

Undergraduate physiotherapy student perceptions of teaching and learning activities during the Intensive Care Unit clinical education block- A survey of University of Zimbabwe physiotherapy students

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Abstract- Physiotherapists work in wide range of clinical settings as members of multi-professional health care teams. This has implications for universities and clinicians, in that the responsibility is on the educators in academic institutions and health care facilities to prepare students to be responsible and self-sufficient practitioners who demonstrate competence in physiotherapy. The aim of the study was to assess the student learning experiences during the Intensive care unit clinical education block.

Method: A descriptive cross sectional survey was conducted using all physiotherapy students in their clinical years who had completed the ICU attachment. A self-administered questionnaire was used to collect data on the following; experiences of physiotherapy students during the ICU attachment block, competencies achieved during attachment, challenges faced and recommendations to the ICU physiotherapy attachment curriculum.

Results: From a total of 55 students who were enrolled, 50 students (90.9%) submitted the completed questionnaires, of which 27(54%) were females. The median age of the participants was 22 years (SD=1.04). More than half of the students reported that they were not pleased with the learning experience they encountered during the ICU clinical placement. About 68% (n=34) of the students reported that they encountered difficulties in the implementation of the ICF as an assessment tool in ICU patients. About 62.0% (n=31) of the students indicated that they were not able to contribute to research and advance practice in the field of ICU physiotherapy. Majority of the students, 78% (n=39) also encountered several challenges during the placement with 92% (n=46) of students highlighting that the duration of the placement was too short to master all the techniques. About 70.0% (n=35) of the students reported that they were inadequately supervised during the clinical placement and recommended that there should be a resident physiotherapist in the units.

Discussion and Conclusion: Clinical education experience affects the uptake of ICU physiotherapy as a career path. To promote uptake of the field, the following factors should be considered during the clinical education blocks; foundational knowledge before the block, duration of block and availability of clinical educators.

Index Terms- clinical education, intensive care unit, physiotherapy, students' experience

I. INTRODUCTION

Intensive Care Units (ICU) are designed for the management of critically ill patients suffering a wide range of surgical and medical conditions (Denehy & Berney 2013; Gosselink et al. 2011) and physiotherapy is an integral part in the management of these critically ill patients (Gosselink et al. 2011). This compels academic institutions to train students to be responsible and autonomous practitioners who demonstrate competence in all aspects of physiotherapy practice. To prepare physiotherapists for their professional challenges, the development of professional expertise should be at the forefront of the educational programme and this is achieved through clinical education. Globally, clinical education forms a fundamental component of training in the medical and allied professions (Redenbach & Bainbridge 2007) and this is where theoretical medical knowledge is converted into relevant practical skills essential for professional identity and patient care (Vagstol & Skoien 2011).

The availability of clinical supervisors at the learning sites during clinical placements facilitates students' learning. Clinical supervisors play a crucial role in developing clinical and ethical competencies and in facilitating a structured positive learning climate for the students. (Delany & Bragge, 2009; Vagstol & Skoien 2011; Jones & Sheppard 2008). For the clinical education to be effective, students need sound foundational knowledge and motivation prior to clinical attachment (Nehyba 2012). Physiotherapy students at the University of Zimbabwe commence clinical training in their second year of studies during which they cover disease conditions affecting the cardiorespiratory system including the medical and physiotherapy interventions. Orthopaedic and neurological conditions are covered in the third and fourth years respectively. In the interest of continuously improving the quality of the graduates from the school, it is crucial to understand the experiences of students on clinical attachment so as to input their contributions during the review of the curriculum. The aim of this study was to assess the student learning experiences during the intensive care unit clinical education block with regard to

competencies achieved during attachment, challenges faced and recommendations to the ICU attachment curriculum. .

II. METHODS

Study design

A descriptive cross-sectional study was done between January and February 2016 using a survey questionnaire.

Setting

The study was carried out at the University of Zimbabwe (UZ) and it is currently the only university training physiotherapy students in the country.

Participants

All second, third and fourth year physiotherapy students who had completed their ICU clinical placement in training at UZ (n=55) were conveniently sampled.

