total distinctions came from the RPL group.

**Conclusion**

Results of this study helped in refining and reshaping the developed RPL system. The ability of the RPL candidates to compare favourably with the other candidates from the traditional routes of entry meant that the main objective of the RPL model, that of access of mature adults was achieved.

**References**


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The scientific committee of the 4th International Nursing Management Conference invites abstract submissions from all professionals who are interested in sharing their skills and knowledge with an international audience.


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“International Accreditation Standard for Nursing” on October 12, 2008
INVESTIGATING THE PERCEPTIONS OF NEWLY QUALIFIED REGISTERED NURSES REGARDING THE TRANSITION FROM STUDENT NURSE TO REGISTERED NURSE

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Abstract
Aim
A qualitative approach was used to explore the perceptions of newly graduated nurses around positive and negative factors that had influenced their transition period from student nurse to professional registered nurse.

Methodology
Focus group interviews were held with participants meeting sampling inclusion criteria (n=5) and transcriptions analysed.

Results
Dominant themes describe the participants' feelings of insecurity, apprehension and lack of competence, with positive and negative factors related to orientation, mentoring and support from colleagues. Participants reported an improvement over months to a more positive experience.

Conclusion
Acknowledging the novice status of newly graduated nurses and implementing programmes to orientate and mentor will assist with the natural development of a graduate to an effective registered nurse.

Key words
Perceptions, newly qualified nurses, transition, student nurse, registered nurse.

Introduction
Nursing education systems and health care delivery systems function in a symbiotic and dynamic relationship. Within this dynamic environment the neophyte registered nurse must make a change from a student within an education system to a professional nurse participating in health care delivery. Internationally newly graduated nurses are described as experiencing the transition in role from student nurse to professional registered nurse as complex and challenging (Thomka, 2001; Pigott, 2001; Bowles & Candela, 2005).

South African nursing students complete a four year education programme presented by a university or nursing college. The programme combines theoretical and clinical learning experiences that result in a graduating nurse able to register with the South African Nursing Council. Shortly after graduation the individual recently positioned as a 'student' now enters the health care environment as a professional nurse. The accompanying changes in responsibility
and function are described anecdotally as exhilarating, daunting and terrifying. Anxiety and feeling overwhelmed are commonly experienced by new graduate nurses due to a fear of making mistakes (Oermann & Garvin, 2002). These feelings are also linked to the graduate’s feeling that expectations of them were unclear (Thomka, 2001) and awareness that she/he is not living up to her/his own values and principles (Kelly, 1998).

An Australian study by Pigott (2001) identified the concerns of student nurses, graduate nurses and health care professional that nurse training does not adequately prepare student nurses with the clinical skills to function in the ‘real world’. Long shifts, mandatory overtime, high expectations and negative attitudes of experienced colleagues (Pigott, 2001; Bowles & Candela, 2005) compound the feelings of self-doubt leading to disillusionment, disappointment and detachment experienced by newly graduated nurse (Duchser, 2001).

Researchers have identified that the challenges of transition begin in the orientation period (Thomka, 2001; Kelly, 1996; Troski, 1991). Graduate nurses reported inconsistent structure and implementation of orientation programmes, specifically identifying variable teaching across documentation practices, patient care and equipment. Inconsistent implementation of orientation programmes leads to the graduate feeling lost without a structured support system in which she/he may develop. Benner (1984) notes that any nurse entering a clinical setting where she/he has no experience may be limited to novice level of performance; this implies that the novice needs to work within rule-governed behaviours. The orientation programme should provide the graduate with these ‘rules’ to guide their practice and facilitate their development in the professional and clinical context. Troskie (1991), in a South African study, reported that the orientation of graduates as well as their placement in an institution influences the competency of these novice professional nurses.

Further aspects identified as influencing the transition period include the interaction of the graduates with experienced personnel and the perceived support received from higher levels of management. Thomka (2001) describes both positive and negative reports of interaction between newly graduated nurses and experienced staff. The data reveals a lack of consistency regarding the way newly graduated nurses are assisted in professional development and role socialisation irrespective of practice setting.

Work by Kelly (1996) identified that graduates experienced a lack of support from senior management. This was re-emphasised by Bowles and Candella (2005) where a majority of graduates believed they received sufficient support from their peers and unit level management, but they had negative perceptions of support from higher administration. Participants reported management issues, failure to provide needed support and guidance as some of the reasons why they left their first position.

A major contributor to transitional stress identified by Chang and Hancock (2003) is role ambiguity. This arises from a lack of information for role definition and performance (objective ambiguity) as well as for social and psychological aspects of role performance. Chang and Hancick (2003) reported that the psychological stress generated by the lack of clear and consistent information regarding the expected behaviour of the new role fuels this role ambiguity.
There is limited research that has been reported within this context in South Africa, thus the question raised is how the transition from student nurse to registered nurse is perceived by newly qualified nurses in South Africa.

Methodology
The purpose of this study was to explore the perceptions of newly graduated nurses regarding their transition from student nurse to professional registered nurse. The goal was to identify and describe perceived positive and negative factors in the transition of these newly graduated nurses. A qualitative research approach was used with phenomenology as the appropriate design from which to describe the experiences of the newly graduated nurses.

Permission for the study was obtained. Participants were included in the study on a voluntary basis, were informed of their right to withdraw at any time and were assured that confidentiality would be respected. Informed consent was obtained from each participant prior to the focus group interviews.

Non-random convenience sampling was used to identify registered nurses who had completed a university nursing programme in December 2005 and were working in both private sector and state sector hospitals within the Cape Metropolitan area. These nurses were approached individually by members of the research group and invited to participate in the study. A sample of five participants (n= 5) was obtained in this way.

Interviews were conducted at a time and place convenient to the participants. Rapport was established with the participants and the interviews were conducted in a calm and private environment.

Two members of the research group were present to facilitate the process.

The research question was posed as follows to the participants:
“What factors have you experienced as positive or negative in helping you adjust in the transition from student nurse to registered nurse?”

The interview session lasted approximately 40 minutes. The interviews were audio recorded and transcribed verbatim. Each member of the research team reviewed the transcription and audio tapes were destroyed once the transcription had been completed and checked. The data was subjected to phenomenological analysis.

Limitations of the study include the small sample size. This resulted from the complexities influencing availability of potential participants, such as transport and shift responsibilities, as well as the time limitations of the research group. Bias resulting from the researchers and participants having previously been students together may have influenced the data collected.

Discussion
The participants identified many aspects that had an effect on them in this transition period, they tended to focus on more challenging experiences and made use of ‘war stories’ to illustrate the points they were making. The discussion in both focus groups tended to describe a journey from a complex, overwhelming place to a complex, manageable place. This is supported by the findings of Newton & McKenna (2007) that despite the struggles faced by graduates in understanding organisational culture and asserting their position, by the end of the first 6 months a component of confidence emerged within the
graduate recognising that knowledge growth and skill improvement had occurred.

Themes identified from analysis of the transcribed data included the following:
1. Role paradox
2. Chaos of reality
3. Growing up

Within each identified theme, participants described both positive and negative experiences that influenced their transition period.

**Role paradox**

Role paradox refers to the dichotomy of the new graduate being skilled, but inexperienced. The new graduate wants the understanding and guidance of more experienced colleagues, but also wants to be part of the multidisciplinary team as a professional nurse and no longer a student.

Within this theme the participants differentiated between aspects related to ‘others’ expectations of them (doctors, ancillary assistants, patients, nursing colleagues) and ‘self’ expectations.

Role paradox seems to have roots for ‘others’ in the lack of physical identification of the new graduate as a registered nurse (or sister) in the form of epaulettes. During the waiting period between completion of studies and registration by the South African Nursing Council the new graduates do not have epaulettes, the traditional visible symbol of professional registration that ‘physically’ identifies their new role. This seems to cause confusion amongst medical and ancillary personnel as well as patients. The participants were also unsure how to manage this situation.

‘or you know what is the worst, the porter who has to take a patient to the scan and says nurse you must come with – then I want to say I’m a sister and I’m not going with, but I don’t have epaulettes so he can’t see I’m a sister, so then I just say that I really can’t go with now.’

‘and the other problem are the epaulettes, that was the biggest thing. So the people don’t know you’re a sister, everyone looks at you funny. When you are standing in on a doctor’s round they look at you as if to say –well you’re a very keen student (sarcastic)’

‘look, when they are looking for a sister and I say I am a sister, then they ask where my ‘thingys’ are – where are your wings, have you got your wings yet -’

‘the one patient said to me – sister, you are not putting my needles in if you don’t have epaulettes yet.’

Role paradox also exhibits in the uncertainty the new graduates have in delegating activities to other staff members. The ability to delegate had to be learned as the new graduates began by doing everything that had to be done themselves. Most of the participants indicated that this took a while to learn and implement. The difficulty was compounded by their role as a junior professional nurse where the older enrolled nurses disregarded or contradicted the delegated tasks. This type of undermining behaviour has been identified by other researchers (Pigott, 2001; Thomka, 2001; Kelly, 1996 & Kelly, 1998) and descriptions by participants of the effects include feelings of uncertainty and insecurity that negatively influences their performance.

‘in the beginning I was scared to ask some-one to do something for me.’
'now I'm under some pressure - you must delegate tasks to the old nurses – the staff nurses and the assistants, they want to tell you what they want to do while you must rather tell them what you want them to do.’

‘you are the sister, you can’t delegate – I got very angry, your rank gets taken away from you.’

A perception that emerged from the participants is that the older members of staff took advantage of the new graduates because of their youth and ability.

‘I'll also say that if you allow everything, the old nurses will exhaust you. They watch you working and they tend to abuse you.’

The role paradox is reinforced by the expectations the new graduates have of themselves within their new role. After four years of studying nursing, the participants had high expectations of their ability to perform in the clinical situation. In all the participants’ experiences they found this was untrue and spoke about difficulty in ‘keeping it all together’ and the feelings of inadequacy and incompetence this generated. This is supported by Duchser (2001) where study participants reported their disillusionment, disappointment and detachment when confronted with the challenge that what had been learnt did not necessarily directly correlate with clinical realities.

‘it was all greek to me, I didn’t know much about what was happening so I just stood by the bed and watched what they were doing and if anyone asked me anything I felt so stupid, I wanted to run away from that place. You feel just like a little student, you can hardly believe you are a qualified sister.’

‘You know nothing; I started to learn the day I started to work’

Similarly to the participants in a study by Chang & Hancock (2003) where graduates reported difficulties in prioritising task and time management, the participants spoke of having to learn how to prioritise – a skill they thought they had learned during their studies.

‘and I think like, in the ward, the one thing I didn’t quite know, is how to organise a day, like what to do first. Like if you’re working in the unit, you have to check the emergency trolley, you have to get stock up, you’ve got to see to all the patients, ok – so now what do I actually do first?

Chaos of reality

The participants expressed a feeling of not knowing where to begin - feeling rushed, overwhelmed, lost, unwelcome, nervous and unfamiliar. These expressions began with the orientation period in the hospital and appeared to be most acutely experienced during the first three months of the transition period.

Lack of needed support and guidance was indicated by participants as the main reason for these feelings. Aspects contributing to this include variability in orientation programmes, unstable mentoring programmes, and personnel shortages.

Orientation has been identified as a crucial building block to successful transition from student nurse to registered nurse (Ashcroft, 2004). In the absence of a planned orientation programme that provides correct information on which the newly graduate nurse can build her/his clinical practice, she/he is forced to find their own way. This contributes to the feelings of being overwhelmed and lost. The participants
They didn’t put in any extra effort, the orientation wasn’t special or anything, we came there, uhm, they were first arguing who’s going to take us now for orientation and she just took us through the unit, very fast and quick …’

Mentoring was another aspect identified by the participants as having played a less positive role in their transition. While mentoring has been identified previously as valuable to the successful transition of newly graduated nurses, the mentoring received by the participants was piecemeal and affected by personnel shortages and resignations.

‘We were promised to get mentors for 3 months and we would not have to work on our own. We were going to work with this mentor and her patients, but after two weeks I got my own patients in the unit.’

‘… because when I went into the unit, then the people started to resign. It was a big problem because the sister who was my mentor also resigned. She was supposed to help me with things I didn’t understand.’

Growing up
The participants’ discussion included many comments about how ‘things got better’. It appeared that the first 3 months were the most challenging and was the time within which the participants felt at their most vulnerable. After this it appears that although the circumstances of their working world had not altered, they (the participants) felt better able to manage their role.

‘Yes, in the beginning I was in tears, I just cried – it felt to me I should just leave. I’m finished with nursing. And then I realised, understood that I must just get myself together and begin at a point and carry on through the day’

Initially the participants experienced frustration within the limitations of their knowledge and environment and experience. At the beginning of the year they were unsure and nervous to undertake certain activities – almost as if they were not yet ‘big enough’, this was also influenced by their realisation that they had not built up a relationship of trust with their colleagues. The participants speak about having initially having avoided ‘difficult situations’ with patients and family; for example – a patient complaint or speaking to a family member of a deceased patient.
'in the beginning it’s a scary phase. You are just scared and overwhelmed’

‘but I mean, I often felt, I can’t do this’

‘I am so scared of schedule drugs, my hand shook the first time I opened that cupboard’

‘because we are new in the ward it is also this thing of trust – the people in the ward don’t know us so they don’t completely trust us’

The participants then commented about how their ability to manage their new role settles after about 3 months and they felt less nervous and frustrated. They reflected on their approach to the clinical environment and how this had developed over 5 months from feelings of inadequacy and being overwhelmed to feeling that they were able to begin to make sense of and manage their environment.

‘yes, it takes a little while not to be nervous any more. You learn still, all the time; that’s the way it works.’
‘you mustn’t be too hard on yourself in the beginning. I stressed myself out so badly when I started in the unit, because I felt I knew nothing … but a person must just take things one day at a time’

Conclusions and recommendations

This study explored the perceptions of newly graduated nurses regarding the positive and negative factors that influenced their transition from a student nurse to a registered professional nurse. The previous discussion highlighted these identified factors within themes that emerged from the analysis of focus group interviews.

The important conclusion to be drawn from the study is that the most common negative experiences and feelings described are related to a disregard by graduates, nursing practitioners and management, as well as consumers of nursing services, that a newly graduated nurse is a novice practitioner (Benner, 1984). It is important to recognise the limitations of this level of development and implement orientation and mentorship programmes as well as professional guidance to facilitate learning and development through this phase. Acknowledging this developmental phase through implementing concrete plans and encouraging appropriate discrete behaviours will enable the new graduate to adapt to her/his role change and function effectively in the new role and environment.

This study provided insight into a small group of newly graduated nurses’ experiences during transitioning, further research into the reality of transitioning within South Africa’s diverse, multicultural and dynamic health care delivery system will provide valuable insights for nurse educators and managers, as well as those about to graduate. Further study into the complexity of the experienced registered or enrolled nurses’ responses to a new graduate will also be useful.

References


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**Seventh International Congress on Traditional Asian Medicine**

**“Asian Medicine: cultivating traditions and the challenges of globalisation”**

September 7th to 11th, 2009

Institute for traditional medicine services, Thimphu, Bhutan

**CALL FOR PAPERS**

The International Association for the Study of Traditional Asian Medicine (IASTAM) will hold its Seventh International Congress (ICTAM) in September, 7th to 11th 2009 at the Institute of Traditional Medicine Services, Thimphu in Bhutan. The theme for the Seventh Congress is "Asian Medicine: Cultivating Traditions and the Challenges of Globalisation."

The theme is purposefully wide. IASTAM invites proposals for papers on the cultivation of the body, of plants and traditional knowledge and practice. IASTAM also invite proposals on the challenges faced by the globalisation of traditional Asian medicines, tensions between local and global production, interpretation, professionalisation and evaluation, as well as issues of trade, economy and ecology.

IASTAM encourages papers from scholars from all science and humanities disciplines as well as from practitioners of traditional Asian medicine (Unani, acupuncture, Sowa Rigpa, Ayurveda etc.). Proposals on any theme or topic are welcome, but papers that address the themes of cultivation and globalisation will be given preference, as will proposals for organized panels over individual papers.

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TEACHING ETHICAL ISSUES IN HEALTH CARE: INCORPORATING A PHILOSOPHY OF CARE INTO UNDERGRADUATE HEALTH PROGRAMS AT THE UNIVERSITY OF THE WESTERN CAPE

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Interdisciplinary Core Courses Unit, University of the Western Cape

Abstract

Context
There is a growing emphasis on ethics education in undergraduate and postgraduate curricula of the health professions. Approximately five hundred and eighty two health science students participate annually on an interdisciplinary core course i.e. Introduction to Philosophy of Care (IPOC).

Objectives
To describe in detail the IPOC course and to determine the students’ perceptions and experiences of the course.

Methods
A survey was conducted and variables were rated on a 5-point Likert scale. Students also completed an open ended questionnaire to assess their learning and participation in the small group work.

Results
Lectures and small group work (28%), assignments (25%) and independent community visit (15%) were rated as the preferred method of teaching. Two thirds (77.5%) were satisfied with the course objectives, 83.4 % reported that they could apply the information and skills learnt to other courses, 81.9% stated that the course made them reconsider many of their former attitudes about care and that they gained a good understanding of the interdisciplinary partnership in care (87.8%).

Discussion
Developing a philosophy of care is an important aspect of a progressive health professional education. Staff development in the field of ethics is crucial to develop expertise and sustain programmes. The faculty has overcome the attitudinal, administrative and logistical barriers associated with interdisciplinary teaching and learning. However, to implement interdisciplinary programmes in the final year, where professional identity and turf is most powerful remains a challenge.

Conclusion
Students clearly support the IPOC course as an important interdisciplinary core course in their undergraduate health professional education.

Key words
Philosophy of care, ethics of care, principle ethics, interdisciplinary teaching and learning, curriculum development.
Introduction

Most health professionals are faced with ethical questions on a daily basis and often find themselves not sure of what is ‘the proper thing to do’ (Schneider & Snell, 2000). Teaching ethics and moral issues in health professional education is becoming an essential part of the undergraduate curriculum for health professionals (Kessel, 2003). Mastering the basics of ethics will guide health professionals through complex questions in this respect. Like many other faculties, academics in the Faculty of Community and Health Sciences (FCHS) at UWC, also grappled with how to instill ethical and moral reasoning in their students so as to prepare them when confronted with moral dilemmas and ethical questions during their student years and as qualified practitioners (Davies, 2002; Hutchison, 2002). This becomes even more challenging in South Africa with its recent history of apartheid where communities are divided along racial and class lines and where major disparities in the provision and accessibility of health care continue to exist (Popenoe, Cunningham & Boult, 1998).

