

Evaluation of clinical sites used for training undergraduate physiotherapy students: Factors that may impact on learning

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Background. Clinical education forms an integral part of the training of undergraduate healthcare students. Clinical learning and education can be influenced by a number of factors.

Objectives. To evaluate clinical service sites used to train undergraduate physiotherapy students at Stellenbosch University, in terms of: (i) the suitability of the site as a training facility; and (ii) the range of clinical problems students encounter at these clinical service sites.

Methods. A descriptive study was conducted. Data were gathered through structured clinical site visits, staff interviews and student record sheets documenting the number and type of patients students encountered at the clinical service sites.

Results. Seven of the nine clinical sites used for training were evaluated. Close proximity to the Faculty was an identified strength of three of the sites. There were opportunities for the expansion of multidisciplinary services and group treatment classes. There were safety concerns at most of the sites visited. The number of qualified physiotherapists was low and there was also a lack of basic equipment needed for patient management at more than half of the clinical sites. Students' exposure to the various fields of physiotherapy varied greatly at the tertiary service settings versus primary healthcare settings. On average students saw only two patients per day during a 5-hour clinical day.

Conclusion. The suitability of healthcare service sites for training undergraduate students should be carefully evaluated prior to commencing training at these sites. The development of good clinical training sites for undergraduate healthcare students requires the availability of adequate resources such as equipment, an adequate complement of clinical staff and effective measures to ensure student and patient safety.

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Clinical education forms an important and distinct part of all healthcare education.^[1] In clinical education the student refines the knowledge, skills, values, attitudes and philosophies of the profession that she/he has learnt in the classroom or skills laboratories.^[2] Clinical education provides the

situation, task and human complexities necessary to integrate prior learning and a context for new learning. Clinical education is a multidimensional and complex process whereby students aim to reach entry-level clinical competence in real-time clinical practice.^[3] It is reported that in clinical education students come to appreciate their role as healthcare providers with specific roles and responsibilities.^[5] This central role as healthcare provider may integrate elements of other roles that form part of graduate attributes, such as collaborator, communicator, health advocate, etc.^[5,6]

As first-line practitioners it is important that newly qualified physiotherapists can demonstrate general competence and a range of abilities that will allow them to function satisfactorily and safely in their professional role. To reach this goal the Health Professions Council of South Africa (HPCSA) requires that students are placed in a variety of clinical areas for a minimum of 1 000 hours over a 4-year training period.^[7] At Stellenbosch University (SU), physiotherapy students gain their first exposure to clinical practice in the second year of the 4-year degree course. From their third year of study they take responsibility for patient management as part of their clinical training. The creation of optimal learning opportunities for students to obtain the necessary clinical skills forms an integral part of the undergraduate programme and can be seen to facilitate the development of graduate attributes.^[5] The integration of theory into the real-world environment is recognised as a primary purpose of clinical education.^[8] Ideally this process should also incorporate an interdisciplinary and holistic

approach to healthcare.^[9] However, the complexity of healthcare systems, rapid change in service provision, financial constraints and demands of accountability are increasingly being recognised as impacting on the learning opportunities that can be provided.^[3]

Several factors have been identified as playing a role in the clinical learning experience. These include the model of clinical education used,^[2] clinical educator attributes,^[10] teaching methods used by the clinical educator,^[11] student assessment,^[11] and the atmosphere, facilities and safety at the healthcare setting.^[1] Kilminster and Jolly^[12] found that the environment in which learning takes place profoundly affects what is learned and the students' responses to learning. As the students' learning occurs in the context of clinical practice, the clinical environment is also identified as the best area to facilitate the skills and attitudes needed.^[3] National Core Standards for health establishments have been developed by the national Department of Health in South Africa with the aim to optimise the health services provided to patients.^[13] Similarly there have been suggestions that clinical sites should be credentialed for the purpose of clinical education.^[14] In addition, growing tension has been noted among clinicians attempting to provide optimal patient care while creating sufficient learning opportunities for students.^[15] The literature is lacking with regard to the physical requirements of clinical training sites for optimal learning.

The aim of this study was to evaluate the clinical sites used to train undergraduate physiotherapy students at SU and identify factors that may influence the clinical learning experience of these students.

Context

Students rotate through three clinical placements during the third year of study. These include orthopaedics, neurology and medical and surgical conditions. A

number of clinical service sites are used to provide the specific exposure needed for students to reach the predefined outcomes for the respective placements. Students spend 5 weekday mornings for 5 weeks per clinical placement. Students are supported in their clinical learning by both the clinician and a clinical educator. The clinician provides the daily physiotherapy service to patients at the clinical site. The clinical educator is employed by SU and is responsible for weekly, individualised clinical facilitation sessions with students at the service site.

Methods

This project was registered with the institutional Human Research Ethics Committee at SU (N06/07/118). All participants provided written informed consent.

The study took the form of a mixed-methods observational study design to generate both quantitative and qualitative data.

