Aus dem Institut für Allgemeinmedizin
der Heinrich-Heine-Universität Düsseldorf
Direktor: Univ.-Prof. Dr. med. Stefan Wilm

# Communication skills training (CST) to enhance nursing and midwifery students' empathy, communicative competence, communication skills attitude, and self-efficacy

Dissertation

zur Erlangung des Grades eines Doktors Public Health
der Medzinischen Fakultät der Heinrich-Heine-Universität Düsseldorf

vorgelegt von
Mustapha Alhassan
2016

Als Inauguraldissertation gedruckt mit Genehmigung der Medizinischen Fakultät der Heinrich-Heine-Universität Düsseldorf.

Gez.:
Dekan: Univ.-Prof. Dr. Joachim Windolf
Erstgutachter: Uni.-Prof. Dr. med. Stefan Wilm
Zweitgutachterin: Univ.-Prof. Dr. Dr. Andrea Icks

Gedruckt bzw. veröffentlicht mit Unterstützung des Deutschen
Akademischen Austauschdienstes

Dedicated to my late, mother Zeinab Girugudow
and grandfather Alhassan Girugudow

## Summary

**Background:** In everyday interaction, communication is very important. For nurses and midwives, communication is an important aspect of their job. However, nurses and midwives in Ghana are not given the necessary communication skills for effective interaction with patients. What they are taught is academic writing and communication in English. Yet, internationally recognised models like the "Four Habits Model" developed by the United States Health Maintenance Organisation Kaiser Permanente and used over the past 20 years has proven to be very effective in clinical communication. The core elements of this model are Habit I (invest in the beginning), Habit II (elicit patient`s perspective), Habit III (demonstrate empathy), and Habit IV (invest in the end). To enhance nursing and midwifery students' empathy, communicative competence, communication skills attitudes, and self-efficacy in Ghana a communication skills training (CST) was developed. This CST was based on the findings of an earlier explorative study. That study's findings elucidated that in order to meet patients' expectations CST programmes should predominantly focus on Habit III, Habit IV, and provision of information regarding treatment.

**Research question:** Does CST have an effect on nursing and midwifery students' empathy, communicative competence, communication skills attitudes, and self-efficacy in a randomised controlled trial (RCT)?

**Methods:** This study was pre-post design in an RCT (N = 230) with two groups, nursing (n = 181) and midwifery (n = 49) students from Tamale Nursing and Midwifery College, Ghana. After obtaining informed consent, they were randomised into an intervention and a control group. Both groups had a 2-day CST each at different times. Group discussions, role-plays, videos, short presentations and brainstorming sessions were the methods of the CST delivery. The two groups had a baseline test (T1) at the same time. The intervention group had a CST, followed by post-test (T2) on day 3. The control group had post-test (T2) on day 4 just before their CST. The primary outcome was empathy measured with Jefferson Scales of Empathy Health Professions Student- version (JSE HPS- version). The secondary outcomes were communicative competence, communication skills attitudes, and self-efficacy. Both groups had a follow-up test (T3) at the same time, six months after the CST. All data were analysed using SPSS. Baseline data was collected at the end of August 2014. Six-month follow-up took place in early March 2015.

**Results:** The results showed slight increases in the scores of empathy. However, there was no statistically significant effect.

**Discussion:** This study confirms previous studies that empathy cannot be enhanced in a short period following CST. A long-term follow-up may provide further information on the effectiveness of the CST.

## Zusammenfassung

**Hintergrund:** In der täglichen Interaktion ist die Kommunikation sehr wichtig. Für Pflege- und Hebammenschüler ist die Kommunikation ein wichtiger Aspekt ihrer Arbeit. Allerdings sind Pflege- und Hebammenschülern in Ghana nicht die notwendigen Kommunikationsfähigkeiten für eine effektive Interaktion mit den Patienten gegeben. Sie werden in akademischem Schreiben und Kommunikation gelehrt. Internationale anerkannte Modelle, wie das „Four Habits Model", wurden von der amerikanischen Health Maintenance Organisation „Kaiser Permanente" entwickelt und haben sich in den vergangenen 20 Jahren als sehr wirksam in der klinischen Kommunikation gezeigt. Die Kernelemente dieses Modells sind: Habit I (In den Anfang investieren), Habit II (Die Patientenperspektive ermitteln), Habit III (Empathie ausdrücken) und Habit IV (In den Abschluss investieren). Um die Empathie, kommunikative Kompetenz, Kommunikationsfähigkeit, Haltung und Selbstwirksamkeit von Pflege- und Hebammenschülern zu verbessern, wurde in Ghana ein Kommunikationstraining (CST) entwickelt. Dieses CST basiert auf den Ergebnissen einer früheren explorativen Studie. Die Ergebnisse der Studie zeigen, dass sich - um Patienten-Erwartungen zu erfüllen-, CST Programme vor allem auf Habit III und Habit IV und ebenso auf die Bereitstellung von ausreichenden Informationen über die Behandlung fokussieren sollten.

**Forschungsfrage:** Hat das CST-Programm eine Wirkung auf Empathie, kommunikative Kompetenz, Kommunikationsfähigkeit, Haltung und Selbstwirksamkeit von Pflege- und Hebammenschülern in einer randomisierten kontrollierten Studie (RCT)?

**Methoden:** Die RCT-Studie war in einem Pre-Post Design angelegt mit (N = 230). Es wurden zwei Gruppen untersucht: Pflegeschüler (n = 181) und Hebammenschüler (n = 49) aus dem Tamale Nursing and Midwifery College, Tamale-Ghana. Nach Einwilligung wurden diese in eine Kontroll- und eine Interventionsgruppe randomisiert. Beide Gruppen hatten ein 2-tägiges CST-Training, jede zu unterschiedlichen Zeiten. Gruppendiskussionen, Rollenspiele, Videos, Kurzvorträge und Brainstorming-Sitzungen waren die Methoden des Trainings. Beide Gruppen hatten zur selben Zeit einen Baseline-Test (T1). Die Interventionsgruppe bekam das CST-Training, gefolgt von einem Post-Test (T2) an Tag 3. Die Kontrollgruppe hatte einen Post-Test (T2) an Tag 4, und anschließend das CST-Training. Der primäre Endpunkt war Empathie, gemessen mit der Jefferson Scales of Empathy Health Professions Student- Version (JSE HPS-Version). Die sekundären Endpunkte waren kommunikative Kompetenz, Kommunikationsfähigkeit, Haltung und Selbstwirksamkeit. Beide Gruppen hatten sechs Monate nach dem CST-Training zur gleichen Zeit einen Follow-up-Test (T3). Die Daten wurden mit SPSS analysiert. Die Baseline-Daten wurden Ende August 2014 gesammelt. Ein sechs-monatiges-Follow-up fand Anfang März 2015 statt.

**Ergebnisse:** Die Ergebnisse zeigen, dass es einen leichten Anstieg in der Empathie-Bewertung gibt. Dieser ist jedoch statistisch nicht signifikant.

**Diskussion:** Die Studie bestätigt die Aussage früherer Studien: Empathie kann nicht durch ein in einem kurzen Zeitraum erfolgendes CST-Programm verbessert werden. Ein langfristiges Follow-up kann weitere Informationen über die Effektivität eines CST-Programms geben.

## List of abbreviations

| | |
|---|---|
| **4HM** | Four Habits Model |
| **4HPQ** | Four Habits Patients' Questionnaire |
| **8QIRT** | Eight questions on information regarding treatment |
| **AWC** | Academic writing and communication |
| **CS** | Communication skills |
| **CSAS** | Communication skill attitude scale |
| **CST** | Communication skills training |
| **FG** | Focus group |
| **HCP** | Healthcare professionals |
| **JSE HPS- version** | Jefferson Scales of Empathy Health Professions Student- version |
| **JSPE** | Jefferson Scale of Physician Empathy |
| **NMS** | Nurses and midwives students |
| **Nurse** | Refers to both nurses and midwives |
| **PCA** | Principal component analysis |
| **PST** | Psychological training programmes |
| **T1** | Baseline |
| **T2** | Post-test |
| **T3** | Follow-up |
| **TNMC** | Tamale Nurses and Midwives College |

## Table of contents

## Lists of tables



## Lists of figures



## Lists of charts

# 1 Introduction

In everyday interaction, communication is very important. Communication makes it possible for people to understand each other, which then lead to harmony. In healthcare settings, healthcare providers use communication to provide the necessary care and safety [1]. The process of communication comes in two forms, verbal and nonverbal [2]. In nursing and midwifery practice, communication is a sharing of health-related information between a patient or the patient's caretaker and a nurse, midwife [3]. Communication has been seen as a core topic in healthcare and therefore very important for the nursing and midwifery profession [4]. This is because it helps in providing education and health promotion.

Nurses and midwives in Ghana have a great role in the health delivery system due to low doctor-patient ratio. This low doctor-patient ratio has made nurses and midwives to perform the duties usually performed by doctors. Therefore, there is a growing need for Ghanaian nurses and midwives to be equipped with the necessary communication skills to meet the challenge of communicating effectively with patients.

The problem of inadequate nurses and midwives in rural areas is peculiar to developing as well as developed countries. The Global Health Observatory Data Repository indicates that the healthcare system in West Africa is extremely limited [5]. The data indicates that the doctor per 1,000 people ratio in Ghana is .90, Nigeria is .40, Guinea is .10, Senegal .06, Sierra Leone is .02, and Liberia is .01. In contrast, to other countries outside Africa, doctors per 1,000 people in Qatar is 7.70, Cuba is 6.70, Germany is 3.80, France is 3.40, the United Kingdom is 2.70, and United States is 2.40 [5]. Most interestingly many African countries do not have current data or the data on doctor per people is before the year 2000 [5].

This same trend applies to nurses and midwives personnel per 1,000 people for both African countries and other countries outside Africa [5]. Though the nurses and midwives personnel ratio to people in Ghana is not adequate (.90/1,000), equipping nurses and midwives with the necessary effective communication skills will go a long way to improve patient care. This is because whilst you may not find a doctor in every healthcare centre in Ghana, you will rather find at least a nurse or a midwife. Therefore, nurses and midwives have a great role in the health delivery system in Ghana. It is on these bases, that the need for communication skills training (CST) for nurses and midwives in Ghana is eminent.

## 1.1 Theoretical framework underpinning this study

This study was based on two theoretical models of "Four Habits Model" (4HM) [6] and Person-Centred Nursing Framework [7] (also known as person-centred model). The core theoretical model was the 4HM.

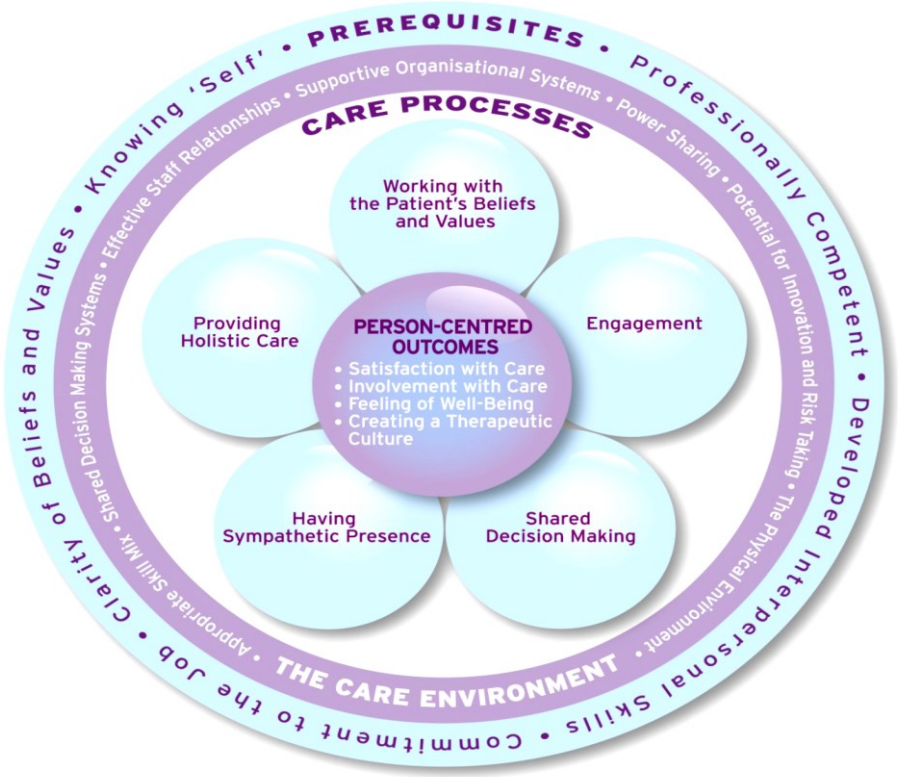
It has been demonstrated that patients feel satisfied when there is good communication with their healthcare providers [8]. Researchers have also found good communication reduces patients symptoms of depression or anxiety [9–12]. These are the bases upon which all-healthcare providers and therefore, nurses and midwives need good communication skills.

Models of good communication have been developed to assist nurses, midwives, and doctors to improve their ability to communicate with patients [13–19]. A Health Maintenance Organisation (Kaiser Permanente in the United States of America) developed the 4HM, which they have used for more than 20 years, is an effective programme for clinical communication [13, 14]. The model has been anchored into four habits; "invest in the beginning (Habit I), elicit patient's perspective (Habit II), demonstrate empathy (Habit III), and invest in the end (Habit IV)" [13, 14]. The habits from this theory was the basis of the communication skills training (CST) that was developed and used for an intervention study.

The other theoretical model called the Person-Centred Nursing Framework [7] was an essential component of the CST. Emphasis was made on the Person-Centred Nursing Framework necessary care processes of working with the patients beliefs and values, engagement, shared decision making, having sympathetic presence, and providing wholistic care [7].

Nursing and midwifery courses are usually centred around Person-Centred Nursing Framework [7] as shown in Figure 1. Therefore, the "Four Habits Model" [6] and Person-Centred Nursing Framework [7] were used as theoretical models that underpinned this study.

**Fig. 1: Person-Centred Nursing Framework [7].**




In order to have a wholistic understanding of the kind of communication that goes on between patients and nurses, an explorative study was conducted.

## 1.2 Research questions for the explorative study

I. How do Ghanaian patients describe communication between themselves and nurses, midwives, and doctors regarding the core elements of the "Four Habits Model" (4HM) [6] measured by Four Habits Patients Questionnaire (4HPQ) [20].

II. What can be done about the descriptions of the communication between patients' and nurses, midwives, and doctors regarding the core elements of the "Four Habits Model" (4HM) [6]?

## 1.3 Research objectives for the explorative study

III. To describe the communication between Ghanaian patients and nurses, midwives, and doctors regarding the core elements of the "Four Habits Model" (4HM) [6] measured by Four Habits Patients Questionnaire (4HPQ) [20].

IV. To find an effective method to implement descriptions of the communication between patients' and nurses, midwives, and doctors regarding the core elements of the "Four Habits Model" (4HM) [6] to bring improvement.

## 1.4 Methodology for the explorative study

The explorative study research question I (How do Ghanaian patients describe communication between themselves and nurses, midwives, and doctors regarding the core elements of the "Four Habits Model" (4HM) [6] measured by Four Habits Patients Questionnaire - 4HPQ) [20] was answered by using Four Habits Patients Questionnaire [20] and focus group (FG) discussions results.

### 1.4.1 Focus group (FG) discussions

*FG background:* Focus group (FG) have been defined by researchers as a procedure used in gathering data moderated by a researcher and it is usually focused on ideas, knowledge, and thinking of participants [21, 22]. The number of participants varies from one researcher to the other and the availability of participants. However, Morgan [23] has suggested 6-10 homogeneous groups. Focus group discussions can be used during an explorative, post-, and follow-up study.

*FG research question:* How do Ghanaian nurses, midwives, and doctors describe the information needs of Ghanaian patients?

*FG objective:* To explore Ghanaian nurses, midwives, and doctors description of the information needs of Ghanaian patients.

*FG design:* The design was a semi-structured discussion with 3 groups.

*FG sample:* A convenient sample of doctors and a random sample of nurses and midwives took part in the FG discussions. The sample was from Tamale Teaching Hospital because it is one of the three largest teaching and referral hospitals in Ghana.

*FG ethical approval:* A letter of introduction from Charité Medical University, Berlin (Appendix A) was send to Tamale Teaching Hospital and Ghana Health Service for ethical approval. Tamale Teaching Hospital and Ghana Health Service subsequently issued letters that approved the data collection from Tamale Teaching Hospital (Appendix B) and four hospitals in Northern Region (Appendix C), respectively. These separate approvals were necessary because whilst all the hospitals in Ghana are under the Ghana Health Service, the Teaching hospitals in Ghana are independent.

*FG methods:* A convenient sample of doctors from the general surgery, gynaecology, accident and emergency, ear-nose-throat units were included in the first group because they were the only doctors available. The second group were from the emergency, nutrition and

dietetics, pharmacology, and neurology units because they were the only doctors available. The third group included nurses from general surgery, gynaecology, accident and emergency, ear-nose-throat, and pharmacy units. The third group were randomly selected from nurses in those departments. The researcher (MA) facilitated the discussions and the research assistant (AAM) took notes and did the tape recording.

Sample questions that was used to stimulate the discussions are presented below (Table 1)

**Table 1: Sample questions used in stimulating the FG discussions**

| | Sample questions |
|---|---|
| 1 | *As a medical doctor or nurse what are the very interesting information needs of your interaction with patients? |
| 2 | What are the challenges with patients about their information needs? |
| 3 | *What are the common problems patients have with doctors or nurses about information needs? |
| 4 | What do you think could be the causes of these problems? |
| 5 | Which group of patients do you think are particularly affected by these problems? |
| 6 | What in your opinion could be done to alleviate these problems as mentioned? |
| 7 | From your opinions listed has anything been done so far to solve it? |
| 8 | How do you feel when these problems are being faced by patients? |
| 9 | Is there anything else you would like to share about common information needs of patients? |

**In question 1 and in question 3, the use of a medical doctor or nurse or midwife depended on the FG*

*FG data analyses:* The FG data were analysed by transcribing all FG tapes and inserting relevant notes into the transcribed material where appropriate. Transcripts were analysed and non-essential words removed. Excel database was used to assign participants contributions. From the Excel database compilation, analyses, and syntheses were conducted.

*FG Rigour:* To ensure reliable results, there were 2 groups of medical doctors and a third group of nurses and midwives. Colleagues who had very good knowledge of qualitative studies using FG discussion method were involved to ensure trustworthiness. Participants were involved to confirm the discussions that took place by sending them the transcribed data for their comments. In addition, the audio recordings were repeatedly listened to (at least three times) by the researcher and his colleagues to ensure its accuracy and validity. At the end, a summary of the discussions were returned to participants for their viewpoints and confirmation.

*FG Results:* All participants who were asked to participate agreed to participation (n = 13). There were 3 groups (two groups of 4 doctors each and the third group with 5 nurses and midwives). Their age ranged from 30 to 45 years. Table 2 below shows the demographic data of participants.

**Table 2: Demographic data of FG participants**

| | Age | Gender | Speciality | Type of practice | Duration of practice |
|---|---|---|---|---|---|
| **Focus Group 1** | | | | | |
| 1 | 40 | M | General | General surgery | 12 |
| 2 | 45 | M | Gynaecology | Gynaecology | 15 |
| 3 | 30 | M | General | Accident/emergency | 3 |
| 4 | 34 | M | Otorhinolaryngology | Ear nose and throat | 3 |
| **Focus Group 2** | | | | | |
| 1 | 43 | M | General | Emergency | 14 |
| 2 | 31 | M | Nutrition | Nutrition and dietetics | 4 |
| 3 | 37 | M | General | Pharmacology | 6 |
| 4 | 50 | M | General | Neurology | 18 |
| **Focus Group 3** | | | | | |
| 1 | 39 | F | Nursing | General surgery | 17 |
| 2 | 44 | F | Nursing | Gynaecology | 20 |
| 3 | 36 | F | Nursing | Accident/emergency | 8 |
| 4 | 43 | F | Midwifery | ear nose and throat | 22 |
| 5 | 33 | M | Nursing | Pharmacy | 9 |

Legend: M = male F = Female

Each FG took about 45-90 minutes to complete their discussion. The discussions took place at the Tamale Teaching Hospital Meeting room. All the three FGs met at different times in May 2013.

The results of the FG discussion showed that the name/nature of proposed treatment, advantages and disadvantages of proposed treatment, alternative treatment procedures, advantages and disadvantages of alternative treatment were of concern to patients and needs to be addressed. Based on the FG discussions results, eight questions on information regarding treatment (8QIRT) were developed.

The eight questions on information regarding treatment (8QIRT) were:

*Question 16;* Was the name/nature of proposed treatment or procedure explained to you?
*Question 17;* Were the advantages of proposed treatment made known to you?
*Question 18;* Were the disadvantages of proposed treatment explained to you?
*Question 19;* Were alternative treatment procedures (regardless of costs or extent covered by insurance) explained to you?
*Question 20;* Were the advantages of alternative treatment also explained?
*Question 21;* Were the disadvantages of alternative treatment also explained?
*Question 22;* Were the advantages of not receiving treatments explained to you?
*Question 23;* Were the disadvantages of not receiving treatments explained to you?

*FG Discussion:*

In this study, the name/nature of proposed treatment was not made known to patients. This finding is consistent with a study by Akande [24] who found that 53% of outpatients were not given adequate information on their diseases.

In addition, Turkson [25] found that the percentage of respondents who were told their diagnosis was low (43%).

*FG limitations:* Limitations of these FG discussions are that, only the researcher and the assistant handled the facilitations, discussions, writing of memoranda, and all records. The convenient nature of the sample of doctors can be a problem because randomisation could have enhanced the FG discussions.

*FG conclusion:* The findings from these FG discussions show that patients in Ghana need a lot more information on their treatment. This study cannot be generalised beyond the sample because the sample was small (N = 13). Suggestion is for a further research in a nationwide FG discussions for all healthcare professionals.

### 1.4.2 Four Habits Patients' Questionnaire (4HPQ)

The eight questions on information regarding treatments (8QIRT), developed from the FG discussions, were added to the Four Habits Patients Questionnaire (4HPQ) [20] to be able to answer the explorative research question I. The 4HPQ (Appendix G) has 15-items on a five-point Likert-scale format ranging from 1 (not very effective behaviour) to 5 (highly effective behaviour).

*Psychometric properties:* A number of studies have used the 4HPQ [6, 20, 26, 27]. It has been validated against Roter Interaction Analysis System [27], an instrument regularly used for doctor-patient communication research. The 4HPQ takes about 10-15 minutes to administer which is good for patients because they will usually want to leave the hospital immediately after discharge.

### 1.4.3 Ethical approval

Permission for this explorative study was given at the time of conducting the FG discussions (Appendix A, B, and C).

### 1.4.4 Criteria for inclusion and exclusion

The criteria for inclusion and exclusion in this explorative study are presented below (Table 3).

**Table 3: Criteria for inclusion and exclusion in this explorative study**

| |
|---|
| *Inclusion criteria* |
| • Patients 18 years and above. |
| • Patients who were from Tamale Teaching Hospital, Tamale West Hospital, Yendi Hospital, and Salaga Hospital. |
| • Patients who had one or several consultations with a nurse, a midwife, or a doctor during their stay in any of the above mentioned hospitals. |
| • Patients who had been discharge and were ready to go home. |
| *Exclusion criteria* |
| • Patients below 18 years. |
| • Patients who were not from Tamale Teaching Hospital, Tamale West Hospital, Yendi Hospital, and Salaga Hospital. |
| • Patients who had no consultation with a nurse, a midwife, or a doctor during their stay in any of the above mentioned hospitals. |
| • Patients who were still on admission at the hospitals. |

### 1.4.5 Design and sample

This explorative study was a cross-sectional, multi-centre design. Four Hospitals took part in this study. A convenient sample of patients (N = 400) from the four hospitals (Tamale Teaching Hospital, Tamale West Hospital, Yendi Hospital, and Salaga Hospital) were participants.

### 1.4.6 Procedure

The researcher trained four research assistants who assisted in administering the questionnaires. Participants consented to participate in the study. All patients had one or several consultations with a nurse, midwife, and/or a doctor during their stay in the hospital. A self-report inventory were administered to patients at discharge from the hospitals using Four Habits Patients Questionnaire (4HPQ) [20] (Appendix G) and the eight questions on information regarding treatment (8QIRT). After obtaining informed consent to participate, participants responded to the questionnaires. Explanations of the aims and objectives of the study were made to participants before their participation. Data collection was conducted from April to June 2013.

### 1.4.7 Data analysis

The data was screened for outliers. Normality was tested by Shapiro-Wilk`s test ($\rho < .05$) [28, 29]. A Kaiser-Meyer-Olkin (KMO) criterion for sampling adequacy, Bartlett test of sphericity to test for validity, Cronbach's alpha to test for reliability, and correlations were computed. Data was analysed using SPSS (Statistical Package for Social Sciences).

## 1.5 Results of the explorative study

### 1.5.1 Demographic information

Analyses from the data showed 345 patients' took part in the study. They were females (n = 192) and males (n = 153) aged 18 years and above from Tamale Teaching Hospital, Tamale West Hospital, Yendi Hospital, and Salaga Hospital (Table 4).