Procedure

The study was approved by the Dean of College of Health Sciences at the University of Zimbabwe, Joint Research Ethics Committee of College of Health Sciences and Parirenyatwa Group of Hospitals (JREC282/14) and the Medical Research Council of Zimbabwe (MRCZ/B/799).

A self-administered questionnaire designed by the researcher through literature review was used. The questionnaire had the following three sections: Section A collected socio-demographic data, Section B focused on experiences the students encountered during the ICU clinical placement and Section C collected data on the competencies achieved during attachment, the challenges faced and recommendations.

The questionnaire was tested for content validity by two physiotherapy lecturers who peer reviewed it before administration to respondents. No major changes were made to the questionnaire except slight rephrasing which was suggested

on some questions. The questionnaire was then administered to the students.

Written consent was obtained from the students after explanation on the aims and rationale of the study. Confidentiality was maintained by coding the questionnaires that were given to students with a research number. The physiotherapy students filled in the questionnaires during their free time and a follow up was done after three days to collect the completed questionnaires.

Data analysis

Data analysis was done using STATISTICA (Version 13). Descriptive statistics were used to analyse demographic data. Numerical data was reported as mean and SD for normally distributed data or median and interquartile range for data that was not normally distributed. Categorical data which included experiences of students, challenges and competencies achieved during ICU clinical placement was reported as frequencies.

III. RESULTS

Demographic data

Out of a total sample of 50 students, the ages ranged from 20 – 24 years, with the mean age being 22.0(SD= 1.04) years. The number of females were 27(54.0%);nineteen (38%) students were in their 4th year of study, 20 (40.0%) were third years and 11 (22.0%) were second years.

Experiences of physiotherapy students during ICU clinical placement

Majority of students 42(84.0%) reported that they were not well prepared in terms of basic knowledge at the commencement of the ICU clinical placement. About 40 (80.0%) students reported that they were not very confident in assessing and treating ICU patients (Table 1 below).

Table 1: Experiences of physiotherapy students (n=50)

STATEMENTS	Agree n(%)	Neutral n(%)	Disagree n(%)
I was well prepared in terms of basic knowledge at the commencement of the ICU clinical placement	2(4.0)	6(12.0)	42(84.0)
I felt very confident assessing and treating patients in ICU	10(20.0)	11(22.0)	29(58.0)
Multisystem injuries were easy to manage in ICU	5(10.0)	9(18.0)	36(72.0)
I was able to defend choices of treatment techniques I made during the ICU clinical rotation block	12(24.0)	14(28.0)	24(48.0)
As a result of this ICU clinical block, I feel confident working in this area	18(36.0)	13(26.0)	19(38.0)
I lacked proper patient handling skills especially for those patients who were critically ill.	41(82.0)	3(6.0)	6(12.0)
The ICU clinical rotation block helped me develop my ability to work as a team member.	36(42.0)	12(24.0)	17(34.0)
The course stimulated my interest in the field of study.	19(38.0)	16(32.0)	15(30.0)
I learned to explore ideas confidently with other health professionals	14(28.0)	14(28.0)	22(44.0)
I was able to provide a holistic patient approach using the ICF assessment tool during the ICU clinical rotation block	14(28.0)	15(30.0)	21(42.0)

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Experiences of physiotherapy students in using ICF as an assessment tool

Majority of students (66%, n=33) reported that they encountered challenges in using the ICF as an assessment tool in

ICU. The students faced difficulties in almost all aspects of the ICF, but most difficulties were faced in identifying environmental (70%, n=35) and participation restriction (70%, n=35) components. (Figure 1 below)