Sample

During 2006 all third-year physiotherapy students at SU ($n=40$) were invited to participate in the study. During the clinical site visits semistructured interviews were held with a representative at each of the service sites visited.

Data collection and procedure

The data collection activities included student record sheets and clinical site visits.

Student record sheets

A data sheet was developed to record the number of treatment sessions provided per day, time spent on patient care, time spent on documentation, the number of patients treated per day and the pathology involved. Students received training on how to complete the data sheet correctly before data collection began. Patient statistics and the time spent on specific activities were documented by students for the last two clinical rotations of 2006. Data sheets were tracked for the duration of the two clinical rotations.

Site visits

The visit to the clinical site and an interview with a site representative (physiotherapist clinician/clinical educator) were combined. Different observational teams among the research group were assembled to visit the different clinical sites.

A site evaluation form (Table 1) was created by a research team member after an extensive search of the literature proved fruitless to find a tool to determine the suitability of clinical service

sites for student training. The site evaluation tool was based on the minimum standards for clinical sites and focused on gathering information on facilities, apparatus, safety and security.^[16] Information regarding the level of healthcare provided at the clinical sites, as well as the travelling distance from the Faculty of Medicine and Health Sciences (FMHS), was recorded. The researchers evaluating the clinical site had to document the presence or not of specific features, as well as provide additional comments regarding each feature assessed. Table 1 provides an illustration of the information gathered during the site visits which were deemed important factors for teaching and learning of undergraduate students.

During the visit, the site evaluation form was completed by one of the researchers, while the site representative gave the team a tour of the facilities. Thereafter an interview was conducted with the site representative. The interview focused on: staff employed at the clinical site; interdisciplinary activities; community outreach activities; treatment protocols; patient profile; administration; and management. At the end of the visit, the visiting team together with the site representative formulated a summary of the visit by using the framework of a SWOT (strength, weakness, opportunity and threat) analysis of the site. This approach was used to extract the data into the significant SWOT aspects as relevant for physiotherapy undergraduate training, while immediately summarising the information.

Data management and analysis

The quantitative data generated by the time sheets were recorded in a purpose-built data collection sheet in MS Excel. Descriptive data analysis was performed using Statistica version 7.

The qualitative data generated during the interviews were deductively analysed using the SWOT analysis as an analytical framework.

Results

Summary of site visits

Seven of the nine clinical service sites used for third-year placements were visited by the research team. Two of the sites could not accommodate the research team at the allocated times because of clinical activities.

Strengths and opportunities

Identified strengths included the travelling distance to the clinical sites, with three of the sites within close proximity of the FMHS, therefore

Table 1. Site evaluation tool

Components needed	Criteria
Staff	<ul style="list-style-type: none"> Staff available for consultation on the block Staff available for clinical supervision on the block
Facilities	<ul style="list-style-type: none"> Availability of treatment space/group treatment areas Number of patients attending the facility Equipment availability/electrotherapy, mats appropriate for the block, plinth, telephone, basin, desk and chair Equipment in good working order Laundry services
Students	<ul style="list-style-type: none"> Number of students on the block Number of patients seen by the students on an average day Number of hours a week that the students receive supervision on the block Student locker facilities Possibility of multidisciplinary work
Patients	<ul style="list-style-type: none"> List of most common presenting conditions in the facility, and do they align with the outcomes for the block? Compliance with appointments
Administration	<ul style="list-style-type: none"> Availability of files and other patient information Availability of administrative staff Availability of support regarding evaluation forms, information sheets How are bookings made for the students? Referral system Systems for contacting outpatients
Transport	<ul style="list-style-type: none"> Transport of students to and from the clinical site Patient transport services

reducing the travelling time of students to and from the clinical site. The other clinical areas were located within a 20 - 45-minute drive from the Faculty. A valuable strength of the majority of clinical sites was the large patient numbers available and the variety of conditions the patients presented with that were suitable for third-year physiotherapy students. At three of the clinical sites, the staff were approachable and eager to have students at their facilities.

Opportunities for development at the clinical site that could impact on the quality of learning of the students included the support and development of clinical physiotherapists at the sites who were eager to learn and grow. Two of the clinical physiotherapists were recent graduates themselves (2 years previously). The potential existed for the development and expansion of multidisciplinary services, a variety of group classes and/or factory visits at five of the clinical sites.

Weaknesses and threats

A number of weaknesses and threats were identified at these clinical service sites. One of the weaknesses that could impact on the learning of students was the lack of clinical physiotherapists. More than half the sites (57%, $n=4$) did not have full physiotherapy staff levels, whereas at one site the clinical physiotherapists had only sessional posts. Four of the seven visited sites lacked basic physiotherapy equipment needed for patient management, e.g. exercise equipment, electrotherapy machines, etc.

Threats at the clinical sites included poor safety and security for patients, students and staff members. Six (86%) of the sites evaluated reported concerns relating to safety. Safety issues raised included theft of equipment ($n=4$) and the theft of valuables of staff and students, e.g. cell phones ($n=2$). At three of the clinical sites concerns related to lack of infection control protocols were also highlighted.