After months of active advocacy and curriculum restructuring, an interdisciplinary core course, ‘Introduction to Philosophy of Care’ (IPOC), was introduced for all first year level students of the following health professional programs: Psychology, Social Work, Nursing, Dietetics, Human Ecology, Occupational Therapy, Physiotherapy, Natural Medicine, Sport, Recreation and Exercise Science. This paper describes in detail the IPOC course; its overview, outcomes and design. It also presents an evaluation of the students’ perceptions and experiences of this interdisciplinary core course.

Course design

The main purpose of the course is to introduce some of the conceptual foundations which form the basis for sound ethical practice of health care professionals. The course essentially is to assist students to develop skills in understanding care as a social practice and to recognise different moral arguments about care. Also, it is hoped that students begin to reflect on courses of action they undertook, as well as on the decisions and choices they made in their own life, both for themselves and for those who are placed in their care. The course begins by introducing concepts of morality and values and its’ relationship to health care from a culturally diverse society perspective. In this course students get acquainted with two approaches in field of ethics. The most established approach is called ‘principle ethics’. It is laid down in several health professional codes. Principle ethics teaches the application of several principles to situations of care provision. The most well known are: respect for the client’s autonomy, not harming the interests of the client, beneficence and equity or fairness.

The second approach is called the ethic of care. The ethic of care starts from an understanding of care as a social practice. Its aim is to arrive at an appropriate understanding of caring needs and how these should be taken care of. Its core values are attentiveness, responsibility, competence and responsiveness. The next section of the course deals with the concept of ‘care’. Care is looked at holistically, in order to, perceive and understand its various dimensions at a basic level. Students are sensitised to the fact that care is provided in larger social structures, which is influenced by power relations and by policy (Tronto, 1993). By doing so, the students can develop a deeper understanding of care particularly in the South African context where the society continues to be divided along racial, cultural, and class lines. This understanding seeks to assist them to develop competent skills and so fulfill the needs and rights of their clients. Care receivers are dependent on the...
quality of care of the health professionals, and thus on the quality of their judgement. The quality of care depends not only on the technical skills, the availability of resources and the knowledge of the individual discipline but also on the skills in dealing with moral dilemmas. Often technical skills and moral reasoning cannot be separated. They are joined in the understanding that the practitioner has of the client and her/his social context and in the choices and actions that are the outcome of that understanding. During the course these two approaches are continuously referred to. Its’ basic thoughts are explained and students learn how to apply these to concrete cases as they should be practiced in the South African context.

The assignment is structured in such a way that allows students to learn about their own communities and other communities. Students are expected to visit an institution of care in their own community where they observe activities and conduct interviews with service providers and community members at the institution and present their findings to the class. The following questions relating to the core values of the ethic of care that is observed at the institution of care is included:

- What are the needs that are being addressed in the facility visited?
- Who defines these needs?
- Who takes responsibility for meeting the needs addressed in the caring facility visited?
- Who do you think should be responsible for the care provided?
- Who are the actual care givers?
- How well can they / do they do their task?
- What resources do they need in order to care competently?
- How do the care receivers respond to the care they are given?
- How well does the ethic of care as it exists at the institution meet the needs of the care receivers?
### Course outcomes

#### Table 1  Specific outcomes, the associated assessment criteria and assessment tasks.

<table>
<thead>
<tr>
<th>Specific Outcomes</th>
<th>Assessment Criteria</th>
<th>Assessment Tasks</th>
</tr>
</thead>
</table>
| 1. Analyse and describe ‘care’ as a social practice and your position as a future health care professional in the larger social power structures, e.g. gender, class and race, and how these are informed by policy making. | • Define care and understand the various dimensions of care.  
• Know the ethic of care approach and its four core values.  
• Understand some of the barriers to good care.  
• Describe the link between gender, race and class discrimination to the care process within SA social, political and health context and how this has been influenced by policy.  
• Apply the ethic of care approach to a South African case study. | Written Class Test:  
Week seven |
| 2. Demonstrate knowledge of the basic moral concepts, ethics and human rights relevant to service providing and an awareness of the ethical responsibilities of health care workers in South Africa. | • Define morality and ethics and distinguish between the two.  
• Define values, and distinguish between the different types of valuing.  
• Understand the meaning and importance of ethics in daily life and its relevance to professional work.  
• Define moral judgments, ethical issues and ethical problems.  
• Understand the origin and basic and tenets of ‘principle ethics’.  
• Describe the Human Rights Standards for health professionals, Batho Pele principles and the Patient Rights Charter. | Written Class Test:  
Week seven |
| 3. Demonstrate the ability to analyse the skills needed to deal with moral dilemmas in day to day caring practices | • Analyze the four elements of the ethic of care i.e. attentiveness, responsibility, competence and responsiveness through the use of case studies, small group and plenary discussions.  
• Determine the perceived nature of the ethical problem.  
• Gather as much sound information as possible. This includes medical, as well as legislation, social/psychological aspects relevant to the case.  
• Decide on the ethics approach that will best get at the heart of the problem.  
• Explore all the practical; alternatives and then decide what should be done and how best it could be done.  
• Act on the conclusions about what ought to be done | Presentation of the assignment:  
Week six and seven.  
Written Class Test:  
Week seven |
| 4. Demonstrate skills and professional conduct such as punctuality, participation and attendance when working in interdisciplinary groups. | • Attendance of classes  
• Participation in group activities and plenary feedback sessions | Peer Evaluation:  
Student reflection on learning and group participation:  
Week seven |

### Course organization

Annually an average of five hundred and eighty two students participates in the course since 2001. The students are divided into approximately seventeen interdisciplinary classes of an average of forty students each. A lecturer from each discipline is allocated to a class to facilitate learning. The classes meet over one term i.e. once a week for two hours for eight weeks at the same time. Each class is divided into smaller interdisciplinary groups of eight students each. A task team consisting of the co-ordinator, administrator and lecturers facilitating the course meet regularly to plan, evaluate and monitor the course. The course co-ordinator is responsible for the writing and production of the student manual and lecturer’s guide. The manual provides students with information about the course, content, outcomes, assessment criteria and methods. Each class session is structured in manner that is student-centered in which students can relate their own personal experiences, beliefs, values and concerns regarding ‘care’ and locate them in a larger socio-political context. To that end, the course primarily relies on small group discussions, reading, analysis of case studies and a completion of a series of exercises designed to allow critical thinking, team work and enhancing presentation skills.

### Evaluation methods

At the end of the 2005 course, all students (n=657) were required to complete anonymously the standard faculty course evaluation on the following aspects:
teaching and learning methods, course objectives, group interaction, logistics and prescribed readings. These aspects were rated on a 5-point Likert scale. The lecturer administered the course evaluation for his/her class. The data was analysed and averages were calculated for the Likert scale responses. This was done centrally by the university computer centre for each class and for all the classes combined. The combined results for seven classes are reported and discussed in this paper. In addition, students completed an open ended questionnaire specifically designed to assess their learning and participation in the small group work during the class sessions. The author randomly selected one class and analysed their responses in relation to the contribution of the course to their learning and professional development; their experience, participation and contribution in the group tasks; and their recommendations about the course.

Results
A 90.6% response rate was achieved (253/279). The results given in Table 2 clearly demonstrated that the majority of students strongly agreed or agreed with most of the questions asked. Students rated the lectures and small group work equally (28%) as the preferred method of teaching that they learnt the most from, followed by the assignments (25%) and the independent community visit (15%) was the least preferred method. Among those students viewing the course most favourable, 77.5% were overly satisfied with the course objectives, 83.4% reported that they could apply the information and skills learnt to their other courses, 81.9% stated that the course made them reconsider many of their former attitudes about care and that they gained a good understanding of the interdisciplinary partnership in care (87.8%). Group interaction was favourably rated ranging from 76.7% for student/teacher partnership, student contribution in class (83%) and the freedom to express views in class (87.4%). Students were generally satisfied with the class size (89.7%), amount of content covered (83%) and the time allocated for questions and discussion (83.4%). Prescribed readings were rated 83.8% for contributing to the course and 68.4% for being interesting. Table 3 illustrates the emerging themes from the open-ended questions, i.e. understanding the concept of ‘care’; professional development; interdisciplinary learning and recommendations; and the corresponding students’ response.
Table 2  Responses of students (N=253).

<table>
<thead>
<tr>
<th>Questions</th>
<th>Strongly Agree (%)</th>
<th>Agree (A) (%)</th>
<th>Neither A nor DA (%)</th>
<th>Disagree (DA) (%)</th>
<th>Strongly disagree (%)</th>
<th>No Response (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The lecturer motivated me to do further independent study.</td>
<td>20.2</td>
<td>54.2</td>
<td>0.4</td>
<td>15.0</td>
<td>5.9</td>
<td>4.3</td>
</tr>
<tr>
<td>The design of the course let me learn at my own pace.</td>
<td>17.0</td>
<td>59.7</td>
<td>0.4</td>
<td>12.3</td>
<td>7.9</td>
<td>2.8</td>
</tr>
<tr>
<td>A student / teacher partnership in learning was encouraged.</td>
<td>28.5</td>
<td>48.2</td>
<td>1.2</td>
<td>11.5</td>
<td>3.6</td>
<td>7.1</td>
</tr>
<tr>
<td>Each student was encouraged to contribute in class learning.</td>
<td>34.4</td>
<td>48.6</td>
<td>1.6</td>
<td>8.7</td>
<td>5.1</td>
<td>1.6</td>
</tr>
<tr>
<td>I was free to express and explain my own views in class.</td>
<td>43.5</td>
<td>43.9</td>
<td>0.8</td>
<td>6.3</td>
<td>4.0</td>
<td>1.6</td>
</tr>
<tr>
<td>The size of this class was appropriate to course objectives.</td>
<td>30.4</td>
<td>59.3</td>
<td>0</td>
<td>4.0</td>
<td>3.2</td>
<td>3.2</td>
</tr>
<tr>
<td>There was sufficient time in class for questions and discussions.</td>
<td>39.9</td>
<td>43.5</td>
<td>1.2</td>
<td>9.5</td>
<td>4.3</td>
<td>1.6</td>
</tr>
<tr>
<td>The amount of content covered was reasonable.</td>
<td>21.3</td>
<td>61.7</td>
<td>0.4</td>
<td>8.7</td>
<td>6.3</td>
<td>1.6</td>
</tr>
<tr>
<td>The assigned readings significantly contributed to the course.</td>
<td>28.1</td>
<td>55.7</td>
<td>0.4</td>
<td>8.3</td>
<td>5.5</td>
<td>2.0</td>
</tr>
<tr>
<td>Assigned readings were interesting and held my attention.</td>
<td>26.5</td>
<td>41.9</td>
<td>0.8</td>
<td>17.8</td>
<td>10.3</td>
<td>2.8</td>
</tr>
<tr>
<td>This course built understanding of philosophy of care concepts and principles.</td>
<td>36.8</td>
<td>48.2</td>
<td>2.0</td>
<td>4.7</td>
<td>2.8</td>
<td>5.5</td>
</tr>
<tr>
<td>This course caused me to reconsider many of my former attitudes about care.</td>
<td>28.5</td>
<td>53.4</td>
<td>0.4</td>
<td>9.5</td>
<td>6.3</td>
<td>2.0</td>
</tr>
<tr>
<td>Overall, I was satisfied with the objectives of this course.</td>
<td>20.2</td>
<td>57.3</td>
<td>0.4</td>
<td>13.0</td>
<td>5.9</td>
<td>3.2</td>
</tr>
<tr>
<td>I could apply information/skills learned in this course to other courses.</td>
<td>31.6</td>
<td>51.8</td>
<td>0.4</td>
<td>6.7</td>
<td>6.3</td>
<td>3.2</td>
</tr>
<tr>
<td>I gained a good understanding of the importance of interdisciplinary partnerships in care.</td>
<td>33.6</td>
<td>54.2</td>
<td>0.4</td>
<td>6.3</td>
<td>2.8</td>
<td>2.8</td>
</tr>
<tr>
<td>This course helped me understand the philosophy of care in the South African context.</td>
<td>28.5</td>
<td>46.2</td>
<td>1.2</td>
<td>7.5</td>
<td>1.2</td>
<td>15.4</td>
</tr>
</tbody>
</table>
Table 3 Emerging themes and students’ response.

<table>
<thead>
<tr>
<th>Emerging Themes</th>
<th>Students’ Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understanding the</td>
<td>• “I think it taught me a lot about care, not only the definition, but also how to apply it. The examples also helped a lot and showed me how quickly one can forget the ethics of care.”</td>
</tr>
<tr>
<td>concept of “care”</td>
<td>• “This course gave me a better understanding of care and how to respond to peoples needs.”</td>
</tr>
<tr>
<td></td>
<td>• “It taught me teamwork, to respect for the views and opinions of others, and I got a new understanding for “Care”.”</td>
</tr>
<tr>
<td></td>
<td>• “I learnt a lot more especially on moral, values and ethics. It expanded my knowledge.”</td>
</tr>
<tr>
<td></td>
<td>• “Made me realize that I am actually always required to show care. It made me understand more clearly now I know what is expected of me.”</td>
</tr>
<tr>
<td>Professional development</td>
<td>• “This course has also aided me in the preparation of life skills &amp; how to handle people in their different situations.”</td>
</tr>
<tr>
<td></td>
<td>• “Each session gave a clear indication of what care needs to represent in our professional positions as health workers.”</td>
</tr>
<tr>
<td></td>
<td>• “All the students in our group were from different professions and we worked together. I learned a lot from the other students. They made me feel part of the group and as a professional.”</td>
</tr>
<tr>
<td></td>
<td>• “It made me more aware of the situation of others. It made me understand and better my teamwork skills. Also it has taught me that it is very important to listen to someone else’s perspective, for this will broaden your knowledge and help solve the problem.”</td>
</tr>
<tr>
<td>Interdisciplinary Learning</td>
<td>• “All the students in our group were from different professions and we worked together. I learned a lot from the other students. They made me feel part of the group and as a professional.”</td>
</tr>
<tr>
<td></td>
<td>• “It made me more aware of the situation of others. It made me understand and better my teamwork skills. Also it has taught me that it is very important to listen to someone else’s perspective, for this will broaden your knowledge and help solve the problem.”</td>
</tr>
<tr>
<td></td>
<td>• “It helped me to work better in groups. The overall course really did change my perception about how things operate in clinics, hospitals, etc.”</td>
</tr>
<tr>
<td></td>
<td>• “When I first met my fellow group members, I felt a bit uncomfortable because they seem like those kind of upper class students which came from the model C schools. During the course I have learned that group participation can easily change ones way of thinking. Such mistakes can also let you treat other people with disrespect.”</td>
</tr>
<tr>
<td></td>
<td>• “One always acquires some knowledge by being interactive with other people. This course allowed this through group work and also through the assignment.”</td>
</tr>
<tr>
<td>Recommendations</td>
<td>• The majority of respondents felt that the programme was “a good idea”; “great program” and “would recommend it to anyone” and that it was “well organized” and that it “should stay as it is”.</td>
</tr>
<tr>
<td></td>
<td>• Many of the respondents mentioned that the course gave them “a picture of the realities and problems that communities face” and that more “practical” community based experiences should be incorporated into the course.</td>
</tr>
<tr>
<td></td>
<td>• Some respondents felt that an “individual assignment is a better option” as opposed to a group assignment.</td>
</tr>
<tr>
<td></td>
<td>• A few respondents suggested that the “time is too short” and that “program should be a year course or semester based”.</td>
</tr>
<tr>
<td></td>
<td>• Some respondents indicated that because of the nature of the programme, a “good” and “energetic” and “well prepared” facilitator is needed.</td>
</tr>
</tbody>
</table>

Discussion

This survey set out to determine the perceptions and experiences of students participating in this interdisciplinary core course. A high response rate was achieved which means that the findings can be considered reasonably representative (Pope and Mays, 1995). The mixture of close and open ended questions has its advantages in this kind of exploratory research. It provides guidance whilst also allowing the space for the respondents to express their views. The limitation of this approach, of course, is the loss of depth of information which usually requires more in-depth and time consuming techniques such as focus group discussions or unstructured interviews. Even though there was an overwhelmingly positive response for both the open and closed ended questions there remain significant areas that need to be addressed.

In a study conducted by Kessel (2003), it was found that 75% of the United Kingdom’s undergraduate medical schools and 52% of postgraduate institutions
had included the teaching of ethics in their curricula. However, the content and nature of teaching was “patchy” and “often minimal” in the curriculum. This trend also seems to exist in the curricula of the health professional programmes in the FCHS. On scanning the curricula of the nine health professional programmes, only two programmes, Social Work and Physiotherapy offer ethics as a credit bearing module at the final year level. Whilst it is apparent that the health professions are in agreement that ethics education needs to be an integral part of their curriculum, it does not mean much if it is offered once in their entire programme with a low credit weighting. There needs to be considerable investment of time and commitment to ensuring transference and application of the knowledge gained in IPOC to other professional courses, ii) increase the credit weighting and time spent on the course and iii) implementing an interdisciplinary course on ethics during the final year of study which essentially will build on what was taught and learnt during the first year.

Staff development to teach this module becomes crucially important as every year departments appoint new staff members to teach the IPOC course. The rationale for this is that all faculty staff should be given the opportunity to work in an interdisciplinary team and become familiar with the course content which forms the foundation and ethos of the faculty. However, these lecturers are not necessarily equipped or trained in the field of ethics. This lack of knowledge and skills plays out in the classroom where lecturers lack the confidence and are unprepared. Davies (2002) agrees that this is easily picked up by the learners who may develop a negative attitude toward the course. The respondents in Davies (2002) study points out that because of the nature of the course which at times is very abstract, a highly skilled and well prepared facilitator is needed. Our survey showed that despite the rotation in staff the students agreed that the lecturers motivated them and that good student / teacher partnerships developed. However, this may not be the case in the next run of the course when new staff will be involved in the teaching of the course. The faculty should revisit its staffing policy to allow for the development in expertise in this field that would ensure quality in teaching and delivery and sustainability of the course.

