Clinical Learning Environment and Clinical Learning Outcomes as Perceived by Final Year Baccalaureate Nursing Students in Fiji National University, the Republic of Fiji

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ABSTRACT

Introduction: Clinical placement of student nurses should be a clinical learning environment that is dynamic and includes a complexity of variables influencing students learning experience. Clinical learning environment (CLE) is defined as the interactive network of forces that influences clinical learning outcomes (CLO) which are statements of what students are expected to understand and demonstrate at the end of their clinical practice. No studies conducted on the relationship between nursing student's perceptions of clinical learning environment and clinical learning outcome in Fiji. Objective of the study was to examine the correlation of clinical learning environment and clinical learning outcome.

Method: A descriptive co-relational study conducted on 172 final year baccalaureate nursing students. Data obtained using a questionnaire including demographic characteristics, 23 item clinical environment scale and 45 item clinical learning outcomes for nursing student's tool. Descriptive and inferential statistics was performed for data analysis.

Results: Clinical learning environment was perceived at a moderate and clinical learning outcomes were at a high level. A non-significant relationship was observed between clinical learning environment and clinical learning outcomes (r=0.141. p=0.05). Sub categories of clinical learning environment (5 areas) were at moderate level and clinical learning out outcomes were at high level.

Discussion: No correlation of statistical significance observed in this study however correlational studies do not show cause and effect but determines relationships that are statistically significant to provide some basis for sound decision making. This study provides baseline data for replicative and qualitative studies in future.

Keywords: Clinical learning environment, Clinical learning outcomes

INTRODUCTION

The general purpose of nursing education is to provide the principle of theoretical components and required hours of clinical attachment as required by nursing regulatory bodies which monitors undergraduate nursing education. Clinical placements for undergraduate nursing students are vital for the development of their competencies and apply knowledge, skills and attitudes [1] importantly vital preparing students to work as a registered nurse. They are important in the learning process of nursing students wherein practical knowledge along with personal experiences are the foundations for integrating theoretical knowledge and developing practical nursing skills [2]. Clinical practice enables nursing students to develop competencies in the application of knowledge, skills and attitudes pertaining to clinical fields thus enabling opportunities to apply theory to practice [3] in a clinical learning environment that is dynamic with a complexity of variables that influences student learning experience [4] thus expected clinical learning outcomes are attained. Clinical learning environment are interactive network of forces that influences student learning outcomes in the clinical settings [5]. Past studies have revealed that nursing students perceive CLE as supportive, pleasant and good [6-8]. Knowles [9] purported that concepts of learning environment emphasized the importance of physical, human, interpersonal and organizational properties, mutual respect and trust among teachers and students. Therefore, student

nurses attached in their allocated clinical learning environment need to be facilitated, supported, and supervised by the clinical teachers, nurses in the department, physicians and members of the allied health [10]. Clinical learning outcomes are proclamations of what students are anticipated to know, understand and apply at the end of their clinical practice [11]. These are the core of clinical education and it reflects the expectations on both students and nurse educators. The focus is on knowledge gained, skills and abilities acquired and demonstrated, and values and attitudes changed. While, clinical learning outcomes are of interest to nursing educators they are challenging to measure and since they will need a number iterations before the data collected are deemed valid and reliable [12]. Past studies have shown some of the factors that had a considerable impact on nursing students CLOs were staff-student relationship [5,10]; nurse manager commitment to teaching [13]; and student involvement. DeYoung indicated that student clinical learning outcomes would be easily identified if the program objectives are very clear from the onset of the program or course.

In Fiji, the conception of formal nursing education began in 1893 whereby Ms. Webberburn a personal friend of Florence Nightingale the founder of nursing was the first nurse trainer who trained Fiji's first qualified nurse Ms. Anderson in 1897 The curriculum progressed from: (i) Certificate in General and Obstetric Nursing from 1954-1974, (ii) Reviewed Certificate in General and Obstetric Nursing from 1975-1986; (iii) Mastery Diploma in Nursing from 1983-2006; Competency-Based Diploma from 2004-2010 [14] and in 2013, the Bachelor of Nursing Program was inaugurated which had lesser clinical hours compared to the previous curriculums as this met the specifications of the University's Academic Regulations.