**Table 4: Demographic data**

| | Patients (N = 345) | | |
|---|---|---|---|
| | **Characteristics** | ***n*** | **%** |
| Age | 18 years and above | | |
| Gender | Females | 192 | 56 |
| | Males | 153 | 44 |
| Hospital | Tamale Teaching Hospital | 99 | 29 |
| | Tamale West Hospital | 100 | 29 |
| | Yendi Hospital | 62 | 18 |
| | Salaga Hospital | 84 | 24 |

Legend: N = total sample size.
n = group sample size

### 1.5.2 Assumptions testing

A Shapiro-Wilk`s test ($\rho < .05$) [28, 29] showed all the 23 items scores were approximately normally distributed. In this study, the statistics associated with Shapiro-Wilk test were all significant ($\rho < .05$) (Table 5).

Extreme values from the data were removed. Thirteen (4%) of participants' data were also excluded from the study due to incomplete data. The sample that was left after handling missing data using listwise deletion was 345 for the 23 variables. With 345 cases and 23 variables, the ratio of cases to variables was 15 to 1 [30–32], which met the requirement of cases to variables ratio (Table 5).

**Table 5: Test of normality**

| Variables | Shapiro-Wilk | | |
|---|---|---|---|
| | Stat. | df | $\rho$ |
| 1 | .80 | 345 | *.000 |
| 2 | .78 | 345 | *.000 |
| 3 | .77 | 345 | *.000 |
| 4 | .77 | 345 | *.000 |
| 5 | .78 | 345 | *.000 |
| 6 | .81 | 345 | *.000 |
| 7 | .85 | 345 | *.000 |
| 8 | .91 | 345 | *.000 |
| 9 | .92 | 345 | *.000 |
| 10 | .89 | 345 | *.000 |
| 11 | .80 | 345 | *.000 |
| 12 | .82 | 345 | *.000 |
| 13 | .85 | 345 | *.000 |
| 14 | .87 | 345 | *.000 |
| 15 | .86 | 345 | *.000 |
| 16 | .87 | 345 | *.000 |
| 17 | .87 | 345 | *.000 |
| 18 | .87 | 345 | *.000 |
| 19 | .86 | 345 | *.000 |
| 20 | .86 | 345 | *.000 |
| 21 | .85 | 345 | *.000 |
| 22 | .78 | 345 | *.000 |
| 23 | .79 | 345 | *.000 |

*significance level $\rho < .05$
Legend: Stat. = statistic df = degree of freedom. $\rho$ = Probability

### 1.5.3 Reliability, validity, and sampling adequacy

In this study, the scores showed reliable results ($\alpha = .92$, N = 23) (Table 6).

**Table 6: Table of reliability statistics**

| Cronbach's Alpha ($\alpha$) | N |
|---|---|
| .92 | 23 |

Legend: N = total sample size

Bartlett's test of sphericity for validity was [$\chi 2$ (253) = 5488.84, $\rho < .05$] and Kaiser-Meyer-Olkin (KMO) criterion for sampling adequacy was .88. The probability was also significant ($\rho < .001$) (Table 7).

**Table 7: Sampling adequacy for the set of variables**

| KMO Measure of Sampling Adequacy | | .88 |
|---|---|---|
| Bartlett's test of sphericity | App. Chi-Square | 5488.84 |
| | df | 253 |
| | Sig. | *.000 |

*significance level $\rho < .05$
Legend: df = degrees of freedom.
Sig. = significance level
App. = approximate

### 1.5.4 Communalities

The results showed that the minimum value of all communalities was .55, the maximum was .82, and the mean value of communalities was .70. The results showed all communalities to be above .50 (Table 8).

**Table 8: Commonalties**

| Variables | Extraction |
|---|---|
| 1 | .63 |
| 2 | .77 |
| 3 | ** .82 |
| 4 | .77 |
| 5 | .69 |
| 6 | .72 |
| 7 | *.55 |
| 8 | .68 |
| 9 | .64 |
| 10 | .57 |
| 11 | .74 |
| 12 | .77 |
| 13 | .70 |
| 14 | .56 |
| 15 | .60 |
| 16 | .69 |
| 17 | .81 |
| 18 | .81 |
| 19 | .62 |
| 20 | .79 |
| 21 | .79 |
| 22 | .79 |
| 23 | .66 |

*The mean value is .70*
** Minimum* *** Maximum*

### 1.5.5 Correlations

In this study, all 23 items correlated at .30 resulting in 127 correlations as shown in bold (Table 9) and all anti-image correlation in the diagonals were all over .50 as shown in bold (Table 10).

**Table 9: Appropriateness of PCA: presence of substantial correlations**

| Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1** | 1.000 | | | | | | | | | | | | | | | | | | | | | | |
| **2** | **.380** | 1.000 | | | | | | | | | | | | | | | | | | | | | |
| **3** | .264 | **.742** | 1.000 | | | | | | | | | | | | | | | | | | | | |
| **4** | .196 | **.681** | **.840** | 1.000 | | | | | | | | | | | | | | | | | | | |
| **5** | .187 | **.449** | **.546** | **.605** | 1.000 | | | | | | | | | | | | | | | | | | |
| **6** | .097 | **.345** | **.378** | **.425** | **.651** | 1.000 | | | | | | | | | | | | | | | | | |
| **7** | .165 | **.489** | **.531** | **.561** | **.479** | **.402** | 1.000 | | | | | | | | | | | | | | | | |
| **8** | **.317** | **.388** | **.380** | **.419** | **.516** | **.500** | **.558** | 1.000 | | | | | | | | | | | | | | | |
| **9** | .263 | .292 | .276 | **.318** | **.447** | **.398** | **.343** | **.626** | 1.000 | | | | | | | | | | | | | | |
| **10** | .149 | .262 | .243 | **.303** | **.371** | **.375** | **.376** | **.538** | **.505** | 1.000 | | | | | | | | | | | | | |
| **11** | .056 | **.467** | **.611** | **.580** | **.452** | **.386** | **.495** | **.329** | .258 | .261 | 1.000 | | | | | | | | | | | | |
| **12** | .062 | **.430** | **.596** | **.577** | **.476** | **.322** | **.496** | **.315** | .241 | .248 | **.799** | 1.000 | | | | | | | | | | | |
| **13** | .126 | **.420** | **.518** | **.505** | **.460** | **.340** | **.484** | **.362** | .279 | .270 | **.639** | **.731** | 1.000 | | | | | | | | | | |
| **14** | .201 | .295 | **.326** | **.328** | **.476** | **.480** | **.333** | **.426** | **.358** | **.381** | **.414** | **.451** | **.534** | 1.000 | | | | | | | | | |
| **15** | .099 | .360 | **.450** | **.450** | .299 | .239 | **.432** | .296 | .173 | .164 | **.495** | **.459** | **.513** | **.394** | 1.000 | | | | | | | | |
| **16** | .219 | .287 | .242 | .222 | .268 | .237 | **.314** | **.390** | .285 | **.378** | .200 | .214 | .273 | **.486** | **.391** | 1.000 | | | | | | | |
| **17** | .243 | .208 | .177 | .171 | .287 | .273 | **.312** | **.407** | **.410** | **.318** | .176 | .168 | .251 | **.435** | **.302** | **.682** | 1.000 | | | | | | |
| **18** | .260 | .152 | .139 | .145 | .245 | .247 | .276 | **.367** | **.373** | .267 | .133 | .138 | .213 | **.382** | **.302** | **.612** | **.861** | 1.000 | | | | | |
| **19** | .184 | .134 | .120 | .104 | .174 | .295 | .190 | **.300** | .212 | .265 | .097 | .125 | .138 | **.343** | .215 | **.380** | **.511** | **.605** | 1.000 | | | | |
| **20** | .216 | .126 | .147 | .133 | .215 | **.341** | .205 | **.300** | **.301** | .224 | .112 | .075 | .148 | **.342** | .198 | **.461** | **.619** | **.673** | **.675** | 1.000 | | | |
| **21** | .194 | .087 | .112 | .105 | .188 | **.322** | .181 | .283 | .278 | .197 | .119 | .104 | .149 | **.353** | .197 | **.422** | **.585** | **.663** | **.666** | **.902** | 1.000 | | |
| **22** | .157 | .098 | .122 | .101 | .199 | .258 | .057 | .208 | .089 | .085 | .069 | .102 | .153 | **.309** | .221 | **.305** | **.415** | **.446** | **.555** | **.615** | **.647** | 1.000 | |
| **23** | .124 | .125 | .152 | .130 | .171 | .147 | .095 | .101 | .006 | .012 | .164 | .155 | .204 | .213 | **.313** | .235 | .265 | **.306** | **.372** | **.418** | **.437** | **.693** | 1.000 |

Bolded numbers shows substantial presence of correlations

**Table 10: Appropriateness of PCA: sampling adequacy (Anti-image correlation)**

| Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1** | ***.826** | | | | | | | | | | | | | | | | | | | | | | |
| **2** | -.284 | ***.907** | | | | | | | | | | | | | | | | | | | | | |
| **3** | -.095 | -.361 | ***.886** | | | | | | | | | | | | | | | | | | | | |
| **4** | .087 | -.157 | -.550 | ***.899** | | | | | | | | | | | | | | | | | | | |
| **5** | -.028 | .056 | -.063 | -.216 | ***.914** | | | | | | | | | | | | | | | | | | |
| **6** | .142 | -.079 | .037 | -.009 | -.434 | **.890*** | | | | | | | | | | | | | | | | | |
| **7** | .056 | -.104 | -.015 | -.095 | -.048 | -.040 | ***.932** | | | | | | | | | | | | | | | | |
| **8** | -.174 | .026 | .018 | -.018 | -.059 | -.141 | -.324 | ***.900** | | | | | | | | | | | | | | | |
| **9** | -.058 | -.047 | .023 | -.011 | -.123 | -.007 | .128 | -.381 | ***.883** | | | | | | | | | | | | | | |
| **10** | .039 | .013 | .070 | -.083 | -.001 | -.043 | -.074 | -.176 | -.239 | ***.909** | | | | | | | | | | | | | |
| **11** | .081 | -.060 | -.126 | .014 | .073 | -.149 | -.010 | -.011 | -.001 | -.051 | ***.883** | | | | | | | | | | | | |
| **12** | .043 | .087 | -.089 | -.063 | -.106 | .128 | -.096 | .057 | -.022 | .025 | -.558 | ***.851** | | | | | | | | | | | |
| **13** | -.004 | -.049 | -.008 | .021 | -.022 | .026 | -.075 | -.025 | -.007 | -.018 | -.021 | -.402 | ***.920** | | | | | | | | | | |
| **14** | -.098 | .035 | .042 | .044 | -.114 | -.194 | .097 | .002 | -.030 | -.076 | -.029 | -.070 | -.254 | ***.929** | | | | | | | | | |
| **15** | .056 | .036 | -.045 | -.120 | .100 | .022 | -.130 | -.019 | .005 | .111 | -.169 | .073 | -.179 | -.084 | ***.920** | | | | | | | | |
| **16** | .028 | -.132 | -.028 | .056 | .012 | .077 | .026 | -.096 | .159 | -.209 | .092 | -.048 | .078 | -.233 | -.197 | ***.895** | | | | | | | |
| **17** | .043 | -.046 | .005 | .060 | -.029 | .033 | -.065 | .001 | -.116 | .007 | -.055 | .043 | -.021 | -.063 | .050 | -.313 | ***.857** | | | | | | |
| **18** | -.100 | .079 | .045 | -.049 | -.042 | .054 | -.019 | .014 | -.063 | .066 | .034 | -.003 | -.021 | .067 | -.092 | -.071 | -.666 | ***.861** | | | | | |
| **19** | .013 | -.074 | -.008 | .060 | .080 | -.068 | -.002 | -.068 | .111 | -.160 | .084 | -.118 | .093 | -.081 | -.048 | .085 | .078 | -.244 | ***.922** | | | | |
| **20** | -.031 | .037 | -.069 | -.013 | .001 | -.081 | -.040 | .071 | -.066 | .009 | -.044 | .147 | -.049 | .067 | .056 | -.095 | -.098 | -.005 | -.184 | ***.848** | | | |
| **21** | -.004 | .046 | .035 | -.007 | .084 | -.041 | -.023 | .002 | -.046 | .030 | -.026 | -.073 | .048 | -.072 | .025 | .034 | .077 | -.161 | -.056 | -.731 | ***.844** | | |
| **22** | .016 | -.008 | -.040 | .000 | -.040 | -.051 | .178 | -.137 | .132 | .035 | .138 | -.061 | .002 | -.072 | -.005 | .058 | -.107 | .074 | -.150 | -.038 | -.208 | ***.826** | |
| **23** | -.046 | -.018 | .034 | .017 | -.089 | .075 | -.030 | .074 | .038 | .032 | -.104 | .048 | -.057 | .068 | -.165 | -.041 | .066 | -.021 | -.004 | -.024 | .007 | -.572 | ***.795** |

*Anti image correlations over .50

### 1.5.6 Rotated component loadings

The results showed component 1 had 7 items, component 2 had 5 items, component 3 had 5 items, component 4 had 3 items, and component 5 had 3 items. In the results, component loadings < .50 have not been shown (Table 11).

**Table 11: Rotated component matrix**

| Variables | Component | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| 1 | | | | | .74 |
| 2 | | | | | .70 |
| 3 | .67 | | | | .56 |
| 4 | .66 | | | | |
| 5 | | | .63 | | |
| 6 | | | .72 | | |
| 7 | .54 | | | | |
| 8 | | | .70 | | |
| 9 | | | .72 | | |
| 10 | | | .68 | | |
| 11 | .84 | | | | |
| 12 | .86 | | | | |
| 13 | .80 | | | | |
| 14 | | | | | |
| 15 | .68 | | | | |
| 16 | | | | .75 | |
| 17 | | | | .77 | |
| 18 | | | | .74 | |
| 19 | | .67 | | | |
| 20 | | .76 | | | |
| 21 | | .78 | | | |
| 22 | | .88 | | | |
| 23 | | .76 | | | |

Items with less than .50 has not been shown

### 1.5.7 Number of components (cumulative variance)

The results of extraction for explanation of variance showed component 1 (20.29%), component 2 (15.75%), component 3 (14.26%), component 4 (11.94%), and component 5 (8.04%). The total variance was 70.28% (Table 12).

**Table 12: Number of components extracted (latent root criterion)**

| Total variance explained | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Eigenvalues | | | Extraction SS loadings | | | Rotation SS loadings | | |
| Var. | Total | % of Var. | Cum. % | Total | % of Var. | Cum. % | Total | % of Var. | Cum. % |
| 1. | 8.31 | 36.15 | 36.15 | 8.31 | 36.15 | 36.15 | 4.67 | 20.29 | 20.29 |
| 2. | 3.70 | 16.10 | 52.24 | 3.70 | 16.10 | 52.24 | 3.62 | 15.75 | 36.05 |
| 3. | 1.77 | 7.67 | 59.92 | 1.77 | 7.67 | 59.92 | 3.28 | 14.26 | 50.30 |
| 4. | 1.23 | 5.33 | 65.24 | 1.23 | 5.33 | 65.24 | 2.75 | 11.94 | 62.24 |
| 5. | 1.16 | 5.04 | 70.28 | 1.16 | 5.04 | 70.28 | 1.85 | 8.04 | 70.28 |
| 6. | .81 | 3.53 | 73.81 | | | | | | |
| 7. | .72 | 3.12 | 76.92 | | | | | | |
| 8. | .69 | 3.02 | 79.94 | | | | | | |
| 9. | .61 | 2.63 | 82.57 | | | | | | |
| 10. | .55 | 2.39 | 84.96 | | | | | | |
| 11. | .48 | 2.09 | 87.05 | | | | | | |
| 12. | .40 | 1.75 | 88.80 | | | | | | |
| 13. | .38 | 1.66 | 90.46 | | | | | | |
| 14. | .36 | 1.56 | 92.02 | | | | | | |
| 15. | .32 | 1.41 | 93.43 | | | | | | |
| 16. | .30 | 1.30 | 94.73 | | | | | | |
| 17. | .27 | 1.18 | 95.91 | | | | | | |
| 18. | .23 | .98 | 96.89 | | | | | | |
| 19. | .21 | .92 | 97.81 | | | | | | |
| 20. | .16 | .69 | 98.50 | | | | | | |
| 21. | .14 | .61 | 99.11 | | | | | | |
| 22. | .12 | .51 | 99.62 | | | | | | |
| 23. | .09 | .38 | 100.00 | | | | | | |

Legend:
SS = Sum of Squares
Cum. = cumulative
Var. = variance

### 1.5.8 Number of components (eigenvalues)

The results showed 5 eigenvalues greater than 1.0. They were 8.31 (component 1), 3.70 (component 2), 1.77 (component 3), 1.23 (component 4), and 1.16 component 5 (Table 12).

### 1.5.9 Component labelling

Component labelling were as follows: component 1; ***"patients are not allowed to express themselves"***, component 2; ***"advantages and* disadvantages *of treatment are not explained to patients",*** Component 3; ***"doctors, nurses, and midwives do not display empathy towards patients",*** component 4; ***"doctors, nurses, and midwives do not provide information on patients treatment"*** (Table 13; Fig. 2 - Fig. 5).

**Table 13: Component labels**

| Variables | Component | | | | Component Label |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | |
| 3 | .67 | | | | Patients are not allowed to express themselves |
| 4 | .66 | | | | |
| 7 | .54 | | | | |
| 11 | .84 | | | | |
| 12 | .86 | | | | |
| 13 | .80 | | | | |
| 15 | .68 | | | | |
| 6 | | | .72 | | Doctors, nurses and midwives do not display empathy towards patient |
| 8 | | | .70 | | |
| 9 | | | .72 | | |
| 10 | | | .68 | | |
| 16 | | | | .75 | Doctors, nurses and midwives do not provide information on patients' treatment |
| 17 | | | | .77 | |
| 18 | | | | .74 | |
| 19 | | .69 | | | Advantages and disadvantages of treatment are not explained to patients |
| 20 | | .76 | | | |
| 21 | | .78 | | | |
| 22 | | .88 | | | |
| 23 | | .76 | | | |

Rotation method was by Varimax with Kaiser Normalisation.
Items with less than .50 have not been shown

**Fig. 2: Component 1 labelled with 7 items**

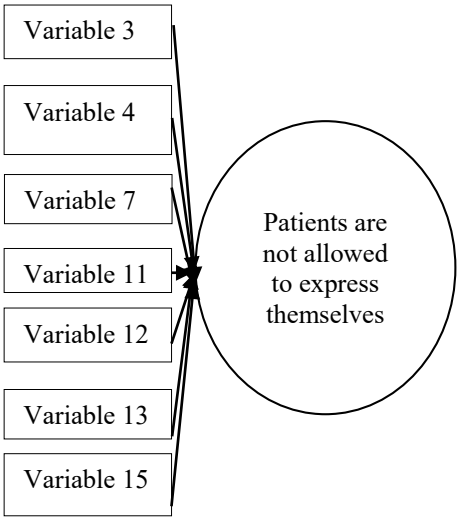



**Fig. 3: Component 2 labelled with 5 items**

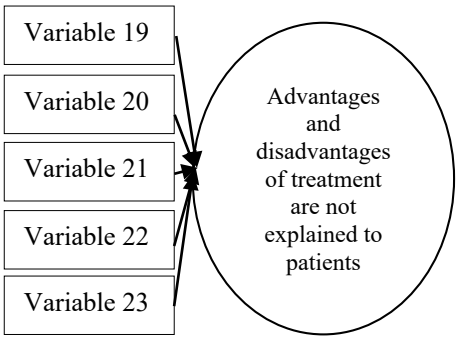



**Fig. 4: Component 3 labelled with 4 items**

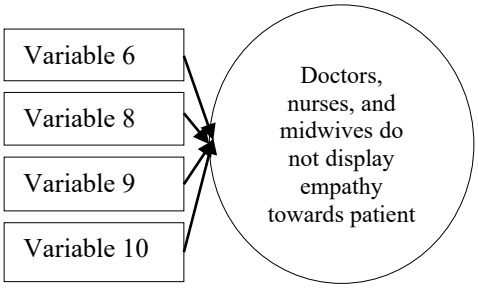
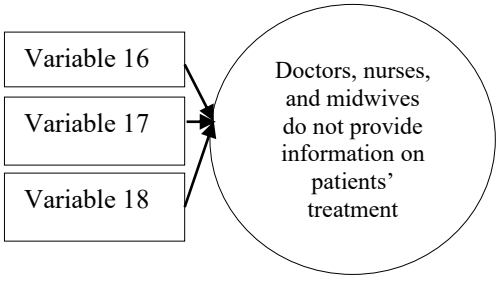



**Fig. 5: Component 4 labelled with 3 items**



### 1.5.10 Descriptive statistics of the 4HPQ and 8QIRT

In this study, the means and standard deviations showed that the additional eight questions on information regarding treatment (8QIRT) were least ranked. On the "Four Habits Model" [6], Habit IV (invest in the end) was least ranked, followed by Habit III (demonstrate empathy), then Habit II (elicit patients perspective), and then Habit I (invest in the beginning) (Table 14).

**Table 14: Descriptive statistics for the 4HPQ and 8QIRT**

| Habit | Var. | M | SD | Habit M |
|---|---|---|---|---|
| **I** | 1 | 4.90 | 1.65 | 5.10 |
| | 2 | 5.18 | 1.40 | |
| | 3 | 5.23 | 1.36 | |
| **II** | 4 | 5.19 | 1.38 | 4.74 |
| | 5 | 4.74 | 1.68 | |
| | 6 | 4.29 | 1.97 | |
| **III** | 7 | 5.21 | 1.47 | 4.69 |
| | 8 | 4.60 | 1.63 | |
| | 9 | 4.25 | 1.58 | |
| **IV** | 10 | 4.37 | 1.79 | 4.48 |
| | 11 | 4.87 | 1.64 | |
| | 12 | 5.08 | 1.54 | |
| | 13 | 4.72 | 1.75 | |
| | 14 | 3.88 | 1.97 | |
| | 15 | 3.93 | 2.03 | |
| **8QIRT** | 16 | 3.52 | 1.99 | 2.84 |
| | 17 | 3.12 | 1.88 | |
| | 18 | 2.98 | 1.81 | |
| | 19 | 2.94 | 1.83 | |
| | 20 | 2.70 | 1.69 | |
| | 21 | 2.69 | 1.66 | |
| | 22 | 2.29 | 1.60 | |
| | 23 | 2.47 | 1.74 | |

Legend:
Var. = Variable
M = Mean
SD = Standard deviation
4HPQ = Four Habits Patients Questionnaire [20]
8QIRT = Eight questions on information regarding treatment

## 1.6 Relationship of this explorative study to the intervention study

The involvement of patients perspective in providing healthcare has been recognised [33] and are being used in the assessment of quality healthcare [34]. It has been said that patient satisfaction with care is rarely examined in developing countries [35].

So far, research on communication skills for nurses and midwives that focuses on gaining skills, have not been considered in Ghana. Therefore, this study will present the first of such a study on developing CST programme for Ghanaian nursing and midwifery students (NMS).

The results of this explorative study provided a guide in designing a CST in an intervention study.

## 1.7 Research questions for the intervention study

In this intervention study, there were six research questions. There was one primary research question and five secondary research questions.

**Primary research question**

I. How does a 2-day communication skills training (CST) have an effect on nursing and midwifery students' (NMS) empathy?

**Secondary research questions**

II. How does a 2-day CST have an effect on NMS communicative competence?

III. How does a 2-day CST have an effect on NMS communication skills - positive attitude?

IV. How does a 2-day CST have an effect on NMS communication skills - negative attitude?

V. How does a 2-day CST have an effect on NMS self-efficacy?

VI. What are the relationships among the CST, the outcomes (empathy, communicative competence, communication skills - positive attitude, communication skills - negative attitude, self-efficacy) and the demographic variables (age, gender, speciality, marital status, number of children, ethnicity) as well as academic writing and communication?

## 1.8 Research objectives for the intervention study

In this intervention study, there were six objectives. There was one primary research objective and five secondary research objectives. The research objectives were:

**Primary objective**

I. To compare the outcome of empathy of a 2-day communication skills training (CST) in an intervention and a control group of nursing and midwifery students (NMS) in a randomised controlled trial (RCT).

**Secondary objectives**

II. To compare the outcome of communicative competence of a 2-day CST in an intervention and a control group of NMS in an RCT.

III. To compare the outcome of communication skills - positive attitude of a 2-day CST in an intervention and a control group of NMS in an RCT.

IV. To compare the outcome of communication skills - negative attitude of a 2-day CST in an intervention and a control group of NMS in an RCT.

V. To compare the outcome of self-efficacy of a 2-day CST in an intervention and a control group of NMS in an RCT.

VI. To describe the relationship among the CST, the outcome measures (empathy, communicative competence, communication skills - positive attitude, communication skills - negative attitude, self-efficacy and the demographic variables (age, gender, speciality, marital status, number of children, ethnicity), as well as academic writing and communication.

# 2 Literature review

The literature review section dealt with the review background, question, objective, data analysis, results, discussions, and conclusions.

## 2.1 Background to the review

The literature review section was set out to do a review of studies on effectiveness of communication skills training (CST) for nursing and midwifery students (NMS) as part of the researcher's doctoral degree dissertation. Studies have shown the important role effective communication plays in nurses and midwives interaction with patients [1, 8, 10–12, 36, 37].