Table 2 summarises the data relating to site evaluation problems.

Table 2. Site evaluation problems at seven sites

Problems identified during evaluation of seven sites	N (%)
Physiotherapy posts not available/sessions	4 (57)
Insufficient individual treatment space	2 (29)
Insufficient basic equipment available	4 (57)
Safety of staff and equipment	6 (86)
Not enough patients	1 (14)
Lack of infection control	3 (43)

Student record sheets

Similar patient statistics were recorded for the three clinical placements (orthopaedics, neurology and medical and surgical). Because of the small ratio of students versus referred patients at clinical sites, students only recorded an average of two treatment sessions per day.

Table 3 shows that there was a significant difference in the clinical exposure of students during the respective clinical rotations. Students placed at a primary healthcare facility for their clinical placement in orthopaedics were more likely to see patients with cold orthopaedic pathology than students placed at a tertiary facility ($p<0.0001$). Students placed at a tertiary hospital were more likely to see patients suffering from acute neurological conditions when compared with students placed at a primary healthcare facility ($p<0.0001$). Students placed at a tertiary hospital were more likely to treat patients following surgery when compared with students placed at a secondary hospital ($p<0.0001$).

Discussion

This study identified a number of factors that could negatively impact on the learning of students placed at clinical service sites for practical training experiences. Firstly, the clinical sites utilised for the clinical placements offered variable clinical exposure to certain pathologies. Secondly, although the majority of clinical sites had large patient numbers, the ratio of patients to physiotherapy students was low at some clinical sites, which curtailed opportunities for students to interact with patients. Skoien *et al.*^[1] reported on the value of patient interaction for the development of communication skills, practical skills and clinical reasoning. There have been calls to standardise the breadth of practice settings in clinical education, but further research in this field is required.^[14]

When students are first exposed to patients, it is very important for them to have sufficient space, time and the necessary equipment available for patient management.^[1] In this study we found that space and equipment were limited at some clinical sites. This could be detrimental to students' ability to develop planning and organisational skills and prioritisation of physiotherapy services. Furthermore, patient care is likely to be compromised by the lack of basic equipment in the clinical sites.

It has previously been reported that clinical physiotherapists at service sites act as role models and potential mentors for undergraduate students.^[11] At more than half of the sites there was a lack of sufficient staff, which could have a negative impact on student learning.

Table 3. Student exposure to patient care

Clinical rotation	Exposure conditions	Tertiary level placement % (n/N)	Secondary level placement % (n/N)	Primary level placement % (n/N)	p-value
Orthopaedics	Cold	0 (0)	-	74 (326/440)	<0.001
	Sports injuries	0 (0)	-	1 (5/440)	0.32
	Trauma	100 (130/130)	-	25 (109/440)	<0.001
Medical and surgical conditions	Medical	8 (22/272)	52 (146/279)	-	<0.001
	Surgical	85 (222/272)	33 (92/279)	-	<0.001
	Burns	10 (28/272)	15 (41/279)	-	0.12
Neurological	Acute	58 (84/145)	45 (47/105)	2 (6/262)	0.04
	Rehabilitation	41 (60/145)	55 (58/105)	95 (250/262)	0.04
	Traumatic injuries	0 (1/145)	0 (0)	2 (6/262)	0.42

Safety, for both patients and students, was a big concern at the majority of the clinical sites visited; incidents of petty theft of personal items and physiotherapy equipment were reported. Safety of patients at healthcare facilities has been identified as one of the seven key domains of the National Core Standards for improving healthcare services in South Africa.^[13] The lack of a safe and secure environment could negatively impact on students' perceptions of healthcare. Furthermore, Brown *et al.*^[17] noted that students prefer a more positive and relaxed environment as being conducive to their learning.

We acknowledge that the data presented in this paper provide a limited snapshot of the clinical sites used for undergraduate physiotherapy training at one institution only. This aspect limits the generalisability of the specific findings but the data do provide an idea of the key elements of clinical training sites that require careful review before placing students at these sites.

Based on our findings we propose that when selecting clinical sites for training healthcare students the following should be considered: (i) the physical environment and available facilities and equipment required for student training; (ii) equivalence of the clinical exposure students will have at the various clinical sites; and (iii) development of additional learning opportunities to optimise the clinical exposure in a clinical rotation. The site evaluation tool developed in this study could be useful in this regard. The tool could also be adapted and used by other programmes to investigate the viability of potential clinical service sites for the training of healthcare students.

Finally, we argue for a more active, participatory role by universities in the clinical training of undergraduate healthcare students and the development of suitable clinical training facilities. The need for academic institutions to develop partnerships with health service providers is evident from the study results. The partnership should seek to inform the development of healthcare services that provide optimal care for the population, while also providing adequate learning facilities and opportunities for students. The development of a socially accountable evaluation framework for the accreditation of medical training programmes by the Medical and Dental Professions Board of the HPCSA is an encouraging advance in this direction.^[5] It will be valuable for other

health professions boards also to align their commitment to meeting these training programme requirements.

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