LITERATURE REVIEW

Clinical Learning Environment

Studies described clinical learning environment as hospital learning environment; clinical environment; clinical setting; and ward learning environment. Clinical settings are where students learn to practice as in the clinical classroom whereby distinguishing factor of the clinical classroom from classroom teaching is the fact that classroom teaching was more structured while students in the clinical classroom often found themselves in unplanned activities with patients and other health care providers [1]. It is also the attributes of the clinical work setting such as autonomy and recognition, role clarity, job satisfaction, quality of supervision, peer support and opportunity for learning which nurses perceive to influence their professional development where learning environments includes student-teacher interactions, teaching and learning activities as well as good physical structures and facilities provided by the institution [15]. Clinical learning environment is a multidimensional concept and scholars have identified dimensions of clinical learning environment for nursing students in different ways depending on the clinical setting. Some conceptual models of clinical learning environment have been stated in the literatures and these are: (a) Chan's conceptual model that involved exploration into the predictability of students' cognitive and attitudinal outcomes that focuses on Individualization; Innovation; Involvement; Personalization; and Task orientation. (b) Dunn and Burnett's model staff-student relationships, nurse manager commitment, patient relationships, interpersonal relationships, and student satisfaction [13] Clinical learning environment assessment instrument have been developed over the years to quantify CLE [1,5]. The fifty (50) item Dundee Ready Educational Environmental Measure (DREEM). Clinical Learning Environment Scale that consists of five subscales including (1) staff - student relationship, (2) nurse - manger commitment, (3) patient relationship, (4) student satisfaction, (5) hierarchy and ritual to examined factors influencing undergraduate nursing students 'perception of their clinical learning environment while Chan [2] developed the Clinical Learning Environment Inventory (CLEI) to specifically addresses the constructs of what a learning environment is. Dunn and Hansford [13] found that nursing staff, unit nurse managers, and other staff in the unit, nurse manager commitment, and attitudes of registered nurses to patient care impacted nursing student's perception of their CLE while Chan [1] contended that clinical learning experiences enabled students to develop competencies in the application of knowledge, skills and attitudes towards clinical situations followed by (i) elements of the learning environment that are under the teachers control positively impacts the way students approach their study and learning environment; (ii)University educators should focus on new comers 'relationship with both their teachers and peers; (iii) interpersonal relationships also contributes to learning; and (iv) approaches to learning and students perception of their learning environment is mediated by experience (of the teacher) and interaction between teacher and learner Karagiannopoulou et al. [16]. Paucity of quality and deep research on the relationship between pedagogy and the design of learning environment existed [17,18] and future research was to focus on student's abilities to do what we want to achieve; how to assess these attributes, what pedagogies should be used to achieve the desired learning outcomes, what learning environments should be developed to fit the pedagogies as aforementioned, how to develop a pilot program and evaluate it. Further, creating and maintaining a supportive environment with well-tailored interventions to address the deficits in the learning environment of students [15] wherein students taking course in a technologically enhanced environment conducive to active learning techniques outperformed their peers in the same course but in a more traditional classroom setting [19], that can be applied to clinical learning environment whereby clinical practice or active learning is implemented.