Communication skills is reported to be of high importance for nursing and midwifery practice [38]. Communication skills refers to how actions are used in sending messages [39]. The necessity for nurses and midwives to be good communicators has been demonstrated [40]. Researchers have demonstrated that there are better health outcomes with the use of good communication [41, 42]. Good communication skills is said be essential skill for nurses and midwives [43].

The recognition for education in communication has been reported by researchers [44–47]. Good communication is based on individual differences. However, it has been reported that training and experience can enhance it [48]. Effective communication skills enable nurses and midwives to have a good knowledge and understanding of their patients.

In contrast, ineffective communication may lead to an increased number of medical errors and reduced quality of patient care [45].

Experimental communication is reported to be more effective than discussion [49, 50]. Other reported effective methods are simulations [51–53], role-play [54–57] and objective structured clinical exams (OSCE) [58–61].

To account for systematic reviews on CST for nursing and midwifery students a search in Ovid Medline, Ebscohost CINAHL, Cochrane Library for systematic reviews, Joana Briggs Institute (JBI) Database of systematic reviews and implementation reports was performed in September 2015 and 2 systematic reviews were published [62, 63].

One of the reviews was on "Communication skills training in healthcare: a review of the literature. They reported that there was relative lack of sound research studies on the nature and effectiveness of communication skills teaching" [62].

The second review was on “Effective teaching of communication to health professional undergraduate and postgraduate students: a systematic review”. The researchers concluded that there were limited studies in this area [63].

In a Cochrane review entitled “Communication skills training for healthcare professionals working with people who have cancer” from a total of 5,742 included studies, only 6 studies were on nurses [64]. The authors concluded that various types of training in communication skills seemed effective in enhancing some types of communication skills in healthcare personnel. However, the review pointed out that the sustenance of effectiveness of CST with time cannot be determined [64].

Appraisal of the methodological designs of the reviews shows lack of studies specific to nursing and midwifery students. Also, the period between the first systemic review in 2002 [62] and a second review in 2012 [63] is quite long. This current review will add to the literature and offer an appreciation for the need to provide CST for NMS. Therefore, how can CST for NMS be made effective and relevant?

## 2.2 Literature review question and objective:

### 2.2.1 Review objective

To investigate the literature on the quality of evidence of communication skills training (CST) for nursing and midwifery students (NMS) on patients outcome in nursing and midwifery colleges.

### 2.2.2 Review question

What are the best available quality of evidence on approaches to enhance CST to NMS in colleges?

## 2.3 Methods of the literature review

The methods section of this review was on the search strategy, inclusion and exclusion criteria, data extraction and quality assessment.

### 2.3.1 Search strategy

Firstly, a search in the databases of Ovid Medline (1946 - present) and Ebscohost CINAHL (1960 - present) to find relevant studies were conducted. The initial search was in January 2013 and a re-run in August 2015 for updates to account for any publications that had been disseminated in the meantime. Presented in Table 15 and Table 16 are the full search strategy.

Secondly, there was hand searching of journals from Africa. Three journals from Africa that were search were the International Journal of Africa Nursing Sciences, Africa Journal of Nursing and Midwifery, and African Journals Online.

Thirdly, the reference lists of studies found were searched for additional studies.

Fourthly, there was consultation with professionals in the area of CST and the leadership of Ghana Nurses and Midwives Association.

The key words and terms used in the search included: communications skills training, communication skills, education, nursing, midwifery, diploma programmes, students, school, randomised controlled trial, controlled clinical trials. Studies identified from this search were entered into Zotero bibliographic software and duplicates were removed.

**Table 15: Search strategy; Ebscohost CINAHL – August 2015, re-run from January 2013)**

| | |
|---|---|
| S1 | MH "Education, Nursing, Diploma Programs" (588) |
| S2 | MH "Schools, Nursing" (8,329) |
| S3 | MH "Students, Nursing+" (23,714) |
| S4 | TI ((student# OR pupil# OR school#) N2 (nurs* OR midwi*)) (14,340) |
| S5 | AB ((student# OR pupil# OR school#) N2 (nurs* OR midwi*)) (18,008) |
| S6 | S1 OR S2 OR S3 OR S4 OR S5 (42,427) |
| S7 | MH "Communication Skills Training" (1,451) |
| S8 | MH "Communication Skills" (3,691) |
| S9 | MH "Communication/ED" (182) |
| S10 | TI (communication N2 (skills OR training OR program* OR education*)) (1,296) |
| S11 | AB (communication N2 (skills OR training OR program* OR education*)) (4,484) |
| S12 | S7 OR S8 OR S9 OR S10 OR S11 (9,131) |
| S13 | S6 AND S12 (580) |
| S14 | MH "Treatment Outcomes+" OR MH "Experimental Studies+" OR random* (329,393) |
| S15 | S13 AND S14 (89) |

**Table 16: Search strategy; Ovid MEDLINE (R) in-process & other non-indexed citations and Ovid <1946 to Present> August 2015, re-run from January 2013)**

| | |
|---|---|
| 1 | Schools, Nursing/ (5405) |
| 2 | Students, Nursing/ (17725) |
| 3 | ((student? or pupil? or school?) adj2 (nurs* or midwi*)).tw. (22755) |
| 4 | or/1-3 (35446) |
| 5 | Communication/ed [Education] (9) |
| 6 | (communication adj2 (skills or training or program* or education*)).tw. (9959) |
| 7 | or/5-6 (9965) |
| 8 | 4 and 7 (295) |
| 9 | randomised controlled trial.pt. (405863) |
| 10 | controlled clinical trial.pt. (91271) |
| 11 | randomi?ed.ab. (394826) |
| 12 | placebo.ab. (166576) |
| 13 | drug therapy.fs. (1814688) |
| 14 | randomly.ab. (237251) |
| 15 | trial.ab. (342478) |
| 16 | groups.ab. (1482123) |
| 17 | or/9-16 (3624121) |
| 18 | exp animals/ not humans/ (4082574) |
| 19 | 17 not 18 (3118854) |
| 20 | 8 and 19 (52) |

### 2.3.2 Inclusion and exclusion criteria

The inclusion and exclusion criteria are presented below (Table 17).

**Table 17: Literature review inclusion and exclusion criteria**

*Inclusion criteria*

- Population of nursing students and midwifery students (NMS).
- Studies and interventions that involved evaluating CST programmes in nursing and midwifery students regardless of duration type, frequency and timing of the intervention.
- Studies that used experimental studies, and quasi-experimental studies and mixed methods.
- Outcome measures were on NMS communication skills with patients.
- English language studies

*Exclusion criteria*

- Students in nursing colleges other than NMS.
- Studies and interventions that does not involve evaluating CST programmes in NMS
- Studies that did not use randomised control trials (RCT), pseudo-randomised trials, experimental studies, and quasi-experimental studies.
- Outcome measures that were not on NMS communication skills with patients.
- None English language studies

### 2.3.3 Data extraction and quality assessment

The researcher (MA) conducted the database searches and reviewed the study titles to exclude those that were obviously ineligible. The abstracts of the remaining studies were used in identifying studies that were potentially eligible. Thereafter, a review of the full texts of all studies were conducted for potentially eligible studies. Then the reference lists of the selected full-text studies were examined and a follow-up review of the additional studies for potential inclusion conducted.

## 2.4 Data analysis of the review

Extraction of descriptive data on author, number of participants, age, and gender was summarised.

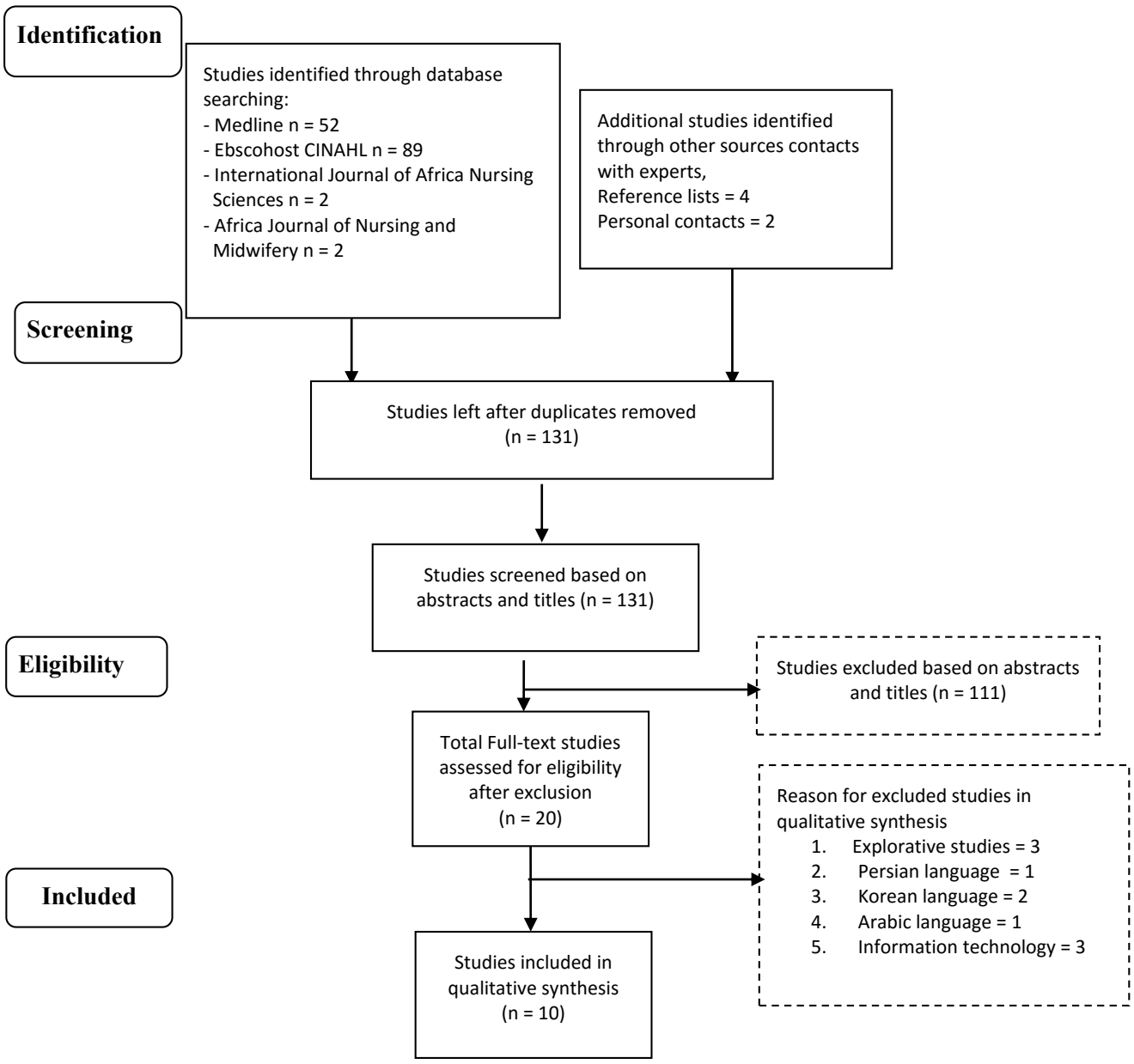
The Grading of Recommendations Assessment, Development and Evaluation (GRADE) system [65] was used in summarising the total quality of evidence.

## 2.5 Search results of the review

A search of Ovid Medline, Ebscohost CINAHL, International Journal of Africa Nursing Sciences, Africa Journal of Nursing and Midwifery, and African Journals Online databases and other sources yielded 151 citations. After removing duplications of 20 studies, 131 studies remained. Of these, 111 studies were removed because it did not meet the inclusion criteria (Table 17). A detail examination of the full texts of the remaining 20 abstracts was conducted. A total of 20 studies were identified for inclusion in the review. Out of the 20 studies only 10 studies evaluated CST for nursing and midwifery students and therefore were included [43, 66–

74]. The main reasons for excluding studies were as follows: 3 were explorative studies, 1 was Persian language, 2 were Korean language, 1 was Arabic language and 3 studies were on information technology. The process of selection of studies that were included in qualitative syntheses has been summarised using the PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses) flowchart of selection process- Moher et al. [75] (Chart 1).

***Chart 1: PRISMA Flowchart of selection process- Moher et al. [75]***



### 2.5.1 Descriptive statistics of included studies

Descriptive statistics of included studies is on author, number of participants, age, and gender. Results of the descriptive data are presented in Table 18.

**Table 18: Descriptive statistics of included studies**

| Nr | Study | N | Age (years) | Females | Males |
|---|---|---|---|---|---|
| 1. | Baghcheghi et al. [68] | 34 | 19-22 | 18 | 16 |
| 2. | Daniels et al. [66] | 53 | 18 - 36 | 36 | 0 |
| 3. | Hsu et al. [69] | 116 | 20 - 39 | 116 | 0 |
| 4. | Lau and Wang [70] | 62 | 19 -23 | 53 | 9 |
| 5. | McDaniel [71] | 53 | NA | NA | NA |
| 6. | Mullan and Kothe [43] | 09 | 18 - 49 | 191 | 17 |
| 7. | Norris [67] | 147 | 20 - 55 | 147 | 0 |
| 8. | Ozcan et al. [72] | 83 | 19 - 20 | 83 | 0 |
| 9. | Yoo and Chae [73] | 47 | NA | NA | NA |
| 10. | Zavertnik et al. [74] | 41 | 19 - 32 | 41 | 0 |

Legend: N = sample NA = Not available

A summary of the author, design, country and setting, intervention and comparison are presented in Table 19. There were one study each from Iran, Taiwan, China, Canada, Australia, Turkey, South Korea, and the United States of America (USA). Two of the studies Daniels et al. [66] and Norris [67] country and setting were not determined because they were not provided in the studies (Table 19).

**Table 19: Summary of included studies**

| Nr | Author | Design | Country and setting | Intervention and comparison |
|---|---|---|---|---|
| 1. | Baghcheghi et al. [68] | Experimental observer-blinded, pre-test post-test | Iran | Traditional learning and cooperative learning methods |
| 2. | Daniels et al. [66] | Experimental – with covariate | - | Micro-counselling training |
| 3. | Hsu et al. [69] | Experimental – randomised controlled trail | Taiwan | scenario-based simulation course |
| 4. | Lau and Wang [70] | Mixed method - quantitative and qualitative | China | Quasi-experimental longitudinal pre-post-test quantitative design |
| 5. | McDaniel [71] | Experimental- pre-test post-test | Canada | Assertion education |
| 6. | Mullan and Kothe [43] | Mixed methods- quantitative and qualitative | Australia | Counselling and communication course |
| 7. | Norris [67] | Factorial design with random assignment | - | Role-play and lecture instruction. |
| 8. | Ozcan et al. [72] | pre-post-test quasi-experimental | Turkey | Structured empathy course |
| 9. | Yoo and Chae [73] | Non-equivalent control with pre-test post-test design | South Korea | Video-based peer review |
| 10. | Zavertnik et al. [74] | Quasi-experimental two-group post-test | USA | Role play |

Legend: Nr = number

## 2.6 Data synthesis

### 2.6.1 Characteristics of included studies

In this review, various designs were used for CST in the studies included. There was one each of the following: experimental observer-blinded, pre-test post-test, experimental (with covariate), experimental (randomised controlled trail), experimental (pre-test post-test), factorial design with random assignment pre-post-test, quasi-experimental, non-equivalent control with pre-test post-test, mixed method (quantitative and qualitative), and qualitative non-equivalent control with pre-test post-test.

### 2.6.2 Summary of the total quality of evidence

In this review, the quality assessment using the Grading of Recommendations Assessment, Development and Evaluation GRADE system [65] found that out of the 10 studies that were included, only one was of moderate quality evidence. The other 9 studies were of low quality (Table 20).

**Table 20; Summary of findings**

| **Communication skills training (CST) compared to no CST in nursing and midwifery students (NMS)** | | | |
|---|---|---|---|
| **Patient or population**: NMS<br>**Setting**: NMS<br>**Intervention**: CST<br>**Comparison**: no CST | | | |
| **Outcomes** | **Relative effect (95% CI)** | **№ of participants (studies)** | **Quality of the evidence (GRADE)** |
| Cooperative learning and traditional learning | not estimable | 68<br>(1 observational study) | ⊕⊕◯◯<br>LOW |
| Learner-centred training course | not estimable | 62<br>(1 observational study) | ⊕◯◯◯<br>LOW |
| Innovative Approach | not estimable | 41<br>(1 RCT) | ⊕◯◯◯<br>LOW |
| Structured empathy course | not estimable | 226<br>(1 observational study) | ⊕◯◯◯<br>LOW |
| Peer Review | not estimable | 47<br>(1 observational study) | ⊕◯◯◯<br>LOW |
| Role-play | not estimable | 147<br>(1 observational study) | ⊕◯◯◯<br>LOW |
| Structured empathy | not estimable | 257<br>(1 observational study) | ⊕◯◯◯<br>LOW |
| Self-rated ability | not estimable | 249<br>(1 observational study) | ⊕◯◯◯<br>LOW |
| Assertion Education | not estimable | 53<br>(1 observational study) | ⊕◯◯◯<br>LOW |
| Scenario-based stimulation | not estimable | 232<br>(1 RCT) | ⊕⊕⊕◯<br>MODERATE |

**GRADE Working Group grades of evidence**
**"High quality:** We are very confident that the true effect lies close to that of the estimate of the effect,
**Moderate quality:** We are moderately confident in the effect estimate: The true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different,
**Low quality:** Our confidence in the effect estimate is limited: The true effect may be substantially different from the estimate of the effect,
**Very low quality:** We have very little confidence in the effect estimate: The true effect is likely to be substantially different from the estimate of effect" [65]

## 2.7 Discussion of the literature review

In this review, Lau and Wang [70] reported that learner-centred CST has been effective in enhancing communication skills. Zavertnik [74], agrees with the claim by Lau and Wang [70] and reported that an intervention group did improved than the control group ($\rho$ = .0257).

On the other hand Scenario-based learning has been reported to be effective than traditional CST [69].

Furthermore, the effect of empathy and communication skills course has been reported to have positive influence on both female and male students empathic communication skills [72].

A similar study by Daniels et al. [66], reported that an experimental group made lesser communication mistakes after training. However, the study did not provide the population and the year in which the study was conducted.

Mullan and Kothe [43] has reported that a nurse training course made students to be satisfied. The findings by Mullan and Kothe [43] are in agreement with Yoo and Chae [73] studies that also reported that peer-review is an effective communication skills learning method for nursing students. However, Yoo and Chae [73] reported one item was excluded from the assessment tool as being inappropriate to the study and yet did not mentioned the item or provide reasons for the exclusion.

In contrast to the effectiveness of CST, Norris [67] found that there were no differences in overall mean performance in a role play and lecture instruction method.

Furthermore, there is a report of no significant difference effect between traditional learning and cooperative learning methods in teaching nursing students' communication skills [68].

Another method that has been reported to be of statistically significant difference is assertive training ($\rho < .05$) one tailed t-test (1.99, 47.9 *df*; $\rho$ = .025) [71].

## 2.8 Conclusion of the literature review

The above review of the current literature on enhancing CST in nursing and midwifery students (NMS) shows that the quality of evidence is generally low. There is also evidence that there is lack of research on CST for NMS. There are few studies on nursing and midwifery students CST. More so the available studies have used different methods for CST.

Therefore, this literature review will complement the emerging literature base of nursing and midwifery CST.

Furthermore, to assess the effectiveness of CST for nursing and midwifery students (NMS) an explorative study on how Ghanaian patients describe communication between themselves and nurses, midwives, and doctors regarding the core elements of the "Four Habits Model" [6] measured by the Four Habits Patients Questionnaire (4HPQ) [20] was conducted.

This was followed by an intervention study on CST: enhancing the nursing and midwifery empathy, communicative competence, communication skills - positive attitude, communication skills - negative attitude, and self-efficacy.

# 3 Methodology of this intervention study

This methodology section dealt with the research questions, sample, design, intervention, outcome measures, procedure, and data analysis for the intervention study.

## 3.1 Sample of the intervention study

This intervention study was conducted at Tamale Nurses and Midwives College Ghana. The sample consisted of nursing students (n = 181) and midwifery students (n = 49) based at the Tamale Nurses and Midwives College Tamale-Ghana who were eligible for participation.

### 3.1.1 Power analysis

The sample size of the participants was determined by level of significance and effect size. A small effect size (d = 0.25) and a two-tail significance test ($\rho = 0.05$) resulted in a sample size of 197.

### 3.1.2 Ethical approval

Permission for this intervention study was provided at the time of conducting the focus group (FG) discussions (Appendix A, B and C).

### 3.1.3 Informed consent

Informed consent was taken from participants before the study. Participants were informed of the objectives of the study and were also given opportunity to ask questions for a better understanding of the study. Participants were informed they could refuse to take part in the research at anytime without having to face any consequence. Informed consent was not written and participants were told that taking part in the CST and answering the questionnaires meant consenting.

### 3.1.4 Criteria of inclusion and exclusion

The table 21 below shows the inclusion and exclusion criteria for the intervention study.

**Table 21: Inclusion and exclusion criteria of the intervention study**

| |
|---|
| *Inclusion criteria*<br>• Nursing and midwifery students (NMS) in their second year at TNMC.<br>• NMS whose ages were above 18 years<br>• NMS in TNMC who wre available for follow-up data collection after 6 months. |
| *Exclusion criteria*<br>• NMS who were not studying at TNMC.<br>• NMS whose ages were below 18 years<br>• NMS in TNMC who were not available for follow-up data collection after 6 months. |

### 3.1.5 Randomisation

There was allocation concealment to the researcher, research assistants, and the participants. The researcher, research assistants, and participants were not aware of which group each participant was to be assigned, until the participant was assigned. This was done by allowing participants to pick numbers written on papers, which were randomly shuffled, in a box.

## 3.2 Design of this intervention study

This intervention study was a pre-test post-test design in a randomised controlled trial (RCT) to compare the outcomes of a 2-day communication skills training (CST) programme.

## 3.3 Data analysis of this intervention study

Descriptive statistics were computed on demographic data for the intervention and control group for all the outcome measures. Parametric assumptions (Shapiro Wilk, $\rho < .05$) and Analysis of Variance (ANOVA) was used to test the hypothesis that there was statistically significant differences between the intervention and control groups at 3 time points. A significance level of $\rho < .05$ was used. However, because there was one primary outcome and four secondary outcome measures, several independent analyses were performed. Therefore, a significance level of $\rho < .05$ was adjusted to $\rho < .01$ in interpreting the results using Bonferroni correction [76]. "The Bonferroni correction is an adjustment made to $\rho$ values when several dependent or independent statistical tests are being performed simultaneously on a single data set" [76]. In this study Bonferroni correction was computed by taking the critical $\rho$ value ($\alpha$) and divided it by the number of comparisons made (.05/5) resulting in the $\rho < .01$.

The scoring of the questionnaires were according to the scoring algorithm of Jefferson Scales of Empathy (JSE) for all the questionnaires to allow for consistency. According to the JSE "a respondent must answer at least 16 (80%) of the 20 items; otherwise the form should be regarded as incomplete and excluded from the data analysis. If a respondent fails to answer 4 or fewer items, the missing values should be replaced with the mean score calculated from the items the respondent completed" [77].

Data analyses were conducted using Statistical Package for Social Sciences (SPSS).

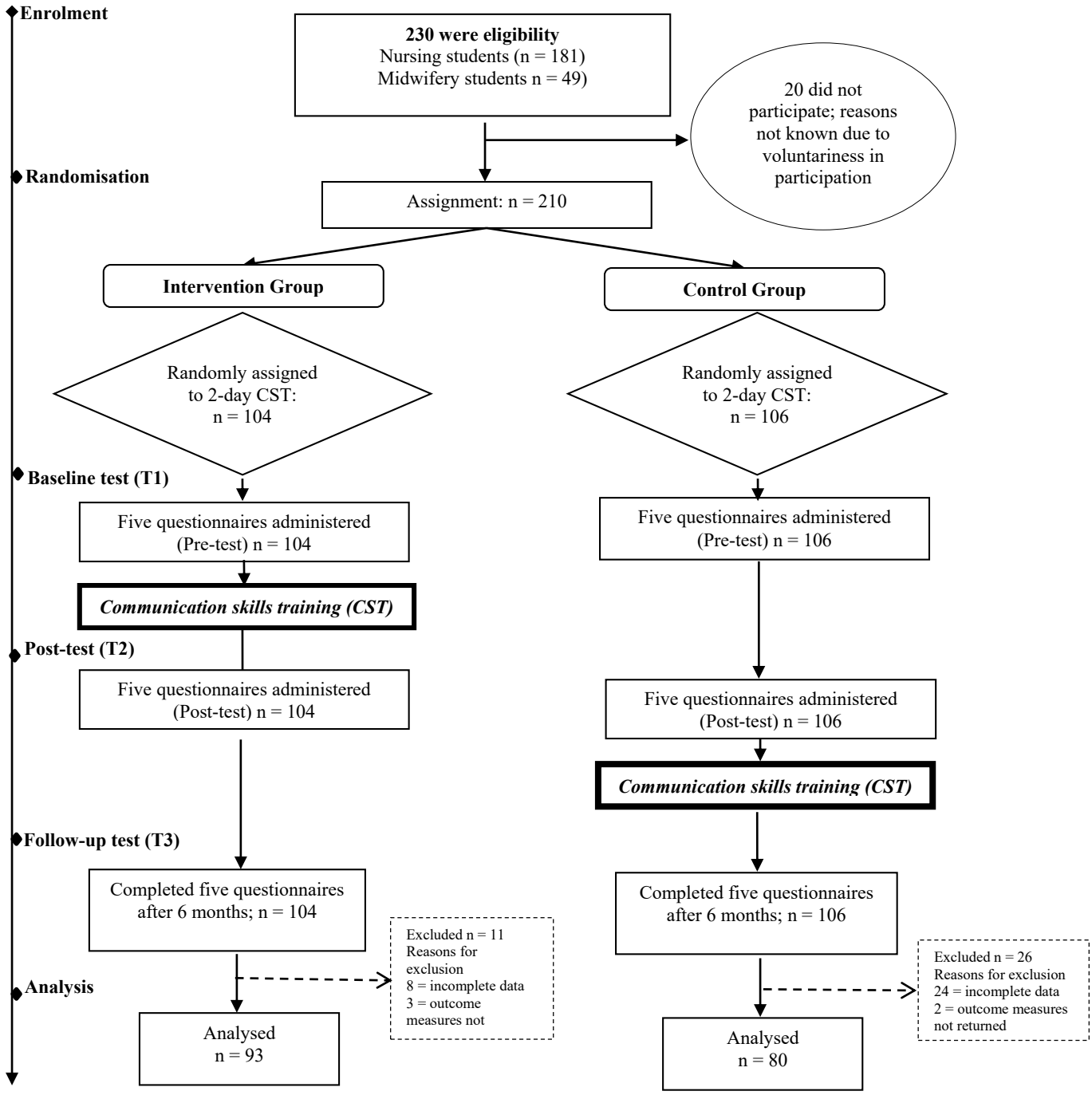
## 3.4 Procedure of this intervention study

This intervention study involved both nursing and midwifery students (NMS) in their second year of studies at Tamale Nursing and Midwifery College, Tamale-Ghana. Participants were randomly assigned to an intervention group and a control group. The NMS were separated

before random assignment to ensure that both professions were approximately equally represented in the groups.