There seem to be agreement in the literature that the optimum format for learning is one that encourages student participation in small group discussions led by a knowledgeable facilitator. In a study conducted by Blumenthal, Jones and Mc Neal (2001), nearly all students rated small group work as a positive experience which in fact resonates with the findings in our study. Once again the challenge is to build on this experience in the other main stream courses during the senior years of study. The FCHS has managed to overcome the attitudinal, administrative and logistical barriers associated with interdisciplinary teaching and learning. However, it faces yet the challenge to implement it in the final year of study, where the discipline specific professional identity and turf is most powerful.

**Conclusion**

There is a growing emphasis on the importance of ethics education in the undergraduate and postgraduate curricula of the health professions and developing a philosophy of care is an important aspect of a progressive health professional education. The responses of the students clearly support the *Introduction to Philosophy of Care Course* as an important interdisciplinary core course in their undergraduate health professional education. It is hoped that students further develop their ethical sensibilities and apply these to their own life situation.
and to what they will learn during their education and in their professional life in years to come.

Acknowledgements
A special thanks to Prof. Selma Sevenhuijsen for the guidance and support in the development of the course and to Prof Nikodem for her editorial comments of the paper. The following lecturers who facilitated the IPOC course:


References


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**World HIV/AIDS Conference**

16 October 2008
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Contact name: Dorothea McGuire

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Deadline for abstracts/proposals: 30 August 2008
FALLS AMONG COMMUNITY-DWELLING ELDERLY PEOPLE IN SELECTED DISTRICTS OF UMUTARA PROVINCE, REPUBLIC OF RWANDA: THE ROLE OF THE PHYSIOTHERAPIST

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Abstract

Introduction
Falls among elderly people have been identified as a significant and serious medical problem confronting a growing number of older people.

Aim
The purpose of the study was to identify the risk factors for falls among the community-dwelling elders in the Umutara Province of Rwanda.

Method
A cross-sectional convenience survey using a self-administered questionnaire was used, with a sample of 200 elders, both male and female, aged 60 and older. Data was analyzed using SPSS. Chi-squares and Fisher's exact tests were used to test associations between variables.

Results
Nearly a quarter (23.2%) of the community-dwelling elderly people had multiple falls in the previous year. Risk factors significantly associated with increased falling in the elderly included advanced age, gender, joint stiffness and lower extremity muscle weakness. Loss of balance and coordination, vision deficits, painful joints, multiple drug use and prolonged use of sedatives, and antidepressants were also potential risks of falling. Men fell more often than women. Men tended to suffer outdoor falls, while women were likely to sustain indoor falls. Injury rates were also high: hip, lower back and ankle injuries were the most prevalent.

Conclusion
Potential risk factors for falls include characteristics such as: physiological changes (age), chronic illnesses, chronic medication and multiple drugs.

Key Words
Epidemiology, falls, elderly, community, dwelling elderly, risk factors, recurrent falls injuries, population aging, Rwanda.
Introduction
The elderly population is growing both in size and in proportion to the total population (Daley & Spinks, 2000). One of the main features of the world population in the 20th century has been a considerable increase in the absolute and relative numbers of older people both in developed and developing countries (Daley & Spinks, 2000). As the number of older people escalates, the question of how to care for them becomes critical. Issues concerning older persons differ from one country to another and from one culture to another (Amosun, 1999). There are a number of implications for health with the increase in age and one of it being the increase in rates of falling. Falls are a common and often have a devastating occurrence for the elderly in the home and institutional settings. The physical, psychological, and economic consequences of falls are significant. Elderly patients at highest fall risk usually have a number of predisposing conditions contributing to that risk. It is generally agreed that most falls are caused by interacting factors of which some are intrinsic and others are extrinsic risk factors (Fuller, 2000). The socio-demographic variables of age, the female gender, and living status have been found to increase the older people’s susceptibility to falls. Other noteworthy risks such as being physiologically or functionally impaired have also repeatedly been implicated as risk factors for falls (Fletcher, 2002). In addition, chronic illnesses, chronic medication and use of multiple drugs have been identified as intrinsic risk factors for falls among the elderly (Fletcher, 2002).

Intrinsic factors or physiological changes in the elderly include reduced stature, decreased cardiovascular function, increased risk and occurrence of cardiovascular diseases, elevated blood pressure, reduced aerobic function and decreased neuromuscular level of functioning (Daley & Spinks, 2000). Accompanying these gradual changes are changes in special senses (not associated with disease), which include decrease in vision, hearing, touch, and smell, leading to functional decline (Fuller, 2000). Extrinsic factors, on the other hand, include safety hazards within the environment that predispose one to slipping and tripping (Ellyn & Miller, 2003). Gallagher, (1994) identified slippery surfaces, defective floors, extension cords, bathtubs, shelving inadequacies, doorjambs, cluttered hallways, toys or pets, low beds and toilet seats, and poorly maintained walking aids and equipment as important risk factor for falls. Thus it is evident that as the elderly are increasing the risk factors for falls needs to be investigated to prevent unnecessary health costs for the elderly. The aim of this study was to identify the risk factors for falls among the community-dwelling elders in the Umutara Province of Rwanda and highlight the role of physiotherapy.

Method
A descriptive quantitative study design was used to describe and quantify the risk factors for falls among the elderly. A cross-sectional survey was used to collect information on prevalence and risk factors at a point in time. A convenience sampling technique was used to get the elderly who were readily accessible and most easily available until the representative number was obtained. Eligible subjects were elderly persons who lived in two districts of Umutara Province of Rwanda who have experienced a fall or falls in the previous year. Two-hundred elderly people were obtained from the above districts. Because of gender, cultural, ethnic, and linguistic and wealth homogeneity within these districts of Gabiro and Kahi, one hopes that the convenience sampling provides a rough representative sample of the few remaining elderly people who fell.
Measurements
A structured, self-administered, close-ended and pre-coded questionnaire including items regarding prevalence of and risk factors for falls among community dwelling elderly people was used. Reliability of the questionnaire was done during a pilot study where participants were requested to undergo test-retest of the questionnaire to check for the same results, prior to the main study being conducted. Some corrections were made, such as excluding and modification of some of the questions for purposes of clarity in order to match the main study with the reliability co-efficient of $r^2 = 0.80$. The completed data was captured in Excel for thorough data cleaning. Double data entry was done to ensure data quality. Cleaned data was transferred to SPSS for analysis. Chi-square and Fisher’s exact tests were used to test the associations between variables.

Results
Two hundred (n=200) self-administered questionnaires were distributed to community-dwelling elderly persons in the selected districts of Gabiro and Kahi of the Umutara Province who had experienced a fall since they were 60 years old. Of the 200 community-dwelling elderly, 127 (63.5%) were males and 73 (36.5%) were females. The study participants were aged from 60 to 102 years, with the mean age for males being 69.38 years (SD= 7.66) and for females being 68.37 years (SD=8.66).

Although it was found that there was an increased prevalence of multiple falls as age increased, the association between falls and age, using the Chi-square test, was not found to be statistically significant ($p=0.086$). The study results show that approximately 82% of the males and 70% of the females had suffered multiple falls in their previous year. The association between falls and gender, using the Fisher’s exact test, was found to be significant ($p<0.05$).

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Table 1: Intrinsic and extrinsic risk factors for falls.

<table>
<thead>
<tr>
<th></th>
<th>Yes Frequency (%)</th>
<th>No Frequency (%)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chronic illness</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vision deficit</td>
<td>117 (58.5)</td>
<td>59 (29.5)</td>
<td>.978</td>
</tr>
<tr>
<td>Painful joints</td>
<td>96 (48)</td>
<td>80 (40)</td>
<td>.732</td>
</tr>
<tr>
<td>Joint stiffness</td>
<td>155 (77.5)</td>
<td>19 (9.5)</td>
<td>.091</td>
</tr>
<tr>
<td>Muscular weakness</td>
<td>144 (72)</td>
<td>25 (12.5)</td>
<td>.000*</td>
</tr>
<tr>
<td>Loss of balance</td>
<td>130 (65)</td>
<td>23 (11.5)</td>
<td>.393</td>
</tr>
<tr>
<td>Loss of coordination</td>
<td>117 (58.5)</td>
<td>34 (17)</td>
<td>.010</td>
</tr>
<tr>
<td>Nocturia</td>
<td>91 (45.5)</td>
<td>41 (20.5)</td>
<td>.115</td>
</tr>
<tr>
<td>Acute illness</td>
<td>84 (42)</td>
<td>37 (18.5)</td>
<td>.235</td>
</tr>
<tr>
<td><strong>Chronic medication and multiple drug use among elderly</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sedatives</td>
<td>103 (51.5)</td>
<td>27 (13.5)</td>
<td>.006</td>
</tr>
<tr>
<td><strong>The environmental factors</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wet or slippery floor surfaces</td>
<td>88 (44)</td>
<td>62 (31)</td>
<td>.097</td>
</tr>
<tr>
<td>Transferring on or off the bed</td>
<td>54 (27)</td>
<td>76 (38)</td>
<td>.787</td>
</tr>
<tr>
<td>No lighting in the house</td>
<td>37 (18.5)</td>
<td>93 (46.5)</td>
<td>.429</td>
</tr>
<tr>
<td>Fell when getting out of the bed</td>
<td>26 (13)</td>
<td>104 (52)</td>
<td>.304</td>
</tr>
<tr>
<td>Loose carpets, mats, rugs</td>
<td>23 (11.5)</td>
<td>107 (53.5)</td>
<td>.020</td>
</tr>
<tr>
<td>When walking in a straight line</td>
<td>23 (11.5)</td>
<td>107 (53.5)</td>
<td>.000</td>
</tr>
</tbody>
</table>

Most of the participants over the age of 70 years (62%) reported falling in the evening (p=0.010). There was a significant association (p =0.045) between gender and daytime when falls were experienced. Females (45%), tended to experience more falls in the afternoon hours, whereas males (48%), fell more in the evening hours. There was a significant association (p= 0.047) between gender and indoor falls. With regard to indoor causes of falls, 63.3% of the females suffered indoor falls due to wet or slippery floor surfaces, as opposed to 45.7% of the males. Males (37.3%) were more likely to fall at some distance from home, on the footpath or in the garden or on the farm, compared to their female counterparts who accounted for 21.8%.

**Discussion**

Most of the falls resulted from a complex interplay of predisposing and precipitating factors in a person's environment (Shobha, 2005). In this current study, the potential risk factors for falls include characteristics such as: physiological changes (age), chronic illnesses, chronic medication and multiple drugs. Environmental hazards, host and situational circumstances and time of the day when a fall or falls were experienced. Advanced age and the high prevalence of falls are due to normal physical and mental changes related to aging, such as decreased functional reserve and physiological or functional impairments (Fuller, 2000). Simpson (1993) explains that the reason why increased age is a risk factor for
falling is that the information processing in the nervous system slows with advancing age and leads to an increase in the time needed to organize appropriate response stimuli. With increasing age comes an increased probability of experiencing chronic debilitating conditions and loss of functional capacity (Huang, Guan, Lin & Kernohan., 2003). According to Eisenberg (2004), any condition that reduces or impairs well-being, such as painful joints, balance deficits, muscle atrophy, urinary incontinence, hearing deficits, touch deficits or reduced judgment, and high or low blood pressure are the common causes of falls among older adults. The presence of chronic illnesses has been consistently linked to falls among older persons. In this current study visual deficits and painful joints were the most prevalent chronic conditions or diseases associated with an increased risk of falling. Huang et al. (2003) adds that aging is often accompanied by a deterioration of general health. These changes increase the likelihood of illnesses and fatigue or feelings of distress (Simpson, 1993). Accompanying these gradual changes are changes in special senses, which include vision, hearing, touch, and smell, leading to functional decline (Simpson, 1993). Vision deficits were the most prevalent causes of falls of which 58.5% participants fell as a result of vision impairments. Eisenberg, (2004) contends that decrease in visual acuity is at least one factor involved in falls.

Host and situational circumstances in association with the type of activity in progress aggravated most of the falls. This could be a reason for the high fall peaks reported in the evening. Most falls happened in the evening among males as opposed to females who tended to fall in the afternoon hours (p=0.010). This could be a result of exhaustion and tiredness, as most elderly people are returning home for rest. This may also be linked to visual impairments that were compromised by poor lighting or no light at all, which makes it difficult for elderly persons to negotiate and identify the underlying obstacle. Koski, Luukinen, Laippala & Kivela, (1998) reported that tiredness during the active hours of the day obviously disturbs the functioning of the protective reactions and impairs perception among the independently moving elderly, making them liable to injurious falls. The study findings are consistent with the findings of Weel (1995), which indicated that external factors (tripping and slipping) were responsible for half the falls encountered in general practice in those over 65 years.

The study participants to improve their functional independence used assistive devices. Elliot (1991) contends that assistive devices can allow a person becomes less able to tolerate medication (Gallagher, 1994). Drug effects and reactions can affect cognition and mobility, thus contributing to falls (Gallagher, 1994). It appears that the propensity for an older adult to fall increases with the number of medications consumed. With regard to medications, there was a higher statistically significant association between falls and sedative drug use (p<0.05). Among those who fell due to the side effects of drugs, 84.5% of multiple fallers and 61.3% of single fallers were taking sedatives, whereas other drug classes did not show any statistical significance.
with disabilities to function more independently, thus gaining self-respect and greater acceptance in mainstream society. According to Elliot (1991), assistive devices have the potential to reduce the need for expensive human help and intensive informal care.

**Implications for Physiotherapy Intervention**

Older people fall but not because they are old. The risk factors for falling are multi-factorial. Falling has many potential contributing factors, yet is often a preventable health condition (Robinson, Gordon, Scott & Visio, 2004). Falls are a complex interaction between intrinsic and extrinsic risk factors, there is uncertainty surrounding some of these risk factors, and one explanation is that risk of falls and injurious falls varies with functional status of an individual (Langlois, Smith, Nelson, Sattin, Stevens & DeVito, 1995; Koski et al, 1998). Physiotherapists are identified as one of the essential members of specialized falls prevention teams (Chartered Society of Physiotherapy, 1999). Physiotherapists working in all specialties, particularly acute medicine, orthopedics and neurology, should also be able to be aware of dangers of falling, be able to identify risk factors and take appropriate action (Chartered Society of Physiotherapy, 1999). The risk factors for falling that were the most consistently reported in this current study, and that all physiotherapists should be aware of were: advanced age, gender, joint stiffness, lower extremity muscle weakness, loss of balance and coordination. Chronic illnesses (vision deficits, painful joints), chronic medication (sedatives and antidepressants), multiple drug use, environmental hazards such as the presence of obstacles in the way, host and situational circumstance, assistive devices and time of the day also contributed to falls. Physiotherapists are more likely to be involved with people who are in high-risk groups. Working in primary care, physiotherapists may come into contact with a range of older people, from healthy to significantly disabled (Gillespie, Gillespie, Cumming, Lamb, & Rowe, 2001). The most frequently encountered risks are impairments of gait, balance, areas in which physiotherapists have considerable expertise (Gillespie et al., 2001). In this study, lower extremity muscle weakness, difficulty walking on a straight line perhaps due to loss of balance, loss of coordination together with lose carpets, mats, rugs and electrical extension cords and sedative drug use were statistically significant potential risk factors for fall (p<0.05). Physiotherapists are key providers of exercise interventions for elderly people and knowledge of beneficial programme components is essential for the design of appropriate exercise programmes for those considered at risk of falling (Piotrowski, 1999).

**Conclusion**

Various factors were found to be significantly associated with increased falling in the elderly. More investigation is required to determine which intervention strategies successfully reduce the chance of a fall or falling by reducing the risks of falling. Research also needs to address environmental factors and intrinsic factors such as age-related changes like age and gender. Prevention strategies need to be suited to the most obvious predisposing risks for an individual, with periodic assessment to determine how the mix of factors changes over time.

**Recommendations**

Falls generally result from an interaction of multiple and diverse risk factors and situations, many of which can be corrected. Consequently, opportunities for prevention are often overlooked, with risks becoming evident only after injury and disability have already occurred. There is a need for a multi-disciplinary
approach among the general practitioners and the nursing staff to enhance a referral system that gives older patients optimal opportunities to access adequate care. One goal for physiotherapists working with older people at risk of falling is to reduce that risk. As these are older people living independently, increasing their muscle strength, flexibility and bone density and improving balance and gait, through exercise have been shown to be associated with a reduction of falls or fall related injuries in older people and initiation of facilitated home environmental

The relationship between physical activity or exercise, falls and injuries due to falling is a complex. There is growing evidence that participation in regular exercise improves balance, mobility and reaction time and can reduce the risk of injury following a fall. Physiotherapists working with older people should restore their confidence in their ability to move about safely and to increase the safety of their surroundings and to help them with education and advice on how to cope with any further falls and teach them strategies for summoning help and preventing the consequences of long lie.

Limitations of the study
The study only focused on community-dwelling elderly who reported a fall or falls in the previous year. Self-reporting, especially when asking participants to recall a full year of experience, is not as reliable or accurate as observation or self-report on a monthly basis or on any other shorter period of time and, therefore, were subject to error.

References
KNOWLEDGE ABOUT SMOKING AMONG HIGH SCHOOL LEARNERS

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Abstract

Introduction
Individuals continue to smoke despite knowledge about dangers of smoking. It is imperative that knowledge about factors that determine smoking and ways of preventing smoking be investigated.

Objectives
The objective of the study was to investigate knowledge about dangers of smoking, sources of information on smoking, impact of smoking on economy, determinants of smoking and strategies to prevent smoking among grade twelve learners.

Methods
This paper reports on selective concepts of a larger cross-sectional descriptive survey.

Participants
All learners who gave informed consent and who were enrolled during 2001 as grade twelve learners at the three selected schools (n=452), were recruited to participate in the survey.

Setting
The study was done in the multi-cultured community of Tshwane South Education District located in Gauteng Province. The district was divided into three strata. One school was selected randomly from each stratum.

Intervention
A self-administered questionnaire.