Clinical Learning Outcomes

There is a paucity of definitions of clinical learning outcomes (CLO) in the literature; however terms similar to clinical learning outcomes have been noted include: nursing student learning outcomes; student learning outcomes; educational outcomes and learning outcomes. Though it can be argued that CLO is a result of clinical placements. Al-kandari et al. [11] stated that CLO are statements of what students are expected to know, understand, and be able to demonstrate at the end of their clinical placement, while Oh et al. [20] coined the word 'educational outcomes' which is referred to as statements of the professional abilities that nursing students should achieve during undergraduate study. Bloom et al. [21] developed classification, known as Bloom's taxonomy to be used primarily for classifying learning outcomes. Gange [21] developed an instructional theory (San Francisco, 2005) describes conditions under which one can intentionally arrange for learning-specific performance outcomes. Gange [21] asserted that it was vital for teachers to reflect on the nature and skill or task they wanted to teach and make certain the prospecting students had the necessary pre-requisite to acquire the skill. The Korean Accreditation Board of Nurses iterated that a general understanding of humans, critical thinking, professionalism, leadership, communication skills, and practical nursing skills were core abilities which should be expected as the outcome of a nursing education [22]. In 2009, Oermann [22] highlighted the importance instructional objectives had in teaching nursing students in different settings where guidelines for students' teaching and learning are provided so it forms the basis for evaluating their learning. In 2009, Al-Kandari et al. [11] developed a theory of clinical learning outcomes by integrating the Revised Blooms Taxonomy in clinical objectives. These included nine-dimensions namely: (i) Knowledge (ii) Nursing process, (iii) Communication (iv) Student roles refers to students participation as part of the health care team (v) Accountability (vi) Patient teaching (vii) (viii) Caring refers to the ability of the student to demonstrate caring behaviour and (ix) Psychomotor skills. Nursing institutions measure clinical learning outcomes by utilizing instruments as the Kuwait Clinical Learning Outcomes for Nursing Students Tool (KCLONS) [11] where ach dimension has five items with a response ranging from 1 "not applicable" to 5 "strongly agree". A score of 5 indicates the highest score and a higher mean score indicates stronger achievement of the expected clinical learning outcome. The reliability coefficient (Cronbach's alpha) for the tool was 0.7. Oh, et al. [20] utilized the (1) Critical Thinking Disposition Instrument (CTDI); (2) Nurse Self-Description Form (NSDF); (3) Self-Assessment Leadership Instrument (SALI); (4) Supportive Communication Inventory (SCI). Al-Kandari et al. [11] found that overall score for CLO was high and this was attributed to efforts of achieving the objectives of the curriculum while a lower score of the students suggested the difficulties encountered by the students in achieving the clinical practice outcomes thus use of case scenarios in classrooms and more time in the clinical practice area was recommended. Students in the baccalaureate upper class scored highly compared to those in the lower class while there was not observed in the associate degree sample differences noted between baccalaureate and advanced degree students was in the area of leadership and communication whereby baccalaureate students scored higher in leadership while the advanced degree students scored higher in communication [20]. Revisiting areas relevant to clinical learning outcomes including: (1) professional values and nursing role; (2) nursing practice and clinical decision making; (3) nursing skills, interventions and activities; (4) knowledge and cognitive competencies; (5) communication interpersonal relationships and (5) leadership, management and team abilities [23] is imperative.

Situation of CLE and CLO in the Republic of Fiji

There are no published studies on CLE and CLO of nursing students in Fiji National University, The Republic of Fiji. However the Bachelor of Nursing Program prescribes that from Year 1 to Year 3 there are: (i) fifty-seven (57) weeks of classroom learning; and (ii) fifty-nine (59) weeks of clinical practice, culminating to 1,706 h of theory- 25% , 2,065 hours of clinical practice- 31% and 2, 985 h of self-directed learning - 44% [24]. Nursing students during their clinical placements take with them a clinical training log book to serve as a guide to self-study and literature review; provides a basis for briefing and debriefing sessions between student and supervisor; serve as permanent proof of clinical experience and competency and lastly but the least, evaluate performance consistently and continuously throughout training (FNU, n.d). There are no mechanisms tailored to provide feedback from the student perspective on the CLE and CLO. However, "a course and teacher evaluation" is accessible on the university website for students to make known their concerns of the courses they were enrolled in and how it was disseminated by the respective lecturers (FNU PR personal communication, September 16, 2015). The paucity of studies regarding CLE and CLO from the perspectives of nursing students at FNU in The Republic of Fiji is the root cause for the facilitation of this study. The researchers who are nurse educators are in pursuit of exploring what is truly perceived by final year baccalaureate nursing students in Fiji National University, The Republic of Fiji.

METHODS

Study Design and Setting

A descriptive correlational research was designed to assess the level of CLE, to assess the level of CLO and to examine the relationship between CLE and CLO as perceived by final year undergraduate nursing students in Fiji National University, The Republic of Fiji.

Ethical Consideration

The study was approved by the College of Medicine, Nursing and Health Sciences Research Ethics Committee (CHREC). Implied consent was instituted to maintain anonymity and confidentiality.

Participants

The sample size involved all final year baccalaureate nursing students minus the 20 included in the reliability test thus 172 subjects was the sample.

Data Collection and Instruments

Research Instruments (consists of three parts as follows):

Part I

Demographic data form was developed by researcher.