The two groups had a baseline data collection (T1) at the same time. The intervention group had a CST, followed by post-test (T2) on day 3. The control group had post-test (T2) on day 4 just before their CST. The primary outcome was empathy measured with Jefferson Scales of Empathy - Health Professions Student- version JSE HPS- version) [77]. The secondary outcomes were communicative competence, communication skills - positive attitude, communication skills - negative attitude, and self-efficacy measured with commutative competence questionnaire [78], communication skills - positive attitudes questionnaire [79], communicative skills - negative attitudes questionnaire [79], and self-efficacy questionnaire [80], respectively, respectively. Both groups had a follow-up test (T3) at the same time six months after the CST (Chart 2).

***Chart 2: Flowchart showing enrolment, randomisation, CST, and data collection***




Legend:
CST = Communication skills training
T1 = Baseline test
T2 =Post-test
T3 = Follow-up test

## 3.5 Communication skills training (CST)

In order to answer the explorative research question II (What can be done about the descriptions of the communication between patients' and nurses, midwives, and doctors regarding the core elements of the "Four Habits Model"? [6]), a communication skills training (CST) programme was designed.

The core topics of the CST were based on the "Four Habits Model" [6] made up of "invest in the beginning, elicit patient's perspective, demonstrate empathy, and invest in the end" [13, 14].

The 4HM core topics as mentioned above therefore, formed the thematic themes under which the training was conducted. This was complemented by Person-Centred Nursing Framework "care processes of; the need to provide wholistic healthcare, working with patients beliefs and values, engagement, shared decision, and having sympathetic presence as provided" [7].

The researcher (MA) who was the main trainer, designed and developed the training guide using "Four Habits Model" [6] and Person-Centred Nursing Framework [7]. Subsequently, the researcher trained a co-trainer (AAM) to assist in the CST as well as in the data collection. The trainers used various methods to deliver the training. The methods were small group discussions, brainstorming, personal experience from participants, group reports, questions and answers, videos and summaries. Therefore, the training was on shared agenda. This approach made it possible for participants to share their previous training knowledge and ideas. Therefore, the CST was conducted according to the content guide provided in Table 22. At the end of the training, participants were provided with photocopies of some relevant material as well as useful reference books and literature that will enable for nurses and midwives to learn effective communication with patients.

**Table 22: Core contents and procedure of the communication skills training (CST)**

**Objectives:**
To train nursing and midwifery students to acquire communication skills that will be relevant to enhance their empathy, communicative competence, communication skills attitude, and self-efficacy.

The training will focus on the "Four Habits Model" [6] and Person-Centred Nursing Framework.

**Core topics:**
1. Invest in the beginning
2. Elicit patient's perspective
3. Demonstrate empathy
4. Invest in the end

**Day 1 Activities Morning session (8.00 to 12.00 Hours)**

| Activity | Steps | Time | Minutes |
|---|---|---|---|
| **Introduction and Pre-test to the two groups** | **Introduction**<br>i. Introduce the Trainers/Moderators<br>ii. Trainer explains the purpose of the training. Giving participants assurance of confidentiality, anonymity etc.<br>iii. Allow prospective participants to ask questions.<br>iv. Obtain informed consent from participants. | 8:00 | 120 |
| | Session break | 10.00 | 10 |
| | **Pre-test (T1)**<br>i. Distribute pre-test questionnaires to participants who have consented<br>ii. Wait until all have submitted their responses to the questionnaires | 10.10 | 110 |
| | Lunch Break | 12.00 | 60 |

**Afternoon session - (13.00 to 17.00 hours)**

| Activity | Steps | Time | Minutes |
|---|---|---|---|
| **Randomisation of Groups** | i. Trainers out cards for each participant to write out their expectations about the training which they will undergo. | 13.00 | 5 |
| | ii. Allow participants to put the expectations on a flip chart provided. | 13.05 | 115 |
| | Session break | 15.00 | 10 |
| | iii. Randomise the group into two groups. Have pieces of paper written with number 1 and 2 on each according to their total number. After distributing the papers randomly put the number ones together and twos together.<br>iv. Those with number one then become intervention group and those with number 2 become control group.<br>v. Inform them that due to their number the intervention group will be trained first (the next day) followed immediately by the control group (on the third day). | 15.10 | 110 |
| | Close | 17.00 | |

**Day 2 Activities - Morning session (8.00 to 12.00 Hours)**

| Activity | Steps | Time | Minutes |
|---|---|---|---|
| **Invest in the beginning** | i. Trainer makes a short presentation on "Four Habits Model" [6]. | 8:00 | 5 |
| | ii. Trainers put the participants into 10 in a group. | 8.05 | 115 |
| | iii. Participants go into a plenary session where they discuss why they think it is important to Invest in the beginning. They should appoint a chairperson and a reporter (30 minutes) | | |
| | Session Break | 10.00 | 10 |
| | i. Each group should be given 5 minutes to report their group results. | 10.10 | 50 |
| | ii. Whist they report the research and research assistant should create a tally of the points each group has raised on a flip chart | | |
| | iii. Trainer then makes a short presentation on investing in the beginning based on the "Four Habits Model" [6]. | 11.00 | 10 |
| | iv. Allow open discussion | 10.10 | 50 |
| | Lunch Break | 12.00 | 60 |

**Afternoon session - (13.00 to 17.00 hours)**

| Activity | Steps | Time | Minutes |
|---|---|---|---|
| **Elicit patients perspective** | i. Short discussion on what participants learnt in the morning about investing in the beginning | 13.00 | 15 |
| | ii. Each participant should be provided with card where they list the most important issues to consider when eliciting a patients perspective. | | |
| | Session break | 15.00 | 10 |
| | iii. Ask a volunteer to come forward with his/her presentation. After that he/she will select the next presenter until all have had their turns to present. | 15.10 | 140 |
| | iv. Trainer then makes a short presentation on the main issues according to the "Four Habits Model" [6]. | 16:50 | 10 |
| | Close | 17.00 | |

**Day 3 Activities - Morning session (8.00 am to 12.00 noon)**

| Activity | Steps | Time | Minutes |
|---|---|---|---|
| **Demonstrate empathy** | i. Small Group Discussion: Trainers put them into small groups to brainstorm about the situations in which a professional nurse should show empathy. | 8.00 | 60 |
| | Session break | 10.00 | 10 |
| | ii. Trainers ask a volunteer to come forward with her/his presentation. After that she/he will select the next presenter until all have had their turns to present. | 10:10 | 30 |
| | iii. Show a video on empathy and how it can be demonstrated towards patients. | 10:40 | 10 |
| | iv. Trainers allow open discussion with participants suggesting the differences between empathy and sympathy. | 10:50 | 60 |
| | v. Trainer then makes a short presentation on the main issues of demonstrating empathy according to the "Four Habits Model" [6]. | 11.50 | 10 |
| | **Lunch Break** | | 60 |

**Afternoon session - (13.00 to 17.00 hours)**

| Activity | Steps | Time | Minutes |
|---|---|---|---|
| **Invest in the end** | i. Participants are asked to mention important issues that are relevant in investing at the end. Trainer lists the issues as participants mention them on a flip chart. | 13.00 | 60 |
| | ii. Trainers with the assistance of participants group the lists according:<br>- Delivering diagnostic information<br>- Providing information<br>- Involving the patient in making decision<br>- completing the visit | 14.00 | 60 |
| | Session break | 15.00 | 10 |
| | iii. Trainer makes a short presentation on the relevant issues of investing in the end according to the "Four Habits Model"[6]. | 15.10 | 10 |
| | iv. Trainers uses discussion method for summarising the training | 15.20 | 40 |
| | **Post Test (T2)** | **Time** | **Minutes** |
| **Post test** | Trainers administer the same instruments that were used at baseline – T1 (i.e. before the CST) to both the intervention and the control group. | 16.00 | 60 |
| | **Close of training** | 17.00 | |

| | Follow-up Test after 6 months (T3) | Time | Minutes |
|---|---|---|---|
| **Follow-up test** | Trainers administered the same instruments that were used at baseline test (T1), post-test (T2) to both intervention and control groups after 6 months as a follow-up test (T3). | | 60 |

## 3.6 Outcome measures of intervention study

Five outcome measures were used for the intervention study to answer the five research questions as described below. The primary outcome measure was empathy measured with the Jefferson Scales of Empathy Health Professions Student- version (JSE HPS- version) [81]. The secondary outcome measures were communicative competence, communication skills - positive attitudes, communication skills - negative attitudes, and self-efficacy measured with commutative competence questionnaire [78], communication skills - positive attitudes questionnaire [79], communicative skills - negative attitudes questionnaire [79], and self-efficacy questionnaire [80], respectively. There were 3 time points for data collection: baseline test (T1), post-test (T2), and 6-months after the CST as a follow-up test (T3) (Chart 2).

The following paragraphs provide description, psychometric properties, and scoring of the questionnaires.

### 3.6.1 Empathy

*Outcome measure:* In order to answer research question 1, (How does a 2-day communication skills training (CST) have an effect on nursing and midwifery students' empathy?), Jefferson Scales of Empathy- Health Professions Student (JSE HPS- version) questionnaire was used [81]. There are different versions of the Jefferson Scales of Empathy. The versions are comparable in content. Slight changes are made in the words such that the text will be suitable for the planned health professionals. The JSE HPS- version [77] has 20 items in a Likert-type format using seven-point from 1 (strongly disagree) to 7 (strongly agree). It has ten negatively worded items. The negative worded items were items 1, 3, 6, 7, 8, 11, 12, 14, 18, and 19 [77].

*Psychometric properties:* Construct validity and criterion-related validity of the JSE HPS- version have been reported [27]. Hojat et al. [77] have reported that internal consistency reliability of this version as .89 for medical students and .87 for house officers. Hojat et al. [81] has reported a test-retest reliability for the JSE HPS- version as .65 ($\rho < 0.01$). In their report, they said it was relatively low in magnitude, but acceptable for that kind of instrument considering the time interval between the test [81].

*Scoring:* The scoring were the same as described in "3.3 Data analysis of this intervention" in this study, to allow for consistency. The JSE HPS- version has ten negatively worded questions. The responses for the ten negatively phrased questions were re-coded so that a total score was calculated. To score the questionnaire: Items 1, 3, 6, 7, 8, 11, 12, 14, 18, and 19 were reversed scored (from 1 strongly agree to 7 strongly disagree), while the other items

are directly scored on their Likert weights from 1 (strongly disagree) to 7 (strongly agree). The total score was the sum of all item scores. The higher the total empathy scores the higher the empathic behavioural orientation. The maximum total score for each participant is 140 and the minimum score is 20. Higher total scores indicate higher empathy whereas lower total scores indicate lower empathy [77].

According to the owners of the JSE, it takes 5-10 minutes to complete, although they do not endorse a time limit for completing the it [77].

### 3.6.2 Communicative competence

*Outcome measure:* In order to answer research question II, (How does a 2-day CST have an effect on nursing and midwifery students' communicative competence?), communicative competency questionnaire was used [78]. Communicative competence questionnaire was developed by Wiemann to measure communicative competence [78]. The questionnaire has 36 items. It is in a Likert format ranging from 1 (strongly agree) to 5 (strongly disagree).

*Psychometric properties:* The questionnaire is reported to be internally consistent and reliable of .90; .91; and .86; [82–84]. Wiemann [78] found a coefficient alpha of .96 and a .74 magnitude of experimental effect. The questionnaire takes less than 10 minutes to complete.

*Scoring:* The scoring were the same as described in "3.3 Data analysis of this intervention" in this study, to allow for consistency. The total score was the sum of all item scores. The maximum total score is 180 and the minimum score is 36 for each participant. Higher total scores indicate higher communicative competence whereas lower total scores indicate lower communicative competence.

### 3.6.3 Communication skills positive and negative attitudes

*Outcome measure:* In order to answer research question III (How does a 2-day CST have an effect on nursing and midwifery students' communication skills - positive attitudes?), communication skills - positive attitudes questionnaires was used [79]. Furthermore, to answer the research question IV (How does a 2-day CST have an effect on nursing and midwifery students' communication skills - negative attitudes?), communication skills - negative attitudes questionnaires was used [79]. The questionnaires were constructed by Rees et al. [79]. It has been used in several studies [79, 85–89]. The questionnaire has 2 subscales of 26 items. Subscale I is the commutation skills - positive attitude questionnaire. Subscale II is the communication skills - negative attitudes questionnaire. Each subscale is composed of 13 items. The response options are on a five-point Likert format ranging from 1 (strongly disagree) to 5

(strongly agree). It also has 13 negative items randomly mixed up. The negative items are items 2, 3, 6, 8, 10, 13, 15, 17, 19, 20, 22, 24, and 26.

*Psychometric properties:* Rees et al. [79] reported that communication skills - positive attitude scale possess satisfactory internal consistency reliability ($\alpha = .87$) with medical students and satisfactory test-retest reliability (intra-class correlation = .06, $\rho < .001$) with medical students. In addition, the communication skills - negative attitude is reported to be internally consistent ($\alpha = .81$) and test-retest reliability (interclass correlation = .77, $\rho < .001$) [79].

*Scoring:* The scoring were the same as described in "3.3 Data analysis of this intervention study" in this study, to allow for consistency. The total score for each questionnaire is the sum of all item scores in that subscale. Therefore, each subscale total score was computed differently. The communication skills positive and negative attitude questionnaires have 13 negatively worded items. Before analysing the data, the 13 negative items were reversed scored to enable, the items have the same direction of scores for both questionnaires. Both questionnaires scores were computed by adding the response values for the 13 items of each subscale [79]. Possible ranges for each total score vary from 13 to 65 in each subscale.

**Communication skills – positive attitudes**

In order to answer research question III, (How does a 2-day CST have an effect on nursing and midwifery students' communication skills - positive attitude?), communication skills – positive attitudes questionnaire was used [79].

The items 1, 4, 5, 7, 9, 10, 12, 14, 16, 17, 21, 23, and 25 form this subscale. These items are concerned with positive attitudes towards learning communication skills.

Higher total positive attitudes scores indicates stronger attitudes towards communication skills and lower total scores indicates lower attitudes towards communication skills [79].

**Communication skills – negative attitudes**

In order to answer research question IV, (How does a 2-day CST have an effect on nursing and midwifery students' communication skills - negative attitudes?), communication skills - negative attitudes questionnaire was used [79].

The items 2, 3, 6, 8, 11, 13, 15, 18, 19, 20, 22, 24, and 26 form this subscale. These items are concerned with negative attitudes towards learning communication skills.

Higher total negative attitudes scores indicates weaker attitudes towards communication skills and lower total negative attitudes scores indicates stronger attitudes towards communication skills [79].

### 3.6.4 Self-efficacy

*Outcome measure:* The secondary outcome of self-efficacy was measured using self-efficacy questionnaire [80]. It was used in answering the research question V - (Does communication skills training have an effect on nursing and midwifery students' self-efficacy?). The questionnaire is based on self-efficacy theory, developed by Parle et al. [80]. The questionnaire is made of 8 questions on healthcare professionals' perceived self-efficacy in communication with patients and 11 questions on communication with co-workers [80]. The questionnaire is in a 10-point Likert scale format ranging from 1 (not certain at all) to 10 (quite certain).

*Psychometric properties:* Self-efficacy has proven to be an efficient and reliable method for determining professionals CST [90, 91].

*Scoring:* The scoring was the same as described in "3.3 Data analysis of this intervention" in this study, to allow for consistency. The total score is the sum of all item scores. The higher the total score, the higher the person's self-efficacy in communication. The maximum total score for each participant is 190 and the minimum score is 19. Higher total scores indicate higher communication self-efficacy whereas lower total scores indicate lower communication self-efficacy.

# 4 Results for this intervention study

This section presents the results of demographic data, descriptive data and Analyses of Variance (ANOVA) of the outcome measures.

## 4.1 Demographic data for this intervention study

Demographic data in this study were age, gender, speciality (nursing or midwifery), marital status, number of children, ethnicity, and academic writing and communication (AWC). Participants (N =173) data were analysed from both groups. The intervention group were 93 and the control group 80 participants. In terms of gender there were 68 (73.12%) females and 25 (26.88%) males in the intervention as compared to 44 (55.00%) females and 36 (45.00%) males in the control group (Table 25).

The age distribution showed most students were in the age range of 19 to 30 years (n = 160, 92.5%) (Table 25).

In terms of gender the percentage of females (n = 112; 64.74%) were higher than the males students (n = 61; 35.26%) and the majority of the participants were in the nursing speciality (n = 131; 75.72%) as compared to the midwifery speciality (n = 42: 24.28%). The results also showed that the majority of the students were unmarried (n = 160; 92.49%) as compared to those who were married (n = 13; 7.51) (Table 23).

The results further showed that a higher majority (n = 127; 73.41%) had 4 months (1 semester) of academic writing and communication (AWC) as compared to those who had no AWC (n = 23; 13.29%). The others results were 2 weeks AWC (n = 1; 0.58%), 1 month AWC (n = 1; 0.58), 2 months AWC (n = 1; 0.58), 3 months AWC (n = 5; 2.89%), 2 semester AWC (n = 11; 6.36%), 3 semesters AWC (n = 3; 1.73%), and above 4 semesters AWC (n = 1; 0.58) (Table 23).

**Table 23: Demographic data for this intervention study**

| Characteristics | | Intervention Group (n = 93) | | Control Group (n = 80) | |
|---|---|---|---|---|---|
| | | n | % | n | % |
| Age | > 18 years | 5 | 5.38 | 1 | 1.25 |
| | 19 – 21 years | 42 | 45.16 | 32 | 40.00 |
| | 22 – 24 years | 41 | 44.09 | 45 | 56.25 |
| | 25 – 27 years | 2 | 2.15 | 1 | 1.25 |
| | 28 – 30 years | 3 | 3.23 | 1 | 1.25 |
| | 31 years and above | 0 | 0 | 0 | 0 |
| Gender | Female | 68 | 73.12 | 44 | 55.00 |
| | Male | 25 | 26.88 | 36 | 45.00 |
| Speciality | Nursing student | 62 | 66.67 | 69 | 86.25 |
| | Midwifery students | 31 | 33.33 | 11 | 13.75 |
| Marital Status | Married | 2 | 2.15 | 9 | 11.25 |
| | Unmarried | 90 | 96.77 | 70 | 87.50 |
| | Divorced | 1 | 1.08 | 1 | 1.25 |
| Religion | Christianity | 51 | 54.84 | 30 | 37.50 |
| | Islam | 40 | 43.01 | 48 | 60.00 |
| | Other | 2 | 2.15 | 2 | 2.50 |
| Do you have children | Yes | 1 | 1.08 | 8 | 10.00 |
| | No | 92 | 98.92 | 72 | 90.00 |
| Number of children | No child | 92 | 98.92 | 72 | 90.00 |
| | 1 child | 1 | 1.08 | 2 | 2.50 |
| | 2 children | 0 | 0 | 4 | 5.00 |
| | 3 children | 0 | 0 | 2 | 2.50 |
| | 4 children and above | 0 | 0 | 0 | 0 |
| Ethnicity | Akan | 11 | 11.83 | 5 | 6.25 |
| | Dagomba | 28 | 30.11 | 34 | 42.50 |
| | Ewe | 2 | 2.15 | 5 | 6.25 |
| | Fanti | 6 | 6.45 | 3 | 3.75 |
| | Frafra (Grunsi) | 10 | 10.75 | 2 | 2.50 |
| | Ga-Adangme | 3 | 3.23 | 0 | - |
| | Gonja | 8 | 8.60 | 3 | 3.75 |
| | Kotokoli | 0 | 0 | 3 | 3.75 |
| | Basare/Bisa | 0 | 0 | 2 | 2.50 |
| | Kasina/Bulsa | 0 | 0 | 3 | 3.75 |
| | Dagati/Sisala | 5 | 5.38 | 4 | 5.00 |
| | Other tribes | 20 | 21.51 | 16 | 20.00 |
| Academic writing and communication (AWC) | None | 10 | 10.75 | 13 | 16.25 |
| | 1 week | 0 | 0 | 0 | 0 |
| | 2 weeks | 0 | 0 | 1 | 1.25 |
| | 3 weeks | 0 | 0 | 0 | 0 |
| | 1 month | 1 | 1.08 | 0 | 0 |
| | 2 months | 0 | 0 | 1 | 1.25 |
| | 3 months | 3 | 3.23 | 2 | 2.50 |
| | 4 moths (1 semester) | 70 | 75.27 | 57 | 71.25 |
| | 2 semesters | 5 | 5.38 | 6 | 7.50 |
| | 3 semesters | 3 | 3.23 | 0 | 0 |
| | 4 Semesters | 0 | 0 | 0 | 0 |
| | Above 4 semesters | 1 | 1.08 | 0 | 0 |

Legend: n = sample size in a particular group.
AWC = Academic writing and communication

## 4.2 Results of empathy

The primary outcome measure was empathy measured with Jefferson Scales of Empathy Health Professions Student- version (JSE HPS- version) questionnaire [81]. That was used in answering the research question 1 (How does a 2-day communication skills training (CST) have an effect on nursing and midwifery students' empathy?). This section provides the results of empathy.

### 4.2.1 Descriptive statistics of empathy

The empathy scores showed that there were slight increases in the intervention group from baseline - T1 (M = 109.75; SD = 9.76) to post-test - T2 (M = 111.85; SD = 8.95) as compared to the control group from baseline - T1 (M = 107.93; SD = 11.46); to post-test - T2 (M = 110.01; SD = 11.03). However, in the intervention group there were no changes from baseline (M = 109.75; SD = 9.76) to follow-up after 6 months - T3 (M = 109.38; SD = 10.42). Nevertheless, there were slight increases in the control group from baseline - T1 (M =107.93; SD = 11.46) to follow-up after 6 months - T3 (M = 111.86; SD 8.29) (Table 24).

**Table 24: Descriptive statistics of empathy**

| Time | Group | N = 173 | | |
|---|---|---|---|---|
| | | n | M | SD |
| Baseline (T1) | Intervention | 93 | 109.75 | 9.76 |
| | Control | 80 | 107.93 | 11.46 |
| Post-test (T2) | Intervention | 93 | 111.85 | 8.95 |
| | Control | 80 | 110.01 | 11.03 |
| Follow-up (T3) | Intervention | 93 | 109.38 | 10.42 |
| | Control | 80 | 111.86 | 8.29 |

Legend: N = total sample size n = group sample size
M = mean score SD = standard deviation

### 4.2.2 Inferential statistics of empathy

In this study, the research question I (How does a 2-day CST have an effect on nursing and midwifery students' empathy?), was further determined by Analysis of Variance (ANOVA). The results from this study showed that there was no statistically significant difference in the scores of empathy between the groups $F(1, 171) = .18$, $\rho = .675$ (Table 25).

**Table 25: Inferential statistics empathy**

| Source | Type III SS | df | MS | F | Sig. |
|---|---|---|---|---|---|
| Intercept | 6259179.09 | 1 | 6259179.09 | 55379.73 | .000 |
| Group | 19.91 | 1 | 19.91 | .18 | .675 |
| Error | 19326.92 | 171 | 113.02 | | |

Significance level $\rho < .01$
Measurement is by time point
Transformed variable is by average
Legend: SS = Sum of Squares df = degrees of freedom
MS = Mean Square F = Statistic
Sig: = Significance level

## 4.3 Results of communicative competence

The secondary outcome measure of communicative competence was measured by using communicative competency questionnaire [78]. That was used in answering research question II (How does a 2-day CST have an effect on nursing and midwifery students' communicative competence?).