Results
There were 401 (89%) returned questionnaires. Overall 104 (26%) of learners were current smokers. Information about smoking was grouped as follows: dangers of smoking (lung disease, cancer, mortality and etc); sources of information (media, school, health care professionals etc); determinants of smoking (stress, experimentation, status and media) and strategies (awareness campaigns, policies, self control etc).

Conclusion
Despite knowledge, smoking among grade 12 learners continues. Appropriate health promotion interventions should be based on the needs of the learners.

Keywords
Knowledge, smoking, high school learners.
Introduction

Knowledge is defined as an intellectual acquaintance with facts, truth, or principles gained by sight, experience, or report (Simon-Morton, Greene & Gottlieb, 1995). Acquisition and production of knowledge follow empowerment in the health promotion activities and further, this process requires consideration of the cultural background in changing behaviour of the individuals (Airhihenbuwa, 1995). Several studies reported that individuals have knowledge about smoking. In the study of cigarette smoking among high school boys in the developing countries, all students group were found to be aware that smoking was a risk factor for lung cancer, respiratory diseases and ischemic heart diseases (Bener & al-Ketbi, 1999). The majority of smokers (97.6%) and non-smokers (94.8%) in Mexico, indicated that that cigarette smoking is damaging to individuals’ health whilst 90% of the smokers are trying and intending to quit smoking (Tapia-Conyer, et al, 1997). Current smokers in Sierra Leone reported that they were less aware of the health hazards of smoking whilst the majority of previous smokers indicated that they stopped the behaviour because they thought it was bad for their health (Abul & Lisk, 1995). In South Africa, students (33%) reported that they were taught in school about the dangers of the use of tobacco (Warren, et al, 2000). However, the above mentioned findings reported the following similarities: individuals have knowledge about smoking (Bener & al-Ketbi, 1999; Tapia-Conyer et al, 1997; Abul & Lisk, 1995; Warren, Riley, Asma, Erikson, Blanton, Batchelor, & Yach, 2000) and are aware of the health hazards (Bener & al –Ketbi, 1999 and Tapia–Conyer et al. 1997). The findings reported the following differences: Nearly equal number of smokers and non-smokers know about the hazards of smoking (Tapia –Conyer et al, 1997), current smokers and previous smokers had different level of knowledge about smoking (Abul & Lisk, 1995) whilst in South Africa it was reported that 33% of the students received information on smoking in school (Warren et al, 2000). Knowledge production and acquisition on health behaviour change take place in different settings. The five major settings for health promotion are: schools, communities, worksites, health care facilities and consumer market places. Health knowledge acquisition in school takes place in the classroom, teacher training and socio-environmental teaching that supports healthy lifestyles (Glanz, Marcus, Lewis & Rimer, 1997). Smoking is a risky behaviour and further, young people start smoking at a very young age. The average age for smoking initiation was found to be ten years or under in the Global Youth Tobacco Survey in 1999 (Swart, 2001). Siemiska, Jassem, Konopa, Damps and Slomiski (2000) reported that the average age of smoking initiation in Poland was 13 years for boys and 15 years for girls. These latter findings reported similarities that young people start smoking before the age 16 years. This is a source for concern because legally individuals have access to tobacco products after the age of 16 years (Tobacco Products Control Amendment Act, 2000). Health behaviour is defined as those personal attributes such as beliefs, expectations, values, attitudes, perceptions and so on that relate to health maintenance, health restoration and health improvement (Glanz et al, 1997).

There are three categories of health behaviour:

Preventive health behaviour:
It is any action taken by individuals who believe to be healthy but wanting to prevent or detect the illness before show of the symptoms.

Illness behaviour
Actions taken by individuals who perceive themselves, to be ill in order define their health status in order to get the suitable remedy.
Sick role
Actions taken by individuals who consider themselves, to be ill in order to get help from the health care providers. It includes taking medications, dependence to medical interventions and exemption from the independent usual responsibilities.

The latter synopses share the similarities of getting outcomes of behaviours (i.e. prevent illness, define the health status and get treatment and care) whilst the differences are: asymptomatic state, diagnosis and lastly, treatment and care (Glanz et al, 1997). Therefore the smoking behaviour can be at any of the categories and individuals deserve to receive an intervention despite this. It is imperative that any intervention that is planned an implemented for changing the smoking behaviour should be preceded by knowledge identification.

Method
Research setting
The research was conducted in the Tshwane South Education District, a multi-cultured (i.e. Africans, White, Coloured and Indians) community of Tshwane Metropolitan in Gauteng Province of South Africa. The Tshwane South Education District is one of the twelve education districts in Gauteng province and the third in the Greater Tshwane Metropolitan. There are forty public schools in this district.

Research design
This paper is a report of a selected component of research within a larger study. It employs a cross-sectional descriptive survey to describe knowledge of dangers of smoking, knowledge of sources of information, knowledge of impact of smoking on economy, factors that determine smoking and the preventive strategies among the grade twelve learners of randomly selected public high schools of the Tshwane South Education District.'

Sample and procedure
The study population involved grade twelve learners from the ages sixteen to the age of twenty-five who were enrolled in grade twelve class of 2001 academic year. A multi-stage sampling technique was used. Firstly, Tshwane South was divided into three strata (i.e. eastern suburbs i.e. predominated by Whites, Laudium for Indians and Mamelodi for Black Africans). Secondly, one school was selected randomly from each stratum to get a total of three high schools. Finally, a convenient sampling technique was used and a total of (n=452) grade twelve learners were recruited into the study.

Calculation of sample size
Assuming a smoking prevalence of 25% (from national data), a sample of 300 would be sufficient to estimate the smoking prevalence to within approximately 5%, using 95% confidence limits. Grade twelve learners who were present at three schools on the days of data collection and willing to participate were included. We therefore recruited 452 to ensure that we will be able to detect a difference.

Instrument
A self – administered questionnaire comprising of mostly open-ended questions was used to gather the information. Closed ended questions were included. The questionnaire was developed in English and consisted of 25 items of the main study. English was used because it was the medium of instruction in all the schools. The particular area of study obtained the following information: race, age, gender, reception of dangers of smoking on individual smokers and non-smokers, reception of impact of smoking on the economy, knowledge of impact of smoking on the
economy, knowledge of dangers of smoking, knowledge of sources of information on smoking, knowledge of socio-environmental factors determining smoking and the preventive strategies. The questions were developed based on literature (Smith & Umenai, 2000).

**Data collection**

A questionnaire was completed by grade twelve learners on three consecutive days after school for a period of thirty (30) minutes.

**Validity and reliability of the instrument**

Measures taken to enhance the validity and reliability of the study included: approval of a questionnaire by the Post graduate Committee of the University of the Witwatersrand; the content in the questionnaire was phrased in such a way that they displayed neutrality (Lee, 1993); the questionnaire was piloted on grade twelve learners of a high school in Ga-Rankuwa, a township in the North- West Province. All unnecessary and ambiguous questions were removed following results of the pilot study. The researcher oversaw the administering of the questionnaire. Participants were instructed not to write their names, nor school name or any form of identification on the questionnaires. They were also told to place the questionnaire inside an envelope after completion, and drop it in a box that was provided. Each completed questionnaire was given a response number starting from one.

**Ethical considerations**

The researcher obtained individual consent (i.e. from learners who were over 18 years old), parental consent (for learners who were below 18 years old) and institutional consent (from Gauteng Education Department and Tshwane South Education District) as well as ethical and protocol approval from the Ethics and Postgraduate Committees of the University of the Witwatersrand. Participant confidentiality and anonymity were upheld throughout the study.

**Data analysis**

The questionnaires were coded and data entered into a computer using Epi Info version 6 (1995). Descriptive statistical analysis was used.

**Results**

Of all the 452 questionnaires distributed, 401 questionnaires were returned; yielding a response rate of 89%. The mean age for all learners was 18 years (SD=1.2, range, 16 - 25 years). More females than males participated in the study 237 (59%) vs 164 (41%) males (Figure 1). The total number of smokers was 26%, 104/401) (Table 1).

**Demographic data of participants**

<table>
<thead>
<tr>
<th>School</th>
<th>Non-smoker</th>
<th></th>
<th>Smoker</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td></td>
<td>n</td>
</tr>
<tr>
<td>2</td>
<td>113</td>
<td>(83%)</td>
<td></td>
<td>23</td>
</tr>
<tr>
<td>3</td>
<td>85</td>
<td>(56%)</td>
<td></td>
<td>67</td>
</tr>
<tr>
<td>4</td>
<td>99</td>
<td>(87%)</td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>Total</td>
<td>297</td>
<td>(74%)</td>
<td></td>
<td>104</td>
</tr>
</tbody>
</table>
All the racial groups were found within each school, the African group accounted for 56% (226) of the total population (Figure 2). 95% of the learners heard of the dangers of smoking whilst 85% of them heard of dangers of passive smoking (Table 2). Table 3 shows whether or not the learners have heard of the negative impact of smoking on the economy of the country and results are given by smoking status. There is a significant relationship between the response to the question and the smoking status (p = 0.001).

### Table 2  Ever heard of the dangers smoking

<table>
<thead>
<tr>
<th>Smoking status</th>
<th>Yes</th>
<th>No</th>
<th>Don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-smoker</td>
<td>281 (95%)</td>
<td>11 (4%)</td>
<td>5 (1.68%)</td>
</tr>
<tr>
<td>Smoker</td>
<td>98 (95%)</td>
<td>3 (3%)</td>
<td>2 (1.94%)</td>
</tr>
<tr>
<td>Total</td>
<td>379 (95%)</td>
<td>14 (4%)</td>
<td>7 (0.75%)</td>
</tr>
</tbody>
</table>

### Ever heard of dangers of passive smoking

<table>
<thead>
<tr>
<th>Smoking status</th>
<th>Yes</th>
<th>No</th>
<th>Don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-smoker</td>
<td>249 (85%)</td>
<td>16 (5.8%)</td>
<td>27 (9%)</td>
</tr>
<tr>
<td>Smoker</td>
<td>87 (83%)</td>
<td>9 (9%)</td>
<td>8 (8%)</td>
</tr>
<tr>
<td>Total</td>
<td>336 (85%)</td>
<td>25 (6.3%)</td>
<td>35 (9%)</td>
</tr>
</tbody>
</table>
Table 3  Heard of the negative impact of smoking on the economy

<table>
<thead>
<tr>
<th>All students</th>
<th>Yes</th>
<th>No</th>
<th>Don’t Know</th>
<th>Total</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>(%)</td>
<td>n</td>
<td>(%)</td>
<td></td>
</tr>
<tr>
<td>Non-smoker</td>
<td>107</td>
<td>(37%)</td>
<td>80</td>
<td>(28%)</td>
<td>287</td>
</tr>
<tr>
<td>Smoker</td>
<td>32</td>
<td>(31%)</td>
<td>49</td>
<td>(48%)</td>
<td>103</td>
</tr>
<tr>
<td>Total</td>
<td>139</td>
<td>(36%)</td>
<td>129</td>
<td>(33%)</td>
<td>122</td>
</tr>
</tbody>
</table>

Furthermore, learners were able to express their knowledge about the impact of smoking on economy of the country as follows:

“People in parliament die and we lose them”.  
“If people experience a lot of cancer it means many people cannot work / who will work if everybody is sick”?  
“People get sick and the state has to provide and pay for expensive treatment”.  
“Many people are sick in hospitals because of diseases caused by cigarettes and this affects development of the economy”.  
“People waste their money on cigarettes / smoking causes financial problems”.  
“Many people die from smoking and if you find that the youth are smoking you sometimes ask yourself whether they might live up to the age of 80 years”.  
“Many people get diseases”.  
“Because many people will die and it would mean more cost in terms of government expenditure”.  
“Cigarettes cause poverty in other areas”.  
“Because it kills people who are educated and our economy will become poor and differ from other countries”.

These responses were categorised into five themes (illness, death, cost of health, causes poverty and waste of money).

Learners further named the dangers of smoking as follows (Table 4):

- Lung cancer
- Lung disease
- Cancers of mouth
- Heart diseases
- Danger to pregnancy
- Death
- Breast cancer
- Affects the brain
- Affects sexual performance

These dangers were grouped into the following: lung diseases, cancer, heart diseases, unsafe for pregnancy, impotence and mortality. The participants named the following sources of information for smoking (Table 4):

- Radio
- Newspaper and magazine
- Cigarette package
- School
- Parents and relatives
- Health professionals
- Church
- Internet
- Smokers who were known by the learners.

Forty-eight percent of the learners knew that television and radio were the most sources of information on smoking (Table 4). Sources of information were categorised into the following groups: media, school,
health care professionals, family and community. Learners identified factors that determine smoking as follows:

- **Peer pressure**
- **Stress**
- **Wanting to belong**
- **Fitting in**
- **Experimentation**
- **Adults**
- **Status**
- **Media**
- **Availability**
- **Movies**
- **Adverts**

**Table 4: Knowledge about smoking**

<table>
<thead>
<tr>
<th>Knowledge about dangers of smoking</th>
<th>Knowledge about sources of information on smoking</th>
<th>Knowledge about the determinants of smoking</th>
<th>Knowledge about the strategies for prevention of smoking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Danger</td>
<td>Source</td>
<td>Factor</td>
<td>Strategy</td>
</tr>
<tr>
<td>Lung cancer</td>
<td>Newspaper &amp; magazine</td>
<td>Peer pressure</td>
<td>Awareness</td>
</tr>
<tr>
<td>189 (47%)</td>
<td>144 (37%)</td>
<td>172 (43%)</td>
<td>84 (21%)</td>
</tr>
<tr>
<td>Lung disease</td>
<td>Cigarette pack</td>
<td>Stress</td>
<td>Sport</td>
</tr>
<tr>
<td>186 (46%)</td>
<td>140 (36%)</td>
<td>56 (14%)</td>
<td>20 (5%)</td>
</tr>
<tr>
<td>Cancers of mouth</td>
<td>School</td>
<td>Wanting to belong</td>
<td>Policies</td>
</tr>
<tr>
<td>164 (41%)</td>
<td>72 (18%)</td>
<td>84 (21%)</td>
<td>16 (4%)</td>
</tr>
<tr>
<td>Heart diseases</td>
<td>Parents</td>
<td>Experimenting</td>
<td>Stop sale</td>
</tr>
<tr>
<td>97 (24%)</td>
<td>56 (14%)</td>
<td>28 (7%)</td>
<td>12 (3%)</td>
</tr>
<tr>
<td>Danger to pregnancy</td>
<td>School</td>
<td>Adults</td>
<td>Stop production</td>
</tr>
<tr>
<td>99 (26%)</td>
<td>29 (8%)</td>
<td>20 (5%)</td>
<td>12 (3%)</td>
</tr>
<tr>
<td>Death</td>
<td>Church</td>
<td>Status</td>
<td>Show them sick people</td>
</tr>
<tr>
<td>27 (7%)</td>
<td>20 (5%)</td>
<td>20 (5%)</td>
<td>12 (3%)</td>
</tr>
<tr>
<td>Breast cancer</td>
<td>Internet</td>
<td>Media</td>
<td>Will power</td>
</tr>
<tr>
<td>25 (6%)</td>
<td>8 (2%)</td>
<td>20 (5%)</td>
<td>12 (3%)</td>
</tr>
<tr>
<td>Affects the brain</td>
<td>Smokers</td>
<td>Availability</td>
<td>Recreation</td>
</tr>
<tr>
<td>1 (0.24%)</td>
<td>4 (1%)</td>
<td>4 (1%)</td>
<td>8 (2%)</td>
</tr>
<tr>
<td>Affects sexual performance</td>
<td>-</td>
<td>-</td>
<td>Acceptance</td>
</tr>
<tr>
<td>1 (0.24%)</td>
<td>-</td>
<td>-</td>
<td>8 (2%)</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Counselling</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4 (1%)</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Self discipline</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4 (1%)</td>
</tr>
<tr>
<td>Total *789</td>
<td>Total *473</td>
<td>Total *404</td>
<td>Total *188</td>
</tr>
</tbody>
</table>

*If the total N is not 401 then participants named more than one answers or less than a sample size responded to the question.

Forty three percent of the learners reported that peer pressure was the most cause of smoking among their peers (Table 4). The responses were grouped into the following themes: stress, experimentation, status and media.

Learners mentioned the strategies for prevention of smoking as follows:

- **Awareness**
- **Sport activities**
- **Apply strong policies**
- **Stop selling cigarettes**
- **Stop producing cigarettes**
- **Show them a sick person**
- **A will-power**
- **Recreation**
- **Acceptance**
- **Counselling**
- **Self discipline**
- **Exempt from stress**
Awareness of smoking effects (21%) was the most identified strategy (Table 4). The responses were categorised into the following groups: Health awareness campaigns, policies, self control, sport, counselling and evidence based teaching.

Discussion

It is concerning to see that nearly one third of the learners are smoking whilst over 90% of them heard about the dangers of smoking on an individual and to the non-smokers. It is possible that having heard of the dangers of smoking shows reception of information. Simon-Morton et al. (1995), report that the mechanisms through which messages are interpreted and stored in memory are complex and poorly understood. As such, individuals are capable of consciously considering a great number of health promotion messages and purposefully responding or not responding to them. Hence it is not surprising that the reception of information may either encourage or discourage smoking.

It is disappointing that that less than fifty percent of the learners heard of the negative impact of smoking on the economy of the country. As such, it is worth noting that a grade twelve learner is preparing to enter into the world of work and should have received information on this perspective. In Japan, majority of non-smokers had poor knowledge on the economic impact of tobacco (Smith & Umenai, 2000). Although the findings in this study reported reception of information on impact of smoking on economy, there other difference is that smokers and non-smokers had nearly equal opportunities of receiving the information (in this study) whilst non-smokers had little knowledge about impact of smoking on economy (Smith & Umenai, 2000).