Part II

Clinical Learning Environment Scale (CLES) Developed by Dunn and Burnett (1995) was used for this study. There are 23 items divided into 5 dimensions which are: (i) Student-Staff Relationships, (ii) Nurse-Manager Commitment, (iii) Student-Patient Relationships, (iv) Interpersonal Relationships, (v) Student Satisfaction. The questionnaire is a five point Likert type scale whereby: 1=strongly disagree; 2=disagree; 3=undecided; 4=agree; 5=strongly agree. A higher score indicates a more positive clinical environment. CLES levels categorized as follows: 23.00-53.66=low level; 53.67-84.33=moderate level; 84.34-115.00=high level [23].

Part III

Clinical Learning Outcomes for Nursing Students Tool: CLONST developed by Al-Kandari [11] measures nursing students' perceptions of clinical learning outcomes from clinical settings. There are forty-five items divided into nine dimensions namely: (i) Knowledge; (ii) Nursing Process; (iii) Communication; (iv) Students Role; (v) Accountability; (vi) Patient Teaching; (vii) Organization; (viii) Caring; and (ix) Psychomotor Skills. Each item on the CLONST is weighted on a Likert type scale as follows: 1=not applicable; 2=strongly disagree; 3=disagree; 4=agree; 5=strongly agree. CLONST levels categorized as follows: 45.00-105.00=low level; 105.01-165.00=moderate level; and 165.01-225.00 high level [25].

Validity and Reliability of the Instruments

The content validity index of the instrument had been by ascertained by those that developed it and the instrument has been widely used as evidenced in the literatures.

The internal consistency (reliability) of the instruments was tested on 20 final year baccalaureate nursing students in Fiji National University with similar characteristics to the subjects using Cronbach's alpha coefficient [26]. A reliability of 0.80 was considered satisfactory for a well-developed measurement tool [27].

Data Analysis

Descriptive and Inferential Statistics was performed for data analysis in this study using a statistical package (SPSS 21). Significant level alpha was set at 0.05 and the analysis was divided in to the following steps: (i) Items in the CLE scale and items in the CLO instrument were analyzed using frequency, percentage, mean and standard deviation and (ii) Spearman's rho was employed to ascertain the statistical significance of any relation between CLE and CLE.

RESULTS

A total of 172 questionnaires were distributed to the student nurses. A response rate of 100% was achieved. The demographics of the sample (n=172) are shown in **Table 1**.

Table 1. Characteristics of student nurses.

Characteristics of student nurses	N	(%)
Male	37	21.5
Female	135	78.5
Clinical Setting Worked In		
Medical	44	25.6
Surgical	38	22.1
Paediatric	20	11.6
ICU's	3	1.7
Maternity	65	37.8
Other Units	2	1.2
Number of Members in Clinical Group		
3	2	1.2
4	6	3.5
5	27	15.7
6	49	28.5
7	69	40.1
8	11	6.4
9	8	4.7
Other Nursing Students exposed in the Same Clinical Setting		
Yes	97	56.4
No	75	43.6
Medical Students exposed in the Same Clinical Setting		
Yes	130	75.6
No	42	24.4
Number of Times Visited by Clinical instructor		
0	17	9.9
1	68	39.5
2	45	26.2
3	21	12.2
4	7	4.1
5	14	8.1

There were more females (79%) than males (21%), more than half the sample had group membership between 5-9, more than half reported there were nursing students from different years and medical students also doing clinical attachment in the same clinical setting.

Analysis of Clinical Learning Environment

The highest score dimension was from the student-staff relationship and lowest from Student-Patient relationship while as per units. Intensives Care Units scored the highest followed by maternity, surgical, medical then other units which were all at a moderate level. The total score for the clinical environment was at a moderate level of mean of 73.50 and standard deviation of 0.98 (Table 2).

Table 2. Range, mean and standard deviation of clinical learning environment items.

Item	Mean	SD	Level
Student-Staff Relationship	19.06	0.33	Moderate
Nurse Manager Commitment	14.7	0.28	Moderate
Student Patient Relationship	11.26	0.26	Moderate
Inter-personal relationship	12.97	0.22	Moderate
Student satisfaction	14.33	0.22	Moderate

Analysis of Clinical Learning Outcomes

The highest score dimension was from Caring which was at a high level (mean=21.22, SD=0.27) while as per units Medical Units scored the highest (mean=184.53, SD=24.84). All the units were perceived at a high level and the total clinical learning outcome score was at a high level (mean=180.62, SD=1.91) (Tables 3).

Table 3. Range, mean and standard deviation of clinical learning environment scores by units.