### 4.3.1 Descriptive statistics of communicative competence

The results showed no changes in the intervention group from baseline - T1 (M = 131.90; SD = 11.29) to post-test - T2 (M = 132.25; SD = 11.15) and the control group from baseline - T1 (M = 133.64; SD = 12.89); to post-test - T2 (M = 133.65; SD = 12.89). However, there were slight increases in the intervention from baseline - T2 (M = 131.90; SD = 11.29) to follow-up after 6 months - T3 (M = 132.86; SD = 11.07) and the control group baseline - T2 (M = 133.65; SD = 12.89) to follow-up after 6 months - T3 (M = 134.80; SD = 10.98) (Table 26).

**Table 26: Descriptive statistics of communicative competence**

| Group | | N = 173 | | |
|---|---|---|---|---|
| | | n | M | SD |
| Baseline (T1) | Intervention | 93 | 131.90 | 11.27 |
| | Control | 80 | 133.64 | 12.87 |
| Post-test (T2) | Intervention | 93 | 132.25 | 11.15 |
| | Control | 80 | 133.65 | 12.89 |
| Follow-up (T3) | Intervention | 93 | 132.86 | 11.07 |
| | Control | 80 | 134.80 | 10.98 |

Legend: N = total sample size n = group sample size
M = mean score SD = standard deviation

### 4.3.2 Inferential statistics of communicative competence

In this study, the research question II (How does a 2-day CST have an effect on nursing and midwifery students' communicative competence?), was further determined by Analysis of Variance (ANOVA). The results showed there was no statistically significant difference in the scores of communicative competence between the groups $F(1, 171) = 1.53$, $\rho = .218$ (Table 27).

**Table 27: Inferential statistics of communicative competence**

| Source | Type III SS | df | MS | F | Sig. |
|---|---|---|---|---|---|
| Intercept | 9153895.28 | 1 | 9153895.28 | 37878.68 | .000 |
| Group | 369.47 | 1 | 369.47 | 1.53 | .218 |
| Error | 41324.46 | 171 | 241.66 | | |

Significance level $\rho < .01$
Measurement is by time point
Transformed variable is by average
Legend: SS = Sum of Squares df = degrees of freedom
MS = Mean Square F = Statistic
Sig: = Significance level

## 4.4 Results of communication skills - positive attitude

The secondary outcome measure of communication skills - positive attitude was measured by using communication - positive attitude questionnaire [79]. It was used in answering research question III (How does a 2-day CST have an effect on nursing and midwifery students' communication skills - positive attitude?).

### 4.4.1 Descriptive statistics of communication skills - positive attitude

The results showed no communication skills - positive attitude changes in both groups from baseline - T1 to post-test - T2 and to follow-up after 6 months - T3. In the intervention group there were no changes from baseline - T1 (M = 51.73; 4.89) to post-test - T2 (M = 51.76; SD = 4.88) and to follow-up after 6 months - T3 (M = 50.67; SD 4.81). Similarly, in the control group there were no changes from baseline - T1 (M = 49.95; 5.11) to post-test - T2 (M = 49.98; SD = 5.09) and to follow-up after 6 months - T3 (M = 51.60; SD 4.24) (Table 28).

**Table 28: Descriptive statistics of communicative skills - positive attitude**

| Group | | N = 173 | | |
|---|---|---|---|---|
| | | n | M | SD |
| Baseline (T1) | Intervention | 93 | 51.73 | 4.89 |
| | Control | 80 | 49.95 | 5.11 |
| Post-test (T2) | Intervention | 93 | 51.76 | 4.88 |
| | Control | 80 | 49.98 | 5.09 |
| Follow-up (T3) | Intervention | 93 | 50.67 | 4.81 |
| | Control | 80 | 51.60 | 4.24 |

Legend: N = total sample size n = group sample size
M = mean score SD = standard deviation

### 4.4.2 Inferential statistics of communication skills - positive attitude

In this study, the research question III (How does a 2-day CST have an effect on nursing and midwifery students' communication skills - positive attitude?), was further determined by Analysis of Variance (ANOVA). The results showed that there was no statistically significant difference in the scores of communicative skills - positive attitude between the groups $F(1, 171) = 2.43$, $\rho = .121$ (Table 29).

**Table 29: Inferential statistics of communicative skills - positive attitude**

| Source | Type III SS | df | MS | F | Sig. |
|---|---|---|---|---|---|
| Intercept | 1339545.60 | 1 | 1339545.60 | 32672.57 | .000 |
| Group | 99.63 | 1 | 99.63 | 2.43 | .121 |
| Error | 7010.85 | 171 | 41.00 | | |

Significance level $\rho < .01$
Measurement is by time point
Transformed variable is by average
Legend: SS = Sum of Squares df = degrees of freedom
MS = Mean Square F = Statistic
Sig: = Significance level

## 4.5 Results of communication skills - negative attitude

The secondary outcome measure of communication skills - negative attitude was measured by using communication - negative attitude questionnaire [79]. It was used in answering research question IV (How does a 2-day CST have an effect on nursing and midwifery students' communication skills - negative attitude?).

### 4.5.1 Descriptive statistics of communication skills - negative attitude

The results showed there was a slight decrease of 1.91 in the scores of communication skills - negative attitude in the intervention from baseline - T1 (M = 46.80; SD = 5.58) to post-test - T2 (M = 44.89; SD = 5.48). Similarly a decrease of 1.6 points in the scores of communication skills - negative attitude in the control group from baseline - T1 (M = 47.10; SD = 5.46); to post-test - T2 (M = 45.50; SD = 5.03) was observed (Table 30).

These decreases in negative attitude were sustained in the intervention group from baseline - T1 (M = 46.80; SD = 5.58) to follow-up after 6 months - T3 (M = 44.76; SD = 5.98) up to 2.06 points. Whereas in the in the control group the decrease was up by 2.47 points from baseline - T1 (M = 47.10; SD = 5.46); to follow-up after 6 months - T3 (M = 44.63; SD = 6.40) (Table 30).

**Table 30: Descriptive statistics of communicative skills - negative attitude**

| Group | | N = 173 | | |
|---|---|---|---|---|
| | | **n** | **M** | **SD** |
| Baseline (T1) | Intervention | 93 | 46.80 | 5.58 |
| | Control | 80 | 47.10 | 5.46 |
| Post-test (T2) | Intervention | 93 | 44.89 | 5.48 |
| | Control | 80 | 45.50 | 5.03 |
| Follow-up (T3) | Intervention | 93 | 44.76 | 5.98 |
| | Control | 80 | 44.63 | 6.40 |

Legend: N = total sample size n = group sample size
M = mean score SD = standard deviation

### 4.5.2 Inferential statistics of communication skills - negative attitude

In this study, the research question IV (How does a 2-day CST have an effect on nursing and midwifery students' communication skills attitude - negative attitude?), was further determined by Analysis of Variance (ANOVA). The results showed that there was no statistically significant difference in the scores of communicative skills - negative attitude between the groups $F(1, 171) = .13$, $\rho = .722$ (Table 31).

**Table 31: Inferential statistics of communicative skills - negative attitude**

| Source | Type III SS | df | MS | F | Sig. |
|---|---|---|---|---|---|
| Intercept | 1073695.05 | 1 | 1073695.05 | 15907.75 | .000 |
| Group | 8.57 | 1 | 8.57 | .13 | .722 |
| Error | 11541.66 | 171 | 67.50 | | |

Significance level $\rho < .01$
Measurement is by time point
Transformed variable is by average
Legend: SS = Sum of Squares df = degrees of freedom
MS = Mean Square F = Statistic
Sig: = Significance level

## 4.6 Results of self-efficacy

The secondary outcome of self-efficacy was measured by using self-efficacy questionnaire. It was used in answering research question V (How does a 2-day CST have an effect on nursing and midwifery students' self-efficacy?).

### 4.6.1 Descriptive statistics of self-efficacy

The results showed that there was an increase of 3.9 points in the scores of self-efficacy in the intervention group from baseline - T1 (M = 131.84; SD = 28.72) to post-test - T2 (M = 135.74; SD 25.49). However, that of the control showed a slight increase of 1.02 points from baseline - T1 (M = 135.43; SD = 31.84) to post-test - T2 (M = 136.45; SD 26.70). In the follow-up after 6 months, the intervention group had a greater increase in scores of empathy from baseline to follow-up after 6 months up to 9.22 points as compared to 3.08 points in the control group (Table 32).

The increases in both groups were from baseline - T1 (M = 131.84; SD = 28.72) to follow-up after 6 months - T3 (M = 141.06; SD = 26.03) and from baseline - T1 (M = 135.43; SD = 31.84); to follow-up after 6 months - T3 (M = 138.50; SD = 29.00) respectively (Table 32).

**Table 32: Descriptive statistics of self-efficacy**

| Group | | N = 173 | | |
|---|---|---|---|---|
| | | N | Mean | SD |
| Baseline (T1) | Intervention | 93 | 131.84 | 28.72 |
| | Control | 80 | 135.42 | 31.84 |
| Post-test (T2) | Intervention | 93 | 135.74 | 25.49 |
| | Control | 80 | 136.45 | 26.70 |
| Follow-up (T3) | Intervention | 93 | 141.06 | 26.03 |
| | Control | 80 | 138.50 | 29.00 |

Legend: N = total sample size n = group sample size
M = mean score SD = standard deviation

### 4.6.2 Inferential statistics of self-efficacy

In this study, the research question V (How does a 2-day CST have an effect on nursing and midwifery students' self-efficacy?), was further determined by Analysis of Variance (ANOVA). This results showed that there was no statistically significant difference in the scores of self-efficacy between the groups $F(1, 171) = .03$, $\rho = .860$ (Table 33).

**Table 33: Inferential statistics of self-efficacy**

| Source | Type III SS | df | MS | F | Sig. |
|---|---|---|---|---|---|
| Intercept | 9616006.83 | 1 | 9616006.83 | 6972.00 | .000 |
| Group | 42.90 | 1 | 42.90 | .03 | .860 |
| Error | 235848.68 | 171 | 1379.23 | | |

Significance level $\rho < .01$
Measurement is by time point
Transformed variable is by average
Legend: SS = Sum of Squares df = degrees of freedom
MS = Mean Square F = Statistic
Sig: = Significance level

## 4.7 Effects of the CST, the scores of outcome measures, and the demographic variables

In this study, the research question VI "What are the relationships among the CST, scores of the outcomes (empathy, communicative competence, communication skills - positive attitude, communication skills – negative attitude, self-efficacy) and the demographic variables (age, gender, speciality, marital status, number of children, ethnicity, and academic writing and communication)" was further tested by Analysis of Variance (ANOVA).

### 4.7.1 Effect of the CST, the empathy scores, and the demographic variables

In this study, there was no statistically significant effect between CST, the demographic variables of age, marital status, specialisation, ethnicity, and religion as well as academic writing and communication (AWC) (Table 34).

**Table 34: Effect of the CST, the empathy scores, and the demographic variables**

| Source | Type III SS | df | MS | F | Sig. |
|---|---|---|---|---|---|
| Intercept | 35,145.96 | 1 | 35,145.96 | 321.61 | .000 |
| Group * Gender | 738.51 | 2 | 369.25 | 3.38 | .037 |
| Group * Age | 431.25 | 2 | 215.63 | 1.97 | .142 |
| Group * Marital Status | 72.00 | 2 | 36.00 | 0.33 | .720 |
| Group * Specialisation | 241.87 | 2 | 120.94 | 1.11 | .333 |
| Group * Religion | 219.32 | 2 | 109.66 | 1.00 | .369 |
| Group * Ethnicity | 440.74 | 2 | 220.37 | 2.02 | .137 |
| Group * AWC | 69.25 | 2 | 34.63 | 0.32 | .729 |
| Error | 17,266.55 | 158 | 109.28 | | |

Significance level $\rho < .01$
Measurement is by time point
Transformed variable is by average
Legend: SS = Sum of Squares df = degrees of freedom
MS = Mean Square F = Statistic
Sig: = Significance level AWC = Academic writing and comunication

### 4.7.2 Effect of the CST, the communicative competence scores, and the demographic variables

In this study there was no statistically significant effect between CST, the scores of communicative competence and the demographic variables of gender, age, marital status, specialisation, ethnicity, and religion as well as academic writing and communication (AWC) (Table 35).

**Table 35: Effect of the CST, the communicative competence scores, and the demographic variables**

| Source | Type III SS | df | MS | F | Sig. |
|---|---|---|---|---|---|
| Intercept | 54,905.07 | 1 | 54,905.07 | 224.49 | .000 |
| Group * Gender | 157.40 | 2 | 78.70 | 0.32 | .725 |
| Group * Age | 623.71 | 2 | 311.85 | 1.28 | .282 |
| Group * Marital Status | 92.64 | 2 | 46.32 | 0.19 | .828 |
| Group * Specialisation | 294.02 | 2 | 147.01 | 0.60 | .549 |
| Group * Religion | 402.69 | 2 | 201.35 | 0.82 | .441 |
| Group * Ethnicity | 341.46 | 2 | 170.73 | 0.70 | .499 |
| Group * AWC | 179.75 | 2 | 89.88 | 0.37 | .693 |
| Error | 38,643.49 | 158 | 244.58 | | |

Significance level $\rho < .01$
Measurement is by time point
Transformed variable is by average
Legend: SS = Sum of Squares df = degrees of freedom
MS = Mean Square F = Statistic
Sig: = Significance level AWC = Academic writing and comunication

### 4.7.3 Effect of the CST, the CS- positive attitude scores, and the demographic variables

In this study, there was no statistically significant effect between CST, the scores of communication skills - positive attitude and the demographic variables of gender, age, marital status, specialisation, ethnicity, and religion as well as academic writing and communication (AWC) (Table 36).

**Table 36: Effect of the CST, the communication skills scores - positive attitude, and the demographic variables**

| Source | Type III SS | df | MS | F | Sig. |
|---|---|---|---|---|---|
| Intercept | 8,252.99 | 1 | 8,252.99 | 193.89 | .000 |
| Group * Gender | 36.87 | 2 | 18.43 | 0.43 | .649 |
| Group * Age | 63.78 | 2 | 31.89 | 0.75 | .474 |
| Group * Marital Status | 0.07 | 2 | 0.04 | 0.00 | .999 |
| Group * Specialisation | 53.08 | 2 | 26.54 | 0.62 | .537 |
| Group * Religion | 84.44 | 2 | 42.22 | 0.99 | .373 |
| Group * Ethnicity | 49.60 | 2 | 24.80 | 0.58 | .560 |
| Group * AWC | 102.27 | 2 | 51.13 | 1.20 | .304 |
| Error | 6,725.25 | 158 | 42.56 | | |

* Significance level $\rho < .01$
Measurement is by time point
Transformed variable is by average
Legend: SS = Sum of Squares df = degrees of freedom
MS = Mean Square F = Statistic
Sig: = Significance level AWC = Academic writing and comunication

### 4.7.4 Effect of the CST, the scores of CS- negative attitude, and the demographic variables

In this study there was no statistically significant effect between CST, the scores of communication skills attitude – negative attitude and the demographic variables of gender, age, marital status, specialisation, ethnicity and religion as well as academic writing and communication (AWC) (Table 37).

**Table 37: Effect the CST, the communication skills - negative attitude scores, and the demographic variables**

| Source | Type III SS | df | MS | F | Sig. |
|---|---|---|---|---|---|
| Intercept | 8,253.68 | 1 | 8,253.68 | 125.44 | .000 |
| Group * Gender | 67.22 | 2 | 33.61 | 0.51 | .601 |
| Group * Age | 27.01 | 2 | 13.51 | 0.21 | .815 |
| Group * Marital Status | 160.12 | 2 | 80.06 | 1.22 | .299 |
| Group * Specialisation | 176.63 | 2 | 88.32 | 1.34 | .264 |
| Group * Religion | 107.67 | 2 | 53.83 | 0.82 | .443 |
| Group * Ethnicity | 420.88 | 2 | 210.44 | 3.20 | .043 |
| Group * AWC | 107.82 | 2 | 53.91 | 0.82 | .443 |
| Error | 10,395.80 | 158 | 65.80 | | |

Significance level $\rho < .01$
Measurement is by time point
Transformed variable is by average
Legend: SS = Sum of Squares df = degrees of freedom
MS = Mean Square F = Statistic
Sig: = Significance level AWC = Academic writing and comunication

### 4.7.5 Effect of the CST, the self-efficacy scores, and the demographic variables

In this study there was no statistically significant effect between CST, the scores of self-efficacy and the demographic variables of gender, age, marital status, specialisation, ethnicity, and religion as well as academic writing and communication (AWC) (Table 38).

**Table 38: Effect of the CST, the self-efficacy scores, and the demographic variables**

| Source | Type III SS | df | MS | F | Sig. |
|---|---|---|---|---|---|
| Intercept | 37,204.82 | 1 | 37,204.82 | 26.09 | .000 |
| Group * Gender | 1,812.11 | 2 | 906.06 | 0.64 | .531 |
| Group * Age | 1,289.79 | 2 | 644.90 | 0.45 | .637 |
| Group * Marital Status | 1,213.81 | 2 | 606.91 | 0.43 | .654 |
| Group * Specialisation | 1,322.67 | 2 | 661.34 | 0.46 | .630 |
| Group * Religion | 2,986.33 | 2 | 1,493.17 | 1.05 | .353 |
| Group * Ethnicity | 1,145.84 | 2 | 572.92 | 0.40 | .670 |
| Group * AWC | 240.87 | 2 | 120.43 | 0.08 | .919 |
| Error | 225,316.54 | 158 | 1,426.05 | | |

Significance level $\rho < .01$
Measurement is by time point
Transformed variable is by average
Legend: SS = Sum of Squares df = degrees of freedom
MS = Mean Square F = Statistic
Sig: = Significance level AWC = Academic writing and comunication

# 5 Discussions

## 5.1 Discussions of the explorative study

The explorative study was conducted to answer the research question (How do Ghanaian patients describe communication between themselves and nurses, midwives and doctors regarding the core elements of "Four Habits Model" [6]) measured by Four Habits Patients Questionnaire (4HPQ) [20]?). To be able to answer this question data was collected using the Four Habits Patients Questionnaire (4HPQ) [20] and eight questions on information regarding treatment (8QIRT) and analysed using principal component analysis (PCA). Therefore, the data was examine for appropriateness of using PCA to analysing and find out which components could account for the core elements of the "Four Habits Model" [6].

In analysing data using PCA, there are a number of important requirements. Some of the important requirements are sampling adequacy, level of significance, rotated component matrix, correlations, communalities, latent root criterion, and eigenvalues. Below are discussions of these requirements.

The determination of sampling adequacy was by Kaiser-Meyer-Olkin (KMO) criterion. In this study, the sampling adequacy was .88 (Table 7). Kaiser [92] reported that KMO values nearer 1.0 are better and Gamst and Guarino [93] have indicated that a value of .70 is considered as adequate.

In addition, it has been reported that, the level of significance using PCA should be greater than probability related to Bartlett's test of sphericity [94]. The probability associated with the Bartlett test in this study was $\rho < 0.001$ (Table 7), which satisfies this requirement.

In this study, all 23 items correlated at least .30 with another item (Table 9). This satisfies researchers' advice that if the numbers of correlations above .30 in the matrix are small, then it is better not to continue with the analyses [95, 96].

Furthermore, in using PCA the requirements of having correlations > .30 and anti-image correlation > .50 between the variables were satisfied [95]. In this study, there were 127 correlations > .30 (Table 9) and anti-image correlation > .50 (Table 10) in the matrix respectively.

In this study, all the communalities were above .50 with minimum .55, maximum .82, and mean .70 (Table 8). This commonality values satisfies a report that the solution using PCA shall explain more than half of each original variable's variance, therefore, communalities for each variable shall be > .50 [93].

After satisfying the important requirements, an important step was to fine out the number of components, since PCA is a reduction technique. Therefore, latent root criterion and eigenvalues were methods used to determine the number of components.

Firstly, the latent root criterion for number of components to be extracted showed 5 components (Table 11). However, a 4-component solution was preferred because of inadequate number of primary loadings [97].

Secondly, the initial eigenvalues component explanations were component 1 (20.29%), component 2 (15.75%), component 3 (14.26%), component 4 (11.94%), and component 5 (8.04%). The examinations of eigenvalues were by varimax rotations of the component-loadings. A 4-component solution, was preferred because the cumulative proportion of variance criteria (62.24%) (Table 12) can be satisfied. It has been recommended that the criterion of explaining > 60% of the total variance should be satisfied [92].

Furthermore, the number of primary loadings is also important in determining number of components [97]. Determination of the principal components (sometimes referred to as number of components or variables) is very critical. According to some researchers a minimum of 3 variables per component is critical [98, 99]. It has also been recommended that at least 4 measured variables for each common component and perhaps up to 6 [100]. It has been said that components with less than 3 items are generally weak and unstable [100].

There has been limited number of studies that considers patients perception of communication between themselves and nurses, midwives and doctors in Ghana. However, there are a few related studies in African countries and other countries.

In this study, there was an additional eight questions on information regarding treatment (8QIRT). This has a correlation with a related study by Gulbrandsen et al. [6], that the “Four Habits” [6] was applicable to doctors with some modifications.

In this study, the results showed that from the component 2 (advantages and disadvantages of treatment not explained to patients) is very important. This study, has confirmed a study in Nigeria that 53% of outpatients were not provided with enough information on their diseases [24].

Furthermore, this study showed that nurses, midwives and doctors do not provide information on patients' treatment. This has been confirmed by a related study which reported that a further indicator of quality was proportion of respondents who were told their diagnosis or informed about the management of their illness and that it was low (43%) [25].

An interesting result in this study was with the component with low item loadings. The component 5 had low loadings of two components. This is understandable because the first item "doctors' knowledge of important information about patients medical history" will be very difficult for a patient to know nurses, midwives, and doctors knowledge level since doctors knowledge cannot be assess by just patients short period of interaction. Importantly, assessment of knowledge is very subjective. It is therefore, not surprising that this item had poor loadings. In contrast, the item 2 "doctor meet patients that put them at ease?" which also had low loadings was rather surprising because one will expect patients to be very much interested in doctors and nurses putting them at ease. However, this may be explained by the paternalistic [101] nature of nurses, midwives, and doctors in Africa, especially Ghana, where children are trained not to question the elderly or people in authority. This kind of training is usually transferred to many situations even to nurses, midwives and doctors.

In this study, item 14 (Did the doctor encourage you to be as much involved as you would like in the decisions about your healthcare?) had no loadings. This is rather interesting since it was not related to the other items. Either probably participants did not understand the question or it could stand alone without any relationship with the other items.

In this study, the findings using the means and standard deviations were that the additional eight questions on information regarding treatment (8QIRT) were least ranked. On the "Four Habits Model" [6], Habit IV (invest in the end) was least ranked, followed by Habit III (demonstrate empathy), then Habit II (elicit patient's perspective), and then Habit I (invest in the beginning). These findings are consistent with a related study using the "Four Habits" [6] at a Norwegian hospital with doctors [6].

## 5.2 Discussions of the intervention study

The objectives of the intervention study were six. There was one primary research objective and five secondary research objectives. The primary research objective was to compare the outcome of empathy of a 2-day communication skills training (CST) in an intervention and control group of nursing and midwifery students in a randomised controlled trial (RCT).

This was followed by secondary research objectives to compare the outcome of communicative competence outcome, communication skills - positive attitude, communication skills - negative attitude, and self-efficacy of a 2-day CST in an intervention and control group of nursing and midwifery students in a RCT. A further objective was to describe relationship among the CST, the outcome measures and the demographic variables of this study.

Generally, the findings from this intervention study were that there was no statistically significant difference between the two groups for all the outcome measures. However, there were slight increases in the mean scores from baseline to post-test.

### 5.2.1 Empathy

In this study, empathy showed no statistically significant difference between the groups $F(1, 171) = .18$, $\rho = .675$. Even though there were slight increases from baseline - T1 (M = 109.75; SD = 9.76) to post-test - T2 (M = 111.85; SD = 8.95) and from baseline - T1 (M = 107.93; SD = 11.46); to post-test - T2 (M = 110.01; SD = 11.03), in both groups respectively (Table 24). The findings from this study are in contrast to the findings from a similar study that showed enhancement of empathy in nurses [102].

Research has shown that there are a number of studies that doubt the effectiveness of empathy training programmes in nursing education [38, 64, 103–109]. A study by La Monica et al. [104] did not find improvement empathy outcomes. In a related study, they found stability in empathy after a short-term education (M = 20.7–22.6; SD = 3.0–5.0) [105]. In another research, it was reported that empathy was stable [106]. This stability of empathy in nursing and midwifery students has also been confirmed in other studies [107, 109].

In contrast, this study does not support other researchers' [110, 111] findings that empathy can be significantly enhanced with CST. A study with nursing students resulted in reasonable increase in empathy scores (M = 88.63; SD = 8.93) [110]. Further in contrast, another study found statistically significant effect in empathy scores following a training [111].