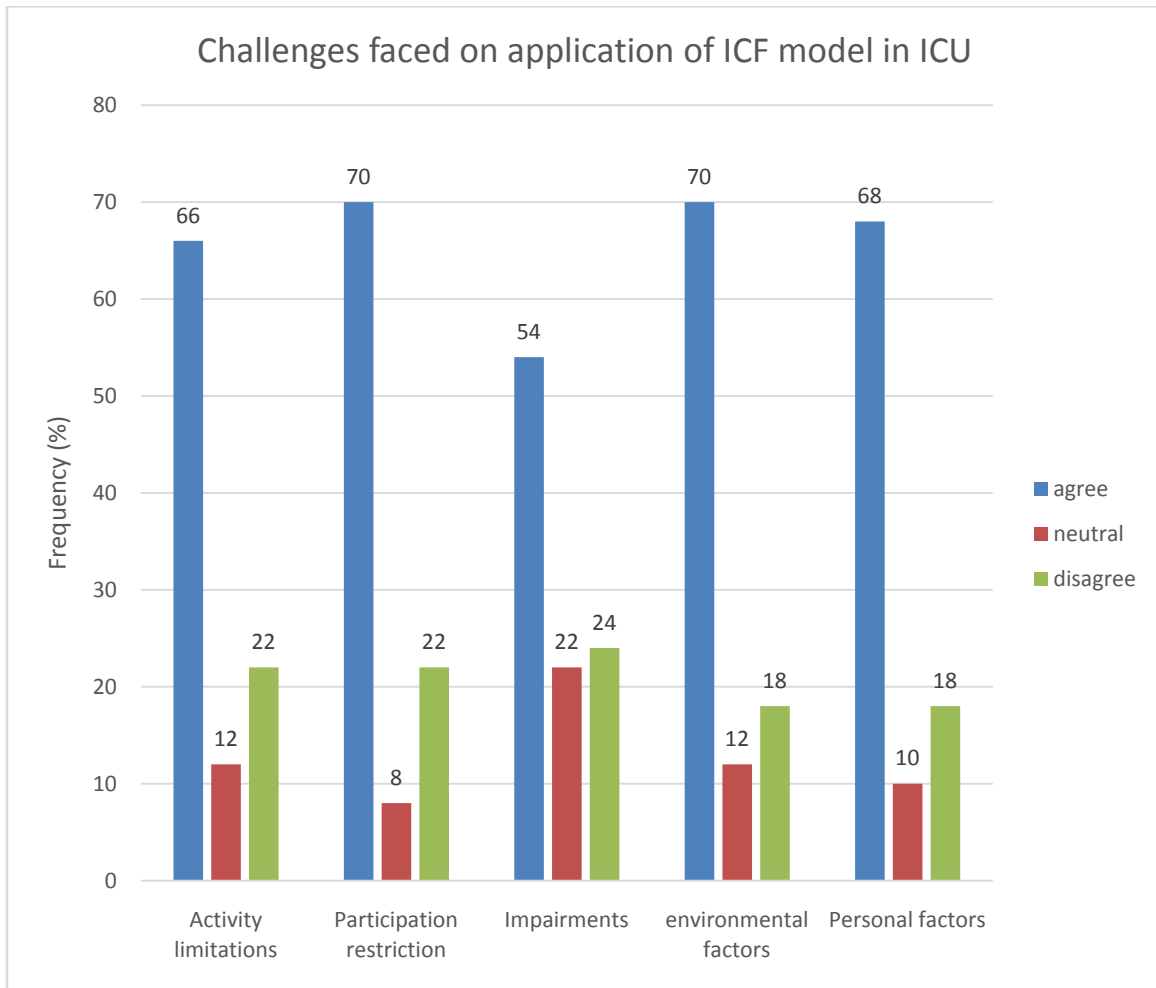


Figure 1: Use of ICF as an assessment tool poses challenges when trying to complete the following components of the framework (N=50)

Competence based training

Generally majority of the students, (78%, n=39) reported that they were not competent enough at the end of ICU clinical placement. About (18%, n=9) of students agreed that they were

able to carry out an analysis, synthesis, assessment and judgment to integrate knowledge, skills, experience and values in order to facilitate decision making in ICU (Table 2 below).

Table 2: Competence Based training in ICU (N=50)