Most learners were able to identify different sources of information on smoking. More than one third of them named media as a source of information. The findings in this study were consistent with the results of Bener & al-Ketbi (1999) because in their study, media (35%) was reported to be the major source of information on health effects of smoking. Al-Faris (1995) also supported these findings by stating that the media was the primary source of knowledge. More than one third of the learners reported that cigarette packs were the source of information. In South Africa, 40% of smokers surveyed in a national study, reported that health warnings on tobacco products made them quit or cut down smoking (Reddy, Meyer-Weitz, Abedian, Steyn & Swart, 1998). These findings have similarities because over thirty three and half percent of the participants found the health warnings on the tobacco products to be resourceful (in this study & Reddy, Meyer-Weitz, Abedian, Steyn & Swart, 1998). Schools were likely to be one of the information centres regarding smoking. It is worrying because less than one fifth of the learners listed school as information centre for smoking. A school is a site of learning and the tripartite ministries in South Africa (i.e. Education, Health and Social welfare) support the health promoting schools initiative. Further, the curriculum through life skills education is tailored to meet the challenges of everyday life for the learners (Department of Health Promotion, Education & Welfare, 2000). Parents and families also fall under the same percentile as school regarding informing learners about smoking. This is a source for concern because families are the primary source of care and support for children. South Africa is challenged by its socio economic status in particular due to HIV & AIDS because many children are left behind without the support and supervision of adults with the oldest member of the family being under the age of 18 years (Skweyiya, 2006). Census 2001, reported that the
total households headed by children under the age of 19 years was 248,424. As such, these children grow up in an environment which does not provide them with the knowledge, attitudes, values and skills that empowers to face the challenges of risky lifestyles such as smoking. It is shocking that the health care professionals including nurses and doctors were amongst the least sources of information. The findings in this study are supported by Bener & al–Ketbi (1999) who reported that doctors were considered one of the sources of information by 19% of the respondents and al-Faris (1995) reported 45% of the respondents. These findings call for support to uphold one of the key components of health promoting schools by integrating health promotion approaches addressing factors that place learners at risk (Department of Health promotion, Education & Welfare, 2000). Lastly, internet and smokers were named as other sources of information about smoking. It should be noted that only a few learners would have access to the internet, and also not all learners had friends who are smokers. Given the fact that nearly fifty percent of the learners were able to list lung diseases and lung cancer as the dangers of smoking, we realize that knowledge does not translate into behaviour change due the existing number of smokers in this study. Bener & al–Ketbi (1999) and Leonardo (1996) reported similar results on the damaging effects of cigarette because they indicated that lung diseases 46% were the most commonly known dangers of smoking. Health behaviour is determined by different factors such as personal, environmental, social cultural and so on (Simon-Morton et al, 1995). Over forty percent of the learners reported that peer pressure influenced them to smoke. As important as knowledge about smoking is in this study, knowledge about the strategies that can be used to prevent smoking among learners was asked. Learners gave different approaches of preventing smoking among learners. Therefore it is important for policy makers, teachers and health care professionals to plan health promotion interventions based on the needs of the learners.

Conclusion

The study is limited by the fact that a small number of Coloured learners participated in the study. Learners were able to name dangers of smoking, sources of information for smoking, impacts of smoking on economy, determinants of smoking and strategies for prevention of smoking.

Implications for practice

2006 marked the first decade of the health promoting schools initiative in South Africa. Therefore, it is recommended that the appropriate health promotion interventions be used based on the needs of the learners.

References

PubMed database.

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Address all correspondence to jchs@uwc.ac.za
ALZHEIMERS DISEASE: A NURSING PERSPECTIVE

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Abstract:

Introduction
Alzheimer’s disease presents a challenge for nursing, nurses, formal and informal carer’s of person’s with Alzheimer’s disease. Theoretical knowledge provides insight and understanding into the bio-psycho-social dimensions of behaviour exhibited by the person with Alzheimer’s disease. Theoretical knowledge alone, cannot prepare nurses and family members as carers, for the practicalities and coping skills required on an ongoing daily basis.

Family members and carers may at first deny the symptoms they observe and pass it off as part of the ageing process. Cognitive decline is progressive as standards of hygiene, self care and independent living becomes more evident and interferes with activities of independent, daily living.

The bio-psycho-social-safety and security needs are individualized and unique to each personality with Alzheimer’s disease. This provides a challenge to all nurses and carer’s of persons with Alzheimer’s disease.

This literary study aims to provide practical insights and humane coping skills for family members as carer’s and nurses both formally or informally trained, as carer’s of persons, with Alzheimer’s disease.

Conclusion
Living with, and caring for an Alzheimer’s parent or person draws every bit of physical and emotional strength from the family and carer’s.

Key words
Alzheimer’s disease, carers, nurses, coping skills, clinical features.

Introduction
Gerontology is the study of old age. The word comes from the ancient greek, “geras”- meaning old age or “geron”- meaning old man and “logos” meaning a study or description (Hattingh, Van Der Merwe, Van Rensberg & Dreyer, 1996). Ageing is a progressive decline in physiological function and performance that accompanies advancing years (Potocnik, Page & Hugo. 2001:323). Hattingh et al (1996) refers to ageing, as simply growing older with gradual organ impairment or failure as well as failure of the immune system to provide protection against disease and infection (Hattingh, 1996:9).

The demographic effects described by Potocnik et.al (2001) relates that the international trend is to describe “elderly” as those persons, aged 65 years and over (Potocnik et al. 2001:323). In South Africa, elderly coincides with the retirement age of 60 years for women and 65 years for men. It is also the age at
which elderly persons can apply for old age or
government pension if the person does not receive a pension from his/her former employer.

Classification of chronological ageing
Chronological ageing is classified by Neurtagen into three categories:

1. **Youthful aged**: 55-65 years where persons are relatively energetic, healthy, physically and socially active and in the prime of their lives. Health problems may or may not be present. It depending entirely on how healthy a lifestyle the person has lead throughout the previous lifespan years. They have often gained invaluable occupational or work experience in their chosen careers as well as gained “life skills” and are experienced mentors, for the younger generation.

2. **Middle aged**: 65-75 years are persons who have retired, enjoy life to the full and do the things they have always wanted to do e.g. travel, indulge in hobbies, volunteer work, are socially active but are aware that their physical and mental abilities and energy levels are slowly, failing them. Again, this depends on the previous healthy life styles they had implemented.

3. **Old age**: 75+ years. These persons have long been retired and are less active socially, physically less healthy and require care. Elderly persons may be deprived of family, friends and social contacts leading to isolation and being alone which seems to hasten their decline (Neurtagen. 1976:7-8).

Chronological ageing is however, not indicative of the degree of ageing that has taken place, each person is different - based on their genetic make-up, lifestyle, diet, hobbies and interests, exercise and the environment in which the person lives which differs from person to person, culture to culture and from community to community.

Populations, world-wide indicate an increase in elderly persons of 65 years and over. In South Africa, this demographic transition presents 2.5 million elderly which will double over the next 25 years (Mostert, Hofmeyr & Oosthuizen. 1997).

In general, this increase in life expectancy is due to reduced fertility rates, decreased mortality (death) rates and improved health care services (public, private and natural or homeopathic health facilities) (Potocnik et al. 2001:324).

Basic needs of the elderly are those enjoyed by all people throughout their lifespan, such as nutrition, shelter, warmth, comfort, safety and security as well as the need for hygiene and cleanliness. Psychological needs include love, respect, dignity, self-esteem, self-determination and security in terms of physical, financial and emotional needs.

Morbidity and Mortality
The major cause of chronic disease and death in those 65 years and over are:

1. Cardio-vascular disease which includes the heart and bloodvessels and account for 53% of deaths.
2. Neoplasm or cancer, accounts for 17% of deaths.
3. Respiratory diseases due to the high consumption of tobacco, occupational and environmental pollution accounts for 14% of deaths.

There is a mutual relationship between old age and disease, which are often chronic. Disease hastens ageing and, ageing renders old people more vulnerable to chronic, degenerative disease (Potocnik
et al. 2001: 324). By contrast, Alzheimer’s disease at 10%, is the fourth leading cause of death in the Western World and the prevalence, increases with advancing years (Potocnik et al. 2001:324).

**Alzheimer’s Disease**

Age related cognitive decline also known as “age associated memory impairment” describes those forgetful, elderly individuals. 30% of this group of people will go on to develop, Alzheimer’s disease.

Alzheimer’s disease is a chronic, progressive form of neuronal degeneration in the brain and is irreversible. It is the most common cause of dementia in people of all ages, both men and women. The degeneration of neurones in the brain is accompanied by changes in the brain’s biochemistry which manifests as the loss of intellectual capacity such as memory, judgement, orientation and consistency of the mental process.

The cause of Alzheimer’s disease remains unknown. Research being conducted in terms of diet i.e. supplement trace elements and complementary medicine have not come up with a specific answer or remedy. Alzheimer’s disease is irreversible and there is no effective treatment (Weller, 2005: & Benner, 1997).

Alzheimer’s disease generally has three behavioural stages; forgetfulness, confusion and dementia. Forgetfulness is characterised by progressive memory loss, lack of spontaneity, impaired reading, writing and speech. Neglect of their physical appearance and personal hygiene becomes noticeable to family members or carer’s. The person with Alzheimer’s disease may or may not have any insight into this behavioural stage. Forgetfulness, causes extreme anxiety for the person with Alzheimer’s disease as they become aware of the lapses in memory and utilize defence mechanism to cover up the lapses, especially in short term memory loss.

Confusion is characterised by a loss of awareness of current and recent events, emotional lability, inability to manage their personal affairs, senseless wandering about, restlessness, repetitive behaviour, constant agitated pacing and the inability to recall relationships and names of family members or events e.g. death of a spouse, births of grand or great grandchildren, having had a meal or taken medications etc. (Hattingh et al. 1996:149).

Dementia is an impairment in memory (cognitive functioning) which in turn affects personality, intellect as well as social and occupational functioning. Dementia does not affect the level of consciousness of the person. The prevalence of dementia in the general population is 5–10% and doubles every five years, rising to 30 – 40 % for those, over 85 years.

Dementia can only be diagnosed once the cause of dementia has been established. There are more than 70 different kinds of dementia e.g. Alzheimer’s disease, Parkinson’s disease, Pick’s disease, Huntington’s Disease, HIV/AIDS, Vascular dementia e.g. multiple strokes or substance abuse - e.g. alcohol, inhalants etc.

Dr Rae Labuschagne, in her paper “Where would we be without memory”? defines “memory as referring to a mental process by which information is received, retained and later recalled”. She elaborates that “memory is the storehouse of our knowledge and life experiences”. Labuschagne exposes that “Memory refers to the past but it is actively engaged in our future, as without memory we have no past and no meaningful present and future. Memory is essential for our survival (Geratec symposium: notes, 2005).
Memory impairment in Alzheimer’s disease is sufficiently poor to interfere with activities of daily living and functioning as an independent being no matter how hard they try to control their lives and the environment where they find themselves. Their ability to have episodes of rational thinking interspersed with memory lapses may fool family and carer’s into believing they have understood the message or conversation or explanation.

Clinical features of Alzheimer’s disease:
The first to go is **self-care**: personal hygiene and dressing appropriately according to the climatic conditions. The person neglects to bath, shower, shave, comb the hair, oral hygiene, care of the feet. Neglect of perineal toilet often makes people smell of urine or faeces as they forget to clean themselves, after toileting or do not change their under wear or clothing, on a regular basis. The elderly person lacks insight and is unaware of his/her neglect regarding his/her personal hygiene and self care.

**Increased appetite** with or no weight gain indicates that the dementia has reached stage II of the behavioural characteristics as they forget that they have just had a meal and complain that they have never had food or may want to go out shopping for food. This obsession with food puts them at risk to being mugged or robbed while shopping or the alzheimer’s person may never reach home, after a shopping expedition.

Food that is bought must be adequately washed, prepared and stored to prevent them from ingesting harmful organism leading to gastritis and possible, diarrhoea as hygiene and self-care is negligible. They forget to wash their hands after visiting the toilet or before and after mealtimes or in the preparation meals, which are often under-or over cooked since burnt food is economically expensive for a person living on a pension, leading to wastage. Memory impairment requires 24 hour supervision as it put the elderly person at risk for infections e.g. mouth, skin rashes especially if it occurs between folds of skin or between the toes of diabetics or persons with poor blood circulation or who are immunologically compromised. Memory impairment causes security and safety needs for the alzheimer’s person when preparing meals or going shopping. Family and carer’s need to prioritise the safety and security needs of the Alzheimer’s person, as a matter of urgency.

**Judgement** is the ability of a person to estimate a situation to arrive at a reasonable conclusion, and to decide on a course of action (Weller, 2005) e.g. a burning candle could fall on a bed and set them alight, a stove plate left on or an open fire can lead to burns, locking a door to secure some form of safety in their home or crossing a street puts the alzheimer’s person at risk to being injured, and seriously affects their safety and security in their homes, their living environment and the community.

**Disorientation** regarding time of the day, day of the month, or year despite a glaring calendar or clock within eye level of the alzheimer’s person adds to the confusion they are experiencing. They may also question whether they are in their own room or house, or not recognise familiar surroundings in which they have lived, for many years. Wandering and pacing indicates restlessness and irritability, which may exhaust them. Cat-naps restore and energize the person creating problems for family and carer’s who often catch up on tasks left unattended and may lead to low energy levels, irritability and possible abuse i.e. physical or emotional abuse, of the alzheimer’s person.
**Articles** are mislaid, faces are not recognised, statements need to be repeated and the person with alzheimer’s disease is forgetful blaming carer’s for items that may have gone astray leading to emotional lability, fear, agitation, temper tantrums, paranoia, aggressive and acting out behaviour identifies the confusion the Alzheimer’s person is continually confronted with creating challenges for nursing care and carer’s.

**Decline in cognitive functioning** becomes apparent when they have difficulty in learning new information indicating short term memory impairment i.e. reading and concentrating on a book or newspaper article, watching television, listening to the radio etc. affecting spontaneous social communication. Increasingly the person lives in the past, as the long term memory, is well preserved.

**Personality changes** become evident in anxiety and panic episodes, histrionic impulsiveness, aggressiveness, paranoid tendencies and socially unacceptable or repetitive, compulsive behaviour.

There is loss of initiative and the individual becomes increasingly apathetic and withdrawn. Carers must be observant for depression and listen actively for feelings of helplessness, frustration and fear. The person may also become self centred, hypochondriac, cantankerous with bouts of irritability and aggression as they become aware of their inability to function as before and desperately try to regain or exercise some control over their lives and daily living.

**Impaired social inhibition**, clumsiness, inappropriate spending, or not realising the costs of food, newspapers and commodities etc. and become miserly, blaming family and carer’s for spending and wasting their money.

**The mood** is shallow – sensitivity, interest and affection may disappear. Sadness and crying maybe evident as they mourn the loss of loved ones in their aloneness.

**Intellectual impairment**: thinking becomes more primitive and the person cannot cope with novel tasks.

**Dysphasia** manifests with the person’s inability to read, listen to the radio or watch television as they struggle to understand social communication.

**Agnosia** presents in patients inability to recognise well known faces, objects and difficulty in finding his way around a familiar environment.

**Impairment in executive functioning** becomes evident as persons with alzheimer’s disease struggle with complex tasks e.g. using a television, video machine, computer. Managing their financial affairs and taking part in previously valued hobbies and games.

Gradually, the person reaches a state where they are unable to speak or respond to stimuli and enters a **vegetative state**. Physiological symptoms include loss of energy, fatigue, disturbed sleep, muscular twitching, ataxia making them susceptible to falls. Decreased reaction time to a full bladder or bowel leading to incontinence with nursing implications. Progressively the appetite decreases and eventual emaciation and death.

Care of the elderly, including those person’s with Alzheimer’s disease should include the bio-psycho-social and security needs of the person. Ideally, this should be provided by a multi-therapeutic health team.
as well as family members, volunteers and organisations who deal specifically with Alzheimer’s disease.

The basic care includes:

1. Safety and security, free from harm in their homes or in residential community care facilities.

Provide a structured environment i.e. timetable and routine for bathing, meals, games and social activities, outings, walks, exercise, hobbies and recreation and meeting spiritual needs etc. Include the person with alzheimer’s disease in the daily routine by delegating simple tasks which can be done together with a family member or carer e.g. peeling vegetables in preparation for a meal, setting the table, drying dishes and clearing up after the family meal, sweeping the yard and if the energy reserves allow, gardening or caring for a pet.

2. Highlight events with family, church members, community and interest groups may help to give meaning to life and enhance their feelings of being included preventing boredom, isolation, loneliness and alones.

3. Promote physical activity and self care for as long as possible.

Encourage the person with Alzheimer’s disease to participate in his self care, with supervision from the family members or carer. Supervise water temperature for baths and or showers, using a bath mat or towel, ensuring a hand rail and non-slip floor coverings in bathrooms and toilets.

4. Increase social interaction to provide stimulation, clear, concise unhurried verbal communication. State expectations simply and clearly. Allow to talk about his/her life and remote memories. Be patient about the response time from the person with alzheimer’s disease to enable the person to communicate in a congruent, consistent and structured manner to prevent confusion. Include the person in a group with friends and family e.g. exercise group, games, dancing, spiritual/religious needs etc. Spending time with family members and friends or visitations are essential but be alert that the person may tire easily and may need to rest or cat-nap.

5. Re-orientate the person with alzheimer’s disease continually to the reality of the real world re-time, day of the week/month/year. Place a calendar with large print displaying days of the week, month and year within reach of the elderly person to consult and orientate themselves.

Encourage the person to wear his/her watch or see a clock which is large enough, visible and at eye level. Spectacles, hearing aids and walking-aides/devices enhance their ability to function in their environment.

6. Use a night light outside the bedroom of the person without disturbing sleep e.g. night lights along the corridor or passage to the toilet and bathroom. Night lights could prevent falls and confusion should the person wander from his/her bedroom or agitatedly pace, during the night.

7. Supervised medical care for chronic illnesses e.g. hypertension, diabetes, arthritis, respiratory and cardiac conditions. Observe for therapeutic and side effects of medications, especially newly prescribed medications as older persons react differently to prescribed medications.

8. Assistance is required if the person wears spectacles or hearing aids, or wears dentures or prosthesis or requires dental, chiropody/podiatrist, palliative or terminal care.

9. Supervision and skilled care respecting the person’s self esteem, privacy and respect for the
alzheimer’s person’s human rights and dignity is essential.