Research has demonstrated that there are some relationship between empathy and

demographic variables of gender, education, and experience. In this study, there were no significantly significant differences in empathy and the demographic variables of gender, age, marital status, specialisation, religion, number of children, ethnicity between the both groups. The findings from this study, are inconsistent with other studies [102, 110–118] where females empathy scores are reported to be higher than males. For example, a study has demonstrated statistical significance in females empathy than males ($\rho < 0.001$) [110]. In addition, female were reported to showed increased in mean empathy score than male colleagues, $M = 5.55$, SD =0.46) and ($M = 5.35$, SD = 0.55 [115] respectively.

This has further been buttressed in another study where the mean females empathy score (M = 110.8; SD = 11.7) was reportedly higher than that of males (M = 105.3; SD = 13.5; $\rho$ = 0.0001; d = 0.44) [111]. In contrast there have been report of stability in empathy between females and males [118].

Despite the above evidence of empathy in nursing research in the short term following empathy training, there have been some doubts on empathy follow-up research [113, 119, 120]. In this study, empathy did not show any statistical significant difference between the groups in a follow-up after 6 months. There is a consistent study with this current study that, nursing empathy after training did not find empathy improvement after 5 times measurement [$F(1, 29) = 3.91$, $\rho < 0.06$] [119]. This doubt in follow-up has also been reported in an earlier study by Daniels et al. [66].

In contrast, a another study found empathy increased 3-months after CST [120].

However, a study reported decreases in empathy as student advance through their nursing programme [54].

It has also been found by some researchers' that there is a positive correlation between nursing students empathy positive patient consequences [121–124]. Yu and Kirk [125], In a systematic review of measurement of empathy in nursing research indicated that in 8 appraisal researches, there were enhancement of empathy levels of students but that it was unclear if such enhancement was sustainable.

### 5.2.2 Communicative competence

In this study, communicative competence showed no statistically significant difference in the communicative competence scores between the groups ($F$ (1,171) = 1.53 $\rho$ = .218). The results showed no changes in scores between the groups from baseline - T1 (M = 131.90; SD = 11.29) to post-test - T2 (M = 132.25; SD = 11.15) and from baseline - T1 (M = 133.64; SD =

12.89); to post-test - T2 (M = 133.65; SD = 12.89), respectively. However, there were slight increases in both groups from baseline - T2 (M = 131.90; SD = 11.29) to Follow-up after 6 months – T3 (M = 132.86; SD = 11.07) and baseline - T2 (M = 133.65; SD = 12.89) to Follow-up after 6 months - T3 (M = 134.80; SD = 10.98) respectively (Table 26).

This study has rather contradicted a study by Park et al. [126], where nurses communication competence were reported have high scores following a training. That report also indicated that communication education had effect on communication competence [126]. In addition, a study on communicative competence found that people in conversations after a time lapse graded one another lesser on communicative competence [127].

A study has found that communicative competence is associated with communication adaptableness and trait self-rated competence [82]. It has been reported that partners rated their partners higher in conversations than did observers [82].

Douglas [128] has reported contrary relationships between communicative competence and fear. However, Query et al. [84] found that non-traditional students with an extraordinary communicative competence, had a lot of social support and satisfaction with these supports.

### 5.2.3 Communication skills attitude

In this study, there was no statistically significant difference in the communication skills - positive attitude scores between the groups $F(1, 171) = 2.43$, $\rho = .121$ (Table 29). This study results showed no changes in both groups from baseline - T1 to post-test - T2 and follow-up after 6 months - T3. In the intervention group the baseline - T1 (M = 51.73; 4.89) to post-test - T2 (M = 51.76; SD = 4.88) and follow-up after 6 months - T3 (M = 50.67; SD 4.81) showed no changes as well (Table 28).

However, this study showed there were slight decreases in the mean score of communication skills - negative attitude in both groups, but no relevant enhancement. The slight decrease in both groups were from baseline - T1 (M = 46.80; SD = 5.58) to post-test - T2 (M = 44.89; SD = 5.48) and from baseline - T1 (M = 47.10; SD = 5.46); to post-test - T2 (M = 45.50; SD = 5.03), respectively (Table 30).

These decreases in negative attitude were sustained in both groups from baseline - T1 (M = 46.80; SD = 5.58) to follow-up after 6 months - T3 (M = 44.76; SD = 5.98) and from baseline - T1 (M = 47.10; SD = 5.46); to follow-up after 6 months - T3 (M = 44.630; SD = 6.40), respectively (Table 30).

This means that whiles communication skills - negative attitude may improve slightly in the short term and possibly in 6-month follow-up, communication skills - positive attitude is not amenable to short term CST.

The findings from this study are contrary to a study that detected statistically significant differences between male and female students in attitudes toward learning communication skills ($\rho < 0.05$) [129].

### 5.2.4 Self-efficacy

In this study, there was no statistically significant difference in the self-efficacy scores between the groups $F(1, 171) = .03$, $\rho = .860$ (Table 33). However, the results showed that scores of self-efficacy had increased by 3.9 points in the intervention group from baseline - T1 (M = 131.84; SD = 28.72) to post-test - T2 (M = 135.74; SD 25.49). However, that of the control showed no significant changes from baseline - T1 (M = 135.43; SD = 31.84) to post-test - T2 (M = 136.45; SD 26.70). In the follow-up after 6 months, both groups had increases in self-efficacy (Table 32).

The increases were maintained in both groups from baseline - T1 (M = 131.84; SD = 28.72) to follow-up after 6 months - T3 (M = 141.06; SD = 26.03) and from baseline - T1 (M = 135.43; SD = 31.84); to follow-up after 6 months - T3 (M = 138.50; SD = 29.00), respectively (Table 32).

The findings in this research contradicts the findings by Ford-Gilboe [130] that perceived self-efficacy for nursing students had statistical significant effect (lambda = .80, $\rho <$ .001).

Furthermore, other studies have demonstrated effectiveness of training in self-efficacy [109, 131, 132]. Lauder et al. [109], in a comparative study found correlation between self-efficacy and the self-reported confidence among nursing students. More so in another related study nursing students' scored significantly high on their self-efficacy after training (t = -4.268, df = 41,= 0.000) [131]. In addition, self-efficacy in communication with patients and in communication with co-workers improved from 6.68 to 7.88 ($\rho < .001$) and from 6.85 to 7.84 ($\rho < .001$) [132] respectively after training.

On the other hand, a study by Cardoza and Hood [133] examined senior nursing students' (N = 15) self-efficacy for providing family-centred care before and after simulated laboratory scenarios. They reported that the senior students had an unrealistically high-perceived level of self-efficacy prior to the simulated experiences as compared to the subsequent evaluations of their actual performance in a simulation laboratory.

However, there is a study that is contrary to this current study that self-efficacy declines with training [134]. That study reported general self-efficacy score of female students (90.45 ± 15.05) to be lower than male students (93.20 ± 12.53), following a training session, but did not show any statistical significance ($\rho > 0.05$) [134].

In contrast, self-efficacy has been reported to be significant in an experimental group ($\rho < .01$). However, the researcher indicated there was no correlation between self-efficacy and knowledge [135]. Furthermore, in another communication skills training (CST), self-efficacy was reported not to be correlated with performance at baseline ($r = -0.16$; $\rho = 0.22$) [136].

## 5.3 Relationship of this study to other studies

The results from this study confirms previous studies findings on nursing and midwifery training that empathy cannot be enhanced in a short period following CST [105–109, 118, 119]. With these similar finding, there is the need for further studies to determine the effectiveness of communication skills training in enhancing nursing and midwifery students' empathy,

Most of the studies have focused on empathy levels of nurses, differences in empathy, relationship between empathy and demographics variables [125]. However, there are limited studies in the area of empathy in nursing and midwifery students (NMS). There are varied studies and the results from the previous studies show low [66, 121], moderately enhanced [102, 137] and high levels [102, 108, 137–141] of self-reported nurses' empathy. Other findings on nursing and midwifery training have contradicted this current study by indicating that empathy can be enhance with training [110, 111, 117]. However, some studies have found that nursing and midwifery students empathy actually decreases after training [54, 142].

Other variables like age, gender, education, religion have been considered in research. In the literature just one study considered care nurses' empathy and variables such as gender, duration of practice, educational level and occupational position [102].

In the literature some other studies have considered communicative competence [82–84, 126–128, 143] communication skills attitude [129, 144–146], and self-efficacy [109, 130–136] using nursing and midwifery students.

Despite the fact that some studies have focused on empathy training among healthcare professionals including nursing and midwifery students in other countries, there are no known study in Ghana. This study will therefore add to the literature on how best to enhance communication skills training.

## 5.4 Strengths and limitations of this study

The strength of this study is the use of nursing and midwifery students who were actively involved. The use of various methods like group discussions, role-plays, videos, short presentations, and brainstorming sessions in the delivery of the communication skills training (CST) was a also a positive development, since such methods takes care of individual differences.

Some limitations of this study are the generalisation of the results to other healthcare professionals. As a self-report outcome, results of this study cannot be generalised beyond the characteristics of this sample. More so, this study used one location due to financial and time constraints and future studies should consider multi-location study across the country, which could yield a better comparison.

The population of study could also pose a limitation on generalisation. This is because the sample was from a developing country and the characteristics of the students are completely different.

Confounding factors can also limit the generalisability of this study, the study could not control for interaction between the groups during the period of the study. This could lead to the problem of contamination between the groups (that is those in the intervention group talking to those in the control group after their days training sessions). This is because the intervention group after having their CST go back to their halls of residence and may interact with the control group.

# 6 Conclusions

## 6.1 Conclusions of the explorative study

The findings from this study, shows that the Four Habit Patient Questionnaire (4HPQ) [20] could be reliable and valid to assess patients' heath communication needs not only in developed countries but equally in developing countries.

From this study, patients will want certain issues to be addressed by their healthcare providers. Some of the issues are; patients are not allowed to express themselves, advantages and disadvantages of treatment not explained to patients, doctors/nurses do not display empathy towards patients, and nurses, midwives and doctors do not provide information on patients' treatment. Therefore, the explorative study using the "Four Habits" [6] is applicable in assessing patients' health communication needs. The "Four Habits" [6] is indicative of how patients heath communication needs can be assessed.

These findings guided the author in an RCT for communication skills training (CST) for nursing and midwifery student that was conducted.

## 6.2 Conclusions of the intervention study

This is the first RCT using communication skills training (CST) in a nursing and midwifery school in Ghana. The intervention study has shown that empathy, communicative competence, communication skills - positive, communication skills - negative attitude and self-efficacy may not be enhanced within short period after communication skills training (CST).

A study of this nature can better be evaluated by multi-centre location in RCT across the 10 regions of Ghana. This may offer a much better comparison.

## 6.3 Recommendations

Despite the limitations and strengths of this current study, the following recommendations are made for future studies. This communication skills training (CST), had used a 2-day training period. A longer training period could have offered a better comparison. It does look like participants did not have the opportunity to read and reflect on the 2-day training before having a post-test. This study used one location and a multi-centre location in RCT across several nursing and midwifery schools probably could provide better outcomes.

This study explored the effect CST the in post-test and 6-months post-training, however, the long-term examination could have been very useful. Further studies exploring the longer-term impact of the CST in other healthcare professionals and multi-location using cluster

sampling may be beneficial. There is the need for additional studies to find out which aspects of CST for nursing and midwifery students will enhance empathy, communicative competence, communication skills - positive attitude, communication skills - negative attitude, and self-efficacy.

# References

1. Carper B: Fundamental patterns of knowing in nursing. *ANS Adv Nurs Sci* **1978**, 1:13–23.

2. KathleenDunne: Effective communication in palliative care. *Nurs Stand* **2005**, 20:57–64.

3. Sheldon LK: *Communication for Nurses: Talking with Patients*. Jones & Bartlett Learning; **2009**.

4. Fakhr-Movahedi A, Salsali M, Negharandeh R, Rahnavard Z: A qualitative content analysis of nurse-patient communication in Iranian nursing. *Int Nurs Rev* **2011,** 58:171–180.

5. Laaser U, Brand H: Global health in the 21st century. *Glob Health Action* **2014**, 7.

6. Gulbrandsen P, Krupat E, Benth JS, Garratt A, Safran DG, Finset A, Frankel R: "Four Habits" goes abroad: report from a pilot study in Norway. *Patient Educ Couns* **2008**, 72:388–393.

7. McCormack B, McCance T: *Person-Centred Nursing: Theory and Practice*. Wiley; **2010**.

8. Clever SL, Jin L, Levinson W, Meltzer DO: Does Doctor–Patient Communication Affect Patient Satisfaction with Hospital Care? Results of an Analysis with a Novel Instrumental Variable. *Health Serv Res* **2008**, 43(5 Pt 1):1505–1519.

9. Roter DL, Hall JA, Kern DE, Barker LR, Cole KA, Roca RP: Improving physicians' interviewing skills and reducing patients' emotional distress. A randomized clinical trial. *Arch Intern Med* **1995**, 155:1877–1884.

10. Parle M, Jones B, Maguire P: Maladaptive coping and affective disorders among cancer patients. *Psychol Med* **1996**, 26:735–744.

11. Ramirez AJ, Graham J, Richards MA, Cull A, Gregory WM: Mental health of hospital consultants: the effects of stress and satisfaction at work. *Lancet* **1996**, 347:724–728.

12. Bertakis KD, Azari R: Patient-Centered Care is Associated with Decreased Health Care Utilization. *J Am Board Fam Med* **2011**, 24:229–239.

13. Frankel RM, Stein T: Getting the most out of the clinical encounter: the four habits model. *J Med Pract Manag MPM* **2001**, 16:184–191.

14. Stein T, Frankel RM, Krupat E: Enhancing clinician communication skills in a large healthcare organization: A longitudinal case study. *Patient Educ Couns* **2005**, 58:4–12.

15. Roter DL: Physician/patient communication: transmission of information and patient effects. *Md State Med J* **1983**, 32:260–265.

16. Roter DL: Patient question asking in physician-patient interaction. *Health Psychol Off J Div Health Psychol Am Psychol Assoc* **1984**, 3:395–409.

17. ACOG Committee Opinion No. 587: Effective patient-physician communication. *Obstet Gynecol* **2014**, 123(2 Pt 1):389–393.

18. Rogers CR: *Client-Centred Therapy: Its Current Practice, Implications and Theory*. Houghton Mifflin; **1951**.

19. Egan G: *The Skilled Helper: A Problem-Management and Opportunity-Development Approach to Helping*. Cengage Learning; **2013**.

20. Fossli Jensen B, Dahl FA, Safran DG, Garratt AM, Krupat E, Finset A, Gulbrandsen P: The ability of a behaviour-specific patient questionnaire to identify poorly performing doctors. *BMJ Qual Saf* **2011**, 20:885–893.

21. Powell RA, Single HM: Focus groups. *Int J Qual Health Care J Int Soc Qual Health Care ISQua* **1996**, 8:499–504.

22. Kitzinger J: Qualitative research. Introducing focus groups. *BMJ* **1995**, 311:299–302.

23. Morgan DL: *Focus Groups as Qualitative Research*. SAGE Publications; **1996**.

24. Akande TM: Patients' Perception on Communication Between Patients and Doctors in a Teaching Hospital. *Sahel Med J* **2002**, 5:178–181.

25. Turkson PK: Perceived Quality of Healthcare Delivery in a Rural District of Ghana. *Ghana Med J* **2009**, 43:65–70.

26. Fossli Jensen B, Gulbrandsen P, Benth JS, Dahl FA, Krupat E, Finset A: Interrater reliability for the Four Habits Coding Scheme as part of a randomized controlled trial. *Patient Educ Couns* **2010**, 80:405–409.

27. Krupat E, Frankel R, Stein T, Irish J: The Four Habits Coding Scheme: validation of an instrument to assess clinicians' communication behavior. *Patient Educ Couns* **2006,** 62:38–45.

28. Shapiro SS, Wilk MB: An Analysis of Variance Test for Normality (Complete Samples). *Biometrika* **1965**, 52(3/4):591–611.

29. Razali NM, Wah YB: Power comparisons of shapiro-wilk, kolmogorov-smirnov, lilliefors and anderson-darling tests. *J Stat Model Anal* **2011**, 2:21–33.

30. Bryant FB, Yarnold PR: Principal-components analysis and exploratory and confirmatory factor analysis. In *Reading and understanding multivariate statistics*. Edited by Grimm LG, Yarnold PR. Washington, DC, US: American Psychological Association; **1995**:99–136.

31. Garson GD: *Guide to Writing Empirical Papers, Theses, and Dissertations*. CRC Press; **2001.**

32. Gorsuch RL: *Factor Analysis*. Psychology Press; **2013**.

33. Hekkink CF, Sixma HJ, Wigersma L, Yzermans CJ, Van Der Meer JTM, Bindels PJE, Brinkman K, Danner SA: QUOTE-HIV: an instrument for assessing quality of HIV care from the patients' perspective. *Qual Saf Health Care* **2003**, 12:188–193.

34. Ajayi IO, Olumide EA, Oyediran O: Patient satisfaction with the services provided at a general outpatients' clinic, Ibadan, Oyo State, Nigeria. *Afr J Med Med Sci* **2005**, 34:133–140.

35. Ariba AJ, Thanni LOA, Adebayo EO: Patients' perception of quality of emergency care in a Nigerian teaching hospital: The influence of patient-provider interactions. *Niger Postgrad Med J* **2007**, 14:296–301.

36. America C on Q of HC in, Medicine I of: *To Err Is Human:: Building a Safer Health System*. National Academies Press; **2000**.

37. Maguire P, Pitceathly C: Key communication skills and how to acquire them. *BMJ* **2002**, 325:697–700.

38. Okaya K: Reliance between a patient and a nurse. *Nurs Today* **1995**, 10:6–11.

39. Schuster PM: *Communication: The Key to the Therapeutic Relationship*. F.A. Davis; **2000.**

40. Ito M, Lambert VA: Communication effectiveness of nurses working in a variety of settings within one large university teaching hospital in western Japan. *Nurs Health Sci* **2002**, 4:149–153.

41. Stewart MA: Effective physician-patient communication and health outcomes: a review. *CMAJ Can Med Assoc J J Assoc Medicale Can* **1995**, 152:1423–1433.

42. Stewart M, Brown JB, Boon H, Galajda J, Meredith L, Sangster M: Evidence on patient-doctor communication. *Cancer Prev Control CPC Prév Contrô En Cancérologie PCC* **1999**, 3:25–30.

43. Mullan BA, Kothe EJ: Evaluating a nursing communication skills training course: The relationships between self-rated ability, satisfaction, and actual performance. *Nurse Educ Pract* **2010**, 10:374–378.

44. Wikström B-M, Svidén G: Exploring communication skills training in undergraduate nurse education by means of a curriculum. *Nurs Rep* **2011**, 1:7.

45. Thomas CM, Bertram E, Johnson D: The SBAR communication technique: teaching nursing students professional communication skills. *Nurse Educ* **2009**, 34:176–180.

46. Weissman GV: Evaluating associate degree nursing students' self-efficacy in communication skills and attitudes in caring for the dying patient. *Teach Learn Nurs* **2011**, 6:64–72.

47. (CSFN.) CT, Lillis C, LeMone P: *Fundamentals of Nursing: The Art and Science of Nursing Care*. Wolters Kluwer Health/Lippincott Williams & Wilkins; **2011**.

48. Evans RG: Patient centred medicine: reason, emotion, and human spirit? Some philosophical reflections on being with patients. *Med Humanit* **2003**, 29:8–14.

49. Parry RH, Brown K: Teaching and learning communication skills in physiotherapy: what is done and how should it be done? *Physiotherapy* **2009,** 95:294–301.

50. Ahsen NF, Batul SA, Ahmed AN, Imam SZ, Iqbal H, Shamshair K, Ali H: Developing counseling skills through pre-recorded videos and role play: a pre- and post-intervention study in a Pakistani medical school. *BMC Med Educ* **2010**, 10:7.

51. Alinier G, Hunt B, Gordon R, Harwood C: Effectiveness of intermediate-fidelity simulation training technology in undergraduate nursing education. *J Adv Nurs* **2006**, 54:359–369.

52. Tiffany J, Hoglund BA: Teaching/Learning in Second Life: Perspectives of Future Nurse-Educators. *Clin Simul Nurs* **2014**, 10:e19–e24.

53. Tschannen D, Aebersold M, McLaughlin E, Bowen J, Fairchild J: Use of virtual simulations for improving knowledge transfer among baccalaureate nursing students. *J Nurs Educ Pract* **2012,** 2:p15.

54. Fallowfield L, Jenkins V, Farewell V, Solis-Trapala I: Enduring impact of communication skills training: results of a 12-month follow-up. *Br J Cancer* **2003**, 89:1445–1449.

55. Morrison P, Burnard P: Students' and trained nurses' perceptions of their own interpersonal skills: a report and comparison. *J Adv Nurs* **1989**, 14:321–329.

56. Nelson-Jones R: *The Theory and Practice of Counselling*. Cassell; **1995.**

57. Ashmore R, Banks D: Student nurses perceptions of their interpersonal skills: a re-examination of Burnard and Morrison's findings. *Int J Nurs Stud* **1997**, 34:335–345.

58. Harden RM, Stevenson M, Downie WW, Wilson GM: Assessment of clinical competence using objective structured examination. *Br Med J* **1975**, 1:447–451.

59. Stillman PL, Wang Y, Ouyang Q, Zhang S, Yang Y, Sawyer WD: Teaching and assessing clinical skills: a competency-based programme in China. *Med Educ* **1997**, 31:33–40.

60. Zayyan M: Objective Structured Clinical Examination: The Assessment of Choice. *Oman Med J* **2011**, 26:219–222.

61. Hamann C, Volkan K, Fishman MB, Silvestri RC, Simon SR, Fletcher SW: How well do second-year students learn physical diagnosis? Observational study of an Objective Structured Clinical Examination (OSCE). *BMC Med Educ* **2002**, 2:1.

62. Chant S, Tim null, Randle J, Russell G, Webb C: Communication skills training in healthcare: a review of the literature. *Nurse Educ Today* **2002,** 22:189–202.

63. MacDonald-Wicks L, Levett-Jones T: Effective teaching of communication to health professional undergraduate and postgraduate students: A Systematic Review. *JBI Database Syst Rev Implement Rep* **2012**, 10(28 Suppl):172–183.

64. Moore PM, Rivera Mercado S, Grez Artigues M, Lawrie TA: Communication skills training for healthcare professionals working with people who have cancer. *Cochrane Database Syst Rev* **2013,** 3:CD003751.

65. Guyatt G, Oxman AD, Akl EA, Kunz R, Vist G, Brozek J, Norris S, Falck-Ytter Y, Glasziou P, DeBeer H, Jaeschke R, Rind D, Meerpohl J, Dahm P, Schünemann HJ: GRADE guidelines: 1. Introduction-GRADE evidence profiles and summary of findings tables. *J Clin Epidemiol* **2011**, 64:383–394.

66. Daniels TG, Denny A, Andrews D: Using microcounseling to teach RN nursing students skills of therapeutic communication. *J Nurs Educ* **1988**, 27:246–252.

67. Norris J: Teaching communication skills: effects of two methods of instruction and selected learner characteristics. *J Nurs Educ* **1986**, 25:102–106.

68. Baghcheghi N, Koohestani HR, Rezaei K: A comparison of the cooperative learning and traditional learning methods in theory classes on nursing students' communication skill with patients at clinical settings. *Nurse Educ Today* **2011,** 31:877–882.

69. Hsu L-L, Chang W-H, Hsieh S-I: The effects of scenario-based simulation course training on nurses' communication competence and self-efficacy: a randomized controlled trial. *J Prof Nurs Off J Am Assoc Coll Nurs* **2015**, 31:37–49.

70. Lau Y, Wang W: Development and evaluation of a learner-centered training course on communication skills for baccalaureate nursing students. *Nurse Educ Today* **2013**, 33:1617–1623.

71. McDaniel C: Enhancing nursing student communication: experimental study. *Nurse Educ* **1992**, 17:6.

72. Ozcan C t., Oflaz F, Bakir B: The effect of a structured empathy course on the students of a medical and a nursing school. *Int Nurs Rev* **2012**, 59:532–538.

73. Yoo MS, Chae S-M: Effects of peer review on communication skills and learning motivation among nursing students. *J Nurs Educ* **2011**, 50:230–233.

74. Zavertnik JE, Huff TA, Munro CL: Innovative Approach to Teaching Communication Skills to Nursing Students. *J Nurs Educ* **2010**, 49:65–71.

75. Moher D, Liberati A, Tetzlaff J, Altman DG: Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *BMJ* **2009**, 339:b2535.

76. Bland JM, Altman DG: Multiple significance tests: the Bonferroni method. *BMJ* **1995**, 310:170.

77. Hojat M, Mangione S, Nasca TJ, Cohen MJM, Gonnella JS, Erdmann JB, Veloski J, Magee M: The Jefferson Scale of Physician Empathy: Development and Preliminary Psychometric Data. *Educ Psychol Meas* **2001**, 61:349–365.

78. Wiemann JM: Explication and Test of a Model of Communicative Competence. *Hum Commun Res* **1977**, 3:195–213.

79. Rees C, Sheard C, Davies S: The development of a scale to measure medical students' attitudes towards communication skills learning: the Communication Skills Attitude Scale (CSAS). *Med Educ* **2002**, 36:141–147.

80. Parle M, Maguire P, Heaven C: The development of a training model to improve health professionals' skills, self-efficacy and outcome expectancies when communicating with cancer patients. *Soc Sci Med 1982* **1997**, 44:231–240.