STATEMENTS	Agree n(%)	Neutral n(%)	Disagree n(%)
I am now able to demonstrate effective, efficient, and innovative therapeutic skills in caring for the critically ill	13(26.0)	15(30.0)	22(44.0)
I am now able to do, analysis, synthesis, assessment, and judgement to	9(18.0)	18(36.0)	23(46.0)

integrate knowledge, skills, experience, and values in order to facilitate decision making in critical care.			
I can effectively use and I am now able to contribute to research and advance practice in the field of ICU.	2(4.0)	17(34.0)	31(62.0)
I can demonstrate commitment to the profession, healthcare and society by engaging in strategic leadership that promotes best practice in ICU.	5(10.0)	13(26.0)	32(64.0)
As a result of this placement I can now advocate for the evolution of existing practice standards and the development of new ones in the field of ICU.	5(10.0)	12(24.0)	33(66.0)
I am now able to regularly engage in activities that expand and evolve my knowledge and skills in critical care management	10(20.0)	11(22.0)	29(58.0)
I can now integrate and apply new knowledge and principles into specialist practice.	7(14.0)	13(26.0)	30(60.0)
The placement helped me to seek out and create innovative opportunities for learning in the field of ICU.	10(20.0)	12(24.0)	28(56.0)
I am now able integrate clinical experience, broaden theoretical knowledge and communication skills in clinical documentation, professional dialogue and all aspects of client care in ICU	7(14.0)	12(24.0)	31(62.0)
As a result of the placement I am now able to perform an assessment which incorporates specificity, sensitivity and efficiency in ICU.	5(10.0)	15(30.0)	30(60.0)

Challenges

About 46 (92.0%) of students agreed that the duration of the placement (4 weeks) was too short to master all the techniques

whilst 40(80.0%) student agreed that the severity of patients was not suitable for their level of education (Table 3 below).

Table 3: Challenges experienced by physiotherapy students during the ICU clinical placement (N=50)

STATEMENTS	Agree n(%)	Neutral n(%)	Disagree n(%)
Duration of the attachment too short to master all the techniques	46(92.0)	1(2.0)	3(6.0)
Severity of the patients not suitable for my level of education	40(80.0)	4(8.0)	6(12.0)
Presentation of patients with multisystem injuries making it difficult for me to assess and treat	42(84.0)	4(8.0)	4(8.0)
The number of health team personnel working on the patient quite disruptive	30(60.0)	7(14.0)	13(26.0)
Patient not being able to communicate and making assessment difficult to perform	38(76.0)	6(12.0)	6(12.0)
Felt inadequate in terms of knowledge and skills in the area	38(76.0)	5(10.0)	7(14.0)
Felt restricted in what I could do for the patient	33(66.0)	6(12.0)	11(22.0)
The environment is intimidating/ scary	38(76.0)	5(10.0)	7(14.0)
Inadequate supervision	35(70.0)	3(6.0)	12(24.0)

Recommendations

The majority of the students, 46 (92.0%) recommended that the ICU clinical block should be spread over the clinical years instead of just second year whilst about 30 (60.0%) of students recommended that the ICU attachment block should be done in final year. The majority of the students, 48(96.0%) also recommended that there should be a specialist ICU physiotherapist in all the academic hospitals.

IV. DISCUSSION

According to the authors' knowledge, this is the first study to determine the experience of the students in clinical education

of cardiorespiratory physiotherapy as a step toward curriculum review. It is reported that students play a big role in contributing towards curriculum review as the final recipients of the curriculum and training (Reeve et al. 2012). Understanding the ways in which students study and the values they place on their experiences, is essential in designing a new curriculum (Lindquist et al. 2004). An increasing complex and demanding clinical environment has made physiotherapy educators think differently of physiotherapy clinical education (Healey 2008). Now, physiotherapy graduates must demonstrate effective and efficient critical-thinking skills, problem solving skills and self-directed learning abilities that ensure a quick and smooth transition from novice to reflective practitioner.

Students experience on ICU clinical placement

In the current study, students highlighted that there were not pleased with the ICU clinical education because of the following reasons, inadequate preparation, not enough time, patients with complex conditions. This was similar to what was in other countries that students highlighted inadequate exposure being a major factor affecting the clinical education and also students would not have acquired an adequate knowledge when they begin their clinical placement (Milanese et al. 2013). In the current study majority of students were not pleased with the learning experience they encountered during the ICU clinical placement as they highlighted that they were not competent enough at the end of the placement due to many challenges they encountered which include inadequate supervision, patients being not able to communicate and lack of confidence in assessing and treating ICU patients. Milanese et al (2013) reported that most of the physiotherapy students lack the hands-on techniques and practical skills that are mandatory in physiotherapy. For these reasons, academic and clinical education experiences that advance desirable learning outcomes in students should be put into consideration (Healey 2008). More than half of the students agreed that the placement helped their ability to work as team members since patient management in ICU require a lot of multidisciplinary approach to patient care. During the ICU clinical attachment, students are encouraged to attend multidisciplinary rounds which are conducted daily in the unit. From these rounds, they learn to interact with the other professionals and work as a team in health care delivery. In contrast, a study done in Australia reported that the ICU provided the least opportunity to work as team members due to the fact that most of the time physiotherapists work alone when doing their assessments (Morris 2001).