10. The continuing care of pets is essential to maintain independent functioning. Encourage hobbies or handicrafts having interests outside the home so that the alzheimer’s person can socialise with friends or interest groups of his/her age group to help them to maintain an interest in life and the wide world, out there.

11. The person should be encouraged to document their lives with photo-albums, oral story telling, life review or family tree illustrations, write their memoirs as a heritage for the family in the way they want to be remembered, by their loved ones as old people are our libraries who can relate our past, filling in the gaps of our memory banks (Labuschagne, 2005). Reminiscence of their past lives is a way of preserving their self esteem and re-inforcing some sense of identity (Labuschagne, 2005). Lubuschagne (2005) highlighted life review and reminiscence as described by Robert Butler as a normative process which all people undergo as they realise that life is coming to an end. Erik Eriksen calls this last period of life “ego-integrity” where the elderly person tries to make sense of his/her life and achieve a sense of completion, and preparation to let go of life (Labuschagne, 2005).

12. Least but, not last assist the elderly to get their “business” in order while they still have time and are able to do so. The legal requirement of last wills and testaments needs to take cognisance of the elderly wishes. In view of the mental ability of the Alzheimer’s patient a curator bonus is required to manage and supervise the legal and financial affairs of such a of person. Consultation with the Lawyer for Human Rights is essential to prevent abuse and exploitation.

Conclusion
Living with, and caring for an Alzheimer’s parent or person is not easy. It draws every bit of physical and emotional strength from the family and carer’s. There comes a time when you are faced with decisions about continuing to care at home or seeking assistance from frail care facilities. As a caring person you will know when the time has come to seek assistance from community resources.

I conclude with a manifesto for carers
Carer’s need:
Recognition of their contribution
Recognition of their own needs, as individuals in their own right
Opportunities for a break either short or longer times
Practical help to lighten the physical burden of caring
Someone to talk to about their own emotional needs
Information about support groups. (Ledger, 1992:13)

References
The 2010 International Congress on Complementary Medicine Research

Tromsø, Northern, Norway.

The local host of the congress is NAFKAM (National Research Center in Complementary and Alternative Medicine) in conjunction with ISCMR.

As before, the congress will be a hotspot presenting and discussing the latest research developments in the field of CAM at that time. Researchers from around the world will have a chance to both share research findings and (re)establish important personal connections with others working in the same field.

While NAFKAM already is internationally known for arranging yearly workshops on CAM research methodology called "Northern Lights" workshops, the congress in 2010 will take place when the midnight sun is shining. Be sure to be here at that time to take advantage of the 24-hour sunshine and breath-taking beauty of the surroundings.

The congress will be surrounded in time by pre-congress symposia, satellite workshops and pre- and post-congress social events and tours. If you arrive in Tromso before the 17th of May, you will partake in the Norwegian national day celebration, an opportunity not to be missed.

I want to personally invite you to come in 2010, and urge you to mark your calendars already. We are planning for at least 600 participants!!

Vinjar Fønnebø
Professor and director of NAFKAM
SERVICE LEARNING: A CREATIVE MEANS OF TEACHING NURSING

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Abstract
Introduction
This article is informed by a retrospective study conducted by the first author, and a limited literature review on service-learning in South Africa. It attempts to give the reader a clearer understanding of service-learning by contextualizing service-learning within current debates about community engagement in higher education institutions in South Africa. A few dominant definitions of Service Learning are described to espouse the underlying pedagogy of Service Learning. Service – learning is then differentiated from other forms of clinical practice currently in use in nursing, based on Furco’s conceptual framework. The discussion thus provides a backdrop for the brief description on how SL has been incorporated into the nursing curriculum at the University of the Western Cape (UWC). Lastly the challenges related to the implementation of SL are discussed.

Key words
Service-learning, community engagement, clinical practice, nursing education.

Introduction
The recent exodus of health professionals from South Africa to first world countries has compelled the Department of Health to institute compulsory one year community service for all medical schools graduates. A similar system is proposed for nurses and other allied health professional graduates. The benefit of such an endeavor is regarded as two-fold. Firstly, it will ensure service provision to remote areas, that are currently under-served and secondly, it serves to create good citizenship and civic responsibility in these graduates (Perold, 1998). The latter statement reflects the prevailing erroneous perception/assumption which equates service-learning with community service, and which regard ‘good citizenship and civic responsibility’ as a natural outcome of community service. This paper will thus attempt to address the above-mentioned misconception by framing the discussion on service-learning (SL) within current debates about community engagement in higher education institutions (HEIs) in South Africa. A few dominant definitions of SL are
described to espouse the underlying pedagogy of SL. Service – learning is then differentiated from other forms of clinical practice currently in use in nursing, based on the conceptual framework of Furco (1996). The latter thus provides a backdrop for the brief description on how SL has been incorporated into the nursing curriculum at the University of the Western Cape. Lastly the challenges related to the implementation of SL are discussed.

Community engagement in higher education
There is an Emerging Global Movement of Universities towards greater community engagement. The Education White Paper 3 provided the impetus for the initial debates on community engagement (CE) in South Africa by stating that HEIs should ‘promote and develop social responsibility and awareness amongst students of the role of higher education in social and economic development through community service programmes’ (Department of Education, 1997:10). This statement also signaled the need for transformation within HEIs.

Subsequently the CE debate, under the direction of the Department of Education (DoE), has become more focused and has contributed significantly towards a clearer understanding of the concept of CE (HEQC, 2006a: 11). The shift in national thinking is also seen in the terminology reflected in policy documents. For example community service in the White Paper (1997) was replaced with academically based community service in the HEQC Founding Document (2001), which later became community engagement in the HEQC Audit Criteria (2004a). The expectation that the next shift will be towards the notion of scholarship of engagement (Boyer, 1999), has already been put into motion by the landmark conference entitled Community Engagement in

Higher Education. The three-day conference was held under the auspices of the HEQC of the Council on Higher Education and the Community-Higher Education- Service Partnership (CHESP) initiative of JET Education Services in September 2006. This was the first conference to provide South Africans with ‘a platform for robust debate on the concept of community engagement and its implication for higher education’ (Fourie, 2006:9). This was corroborated by Mouton and Wildschut (2005:121) who concluded that South African HEIs shows a lack of strong SL scholarship because SL is a recent development at most HEIs.

The HEQC defines community engagement (CE) as: Initiatives and processes through which the expertise of the higher education institution in the areas of teaching and research are applied, to address issues relevant to its community (HEQC, 2004a). The HEQC states that CE ‘typically finds expression in a variety of forms, ranging from informal and relatively unstructured activities to formal and structured academic programmes addressed at particular community needs (service-learning programmes)’ (HEQC,2004b: 15).

The term service - learning clarified
In the South African context SL is regarded as a teaching methodology combining community participation with content-based class discussion and reflection (Stacey, Rice & Langer, 2001). This perception is confirmed by the most recent DoE policy document which states that CE is regarded as an integral part of teaching and research, and has therefore incorporated CE and its service-learning component into the national quality assurance systems (HEQC, 2004: 11). This document, Higher Education Quality Assurance Criteria for Institutional Audits, (HEQA, 2004a:26) defines SL as: ‘Applied
learning which is directed at specific community needs and is integrated into an academic programme and curriculum. It could be credit-bearing and assessed, and may or may not take place in a work environment’.

The widely accepted definition by Bringle and Hatcher (1995:112) clearly connects SL with academia because they regard SL as ‘A credit-bearing educational experience in which students participate in an organised service activity that meets identified community needs. These experiences provide a connection between the students’ studies and the real world in a way that would not be otherwise achieved’.

The definition provided by Eyler &Giles (1999:77) locates SL in the pedagogical framework of experiential learning as it states: ‘Service-learning is a form of experiential education where learning occurs through a cycle of action and reflection as students work with others through a process of applying what they are learning to community problems and, at the same time, reflecting upon their experience as they seek to achieve real objectives for the community and deeper understanding and skills for themselves’.

The definition by the World Wise Schools Education broadens the definition of SL to include civic responsibility by stating that SL is a “... teaching method that combines academic instruction, meaningful service, and critical reflective thinking to enhance student learning and civic responsibility” (Peace Corps, 2006).

A common thread in the above definitions of SL is the focus on community needs, experiential learning and service provision through reflective practice. It can thus be concluded that SL should be both relevant and meaningful to the community, the students and the HEI.

Steiner and Sands (2000:645) remark that SL is increasingly regarded as an educational strategy for social transformation. Mouton and Wildschut (2005:121) concluded that South African HEIs showed ‘neither clear consensus nor a dominant paradigm in SL’.

**Clinical practice in nursing education**

The South African Nursing Council (SANC), as the Education and Training Quality Assuring body (ETQA) for nursing, has always included mandatory clinical practice into its educational curricula. SANC requires the completion of a minimum of four thousand clinical hours before student are registered as professional nurses. Most nursing educators are of the opinion that there is no real difference between the current clinical practice, service-learning and the envisaged mandatory community service.

So how is SL different from what has been done previously in nursing education? The distinguishing feature of SL from other forms of community engagement is the balance between the service needs of the community and the learning needs of the students based on the educational objectives of the HEIs (Stanton, Giles & Cruz: 1999). To illustrate the difference, it may be helpful to look at the main features of Furco’s (1996) typology of community engagement.

Clinical practice in nursing can be provided in the form of volunteerism, community service, co-operative education and internships.

**Volunteerism** is the engagement of students in extra curricular activities of an altruistic nature. The primary
beneficiary is thus the recipient community as the emphasis falls on the service and its beneficiaries. The student’s learning needs are generally not part of the equation and these activities are funded by external donors (Perold, 1998 & HEQC, 2006b).

**Community service and co-operative education** are an integral part of most nursing curricula. However, in these instances the focus has predominantly been on the service itself and on those who benefit from the service, namely the community. These service activities are usually generated by the HEI, often predetermined by health care authorities, with students fulfilling designated positions and roles.

**Internships** are used intensively in professional programmes such as nursing, medicine, social work, education and psychology. Service learning also differs from internships because internships, or clinical practice in the case of nursing, are generally intended to provide students with practical experience. The primary beneficiary is thus the students and the primary goal is to achieve their learning outcomes although it is fully integrated into the curriculum and accredited (HEQC, 2006b:22).

**Service-learning** takes place when there is a balance between learning goals and service outcomes (Gray, 1997). The reciprocity of SL is displayed when students engage in activities where both the student and the community are primary beneficiaries whilst community service is integrated with scholarly activities. Just like community service, SL also addresses a need within a community, “but it uses that need as a foundation to examine ourselves, our society, and our future” (Cooper, 1999:1).

Gray, Ondaatje and Zakaras (1999) in their summary report show that SL enabled the various community organizations to provide services to more people and thus better the quality of the service that they were rendering. Lastly, Perold (1998) also highlights the fact that SL is not rendered in exchange for financial remuneration and should be designed to address unmet community needs.

**Rationale for service-learning in nursing**

Jacoby (1996) lists a plethora of advantages when SL is incorporated in nursing curricula in a meaningful way. According to Jacoby (1996) through SL students are able to see academia within the context of the real world, helping to bridge the theory / practice dichotomy that plagues nursing education. It prepares students for their chosen careers and for continuing education within that career path, making nurses lifelong learners. It further provides a richer context in which student learning can take place and allows for students to have cross-cultural experiences, making for better understanding between community and practitioner towards mutual goals.

In addition, SL gives students the chance to prepare themselves for the demand and challenges of life. It encourages students to view education not only for personal economic gain but also as a way to further the common good, to work for social justice i.e. equal access to and the just distribution of resources (Gray, 1997).

Steiner and Sands (2000) suggest that reflection should allow the students’ experience to be put into a broader context and enable them to make a connection between the service experience and the learning. Through this reflective practice students start engaging in critical analysis of clinical situations. This is turn contributes to professional pride and therefore towards the development of the nursing profession in general (Jacoby, 1996). Taking
cognizance of the above, the authors argue that SL appears to be an appropriate pedagogy to address the challenges mentioned in the 1997 South African White Paper on Higher Education (Perold, 1998:27).

**Incorporating service-learning into the School of Nursing curricula at UWC**

A retrospective study conducted by Hester Julie, explored SL as an alternative pedagogical method in training nursing students in the management of Gender Based Violence (GBV). The research question focused on the professional and personal development of students that occurred during the SL experiences, as reflected in the students’ group project reports, reflective journals, exit student focus group and the field notes of the coordinator of the SL project, as participant observer (Julie, Daniels & Adonis, 2005: 43).

Service-learning was introduced and pilot tested in the undergraduate programme of the SoN at the University of the Western Cape using a group of 4th year students who were registered for the GBV module. This project took place between 2002 and 2005 at the Saartjie Baartman Centre for Abused Women and Children, which was established in 1998 as the first one-stop service centre for abused women in the country.

This SL project aimed to facilitate social accountability and civic engagement during the professional development of nursing students. Proponents of SL claim that it is a teaching methodology which provides nursing students with opportunities to develop both the core values of professional nursing (American Association of Colleges of Nursing, 1998) and their competencies through modeling these professional values, while meeting community needs and contributing to the greater need of society in the process (Levy & Lehna, 2002:220).

Since the underlying philosophy of SL is the development of partnerships, such was formed between the Saartjie Baartman Centre, a non-profit-making, community-based organisation that provides comprehensive services to survivors of domestic violence and the SoN at UWC. This partnership was formed based on the recommendation of the 2002 external evaluation report of the Centre which identified medical services, a focused HIV/AIDS programme and a dedicated counseling service for children as gaps in service delivery of the Centre (Els, 2002 as reported in Julie et al 2005).

This perfectly matched the training needs of nurses at UWC, since the aims of the GBV modules are to:

- develop skills/competencies in health professionals, in order to provide effective, comprehensive and quality care to survivors of Gender-Based Violence;
- prepare health professionals to function effectively, within a comprehensive health service, as a member of the multidisciplinary team that provides holistic preventative, promotive and curative management of the common conditions/illnesses presenting at a primary level of care;
- develop the personal and interpersonal skills of health professionals through collaborative efforts;
- develop critical thinking in health professionals (School of Nursing, 2003).

Prior to the students’ placement at the Centre, the 4th year students attended a 5-day workshop on the Management of GBV. The workshop also served to orientate and prepare students for the service-learning. A package from the Community – Higher
Education Service Partnerships (CHESP) office containing information which focused on the unique principles of SL and which clearly differentiates SL from other service activities was provided to students. CHESP is a project of JET Education Services. It aims to support South African Higher Education Institutions to engage in the development of historically disadvantaged communities through the development of appropriate institutional policies, strategies, organisational structures, and accredited mainstream academic programmes. According to Steiner & Sands (2000) such preparation clarifies the learning objectives to be reached by the students and the meaningful, valuable service to be provided to the community.

Service - learning activities in which the students participated were designed to take place in two phases: firstly, the needs analysis phase, to establish a database in terms of the clients’ (women and children) socio-demographic and health profiles for use as baseline for the intervention programmes; and secondly, the intervention phase which was based on addressing the priority health needs (Julie et al 2005:6-7)

The students set their own learning objectives and work plan for each week. They were expected to evaluate these learning outcomes at the end of each week, thus enabling students to monitor their progress as well as providing continuity for the project. The reflective journals mapped the students’ development because they could express their experiences in the group project journals, and/or the individual critical incident journals openly without any fear of intimidation. The journals also provided information regarding the emotional impact of the SL experiences on the students (Julie et al, 2005: 46).

The findings of the retrospective study done by Julie (2003) indicated the integration of theory and practice through the students’ engagements in the various activities at the Centre. Whilst students were expected to perform their professional duties, they performed activities beyond the scope of the curriculum. In addition, SL provided an opportunity for the students to reflect on the service activity in such a way as to gain further understanding of the course content, a broader appreciation of the discipline and an enhanced sense of civic responsibility. This was achieved through the introduction of reflection as an assessment strategy (Julie et al, 2005: 49). Julie et al (2005) concluded that SL as a teaching methodology is successful in linking theory and practice and for developing professional skills and could be employed to meet the challenge of providing adequately trained health professionals.

**Challenges of service learning as a learning method**

Once a service-learning programme has been initiated, great care must be taken to ensure the continued success of the programme. Gray et al (1999) in their summary report address these issues and highlight factors that can ensure success. Their most important finding was that the SL ideology needs to permeate the entire educational institution and all its endeavors. They identified that institutional leadership was crucial for ensuring the success of dedicated SL programmes. However, it is just as important that champions of SL be given the necessary support from fellow educators. Lastly, they recommended that HEIs establish dedicated SL centers from which SL programmes could be administrated.

In an attempt to institutionalize SL the HEQC recommends that SL be incorporated into the mission
statement, institutional and academic plans and the strategic goals of HEIs. The HEQC further states that SL must be adequately resourced and that enabling support mechanisms are put in place for student and staff capacity development, with adequate monitoring and review of the SL programme. However, many HEIs have not yet fully engaged with this brief. Academics in higher education are reluctant to pursue service-learning as it is time consuming and does not contribute to their upward movement within their fields of expertise. So for this methodology to work for the benefit of all stakeholders, institutions of higher education need to revise their policies regarding promotion, to give research, teaching and community service equal validity (HEQC, 2006b:142).

Critics of this SL also caution against becoming yet another welfare organization. Gray et al (1999:1) also mention that critics in their faculty were doubtful of its benefits and stated that SL “waters down the curriculum, further weakening the quality of higher education”. These critics also felt that the time given to service provision by students would have yielded more benefit in a clinical laboratory or in libraries.

Summary
The challenges of transformation necessitate innovative modes of learning, and SL experiences provide the intellectual, experiential and attitudinal challenges required to keep learning appropriate and relevant to societal needs. The authors therefore urge nurse educators to take up the HEQC’s recommendation of incorporating service-learning with its important reflective practice as an essential component of nursing education. It is apparent that SL has a unique set of principles which sets it apart from other forms of clinical practice (community engagement) but also provides new challenges. Despite the obvious benefits of SL, this method has not yet been widely implemented in HEIs in South Africa.

References
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Thanking you in advance.

Professor Cheryl Nikodem
Chief Editor
A SYSTEMATIC REVIEW ON EFFECTS OF PHYSICAL ACTIVITY INTERVENTIONS ON EARLY MOTOR DEVELOPMENT IN CHILDREN WITH DOWN SYNDROME

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Abstract

Purpose
The main aim of this review was to evaluate the effect of physical activity on motor development in children with Down Syndrome by means of a systematic review.