81. Hojat M, Gonnella JS, Nasca TJ, Mangione S, Vergare M, Magee M: Physician empathy: definition, components, measurement, and relationship to gender and specialty. *Am J Psychiatry* **2002**, 159:1563–1569.

82. Cupach WR, Spitzberg BH: Trait versus state: A comparison of dispositional and situational measures of interpersonal communication competence. *West J Speech Commun* **1983**, 47:364–379.

83. Hazleton V, Cupach WR: An exploration of ontological knowledge: Communication competence as a function of the ability to describe, predict, and explain. *West J Speech Commun* **1986**, 50:119–132.

84. Query JL, Parry D, Flint LJ: The relationship among social support, communication competence, and cognitive depression for nontraditional students. *J Appl Commun Res* **1992,** 20:78–94.

85. Anvik T, Gude T, Grimstad H, Baerheim A, Fasmer OB, Hjortdahl P, Holen A, Risberg T, Vaglum P: Assessing medical students' attitudes towards learning communication skills – which components of attitudes do we measure? *BMC Med Educ* **2007**, 7:4.

86. Rees C, Sheard C: Evaluating first-year medical students' attitudes to learning communication skills before and after a communication skills course. *Med Teach* 2003, 25:302–307.

87. Cleland J, Foster K, Moffat M: Undergraduate students' attitudes to communication skills learning differ depending on year of study and gender. *Med Teach* **2005**, 27:246–251.

88. Shankar RP, Dubey AK, Mishra P, Deshpande VY, Chandrasekhar TS, Shivananda PG: Student attitudes towards communication skills training in a medical college in Western Nepal. *Educ Health Abingdon Engl* **2006,** 19:71–84.

89. Harlak H, Dereboy C, Gemalmaz A: Validation of a Turkish translation of the Communication Skills Attitude Scale with Turkish medical students. *Educ Health Abingdon Engl* **2008**, 21:55.

90. Ammentorp J, Sabroe S, Kofoed P-E, Mainz J: The effect of training in communication skills on medical doctors' and nurses' self-efficacy. A randomized controlled trial. *Patient Educ Couns* **2007**, 66:270–277.

91. Ammentorp J, Kofoed P-E: Coach training can improve the self-efficacy of neonatal nurses. A pilot study. *Patient Educ Couns* **2010**, 79:258–261.

92. Kaiser HF: The varimax criterion for analytic rotation in factor analysis. *Psychometrika* **1958,** 23:187–200.

93. Meyers LS, Gamst G, Guarino AJ: *Applied Multivariate Research: Design and Interpretation*. SAGE Publications; **2012.**

94. Snecdecor GW, Cochran WG: *Statistical Methods*. Wiley; **1991.**

95. Norman GR, Streiner DL: *Biostatistics: The Bare Essentials*. PMPH-USA; **2008.**

96. Tabachnick BG, Fidell LS: *Using Multivariate Statistics*. Pearson Education; **2012**.

97. Hare B, Call J, Tomasello M: Communication of Food Location Between Human and Dog ( *Canis Familiaris* ). *Evol Commun* **1998**, 2:137–159.

98. Rindskopf D: Using phantom and imaginary latent variables to parameterize constraints in linear structural models. *Psychometrika* **1984**, 49:37–47.

99. Velicer WF, Fava JL: Affects of variable and subject sampling on factor pattern recovery. *Psychol Methods* **1998**, 3:231–251.

100. Fabrigar LR, Wegener DT, MacCallum RC, Strahan EJ: Evaluating the use of exploratory factor analysis in psychological research. *Psychol Methods* **1999**, 4:272–299.

101. Shiffrin SV: Paternalism, Unconscionability Doctrine, and Accommodation. *Philos Public Aff* **2000**, 29:205–250.

102. Bailey S: Levels of empathy of critical care nurses. *Aust Crit Care Off J Confed Aust Crit Care Nurses* **1996**, 9:121–127.

103. Alligood MR: Empathy: the importance of recognizing two types. *J Psychosoc Nurs Ment Health Serv* **1992**, 30:14–17.

104. la Monica EL, Wolf RM, Madea AR, Oberst MT: Empathy and nursing care outcomes. *Sch Inq Nurs Pract* **1987**, 1:197–213.

105. Reynolds WJ, Presly AS: A study of empathy in student nurses. *Nurse Educ Today* **1988,** 8:123–130.

106. Hodges SA: An experiment in the development of empathy in student nurses. *J Adv Nurs* **1991**, 16:1296–1300.

107. Williams B, Brown T, Boyle M, McKenna L, Palermo C, Etherington J: Levels of empathy in undergraduate emergency health, nursing, and midwifery students: a longitudinal study. *Adv Med Educ Pract* **2014**, 5:299–306.

108. Pålsson MB, Hallberg IR, Norberg A, Björvell H: Burnout, empathy and sense of coherence among Swedish district nurses before and after systematic clinical supervision. *Scand J Caring Sci* **1996**, 10:19–26.

109. Lauder W, Reynolds W, Smith A, Sharkey S: A comparison of therapeutic commitment, role support, role competency and empathy in three cohorts of nursing students. *J Psychiatr Ment Health Nurs* **2002**, 9:483–491.

110. Ouzouni C, Nakakis K: An exploratory study of student nurses' empathy. *Health Sci J* **2012**, 6:534.

111. Cutcliffe JR, Cassedy P: The development of empathy in students on a short, skills based counselling course: a pilot study. *Nurse Educ Today* **1999,** 19:250–257.

112. Chen D, Lew R, Hershman W, Orlander J: A cross-sectional measurement of medical student empathy. *J Gen Intern Med* **2007**, 22:1434–1438.

113. Hojat M, Gonnella JS, Mangione S, Nasca TJ, Veloski JJ, Erdmann JB, Callahan CA, Magee M: Empathy in medical students as related to academic performance, clinical competence and gender. *Med Educ* **2002**, 36:522–527.

114. Kataoka HU, Koide N, Hojat M, Gonnella JS: Measurement and correlates of empathy among female Japanese physicians. *BMC Med Educ* **2012**, 12:48.

115. Tavakol S, Dennick R, Tavakol M: Empathy in UK medical students: differences by gender, medical year and specialty interest. *Educ Prim Care Off Publ Assoc Course Organ Natl Assoc GP Tutors World Organ Fam Dr* **2011**, 22:297–303.

116. DeVellis RF: *Scale Development: Theory and Applications*. SAGE; **2012**.

117. Williams B, Brown T, McKenna L, Boyle MJ, Palermo C, Nestel D, Brightwell R, McCall L, Russo V: Empathy levels among health professional students: a cross-sectional study at two universities in Australia. *Adv Med Educ Pract* **2014,** 5:107–113.

118. Kliszcz J, Nowicka-Sauer K, Trzeciak B, Nowak P, Sadowska A: Empathy in health care providers--validation study of the Polish version of the Jefferson Scale of Empathy. *Adv Med Sci* **2006**, 51:219–225.

119. Evans GW, Wilt DL, Alligood MR, O'Neil M: Empathy: a study of two types. *Issues Ment Health Nurs* **1998**, 19:453–461.

120. Yates P, Hart G, Clinton M, McGrath P, Gartry D: Exploring empathy as a variable in the evaluation of professional development programs for palliative care nurses. *Cancer Nurs* **1998**, 21:402–410.

121. Reid-Ponte P: Distress in cancer patients and primary nurses' empathy skills. *Cancer Nurs* **1992**, 15:283–292.

122. Murphy PA, Forrester DA, Price DM, Monaghan JF: Empathy of intensive care nurses and critical care family needs assessment. *Heart Lung J Crit Care* **1992**, 21:25–30.

123. Olson JK: Relationships between nurse-expressed empathy, patient-perceived empathy and patient distress. *Image-- J Nurs Scholarsh* **1995**, 27:317–322.

124. Olson J, Hanchett E: Nurse-expressed empathy, patient outcomes, and development of a middle-range theory. *Image-- J Nurs Scholarsh* **1997**, 29:71–76.

125. Yu J, Kirk M: Measurement of empathy in nursing research: systematic review. *J Adv Nurs* **2008**, 64:440–454.

126. Park MS, Jeoung Y, Lee HK, Sok SR: Relationships Among Communication Competence, Self-Efficacy, and Job Satisfaction in Korean Nurses Working in the Emergency Medical Center Setting. *J Nurs Res JNR* 2015.

127. McLAUGHLIN ML, Cody MJ: Awkward Silences: Behavioral Antecedents and Consequences of the Conversational Lapse. *Hum Commun Res* **1982**, 8:299–316.

128. Douglas W: Expectations About Initial Interaction An Examination of the Effects of Global Uncertainty. *Hum Commun Res* **1991**, 17:355–384.

129. Fazel I, Aghamolaei T: Attitudes toward learning communication skills among medical students of a university in Iran. *Acta Med Iran* **2011**, 49:625–629.

130. Ford-Gilboe M, Laschinger HS, Laforet-Fliesser Y, Ward-Griffin C, Foran S: The effect of a clinical practicum on undergraduate nursing students' self-efficacy for community-based family nursing practice. *J Nurs Educ* **1997**, 36:212–219.

131. Smid MK: *Nursing Students' Self Efficacy Following Participation in a Service Learning Teaching Activity*. College of Saint Mary; **2009**.

132. Nørgaard B, Ammentorp J, Ohm Kyvik K, Kofoed P-E: Communication skills training increases self-efficacy of health care professionals. *J Contin Educ Health Prof* **2012**, 32:90–97.

133. Cardoza MP, Hood PA: Comparative study of baccalaureate nursing student self-efficacy before and after simulation. *Comput Inform Nurs CIN* **2012**, 30:142–147.

134. Karabacak Ü, Serbest Ş, Kan Öntürk Z, Eti Aslan F, Olgun N: Relationship between student nurses' self-efficacy and psychomotor skills competence. *Int J Nurs Pract* **2013**, 19:124–130.

135. Shinnick MA, Woo MA: Does Nursing Student Self-efficacy Correlate with Knowledge When Using Human Patient Simulation? *Clin Simul Nurs* **2014**, 10:e71–e79.

136. Gulbrandsen P, Jensen BF, Finset A, Blanch-Hartigan D: Long-term effect of communication training on the relationship between physicians' self-efficacy and performance. *Patient Educ Couns* **2013**, 91:180–185.

137. Watt-Watson J, Garfinkel P, Gallop R, Stevens B, Streiner D: The impact of nurses' empathic responses on patients' pain management in acute care. *Nurs Res* **2000**, 49:191–200.

138. Aström S, Nilsson M, Norberg A, Winblad B: Empathy, experience of burnout and attitudes towards demented patients among nursing staff in geriatric care. *J Adv Nurs* 1990, 15:1236–1244.

139. Aström S, Nilsson M, Norberg A, Sandman PO, Winblad B: Staff burnout in dementia care--relations to empathy and attitudes. *Int J Nurs Stud* **1991**, 28:65–75.

140. Warner RS: Nurses' empathy and patients' satisfaction with nursing care. *J N Y State Nurses Assoc* **1992**, 23:8–11.

141. Kuremyr D, Kihlgren M, Norberg A, Aström S, Karlsson I: Emotional experiences, empathy and burnout among staff caring for demented patients at a collective living unit and a nursing home. *J Adv Nurs* **1994,** 19:670–679.

142. Kazanowski MK, Bennett LA: Engendering Empathy in Baccalaureate Nursing Students. .

143. Street RL, Wiemann JM, Mulac A: Speech Evaluation Differences as a Function of Perspective (Participant Versus Observer) and Presentational Medium. *Hum Commun Res* **1988**, 14:333–363.

144. Delvaux N, Razavi D, Marchal S, Brédart A, Farvacques C, Slachmuylder J-L: Effects of a 105 hours psychological training program on attitudes, communication skills and occupational stress in oncology: a randomised study. *Br J Cancer* **2004**, 90:106–114.

145. Razavi D, Delvaux N, Marchal S, Bredart A, Farvacques C, Paesmans M: The effects of a 24-h psychological training program on attitudes, communication skills and occupational stress in oncology: a randomised study. *Eur J Cancer* **1993**, 29:1858–1863.

146. Nuraini T, Afifah E, Agustini N, Pujasari H, Masfuri M, Milanti A: Human patient simulation to improve the attitude of the nursing students. *J Nurs Educ Pract* **2015**, 5:p52.

# Appendices

## Appendix A: Research study introductory letter

CHARITÉ

CharitéCentrum für Human- und Gesundheitswissenschaften | ZHGB

Charité | Campus Mitte | 10098 Berlin

**Institut für Medizinische Psychologie**

Leitung: Prof. Dr. Christine Heim

Dr. Friederike Kendel
Luisenstraße 57
D-10117 Berlin
Tel.: +49 – 30 – 450 529 201
Fax: +49 – 30 – 450 529 990
E-Mail: friederike.kendel@charite.de
www.charite.de/medpsych

Berlin. den 11. März 2013

The Regional Director of Health Services
P. O. Box 99
Tamale
Ghana

Letter of Introduction

Dear Sir,

I wish to confirm and introduce Mr. Mustapha Alhassan as a Student of Charité - Universitätsmedizin Berlin, Institut für Medizinische Psychologie.

Mr. Alhassan is a DAAD Scholarship holder (German exchange service) at our University. With his research proposal he indicated that he would be collecting data in Ghana on the topic "Exploring the impact of Informed Consent on Patients well-being". Please note that the study will be conducted as academic research and the information you provide will be treated in the strictest confidence.

The main objective of this Research is that it would lead to the development of a Training Module which could be incorporated into the Medical Training Curriculum in Ghana. In the long run it could lead to effective and efficient communication between Physicians/Patients and Nurses/Patients which would help improve patients' recovery.

Please, could you give him permission to collect data from your hospitals for his research from 15th April to 30th June 2013.

I appreciate your cooperation. Thank you.

Sincerely yours

(Dr. Friederike Kendel)

CHARITÉ CAMPUS MITTE
UNIVERSITÄTSMEDIZIN BERLIN
Institut für Medizinische Psychologie
Luisenstraße 57 | D-10117 Berlin
Telefon: +49 (30) 450 - 52 92 22
Telefax: +49 (30) 450 - 52 99 90

## Appendix B: Study approval letter - Tamale Teaching Hospital

**Department of Research & Monitoring**
**Tamale Teaching Hospital**

TTH/R&M/SR/13/12

TO WHOM IT MAY CONCERN

**CERTIFICATE OF AUTHORIZATION TO CONDUCT RESEARCH IN TAMALE TEACHING HOSPITAL**

I hereby introduce to you **Mr. Mustapha Alhassan** student of **Charte Medical University, Berlin** who have been duly authorized by Management to conduct a Research on "Exploring the impact of informed consent on patients well-being"

Please accord him the necessary assistance to be able to complete his project. If in doubt, kindly contact the Research and Monitoring Department at the HR Office or on Telephone 0244853947. In addition, kindly report any misconduct of the Researcher to the above Research and Monitoring Department for necessary action, please.

Thank You.

SIMON YAO DZOKOTO
DD (RESEARCH & MONITORING)

## Appendix C: Study approval letter - Ghana Health Service

OUR CORE VALUES:
1. People-Centered
2. Professionalism
3. Team work
4. Innovation
5. Discipline
6. Integrity

My Ref GHS/NR/18-0/40
Your Ref. No:.....

GHANA HEALTH SERVICE

Reg. Health Directorate
P. O. Box 99
Tamale
Northern Region
Tel:
Fax:
E-mail:
5th May, 2013

**DATA COLLECTION BY MR. MUSTAPHA ALHASSAN**

Mr. Alhassan is a PHD student at the Institut fur Medizinische Psychologie and is undertaken a research on the Impact of Informed Consent on Patients Well-Being. He has selected your facility as one of the study sites for data collection for his project.

He has been granted the permission to use your facility as one of his study sites. Kindly accord him the necessary cooperation he may need

Thanks for your cooperation.

(Dr. Akwasi Twumasi)
RDHS

**DISTRIBUTION**

1. Tamale Central Hospital
2. Tamale West Hospital
3. Yendi Municipal Hospital
4. Salaga District Hospital

## Appendix D: JSE HPS – version, approval correspondents letter

**Alhassan, Mustapha**

| | |
|---|---|
| **Von:** | empathy svc <empathy@jefferson.edu> |
| **Gesendet:** | Freitag, 10. April 2015 00:00 |
| **An:** | Alhassan, Mustapha |
| **Cc:** | Mohammadreza Hojat; Wilm, Stefan, Prof. Dr. |
| **Betreff:** | RE: Request for the Student Version of Jefferson Scale Empathy (JSE) health professions students (HPS version) |
| **Anlagen:** | User's Guide.pdf; Scoring Algorithm.pdf; Empathy for HP Students (HPS Version 1 2 1).pdf |

Dear Mustapha,

Thank you for the explanation of your research study. I have also received confirmation from your sponsor, Dr. Wilm.

With your agreement to all conditions stated in our previous emails, you have our permission to make 260 copies of the JSE HPS-version for the single not-for-profit study that you described. I have attached a copy of the scale, the User's Guide and the scoring algorithm.

We wish you luck with your research! Please keep us informed of your progress.
Kind regards,
Kaye

**Kaye Maxwell**
Empathy Projects
Thomas Jefferson University
Center for Research in Medical Education and Health Care
Phone: 215-955-6907
Cell: 610-639-6823 (preferred)
http://www.jefferson.edu/university/jmc/crmehc/jse.html

---

**From:** Mustapha.Alhassan@med.uni-duesseldorf.de [mailto:Mustapha.Alhassan@med.uni-duesseldorf.de]
**Sent:** Monday, February 23, 2015 1:45 PM
**To:** empathy svc
**Cc:** Mohammadreza Hojat; Stefan.Wilm@med.uni-duesseldorf.de
**Subject:** RE: Request for the Student Version of Jefferson Scale Empathy (JSE) health professions students (HPS version)

Dear Ms Maxwell,

Thank you very much for your response.

Please find attached responses to the issues you raised.

My faculty sponsor, Professor Stefan Wilm (Stefan.Wilm@med.uni-duesseldorf.de), will send you a brief email to confirm the sponsorship. I have copied him in on this email.

Thank you very much in advance.

Yours sincerely

Mustapha Alhassan

1

## Appendix E: Intervention study questionnaires - JSE HPS-version communicative competences, communicative skills attitude scale, and self-efficacy

Jefferson.
HEALTH IS ALL WE DO

**Jefferson Scale of Empathy**

**Health Professions Student version (HPS- version)**

**Use a ball-point pen. Mark one response for each item below.**
**For *ID Code*, write numerals completely inside the boxes, one numeral to a box.**

**Name** (optional) _____ **ID Code**..... ☐☐☐☐☐☐☐☐☐

**Date** ____/____/_____

**Age:**

☐ < 19 ☐ 19 - 21 ☐ 22- 24 ☐ 25 - 27 ☐ 28 - 30 ☐ 31 - 33 ☐ 34 - 36
☐ 37 - 39 ☐ 40 - 42 ☐ 43 - 45 ☐ 46 - 48 ☐ 49 - 51 ☐ >51

**Gender:**

☐ Male ☐ Female

**What is your degree program?**

☐ Bioscience/Medical technology ☐ Counseling/Psychology ☐ Dentistry
☐ Diagnostic Imaging ☐ Nursing ☐ Nurse Practitioner
☐ Occupational Therapy ☐ Ophthalmology/Optometry ☐ Pharmacy
☐ Physical Therapy ☐ Physician Assistant ☐ Public Health
☐ Other _____

**Year in this program:**

☐ 1st year ☐ 2nd year ☐ 3rd year ☐ 4th year ☐ > 4th year

**Please leave *Optional* fields blank unless otherwise instructed.**

Optional field #1 .... ☐☐☐☐
Optional field #2 .... ☐☐☐☐

PLEASE CONTINUE ⇨⇨⇨

S E L F - S C O R E

206 Page 1

 140716 (ver. 1.2.1)


## Jefferson Scale of Empathy

**Health Professions Student version (HPS-version)**

***Instructions:*** Using a ball-point pen, please indicate the extent of your agreement or disagreement with *each* of the following statements by marking the appropriate circle to the right of each statement.

Please use the following 7-point scale (*a higher number on the scale indicates more agreement):*
Mark one and only one response for each statement.

*1——2——3——4——5——6——7*
***Strongly Disagree*** ***Strongly Agree***

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 1. Health care providers' understanding of their patients' feelings and the feelings of their patients' families does not influence treatment outcomes. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 2. Patients feel better when their health care providers understand their feelings. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 3. It is difficult for a health care provider to view things from patients' perspectives. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 4. Understanding body language is as important as verbal communication in health care provider - patient relationships. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 5. A health care provider's sense of humor contributes to a better clinical outcome. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 6. Because people are different, it is difficult to see things from patients' perspectives. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 7. Attention to patients' emotions is not important in patient interview. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 8. Attentiveness to patients' personal experiences does not influence treatment outcomes. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 9. Health care providers should try to stand in their patients' shoes when providing care to them. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 10. Patients value a health care provider's understanding of their feelings which is therapeutic in its own right. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 11. Patients' illnesses can be cured only by targeted treatment; therefore, health care providers' emotional ties with their patients do not have a significant influence in treatment outcomes. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 12. Asking patients about what is happening in their personal lives is not helpful in understanding their physical complaints. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 13. Health care providers should try to understand what is going on in their patients' minds by paying attention to their non-verbal cues and body language. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 14. I believe that emotion has no place in the treatment of medical illness. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 15. Empathy is a therapeutic skill without which a health care provider's success is limited. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 16. Health care providers' understanding of the emotional status of their patients, as well as that of their families is one important component of the health care provider - patient relationship. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 17. Health care providers should try to think like their patients in order to render better care. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 18. Health care providers should not allow themselves to be influenced by strong personal bonds between their patients and their family members. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 19. I do not enjoy reading non-medical literature or the arts. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 20. I believe that empathy is an important factor in patients' treatment. | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

THANK YOU!