Item	Mean	SD	Level
Medical	72.52	11.34	Moderate
Surgical	72.92	12.84	Moderate
Paediatric	71.7	13.54	Moderate
ICU's	80.33	6.65	Moderate
Maternity	75.61	13.33	Moderate
Other Units	62	25.45	Moderate

Analysis of Relationship Between Clinical Learning Environment and Clinical Outcomes

Spearman's Rho value indicated that there wasn't a significant relationship between the variables (r=0.141, p=0.064) (Tables 4-7).

Table 4. Range, mean and standard deviation of total clinical learning environment score.

Item	Mean	SD	Level
Total Clinical Environment Score	73.7	123.81	Moderate

Table 5. Range, mean and standard deviation of clinical learning outcomes items.

Item	Mean	SD	Level
Knowledge	19.19	0.24	High
Nursing Process	19.81	0.24	High
Communication	19.87	0.24	High
Accountability	20.52	0.25	High

Patient Teaching	19.8	0.26	High
Organization	19.55	0.25	High
Caring	21.22	0.27	High
Psychomotor Skills	21.05	0.25	High

Table 6. Range, mean and standard deviation of clinical learning outcomes by units.

Item	Mean	SD	Level
Medical	184.52	20.84	High
Surgical	179.79	19.69	High
Paediatric	180.45	20.29	High
ICU's	131.66	50.08	Moderate
Maternity	180.6	27.86	High
Other Units	188	15.55	High

Table 7. Range, mean and standard deviation of total clinical learning outcome score.

Item	Mean	SD	Level
Total Clinical Learning Outcome Score	180.62	1.91	High

DISCUSSION AND CONCLUSION

This study revealed that final year baccalaureate nursing students in Fiji National University, The Republic of Fiji perceived clinical learning environment at a moderate level.

This indicates that the students are at an un-deciding level. Clinical learning environment level from this study is lower than in developed countries like Australia [5] and in Europe [28]. The iterations by Dunn and Burnett [5] that clinical learning environments requires positive iterations among the dimensions of clinical learning outcomes **(Table 5)** were not echoed in this study and this could be attributed to the fact that Fiji being a developing country with its limited resources for sound nursing academia followed by period of transition phase from that of a diploma program to degree.

There were too many students per group, along with other nursing students of different years, and medical students who were attached to the clinical setting and majority did say they were visited less than two times or less by the clinical instructor **(Table 1)** who was to be agent of acclimatizing nursing students to the learning environment. Nurse Managers and staff nurses in these clinical settings have many roles to play and mentoring nursing students of which they are not trained to do is not a priority for them equally. Some researchers informed that ward nurses were reluctant to participate in teaching and supervising students due to limited teaching skills and minimal facilitation from nursing faculty members.

Studies done in Australia [5] and Europe [28] found that the clinical model for clinical attachment were small groups and one to one relationship like mentorship and preceptorship had being in existence for the past two decades.

A moderate level of clinical environment perception from nursing students sets as high level of concern wherein all items or components of the clinical setting need to be improved especially the need to work in conjunction with nurse managers and clinical nurses to provide a conducive clinical learning environment.

Clinical learning outcomes findings mirrored those of Al-Kandari et al. [11] whereby subjects perceived high scores. The results varied amongst clinical settings which could have resulted from the fact that the more intensive the nursing care was the lower the leaning outcomes were as in **Table 6**. Clinical learning outcomes were while perceived at a moderate level for ICU's clinical learning environment was perceived at a high level could be attributed to the fact that the ICU environment provides a conducive environment for learning for all its machines and alarms but student would not be able to rate the clinical learning the same due to the limited time of their attachment, not being able to provide the necessary nursing care their competency entails and also not visited often by their clinical instructor which was almost half (49.4%) **(Table 1)**.

There wasn't a significant a statistically significant relationship between clinical learning environment and clinical learning outcomes as perceived by the sample. Correlational studies do not show cause and effect but determines relationships that are statistically significant to provide some basis for sound decision making [27]. The levels of perception of the clinical learning environment and the clinical learning outcomes suffices support for decision making among nurse educators in these areas (Table 7).

This study provides baseline information for future studies, a qualitative aspect or replication in other training hospitals to ascertain the true nature of the relationship of clinical learning environment and clinical learning outcomes from the Republic of Fiji perspective.

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