Methods
An extensive literature search of published studies in English from 1980 to May 2006 was performed. Of the fifty-eight studies identified only four met the inclusion criteria. This review included studies that investigated the effects of physical activity on motor development in children with Down Syndrome and evaluated the outcomes in terms of the level of activity.

Results
One study showed a significant decrease in length of time to independent walking in the intervention group (CI -101[-180.48 - -21.52]. Two studies (N=84) reported a significant improvement in the total developmental quotient following intensive physical activity (wmd and CI 95% -13.07 [-17.66, -8.48]. Three studies showed an increased in locomotor developmental skills following physical activity intervention.

Conclusion
The results of this review support the use of programmes that are designed to improve motor development in children with Down Syndrome.

We recommend that physical activity programmes need to be intensive and parents should be incorporated to strengthen the outcomes.

Key words
Down Syndrome, physical activity, systematic review, motor development.
Introduction

Down syndrome is a genetic disorder occurring in one out of 800 births and is strongly associated with mental retardation, memory and speech problems, limited vocabulary and slow motor development (Spiker & Hopmann, 1997; Chapman & Hesketh, 2000). It is observable at birth and in 95% of cases and is usually due to the result of failure of the twenty-first pair of chromosomes to separate during meiosis resulting in the individual inheriting three of these chromosomes rather than the normal two (Berk, 2004). Chromosome pair 21 is the smallest of the 23 human chromosome pairs, possessing only about 1.5% of the total genetic material (Cicchetti & Beeghly, 1990). In addition to the common features associated with the syndrome does the affected person also suffer from mild to moderate mental retardation and delayed motor development. Early visual and auditory information-processing difficulties have been recognized as causes for interference with learning and acquisition of basic developmental skills (Cicchetti & Beeghly, 1990).

Fine motor and cognitive skills go hand in hand during the early stages of development, through manipulating objects in the child’s environment (Bruni, 1998). A developmental approach according to Cicchetti & Beeghly (1990), suggests that the objectives of intervention should focus on improving optimal functioning in basic areas of development such as motor, cognitive, language, social-emotional development etc (Cicchetti & Beeghly, 1990). Investigators who have adopted a developmental perspective have demonstrated that the course and content of symbolic play development in children with Down Syndrome is markedly similar to that observed in normal children (Cicchetti & Beeghly, 1990).

Development of gross motor skills can be particularly rewarding, as it is an area were progress results are easier to be observed (Winders, 1997). Hypotonia in children with Down Syndrome affects their motor development. It is most easily observed when they are in infancy (Winders, 1997). Children with Down Syndrome have increased flexibility in their joins because the ligaments that hold the bones together have more slack than usual resulting in hyperextension (Bruni, 1998; Winders, 1997). Because of the laxity, children with Down Syndrome are more prone to dislocations. Children with Down Syndrome have muscle weakness but strength can be greatly improved through repetition and practice (Winders, 1997). Studies related to Down Syndrome mainly apply the developmental perspective and examine the interaction between heredity and environment on the developing organism (Bruni, 1998).

Physical activity has been widely used in the treatment of children with motor impairments. Several studies have documented effects of physical activity on motor development in children with cerebral palsy and developmental delay (Palmer, 1997; Condon, 2002). Physical activity is a broad term that encompasses all forms of exercise or movement that can range from sports to lifestyle activities. In Kanda, Pidcock, Hayakawa, Yamori & Shikata (2004) four of five children who completed physical activity training could either stand still for five seconds or walk at the time of the outcome evaluation 52 months after the beginning of the therapy program. None of the five subjects with no training or insufficient training could accomplish this task when evaluated 64 months following therapy initiation. Although the number was small, the difference was found to be statistically significant (P=0.0278). In another study of twenty-
nine children with meningomyelocele (MMC) and shunted hydrocephalus, all had motor impairment, but after physiotherapy and training, walking was possible in 23 of them (5 autonomously and 18 with an aid), while six had recourse to a wheelchair (Rendeli, et al, 2002). A statistically significant cognitive level was also found after the intervention between the ambulatory clients (both with and without aids) and those who were dependent on wheelchairs (P Intellectual Quotient: 83-85 vs 63).

Lee & Smith found a 69% improvement in motor function and skills following individual physiotherapy sessions with children (Lee & Smith, 1998). Three months after the commencement of the treatment, there was a 73% improvement especially in relation to the gross motor abilities, self-confidence and social skills.

It has however been previously documented that NDT does not have significant effects in children’s neurological development (Lilly, Powell, 1990). These results could not be generalized as the study had only two participants. A few other studies have failed to find convincing evidence for the efficacy of physical therapy on therapeutic early intervention for infants (Turnbull, 1993; Palmer, Shapiro, Wachtel, Allen, Hiller, Harryman, et al 1988; Goodman, Rothenberg, Houston-McMillan, Cooper, Cartwright & van der Velde, 1985).

Although physical activity interventions for Down Syndrome are increasing, current literature is unclear on the effects of physical activity on motor development in children with Down Syndrome. A systematic review of evidence addressing motor developmental outcomes of physical activity is required.

The main aim of this review was to evaluate the effect of physical activity on motor development in children with Down Syndrome aged of ten years and below by means of a systematic review.

Methods

Literature search
An extensive literature search of published studies in English from 1980 to May 2006 was performed using the key word for Down Syndrome including, Down Syndrome and Trisomy 21 combined with search strategy for Intervention, motor development, physical activity, physical therapy, structured play etc. Sources for relevant studies included databases such as, Ebscohost, MEDLINE, ERIC, CINAHL, MEDLINE, Infotrac and hand searches of referenced articles from obtained articles as well as links from searched electronic articles. Two independent assessors (OK and CVN) who reviewed the trials using a standardized protocol did the inclusion of articles, based on title and abstract.

Selection criteria
The inclusion criteria were that the study should investigate the effects of physical activity on motor development in children with Down Syndrome aged ten years and below and evaluate outcomes in terms of the level of activity and participation. Intervention was at least bi-weekly for a minimum period of 12 weeks or longer. Any intensive physical activity or stimulation as well as any neuro-developmental therapy could be used as the intervention. Studies included in this systematic review were all those written in English with prospective randomized controlled research designs including quasi-randomized studies, using comparative groups. Studies had to have a comparative group on non-treatment or ordinary treatment without intensive physical activity. Any standardized / validated scale
such as the Bayley Scale or Griffith’s scale could be used to measure the outcome (Griffiths, 1996; Bayley, 1993). Outcomes include total developmental quotients, motor development quotients, motor development measures and measures of performance.

Data extraction
The methodological validity of all searched studies was reviewed by two reviewers (OK and CVN). The authors of the trials were known to the reviewers. The two reviewers extracted data from the studies that fulfilled the inclusion criteria using a standardized extraction form. In case of incongruity the reviewers resolved it through discussion. Eight studies met the general inclusion and exclusion criteria. Only three studies had data available in a format to use for this review. Two were randomized controlled trials and one had a quasi-experimental design.

Data analysis
All data obtained was continuous data. The following variants are acknowledged: Age difference of participants, different interventions and different measurement instruments. These variants make synthesis of data extremely difficult and results should be interpreted with caution. A statistician from the Medical Research Council (Cape Town, South Africa) was consulted to look at the available data from the studies and confirmed that a meta-analysis is difficult under these circumstances and recommended that subgroup analyses would be more appropriate. The authors therefore commented on individual study outcomes in subgroup analyses and used the combined meta-analyses with caution. The design, methodological quality, type of outcome measures and statistical significance of the results are taken into consideration in the synthesis.

The included studies were assessed by two independent reviewers (OK and CN) to measure the methodological quality of the included studies using the PEDro scale. The PEDro scale is an 11-item scale designed for rating methodological quality of RCTs (Maher, Sherrington, Herbert, Moseley & Elkins, 2003). The first item on the scale measures external validity and the other ten measure internal validity (Pang, Eng, Dawson, Gyfadottir, 2006). It has been reported that the PEDro scale provides a more comprehensive measure of methodological quality (Bhogal, Teasell, Foley & Speechley, 2005). The first item has a yes and no response and seeks to identify if the study report describes the source of the participants and has a list of criteria used to determine who was eligible to participate in the study. The other ten items are used to calculate the PEDro scale (partitioned) score and measure internal validity. They have a one-point score each and therefore the highest score is ten points. The higher the score, the better the quality of the randomized controlled trial. A score of nine to ten is rated as excellent; six to eight, good; four to five, fair and less than four, poor. A point is awarded only in a case were the study clearly mentioned that the criterion was met. According to Table 1, two studies scored 6, and two scored 5 respectively.
Table 1  Methodological quality scores on the PEDro Scale

<table>
<thead>
<tr>
<th>Study ID</th>
<th>External Validity</th>
<th>Internal Validity</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Giudice</td>
<td>Yes</td>
<td>RA, BS, ITA, SC, PM/MV</td>
<td>5</td>
</tr>
<tr>
<td>Piper</td>
<td>Yes</td>
<td>RA, BS, MO, SC, PM/MV</td>
<td>5</td>
</tr>
<tr>
<td>Ulrich</td>
<td>Yes</td>
<td>RA, BS, MO, ITA, SC, PM/MV</td>
<td>6</td>
</tr>
<tr>
<td>Uyanik</td>
<td>Yes</td>
<td>RA, BS, MO, ITA, SC, PM/MV</td>
<td>6</td>
</tr>
</tbody>
</table>

RA – Random Allocation, CA – Concealed Allocation, BS – Baseline Similarity, PB – Participant Blinded, TB – Therapist Blinded, AB – Assessor Blinded, MO – Measures of key Outcomes from more than 85% of Participants, ITA – Intention to Treat Analysis, SC – Between Groups Statistical Comparisons, PM/MV – Point Measures and Measures of Validity.

During the search 58 studies were identified that met our initial query for inclusion. Forty-nine studies did not meet the further criteria of being randomized controlled trials and were excluded. Nine trials were identified that made use of randomization and one used a quasi-experimental design (Figure 1).

Figure 1  Flow diagram of included studies

58 studies identified and screened

49 studies excluded after screening abstracts and citations screened

9 studies showed face validity

5 studies further excluded due to methods and analysis

4 studies met the inclusion criteria

3 RCTs and 1 quasi-experimental design

- 60 -
Excluded studies
Data were unavailable in one trial (Connolly, Morgan & Russell, 1984) and another compared Down Syndrome children with normal children (Connolly, Morgan, Russell & 1980). Mayo (1991) included children with cerebral palsy in the trial. Connolly and Michael (1986) never reported on motor development and Mahoney, Robinson and Fewell (2001) did not record relevant data for analysis. For these reasons the studies were not included. Assessments were done between three and 12 months. The analysis was done based on intention to treat.

Included studies
Giudice used a computer-generated randomization to allocate 47 children with Down Syndrome to the experimental and comparison groups (Guidice, Brogna, Romano, Paludetto, Toscano, 2006). The experimental group underwent a parent-implemented developmental training programme by means of the Carolina Curriculum for infants and Toddlers with Special Needs (CCITSN). The parents conducted the interventions at least twice a day between meetings with tutoring professionals (Table 2). The comparison group received the standard therapist implemented treatment provided by the National Health Service of the Italian Region of Campania (NHST).

The aim of this study was to assess whether parent implemented developmental training using CCITSN could be of greater benefit to young children with Down Syndrome than the standard therapist implemented treatment provided by the NHST. Thirty-two infants with Down Syndrome completed the study. Children in the intervention group received developmental training at home twice daily with parents (n=21). Children in the NHST group were attended to at NHS rehabilitation centers by physiotherapists weekly (n=11). Therapy sessions lasted 50 minutes and were carried out three times for each child weekly. Neurodevelopmental Therapy was the main used technique by the therapists. The outcome measure was the developmental quotient (DQ).

In Ulrich, Ulrich, Angulo-Kinzler and Yun (2001) 30 infants with Down Syndrome were randomly allocated to treadmill walking (intervention group, n=15) or control group (n=15). The purpose of the study was to determine if practice stepping on a motorized treadmill could help reduce the delay in walking onset normally experienced by these infants. Infants received traditional physical therapy at least every other week. In addition the intervention group received practice stepping on a small motorized treadmill, five days per week, for eight minutes a day in their own homes. Parents administered the treadmill intervention. The mean age of the infants was 307.4 days. The interventions were done till the child could walk. The 34th item on the Bayley Scales of Infant Development (2nd Edition) was administered. The primary outcome measure was the length of time from entry into study to onset of walking independently. Another study was designed to stimulate normal development in children with Down Syndrome aged less than twenty-four months (Piper, Pless, 1980). Thirty-seven participants were allocated to the treatment group (n=21) or the control group (n=16). The control group received no intervention. The intervention programme consisted of one hour duration, bi-weekly sessions over a period of six months. Parents were given a set of written instructions to follow at home between sessions. The Griffith’s Scales of Mental Development were used to assess changes in the developmental status in the two groups (Griffiths, 1990).
Uyanik Bumin and Kayihan (2003) randomly allocated forty-five children with Down Syndrome to three intervention groups; sensory integrative therapy (SIT, n=15), vestibular stimulation (VS) in addition to sensory integrative therapy (n=15) and Neurodevelopmental therapy (NDT, n=15). Each session for all the participants lasted for one hour and a half, three days per week over a period of three months. Locomotor skills were measured by 10 step forward walking and 10 step side walking. A home programme was given to all participants.

Table 2  Characteristics of the included studies

<table>
<thead>
<tr>
<th>Study ID</th>
<th>Methods</th>
<th>Participants</th>
<th>Intervention</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Giudice</td>
<td>Computer-generated</td>
<td>47 Infants with DS</td>
<td>Parent-implemented developmental training programme at least twice daily</td>
<td>Developmental quotient</td>
</tr>
<tr>
<td></td>
<td>Randomised</td>
<td>32 were analysed after fallout,</td>
<td>(CCITSN, n=21) versus standard therapist implemented treatment (NHST, n=11), NDT</td>
<td>Gross motor skills</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Average age (CCITSN, 4.5 months), (NHST, 5.9 months)</td>
<td>vestibular stimulation (n=15) and Neurodevelopmental therapy (NDT, n=15)</td>
<td>Fine motor skills</td>
</tr>
<tr>
<td>Ulrich</td>
<td>Randomised</td>
<td>30 Infants with DS, No fallout</td>
<td>Treadmill Training for 8 minutes, 5 days/week (n=15) versus standard treatment (n=15). All participant (N=30) received at least bi-weekly physical therapy sessions</td>
<td>Independent walking Locomotor skills</td>
</tr>
<tr>
<td>Piper</td>
<td>Quasi-experimental</td>
<td>37 infants with DS, Less than 24 months old</td>
<td>Treatment group (n=21), stimulation of normal development for an hour, bi-weekly for 6 months versus Control group, no treatment (n=16)</td>
<td>Developmental quotient Locomotor developmental quotient</td>
</tr>
<tr>
<td>Uyanik</td>
<td>Randomised</td>
<td>45 children with DS, 7 to 10 years</td>
<td>SIT, n=15 VS 1 SIT n=15 NDT, n=15</td>
<td>Locomotor skills</td>
</tr>
</tbody>
</table>

We acknowledge that there were different interventions and different measures used in the studies. Comparison groups were also different.

Figure 2  Effect size for length of time to independent walking

<table>
<thead>
<tr>
<th>Study or sub-category</th>
<th>Intensive activity</th>
<th>Standard activity</th>
<th>WMD (fixed)</th>
<th>Weight</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ulrich</td>
<td>15</td>
<td>15</td>
<td>-101.00 (-101.48, -21.51)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total (95% CI)</td>
<td>15</td>
<td>15</td>
<td>100.00 (-101.48, -21.51)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Test for heterogeneity: not applicable
Test for overall effect: Z = 2.49 (p < 0.01)
This study shows a significant decrease in length of time to independent walking in the intervention group (CI -101[-180.48 - -21.52]. Although it is a single study with a small number of participants, we conclude that the intensive physical activity intervention significantly decreased time to walking (Figure 2).

Figure 3 Effects sizes for improvement in development quotient

<table>
<thead>
<tr>
<th>Study or sub-category</th>
<th>Treatment</th>
<th>Control</th>
<th>WMD (fixed)</th>
<th>Weight</th>
<th>VMD (fixed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 Griffiths Mental/Development Scale (Change in score)</td>
<td>Piper</td>
<td>21</td>
<td>-7.33 (7.99)</td>
<td>16</td>
<td>8.84 (8.86)</td>
</tr>
<tr>
<td></td>
<td>Subtotal (95% CI)</td>
<td>21</td>
<td>16</td>
<td>8.84 (8.86)</td>
<td>70.41</td>
</tr>
<tr>
<td></td>
<td>Test for heterogeneity: not applicable</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Test for overall effect: Z = 4.75 (P &lt; 0.00001)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>02 Bruinell-Lezine PsychoMotor development scale (Change in score)</td>
<td>Giudice</td>
<td>24</td>
<td>-22.16 (20.70)</td>
<td>23</td>
<td>-0.06 (4.00)</td>
</tr>
<tr>
<td></td>
<td>Subtotal (95% CI)</td>
<td>24</td>
<td>23</td>
<td>-0.06 (4.00)</td>
<td>29.59</td>
</tr>
<tr>
<td></td>
<td>Test for heterogeneity: not applicable</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Test for overall effect: Z = 2.00 (P = 0.000001)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total (95% CI)</td>
<td>45</td>
<td>39</td>
<td>100.00</td>
<td>-13.07 [-17.66, -8.48]</td>
<td></td>
</tr>
<tr>
<td>Test for heterogeneity: CH² = 0.02; df = 1 (P = 0.90); F = 0.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test for overall effect: Z = 5.86 (P &lt; 0.00001)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 3 shows that the two studies (N=84) reported a significant improvement in the total developmental quotient following intensive physical activity (wmd and CI 95% -13.07 [-17.66, -8.48]). In Piper and Pless (1980) a bi-weekly physical activity intervention over a period of six months designed to stimulate normal development produced a significant increase on the developmental quotient with an effect estimate of wmd = -13.27 (95% CI, -18.74, -7.80).