Competency based training

In this study more than half of students reported that they did not achieve most of the competencies expected of them by the end of the ICU clinical placement. In the different studies reviewed, the report on accomplishment of the competencies varied, with some reporting having low competence level at the end of the attachment whilst in other studies students reported to have achieved all the expected competencies by the end of the attachment block (Turner 2001;Nehyba2012). The development of professional proficiency and competencies should be seen as a process (Ven&Vyt2007). The process of learning should structure and shape the development of both competence and identity through skill competence with, underlying perspectives for learning (Crosbie et al. 2013).

Challenges faced by students during ICU clinical placement

In this study students reported that they faced many challenges during the ICU clinical placement, with majority of the students reporting that the duration of the clinical placement was too short to master all the techniques. Moreover, the presentation of patients with multisystem injuries was making it difficult for them to treat and assess and this was supported by a study done by Healey (2008) in which students reported that complex patients were difficult to manage. Students also reported that they felt inadequate in terms of knowledge and skills as reported by Milanese et al (2013). Most students reported that

they got inadequate supervision from the clinical supervisors. Despite international appreciation of the importance of clinical education in the physiotherapy education curriculum (Milanese et al. 2013), both the higher education sector and the profession continue to face challenges in ensuring physiotherapy students acquire the optimal clinical education experience (Milanese et al. 2013). Richardson (2006) found out that learning objectives were covered much more effectively in an interactive environment where there was student-patient interaction. Students expressed a higher degree of satisfaction with the learning activities in which they get more feedback from clinical supervisors (Healey 2008). The educator roles that strongly influence the clinical learning environment were found to be those of technique demonstrator, mentor, assessor, knowledge provider and facilitator of learning (Ernstzen 2013).

Recommendations

Students recommended that the ICU should be done in final year due to the fact that patients in ICU do not have cardiorespiratory problems only but also present with orthopaedic and neurological problems that are covered in third and fourth years respectively. Majority of students recommended that the ICU attachment block must be spread over the clinical years as they gain most of the treatment techniques in third and fourth years and this was also highlighted by Nehyba (2012) who stated that students should be given responsibility for patients in third and fourth years. Timing of the clinical attachment has been highlighted to be a key factor with potential to both positively and negatively influence student's opinion of a specific field (Reeve et al. 2012)

It was recommended that having a resident physiotherapist working in the unit can help with the learning since the clinical supervisor will be readily available to address the students' queries. Students also recommended that they should have more practical sessions during lecture time so as to familiarise with what they are to foresee before the placement as this help them to make sense of their lectures. Milanese et al (2013) outlined that the emphasis on theoretical framework had been too strong in recent years but the practical aspect was not extended.

V. CONCLUSION

Concurring with the literature the study shows that there is need to take into consideration a number of factors in order to optimise the learning experiences of students on placement when it comes to clinical education. If these issues are addressed, then it will promote uptake of the field of physiotherapy in ICU as a career path. Some of the perceived challenges outlined by students which include inadequate preparation in terms of foundational knowledge, inadequate supervision, lack of confidence in managing orthopedics and neurological conditions have to be addressed through a curriculum review, making sure that all the solutions to all the factors highlighted are fully addressed in the curriculum. The limitations of the study include a small sample size as not all of the students participated and the results cannot be generalized to other countries due to the difference in the structure of the program. However, more studies should be undertaken which analyse the experience of physiotherapy students during clinical placements maybe through

qualitative studies in order to have an in-depth analysis of the experiences. Future studies should also include the qualified physiotherapists to determine the practices, attitudes, challenges and recommendations on physiotherapy in ICU which will assist during curriculum review.

COMPETING INTERESTS

The authors declare that they have no competing interests.

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