Another programme called the Carolina Curriculum for Infants and Toddlers with Special Needs (CCITSN) that consisted of developmental training produced a significant increase in the development quotient in participants that participated in the programme (Giudice et al, 2006). It had an effect size of wmd = -12.60 (95% CI, -21.04, -4.16). The study reported a significant improvement in the developmental quotient scores of children that received a developmental training over a 12-month period compared to a comparison group. Parents were used in the intervention.
Figure 4 displays the effect sizes for changes in development quotient of locomotor developmental skills following an intensive physical activity programme. The three studies as shown above shows that physical activity produced increased locomotor developmental skills in children with Down Syndrome with a total effect size of \( \text{wmd} = 0.83 \) (95% CI, 0.38, 1.27). Two studies in Uyanik et al (2003) showed increase in locomotor developmental skills, with effect sizes of \( \text{wmd} = 0.60 \) (95% CI, -0.01, 1.21) and \( \text{wmd} = 1.13 \) (95% CI, 0.49, 1.77). Uyanik looked at locomotor development and the sub-studies are referred to as Uyanik a and Uyanik b.

**Discussion**

The purpose of this study was to determine the effectiveness of physical activity on motor development in children with Down Syndrome. The inclusion criteria required that an intensive physical activity programme be administered to the children for at least a bi-weekly interval over three months. Only three studies met the inclusion criteria. Exclusion of studies ensures that results represent the capabilities of physical activity to influence motor development.

Several studies that evaluated the effects of physical activity on motor development were excluded. For example, Connolly and Michael (1986) reported on motor skills in the intervention group but never reported the same for the comparison group. Most of the studies reported interventions that had an NDT component.

Blinding of the participants as well as the therapist was not common. It is not feasible in many cases were the therapist has to supervise the intervention. Two studies showed improvement in motor development following physical activity interventions and one didn’t. The one that didn’t show a significant improvement had a less intensive regimen compared to the other two.
Studies using parents as interventionists have shown better outcomes (Ulrich et al, 2001; Giudice et al, 2006). Many researchers have used parents in the implementation of physical activity programmes. A commitment to using parents as interventionists is the most effective and cost-efficient way of providing services to young children with Down Syndrome and other developmental disabilities (Piper & Bless, 1980).

Research should use more standardized measures in studies investigating the effects of physical activity interventions for children with Down Syndrome.

**Conclusion**

The results of this review support the use of programmes that are designed to improve motor development in children with Down Syndrome. Intensive physical intervention significantly shortens the time that Down Syndrome children would normally take to walk independently. Furthermore does intensive physical therapy increase total and locomotor development quotient significantly. We recommend that physical activity programmes need to be intensive and parents should be incorporated to strengthen the outcomes. It is further recommended that researchers should carry out studies of higher quality to provide better evidence on the effectiveness of physical activity on motor development in children with Down Syndrome.

**Limitation of the systematic review**

Blinding is not possible in an intervention such as intensive physical activity is investigated and the possibility of bias may influence the assessor. The studies included in this review are of fair quality. We acknowledge that it is difficult to meta analyze results when the intervention and the scale of measure differs.

**Implications for research and clinical practice**

It is recommended that researchers should embark on larger randomized control trials using similar assessment instruments and similar intensive physical intervention activities. There is limited literature on physical activity interventions on children with Down Syndrome.

**References**


EPIDEMIOLOGY OF HEMIPLEGIC SHOULDER PAIN AFTER STROKE

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Abstract

Introduction
Hemiplegic shoulder pain has been reported to delay upper limb functional recovery after stroke.

Aim
A review of articles was conducted to determine the incidence, risk factors and causes of hemiplegic shoulder pain after stroke.

Methodology
The search of articles was identified using MEDLINE, SCIRUS, CINAHL, SCIENCE DIRECT and manual search. A total of 23 references were used in this study.

Results
The study reviewed that 80% of stroke patients complained of hemiplegic shoulder pain. The associated risk factors to hemiplegic shoulder pain were; neglect/ loss of sensibility, repeated trauma, depression, spasticity and limited range of motion in external rotation of the affected shoulder. However, subluxation was not associated to hemiplegic shoulder pain in this study. The causes were adhesive capsulitis, injury to rotator cuff muscles and subacromial bursitis.

Conclusion
Early identification of risk factors and causes of hemiplegic shoulder pain would help to plan for treatment and reduce the high incidence shoulder pain.

Key words
Hemiplegic shoulder pain, incidence, risk factors and causes

Introduction
Shoulder pain is a very common and troublesome complication after stroke that hampers functional recovery, eventually leading to disability. It has been reported that prevalence of shoulder pain varies from 5 % to 84 % in stroke patients (Joynt, 1992; Tuner-Stokes & Jackson, 2002) but its true incidence is unknown. The variation in prevalence is probably as a result of differences in recruitment criteria for patients with hemiplegic shoulder pain (Lo, Chen, Lin, Jim, Meng & Kao 2003). Studies have speculated about the risk factors of shoulder pain in hemiplegia but have failed to establish a relationship between the cause and the effect (Gould, 2002). Possible risk factors such as rotator cuff injuries, capsular tears, adhesive capsulitis, neglect, spasticity and
subluxation have been documented but their role in its aetiology remains unclear (Gamble, Barberan, Laasch, Bowsher, Tyrrell & Jones, 2002). It has also been reported that shoulder pain raises problems for clinicians and therapists because of poor understanding of aetiology and lack of proven prevention and treatment strategies (Ratnasabapathy, Broad, Baskett, Pledger, Marshall & Bonita, 2003). The objectives of this study were to review articles describing the incidence, causes and the risk factors associated with hemiplegic shoulder pain.

Search strategy
The review is based on a computerized search of the following databases, MEDLINE (n = 8), SCIRUS (n=2), CINAHL (n = 2), SCIENCE DIRECT (n = 1) and MANUAL SEARCH (n = 7) from 1984 – 2004. The following keywords were used for all databases: (a) Shoulder pain, Stroke, (b) Shoulder pain, cerebrovascular accident or disease, (c) shoulder pain, hemiplegia or hemiparesis, (d) shoulder subluxation or dislocation, stroke, (e) shoulder subluxation, cerebrovascular accident, (f) shoulder subluxation, hemiplegia, (g) hemiplegic shoulder, stroke, (h) hemiplegic shoulder, cerebrovascular accident, (i) hemiplegic shoulder, hemiplegia.

The references of the selected articles were also studied to identify additional eligible studies. Further selection was based on the titles and abstracts. The articles included survey (n = 3), cohort (n = 12) and case control (n =7) and were included if they met the following inclusion criteria: (a) hemiplegia caused by stroke in the majority of the patients, (b) articles that reviewed the risk factors for hemiplegic shoulder pain, (c) the prevalence (incidence) of shoulder pain in stroke patients and (d) articles published in English. Exclusion criteria were (a) pain in the hemiplegic shoulder caused by fracture, history of tumor, rheumatoid arthritis and (b) all articles that were not published in English.

Results
Incidence of Hemiplegic shoulder pain
The incidence of hemiplegic shoulder pain in this study (Table1) varies from 20% to 80%. These results do not correlate with findings of Turner-Stokes (2002) although the incidence still remains high. There could be a number of reasons for this variation. Pain was not consistently described in most studies. Some studies reported pain, which occurred spontaneously (Roy, Sands & Hill, 1994; Zorowitz, Hughes, Ikai & Johnston, 1996), while others reported pain on passive movements (Gamble et al, 2002; Bohannon, Larkin, Smith & Horton, 1986; Bohannon, 1988; Joynt, 1992; Shai, Ring, Costeff & Solzi, 1984; Zorowitz et al, 1996). The incidence was also difficult to compare, as there was no standard sample size used in the studies, which could also influence the results. Therefore, the method of assessments and the study designs used in shoulder pain can affect the reported incidence (Bender & McKenna, 2001) as pain is a subjective symptom which is difficult to measure even in patients with sensorimotor, cognitive and communication facility (Turner-Stokes & Jackson, 2002). It also appears that there is no consensus or agreement on the definition of hemiplegic shoulder pain or the accurate method to measure it.
Table 1  Incidence of Hemiplegic shoulder pain

<table>
<thead>
<tr>
<th>Author /Year</th>
<th>Sample size</th>
<th>Incidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>McLean et al, 2004</td>
<td>133</td>
<td>26%</td>
</tr>
<tr>
<td>Kong et al, 2004</td>
<td>107</td>
<td>71%</td>
</tr>
<tr>
<td>Gamble et al, 2002</td>
<td>205</td>
<td>40%</td>
</tr>
<tr>
<td>Dursun et al, 2000</td>
<td>70</td>
<td>78.6%</td>
</tr>
<tr>
<td>Gamble et al, 2000</td>
<td>123</td>
<td>25%</td>
</tr>
<tr>
<td>Broeks et al, 1999</td>
<td>54</td>
<td>20%</td>
</tr>
<tr>
<td>Zorowitz et al, 1996</td>
<td>20</td>
<td>45%</td>
</tr>
<tr>
<td>Wanklyn et al, 1996</td>
<td>108</td>
<td>64%</td>
</tr>
<tr>
<td>Jespersen et al, 1995</td>
<td>173</td>
<td>22%</td>
</tr>
<tr>
<td>Roy et al, 1994</td>
<td>76</td>
<td>72%</td>
</tr>
<tr>
<td>Kumar et al, 1990</td>
<td>28</td>
<td>25%</td>
</tr>
<tr>
<td>Bohannon et al, 1986</td>
<td>50</td>
<td>72%</td>
</tr>
<tr>
<td>Van Ouwenaller et al, 1986</td>
<td>219</td>
<td>72%</td>
</tr>
</tbody>
</table>

Risk factors

Many risk factors have been associated with hemiplegic shoulder pain. Table 2 shows the risk factors in relation to shoulder pain. Subluxation has been reported to be one of the risk factors. Six studies (Dursun, Dursun, Eksi & Cakci, 2000; Kong et al, 2004; Lo et al, 2003; Roy et al, 1994; Shai et al, 1984; Van Ouwenaller, Laplace & Chantraine, 1986) related subluxation to hemiplegic shoulder pain although the mechanism was not clear. However, Kaplan (1995) documents that subluxation does not cause pain directly but may exert traction stress to the peri-articular soft tissue with subsequent pain. The other five studies (Zorowitz et al, 1996; Wanklyn, Forster & Young 1996; Joynt 1992; Ikai Tei, Yoshida, Miyano & Yonemoto, 1998; Rizk, Christopher, Pinals, Salazar & Higgins, 1984) didn’t find any relationship. The result of this review correlate with studies by others where subluxation was not related to hemiplegic shoulder pain (Snels, Beckerman, Lankhorst & Bouter, 2002; Bender & McKenna, 2001). The confusion arises from failure to define subluxation (Turner-Stokes & Jackson, 2002), sample sizes and the methods used to measure subluxation (Bender & McKenna, 2001). For example, eight studies (Roy et al, 1994; Shai et al, 1984; Van Ouvenaller, 1986; Dursun et al, 2000; Ikai et al, 1998; Lo et al, 2003; Kong et al, 2004; Rizk et al, 1984) used x-ray to measure subluxation that can easily miss it in the early stages of stroke. However, Turner-Stokes and Jackson (2002) documents that at the moment, clinical assessment by palpation and erect X-ray taken in antero-posterior and oblique views as soon as this becomes feasible are probably the mainstay for routine assessment of subluxation. Nevertheless, a number of studies have also reported pain in both patients with and without subluxation making it difficult to associate it to hemiplegic shoulder.

Spasticity has been associated with hemiplegic shoulder pain due to muscle imbalance. Seven studies investigated the relationship between
spasticity and hemiplegic shoulder pain and four studies (Kong et al, 2004; Roy et al, 1994; Poulin De Courval et al, 1990; Ouwenaller et al, 1986) related it to hemiplegic shoulder while, two studies (Bohannon et al, 1986, Joynt, 1992 & Rizk et al, 1984) didn't find any relationship. Although the mechanism is not very clear, Turner-Stokes and Jackson (2002) documents that spasticity in the shoulder girdle with muscles, particularly subscapularis, pulling the arm into medial rotation may cause pain by traction on the periosteum at the muscle insertion.

Neglect and loss of sensation may increase the risk of repeated trauma, resulting in tissue lesions. According to Snels et al. (2002) patients with sensory deficits, visual field deficits, or neglect experience recurrent injuries of the shoulder, possibly contributing to capsulitis. Four studies (Poulin De Courval et al, 1990; Jespersen, Jorgensen, Nakayama & Olsen, 1995; Gamble et al, 2002; Ratnasabapathy et al, 2003) investigated the relationship between neglect/loss of sensation and hemiplegic shoulder. A relationship was found in two studies (Gamble et al, 2002; Ratnasabapathy et al, 2003). However, the result does not correlate with a review conducted by Snels et al (2002). The method used to recruit patients could have resulted in this difference as the studies included patients diagnosed with acute stroke and those within 6 weeks after stroke. Repeated trauma resulting from exercising upper limbs using overhead pulleys and poor handling during transfers was also associated to hemiplegic shoulder in two studies (Kumar, Metter, Mehta & Chew, 1990; Wanklyn et al., 1996). More work is needed to address the issue of educating the staff on the dangers of using the over pulley during rehabilitation of stroke patients.

Although there has not been a common consensus about the mechanism of hemiplegic shoulder pain in literature, Gamble et al (2002) postulates that both motor, somatosensory deficits and depression are associated with shoulder pain in stroke patients. Depression could lead to hemiplegic shoulder due to repeated trauma. Two studies (Wanklyn et al, 1996; Gamble et al, 2002) associated depression to hemiplegic shoulder while the other two studies (Kong et al, 2004; Mclean, 2004) only indicated the incidence. Gamble et al (2002) further report that the secondary product of the deficits will lead to changes in muscle tone hence, predisposing the hemiplegic shoulder joint to subluxation and repeated trauma due to poor handling techniques.

Limited range of motion after stroke has been associated with hemiplegic shoulder pain. All the nine studies (Wanklyn et al, 1996; Bohannon, 1988; Ikai et al, 1998; Kumar et al, 1990; Bohannon et al, 1986; Joynt, 1992; Zorowitz et al, 1996; Lo et al, 2003; Dean, 2000) that investigated external rotation to hemiplegic shoulder were positively associated. The muscle weakness and imbalance result in less movement of the shoulder joint. According to Bohannon et al (1988), patients with muscle weakness are more prone to develop pain because their muscles lack the strength to hold the joint enough to prevent the development of adhesive capsulitis.
Table 2  Relationship between risk factors and hemiplegic shoulder pain.

<table>
<thead>
<tr>
<th>Risk factors</th>
<th>No. Studies</th>
<th>Relation to HSP (yes)</th>
<th>Relation to HSP (no)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subluxation</td>
<td>11</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Spasticity</td>
<td>7</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Neglect/Loss of sensibility</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Repeated trauma</td>
<td>2</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>Depression</td>
<td>4</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>External rotation</td>
<td>9</td>
<td>9</td>
<td>-</td>
</tr>
</tbody>
</table>

Soft tissue lesions as cause of hemiplegic shoulder pain.

Hemiplegia has been associated with the development of adhesive capsulitis and rotator cuff tears (Turner-Stokes & Jackson, 2002). In Table 3, five studies (Kong et al, 2004; Ikai et al, 1998; Lo et al, 2003; Rizk et al, 1984; Wanklyn et al, 1996) found a relationship between adhesive capsulitis and hemiplegic shoulder pain. The result of this review is similar with the findings of Turner-Stokes and Jackson (2002). The process of the adhesion formation is facilitated by delayed recovery process due to chronic injuries, inflammation, disuse atrophy, contractures and reduced movements in the shoulder joint. Early management of these factors can minimize the onset of adhesive capsulitis.

It is a common understanding that the normal mechanism that protects the rotator cuff are lost during stroke, this leads to degenerative changes within the muscles putting them at risk of rupture due to poor handling, lifting techniques and repeated trauma. The relationship between rotator cuff tears and hemiplegic shoulder pain are presented in Table 3. Three studies (Kong et al, 2004; Lo et al, 2003; Ikai et al, 1998; Jespersen et al, 1995) found a relationship between rotator cuff tears and hemiplegic shoulder. According to Poulin De Courval et al (1990), neglect increases the risk of repeated traumas of the surrounding soft tissues, leading to capsulitis, bursitis, tendonitis, rotator cuff tear or rupture which may result in hemiplegic shoulder pain. Two studies also (Kong et al, 2004; Joynt et al, 1992) correlated subacromial bursitis to hemiplegic shoulder pain. The mechanism for bursitis to cause pain in the shoulder is as explained above. Therefore, early identification, the use of physical modalities and range of motion exercises is advocated for the reduction of symptoms and prevention of later complications.
### Table 3  Soft tissue lesions.

<table>
<thead>
<tr>
<th>Soft tissue-lesions</th>
<th>No studies</th>
<th>Relationship to HSP</th>
<th>Relationship to HSP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Adhesive capsulitis</td>
<td>4</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>Rotator cuff tears/injury</td>
<td>4</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Subacromial bursitis</td>
<td>2</td>
<td>2</td>
<td>-</td>
</tr>
</tbody>
</table>

### Summary and conclusion

Hemiplegic shoulder pain has been reviewed as a common condition with a prevalence of 20 % to 80 % in this review. Several risk factors have been associated with hemiplegic shoulder pain but the mechanism of its cause is still not clear. This could be one of the reasons why there are variations in the prevalence. There has been some evidence that overhead pulleys can cause hemiplegic shoulder pain and should not be applied for passive movements. However, there has been no evidence relating subluxation to hemiplegic shoulders, despite being highly associated among the risk factors.

It also appears that there is no agreement on the definition or the accurate method of measuring hemiplegic shoulder pain. Proper handling and use of supports have been recommended although no agreement has been made on the use of the supports. Further research to determine the causes and the mechanism of hemiplegic shoulder pain is recommended and this will give a clear picture to clinicians, therapists and caregivers in the rehabilitation of stroke patients to improve patients’ recovery. There is also an urgent need to formulate a standard measuring tool to be used in the measurement and definition of shoulder pain. This will be used as a guiding tool in management of hemiplegic shoulder to the clinicians and physiotherapists.

### References


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