206 Page 2

 140716 (ver. 1.2.1)

No._____


***Instructions:*** Please indicate the extent of your agreement or disagreement with each of the following statements by marking with an "X" in the space provided after each statement. Please use the following 7-point scale (a higher number on the scale indicates more agreement):

## A. Jefferson Scale of Empathy (S-Version R)[1]

| No: | Description | Strongly Disagree (1) | Disagree (2) | Partially Disagree (3) | Neither Agree nor Disagree (4) | Partially Agree (5) | Agree (6) | Strongly Agree (7) |
|---|---|---|---|---|---|---|---|---|
| 1. | Nurses' understanding of their patients' feelings and the feelings of their patients' families do not influence medical or surgical treatment. | | | | | | | |
| 2. | Patients feel better when their nurses understand their feelings. | | | | | | | |
| 3. | It is difficult for a nurse to view things from patients' perspectives. | | | | | | | |
| 4. | Understanding body language is as important as verbal communication in nurse-patient relationships. | | | | | | | |
| 5. | A nurse's sense of humour contributes to a better clinical outcome. | | | | | | | |
| 6. | Because people are different, it is difficult to see things from patients' perspectives. | | | | | | | |
| 7. | Attention to patients' emotions is not important in history taking. | | | | | | | |
| 8. | Attentiveness to patients' personal experiences does not influence treatment outcomes. | | | | | | | |
| 9. | Nurses should try to stand in their patients' shoes when providing care to them. | | | | | | | |
| 10. | Patients value a nurse's understanding of their feelings which is therapeutic in its own right. | | | | | | | |

[1] *This questionnaire was developed for US medical physicians but is applied to trainee nurses for the purpose of this research. The word "physician" have been replaced with "nurse".*

| No: | Description | Strongly Disagree (1) | Disagree (2) | Partially Disagree (3) | Neither Agree nor Disagree (4) | Partially Agree (5) | Agree (6) | Strongly Agree (7) |
|---|---|---|---|---|---|---|---|---|
| 11. | Patients' illnesses can be cured only by medical or surgical treatment; therefore, nurses' emotional ties with their patients do not have a significant influence in medical or surgical treatment. | | | | | | | |
| 12. | Asking patients about what is happening in their personal lives is not helpful in understanding their physical complaints. | | | | | | | |
| 13. | Nurses should try to understand what is going on in their patients' minds by paying attention to their non-verbal cues and body language. | | | | | | | |
| 14. | I believe that emotion has no place in the treatment of medical illness. | | | | | | | |
| 15. | Empathy is a therapeutic skill without which the nurse's success is limited. | | | | | | | |
| 16. | Nurses' understanding of the emotional status of their patients, as well as that of their families is one important component of the nurse-patient relationship. | | | | | | | |
| 17. | Nurses should try to think like their patients in order to render better care. | | | | | | | |
| 18. | Nurses should not allow themselves to be influenced by strong personal bonds between their patients and their family members. | | | | | | | |
| 19. | I do not enjoy reading non-medical literature or the arts. | | | | | | | |
| 20. | I believe that empathy is an important therapeutic factor in medical treatment | | | | | | | |



***If you would like to provide any additional comments on the subject of levels of empathy towards patients, please complete the following questions:***

a) What factors do you think help you to build empathy towards patients at a hospital or clinic? _____

_____

b) What factors make it more difficult for you to maintain empathy for patients in a hospital or clinic? _____

_____

***Instructions*:** Please indicate the extent of your agreement or disagreement with each of the following statements by marking with an "X" in the space provided after each statement. Please use the following 5-point scale (a higher number on the scale indicates more agreement):

**B. Communication Competency Scale**

| No. | Description | Strongly Disagree (1) | Disagree (2) | Neither Agree nor Disagree (3) | Agree (4) | Strongly Agree (5) |
|---|---|---|---|---|---|---|
| 1. | I find it easy to get along with others. | | | | | |
| 2. | I can adapt to changing situations. | | | | | |
| 3. | I treat people as individuals. | | | | | |
| 4. | I interrupt others too much. | | | | | |
| 5. | I am "rewarding" to talk to. | | | | | |
| 6. | I can deal with others effectively. | | | | | |
| 7. | I am a good listener. | | | | | |
| 8. | My personal relations are cold and distant. | | | | | |
| 9. | I am easy to talk to. | | | | | |
| 10. | I won't argue with someone just to prove I am right. | | | | | |
| 11. | My conversation behaviour is not "smooth." | | | | | |
| 12. | I ignore other people's feelings. | | | | | |
| 13. | I generally know how others feel. | | | | | |
| 14. | I let others know I understand them. | | | | | |
| 15. | I understand other people. | | | | | |
| 16. | I am relaxed and comfortable when speaking. | | | | | |
| 17. | I listen to what people say to me. | | | | | |
| 18. | I like to be close and personal with people. | | | | | |
| 19. | I generally know what type of behaviour is appropriate in any given situation. | | | | | |
| 20. | I usually do not make unusual demands on my friends. | | | | | |
| 21. | I am an effective conversationalist. | | | | | |
| 22. | I am supportive of others. | | | | | |
| 23. | I do not mind meeting strangers. | | | | | |

| No. | Description | Strongly Disagree (1) | Disagree (2) | Neither Agree nor Disagree (3) | Agree (4) | Strongly Agree (5) |
|---|---|---|---|---|---|---|
| 24. | I can easily put myself in another person's shoes. | | | | | |
| 25. | I pay attention to conversation. | | | | | |
| 26. | I am generally relaxed when conversing with a new acquaintance. | | | | | |
| 27. | I am interested in what others have to say. | | | | | |
| 28. | I do not follow conversation very well. | | | | | |
| 29. | I enjoy social gatherings where I can meet new people. | | | | | |
| 30. | I am a likeable person. | | | | | |
| 31. | I am flexible. | | | | | |
| 32. | I am not afraid to speak with people in authority. | | | | | |
| 33. | People can come to me with their problems. | | | | | |
| 34. | I generally say the right thing at the right time. | | | | | |
| 35. | I like to use my voice and body expressively. | | | | | |
| 36. | I am sensitive to others' needs of the moment. | | | | | |

***Instructions*:** Please indicate the extent of your agreement or disagreement with each of the following statements by marking with an "X" in the space provided after each statement. Please use the following 5-point scale (a higher number on the scale indicates more agreement):

## C. Communication skills attitude scale (CSAS)

| No. | Description | Strongly Disagree (1) | Disagree (2) | Neither Agree nor Disagree (3) | Agree (4) | Strongly Agree (5) |
|---|---|---|---|---|---|---|
| 1. | In order to be a good nurse I must have good communication skills. | | | | | |
| 2. | I can't see the point in learning communication skills. | | | | | |
| 3. | Nobody is going to fail their nurse diploma for having poor communication skills | | | | | |
| 4. | Developing my communication skills is just as important as developing my knowledge of medicine. | | | | | |
| 5. | Learning communication skills has helped or will help me respect patients. | | | | | |
| 6. | I haven't got time to learn communication skills. | | | | | |
| 7. | Learning communication skills is interesting. | | | | | |
| 8. | I can't be bothered to turn up to sessions on communication skills | | | | | |
| 9. | Learning communication skills has helped or will help facilitate my team-working skills | | | | | |
| 10. | I won't argue with someone just to prove I am right. | | | | | |
| 11. | Learning communication skills has improved my ability to communicate with patients. | | | | | |
| 12. | Learning communication skills is fun. | | | | | |
| 13. | Learning communication skills is too easy. | | | | | |
| 14. | Learning communication skills has helped or will help me respect my colleagues. | | | | | |
| 15. | I find it difficult to trust information about communication skills given to me by nonclinical lecturers. | | | | | |
| 16. | Learning communication skills has helped or will help me recognize patients' rights regarding confidentiality and informed consent. | | | | | |
| 17. | Communication skills teaching would have a better image if it sounded more like a science subject. | | | | | |
| 18. | When applying for nursing, I thought it was a really good idea to learn communication skills. | | | | | |

| No. | Description | Strongly Disagree (1) | Disagree (2) | Neither Agree nor Disagree (3) | Agree (4) | Strongly Agree (5) |
|---|---|---|---|---|---|---|
| 19. | I don't need good communication skills to be a nurse. | | | | | |
| 20. | I find it hard to admit to having some problems with my communication skills. | | | | | |
| 21. | I think it's really useful learning communication skills on the nursing diploma. | | | | | |
| 22. | My ability to pass exams will get me through nursing school rather than my ability to communicate. | | | | | |
| 23. | Learning communication skills is applicable to learning nursing. | | | | | |
| 24. | I find it difficult to take communication skills learning seriously. | | | | | |
| 25. | Learning communication skills is important because my ability to communicate is a lifelong skill. | | | | | |
| 26. | Communication skills learning should be left to psychology students, not nursing students. | | | | | |

6

***Instructions***: Please indicate the extent of your agreement or disagreement with each of the following statements by marking with an "X" in the space provided after each statement. Please use the following 10-point scale (a higher number on the scale indicates more certainty):

## D. Self Efficacy Scale

| No: | Description | not certain at all | | | | | | | | | quite certain |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1. | Initiate discussion with patients about their worries? | | | | | | | | | | |
| 2. | Encourage patients to talk about their feelings? | | | | | | | | | | |
| 3. | Uncover strong feelings such as anxiety and worrying? | | | | | | | | | | |
| 4. | End a conversation by summarizing problems and the agreed plan of action? | | | | | | | | | | |
| 5. | Pass on bad news to patients? | | | | | | | | | | |
| 6. | Confront patients in an appropriate way with something they are in denial about? | | | | | | | | | | |
| 7. | Handle that patients have a different understanding of the situation? | | | | | | | | | | |
| 8. | Help patients handle an uncertain situation? | | | | | | | | | | |
| 9. | Tell colleagues if you experience they are speaking badly to a patient or family? | | | | | | | | | | |
| 10. | Tell colleagues if you feel you are badly or unfairly treated by them? | | | | | | | | | | |
| 11. | Tell colleagues if you experience that they treat another colleague badly? | | | | | | | | | | |
| 12. | Tell colleagues if you deem that they do not solve their tasks competently? | | | | | | | | | | |
| 13. | Give continuous professional feedback to your colleagues? | | | | | | | | | | |
| 14. | Listen to colleagues who come to you to discuss professional problems? | | | | | | | | | | |
| 15. | Approach colleagues if you sense that they are experiencing personal problems? | | | | | | | | | | |
| 16. | Listen to colleagues who come to you to discuss their personal problems? | | | | | | | | | | |
| 17. | Speak respectfully to colleagues - also in stressful situations? | | | | | | | | | | |
| 18. | Speak respectfully about colleagues - also in stressful situations? | | | | | | | | | | |
| 19. | Accept professional disagreements with colleagues? | | | | | | | | | | |

## E. Demographic Data

**t will help us to understand your answers if you could tell us a little about yourself**

1. Gender: Male [ ] Female [ ]
2. Age (Years):_____
3. Marital Status: Married [ ] Unmarried [ ] Divorced [ ]
4. Current Level in Nursing College: Year 1 [ ] Year 2 [ ] Year 3 [ ]
5. Having children: Yes [ ] No [ ]
6. If Yes, number of children_____
7. Specialisation: General Nursing [ ] Midwifery [ ] Other, please specify_____
8. Religion_____
9. Ethnicity (Tribe)_____
10. Previous communication skills training

| | | | | | |
|---|---|---|---|---|---|
| (i) | None | [ ] | (ii) | 1 week | [ ] |
| (iii) | 2 weeks | [ ] | (iv) | 3 weeks | [ ] |
| (v) | 1 month | [ ] | (vi) | 2 months | [ ] |
| (vii) | 3 months | [ ] | (viii) | 4 months (1 Semester) | [ ] |
| (ix) | 2 semesters | [ ] | (x) | 3 semesters | [ ] |
| (xi) | 4 semesters | [ ] | (xii) | Above 4 Semesters | [ ] |

**Thank you very much for your responses**

## Appendix F: Informed consent form for patients - explorative study

University for Development Studies

CHARITÉ
UNIVERSITÄTSMEDIZIN BERLIN

ICFP_I S/N _____

***Part I: Informed Consent Form for Patients***

***Principal Investigator***: Mustapha Alhassan, Institute for Medical Psychology

**Part I: Information Sheet**
I am Mustapha Alhassan, a PhD Student at Charite Medical University- Berlin. I am carrying out research on Informed Consent for patients in Ghana. I am going to give you information and invite you to be part of this research. You do not have to decide today whether or not you will participate in the research. Before you decide, you can talk to anyone you feel comfortable about the research.

This consent form may contain words that you do not understand. Please ask me to stop as we go through the information and I will take time to explain. If you have questions later, you can ask me.

**Purpose of the research**
The research would lead to the development of Training Module which may be incorporated into the Physicians and Nursing Training Curriculum. In the long run it would lead to effective and efficient communication between Physicians/Patients and Nurses/Patients, fulfilment of Physicians/Nurses' learning needs and have a positive impact on their skills. It would serve to broaden the scope of Medical Training Curriculum in Ghana.

**Type of Research Intervention**
This research will involve your participation in an interview and a questionnaire that will take about $1^1/_2$ hours in total.

**Participant Selection**
You are being invited to take part in this research because we feel that your experience as a patient in Tamale Teaching Hospital can contribute much to our understanding and knowledge of health practices.

**Voluntary Participation**
The choice that you make will have no bearing on your health care provision or any related evaluations or reports. You may change your mind later and stop participating even if you agreed earlier.

**Procedures**
I am asking you to help us learn more about Informed Consent for patients in Ghana. We are inviting you to take part in this research project. If you accept, you will be asked to and take part is an interview and answer a questionnaire.

**For interviews**
During the interview, I will sit down with you in a comfortable place at the Hospital. If it is better for you, the interview can take place elsewhere. If you do not wish to answer any of the questions during the interview, you may say so and I will move on to the next question. No one else but me will be present unless you would like someone else to be there. The information

recorded is confidential, and no one else except me will have access to the information documented during your interview. The entire interview will be tape-recorded, but no-one will be identified by name on the tape. The tape will be kept in a secured drive with a password. The information recorded is confidential, and no one else except me will have access to the tapes. The tapes will be destroyed after 3 months.

**Questionnaire surveys**
Please fill out a survey which will be provided by the researcher and collected later at an agreed time

If you do not wish to answer any of the questions included in the survey, you may skip them and move on to the next question. I will collect the questionnaire on an agreed time. The information recorded is confidential, your name is not being included on the forms, only a number will identify you, and no one else except the researcher (Mustapha Alhassan) will have access to the information.

**Duration**
The research takes place over 3 year period in total. During that time, we will visit you only once for interviewing and answering of questionnaire.

**Risks**
We are asking you to share with us some very personal and confidential information, and you may feel uncomfortable talking about some of the topics. You do not have to answer any question or take part in the discussion/interview/survey if you don't wish to do so, and that is also fine. You do not have to give us any reason for not responding to any question or for refusing to take part in the interview"

**Benefits**
There will be no direct benefit to you, but your participation is likely to help us find out more about how to improve informed consent for patients in Ghana. You will not be provided any incentive to take part in the research.

**Confidentiality**
We will not be sharing information about you to anyone outside of the research team. The information that we collect from this research project will be kept private. Any information about you will have a number on it instead of your name. Only the researchers will know what your number is and we will lock that information up with a lock and key. It will not be shared with or given to anyone except the researcher.

**Focus groups**
We woukld ask you and others in the group not to talk to people outside the group about what was said in the group. We will, in other words, ask each of you to keep what was said in the group confidential. You should know, however, that we cannot stop or prevent participants who were in the group from sharing things that should be confidential.

**Sharing the Results**
Nothing that you tell us today will be shared with anybody outside the research team, and nothing will be attributed to you by name. The knowledge that we get from this research will be shared with you and the hospital before it is made widely available to the public. Each participant will receive a summary of the results. There will also be small meetings in the Hospital and these will be announced. Following the meetings, we will publish the results so that other interested people may learn from the research.

**Right to Refuse or Withdraw**
You do not have to take part in this research if you do not wish to do so, and choosing to participate will not affect your job or job-related evaluations in any way. You may stop participating in the interview at any time that you wish without your job being affected. I will give you an opportunity at the end of the interview to review your remarks, and you can ask to modify or remove portions of those, if you do not agree with my notes or if I did not understand you correctly.

**Who to Contact**
If you have any questions, you can ask them now or later. If you wish to ask questions later, you may contact me on telephone +233244782256 (Ghana) or +4915212019908 (Germany) or email mustapha.alhassan@charite.de, This proposal has been reviewed and approved by Ghana Health Service Ethical Review Committee, which is a committee whose task it is to make sure that research participants are protected from harm. If you wish to find about more about the Ghana Health Service Ethical Review Committee, contact Dr. Hannah Frimpong on Tel: +233-0302681109 or email: hannah.frimpong@ghsmail.org or the Ghana Health Service Website http://www.healthresearchweb.org/en/ghana/institution_1059.

***Thank you so much for your time.***

University for Development Studies

CHARITÉ UNIVERSITÄTSMEDIZIN BERLIN

ICFP_I S/N _____

***Part II: Certificate of Consent***

I have been invited to participate in research about Informed Consent for patients in Ghana. I have read the foregoing information. I have had the opportunity to ask questions about it and any questions I have been asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study

Name of Participant_____

Signature of Participant _____

Date _____

I confirm that the participant was given an opportunity to ask questions about the study, and all the questions asked by the participant have been answered correctly and to the best of my ability.

I confirm that the individual has not been coerced into giving consent, and the consent has been given freely and voluntarily.

Name of Researcher/person taking the consent_____

Signature of Researcher /person taking the consent_____

Date _____

NB: The Informed Consent Form should be 2 copies. A copy of this Informed Consent Form MUST be given to the participant and the other kept with the researcher.

***Thank you so much for your time.***

Page 4 of 4

## Appendix G: Explorative study - Four Habit Patients Questionnaire [20] and eight questions on information regarding treatment (8QIRT)

ICQP S/N_____



University for Development Studies




**Questionnaire for Patients after visiting a Doctor or Nurse**

These questionnaire is to allow the research have basic knowledge about your understanding of what sort of communication takes place between Doctors and Patients. Please fill free to answer the questions objectively as possible. However if you feel like not answering a particular question you are free to do so.

| No | Description | Not Present | Poor | Unsatisfactory | doubtful | Satisfactory | Good | Excellent |
|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1 | Did the doctor seem to know the important information about your medical history? | | | | | | | |
| 2 | At the beginning of the visit, did the doctor meet you in a way that helped put you at ease? | | | | | | | |
| 3 | In exploring your health concerns, did the doctor give you a good chance to express yourself in your own words? | | | | | | | |
| 4 | Did the doctor encourage you to fully describe your health concerns? | | | | | | | |
| 5 | Did the doctor seem interested in finding out how you thought about the health concerns? | | | | | | | |
| 6 | Did the doctor seem interested in finding out how your current health problems are affecting your daily life? | | | | | | | |
| 7 | Did you get good eye contact with the doctor? | | | | | | | |
| 8 | Did the doctor seem sensitive to your feelings? | | | | | | | |
| 9 | Did you feel that the doctor was interested in you as a person? | | | | | | | |
| 10 | Did the doctor give you information that directly addressed the concerns you had expressed? | | | | | | | |

1

| No | Description | Not Present | Poor | Unsatisfactory | doubtful | Satisfactory | Good | Excellent |
|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 11 | When the doctor gave you information, did s/he give you as much time as you needed to understand it and absorb it? | | | | | | | |
| 12 | When the doctor gave you information, was it clear and in words you could easily understand? | | | | | | | |
| 13 | After the doctor gave you information, did s/he make sure to find out how well you understood the information? | | | | | | | |
| 14 | Did the doctor encourage you to be as much involved as you would like in the decisions about your health care? | | | | | | | |
| 15 | Toward the end of the visit, did the doctor make clear and specific plans about what you should do as a follow-up? | | | | | | | |
| 16 | Was the name/nature proposed treatment or procedure explained to you? | | | | | | | |
| 17 | Were the advantages of proposed treatment made known to you? | | | | | | | |
| 18 | Were the disadvantages of proposed treatment explained to you? | | | | | | | |
| 19 | Were Alternative treatment procedures (regardless of costs or extent covered by insurance) explained to you? | | | | | | | |
| 20 | Were the advantages of alternative treatment also explained? | | | | | | | |
| 21 | Were the disadvantages of alternative treatment also explained? | | | | | | | |
| 22 | Were the advantages of not receiving treatments explained to you? | | | | | | | |
| 23 | Were the disadvantages of not receiving treatments explained to you? | | | | | | | |

***Thank you so much for your time.***

## Appendix H: Descriptive data of the intervention study

| Outcome measure | Time | Group | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Lower Bound | Upper Bound | | |
| Empathy | Baseline test(T1) | Intervention | 93 | 109.75 | 9.756 | 1.012 | 107.74 | 111.76 | 81 | 129 |
| | | Control | 80 | 107.93 | 11.462 | 1.282 | 105.37 | 110.48 | 77 | 134 |
| | | Total | 173 | 108.91 | 10.588 | .805 | 107.32 | 110.50 | 77 | 134 |
| | Post-test (T2) | Intervention | 93 | 111.85 | 8.947 | .928 | 110.01 | 113.69 | 87 | 130 |
| | | Control | 80 | 110.01 | 11.034 | 1.234 | 107.56 | 112.47 | 81 | 134 |
| | | Total | 173 | 111.00 | 9.979 | .759 | 109.50 | 112.50 | 81 | 134 |
| | Follow-up test (T3) | Intervention | 93 | 109.38 | 10.415 | 1.080 | 107.23 | 111.52 | 82 | 129 |
| | | Control | 80 | 111.86 | 8.290 | .927 | 110.02 | 113.71 | 90 | 135 |
| | | Total | 173 | 110.53 | 9.546 | .726 | 109.09 | 111.96 | 82 | 135 |
| Communicative competence | Baseline test (T1) | Intervention | 93 | 131.90 | 11.268 | 1.168 | 129.58 | 134.22 | 104 | 160 |
| | | Control | 80 | 133.64 | 12.870 | 1.439 | 130.77 | 136.50 | 99 | 156 |
| | | Total | 173 | 132.71 | 12.030 | .915 | 130.90 | 134.51 | 99 | 160 |
| | Post-test (T2) | Intervention | 93 | 132.25 | 11.152 | 1.156 | 129.95 | 134.54 | 104 | 160 |
| | | Control | 80 | 133.65 | 12.889 | 1.441 | 130.78 | 136.52 | 99 | 156 |
| | | Total | 173 | 132.90 | 11.971 | .910 | 131.10 | 134.69 | 99 | 160 |
| | Follow-up test (T3) | Intervention | 93 | 132.86 | 11.065 | 1.147 | 130.58 | 135.14 | 99 | 153 |
| | | Control | 80 | 134.80 | 10.981 | 1.228 | 132.36 | 137.24 | 107 | 169 |
| | | Total | 173 | 133.76 | 11.037 | .839 | 132.10 | 135.41 | 99 | 169 |
| Communication skills attitude – positive attitude | Baseline test (T1) | Intervention | 93 | 51.73 | 4.886 | .507 | 50.72 | 52.74 | 41 | 63 |
| | | Control | 80 | 49.95 | 5.109 | .571 | 48.81 | 51.09 | 36 | 61 |
| | | Total | 173 | 50.91 | 5.055 | .384 | 50.15 | 51.67 | 36 | 63 |
| | Post-test (T2) | Intervention | 93 | 51.76 | 4.884 | .506 | 50.76 | 52.77 | 41 | 63 |
| | | Control | 80 | 49.98 | 5.094 | .570 | 48.84 | 51.11 | 36 | 61 |
| | | Total | 173 | 50.94 | 5.048 | .384 | 50.18 | 51.69 | 36 | 63 |
| | Follow-up test (T3) | Intervention | 93 | 50.67 | 4.812 | .499 | 49.68 | 51.66 | 38 | 60 |
| | | Control | 80 | 51.60 | 4.238 | .474 | 50.66 | 52.54 | 37 | 61 |

| Outcome measure | Time | Group | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Lower Bound | Upper Bound | | |
| | | Total | 173 | 51.10 | 4.567 | .347 | 50.41 | 51.78 | 37 | 61 |
| Communication skills attitude – negative attitude | Baseline test (T1) | Intervention | 93 | 46.80 | 5.575 | .578 | 45.65 | 47.94 | 33 | 61 |
| | | Control | 80 | 47.10 | 5.458 | .610 | 45.89 | 48.31 | 32 | 58 |
| | | Total | 173 | 46.94 | 5.507 | .419 | 46.11 | 47.76 | 32 | 61 |
| | Post-test (T2) | Intervention | 93 | 44.89 | 5.482 | .568 | 43.76 | 46.02 | 31 | 60 |
| | | Control | 80 | 45.50 | 5.032 | .563 | 44.38 | 46.62 | 31 | 56 |
| | | Total | 173 | 45.17 | 5.272 | .401 | 44.38 | 45.96 | 31 | 60 |
| | Follow-up test (T3) | Intervention | 93 | 44.76 | 5.977 | .620 | 43.53 | 45.99 | 33 | 59 |
| | | Control | 80 | 44.63 | 6.401 | .716 | 43.20 | 46.05 | 23 | 60 |
| | | Total | 173 | 44.70 | 6.159 | .468 | 43.78 | 45.62 | 23 | 60 |
| Self-efficacy | Baseline test (T1) | Intervention | 93 | 131.84 | 28.715 | 2.978 | 125.92 | 137.75 | 34 | 182 |
| | | Control | 80 | 135.43 | 31.844 | 3.560 | 128.34 | 142.51 | 65 | 190 |
| | | Total | 173 | 133.50 | 30.166 | 2.293 | 128.97 | 138.02 | 34 | 190 |
| | Post-test (T2) | Intervention | 93 | 135.74 | 25.494 | 2.644 | 130.49 | 140.99 | 54 | 184 |
| | | Control | 80 | 136.45 | 26.695 | 2.985 | 130.51 | 142.39 | 75 | 184 |
| | | Total | 173 | 136.07 | 25.982 | 1.975 | 132.17 | 139.97 | 54 | 184 |
| | Follow-up test (T3) | Intervention | 93 | 141.06 | 26.027 | 2.699 | 135.70 | 146.42 | 60 | 178 |
| | | Control | 80 | 138.50 | 29.000 | 3.242 | 132.05 | 144.95 | 64 | 182 |
| | | Total | 173 | 139.88 | 27.391 | 2.082 | 135.77 | 143.99 | 60 | 182 |

**Legend:**
N = Sample
Std. = Standard

# Acknowledgements

I wish to acknowledge the contributions of those who made this study a success.

I will want to show appreciation to my doctoral degree main supervisor (Uni.-Prof. Dr. med. Stefan Wilm) and second supervisor (Dr. rer. medic. Oliver Rudolf Herber, RN, BScN, MCommH), both from the Institute for General Practice, Heinrich-Heine University Düsseldorf (HHUD) provided me with very excellent guidance. My appreciation goes to Uni.-Prof. Dr. med. Stefan Wilm who agreed to supervise my research and provided the enabling environment that led to the successful completion of this study. As a foreign student, Prof. Wilm provided me with social interactive programmes like weekend jogging and taking part in Metro Marathon 2015 Düsseldorf. This was the first time I took part in competitive sport and that was really fun. In line with this supervision my appreciation also goes to Dr. rer. medic. Oliver Rudolf Herber, RN, BScN, MCommH, as I will describe him as my personal coach whose demonstrations on how to write a successful dissertation and to convince readers that I am on top of my research are still vivid in my mind. The two supervisors really provided very useful comments, suggestions, and materials that lead to the success of this study.

Furthermore, my gratitude goes to PD Dr**.** rer. medic. Friederike Kendel of Institute for Medical Psychology, Charité Medical University- Berlin, and Dr. phil. Christine Holmberg, MPH of Berlin School of Public Health – Berlin for their initial support, which lead to Deutscher Akademischer Austauschdienst - German Academic exchange Service (DAAD) and Ghana Government scholarship for my doctoral studies in Germany.

I will like to thank the management of Deutscher Akademischer Austauschdienst - German Academic Exchange Service (DAAD) and Ghana Government scholarship Secretariat for the scholarship award for my doctoral studies in Germany.

Moreover, I am forever indebted to the Institute for General Practice - HHUD for this great opportunity under the leadership of Uni.-Prof. Dr. med. Stefan Wilm for giving me the opportunity to pursue my dream and I gratefully acknowledge the great contribution of all the staff for their commitment to excellence and exceptional student support. They were all very supportive. But I will mention a few who had contributed in different ways to the success of this study. Specific in the Institute are; Dr. Michael Pentzek (assisted in data analysis and proof reading), Ms Katharina Ilse and Mrs Diana Tarnovskaja (assisted in translating my abstract from English to German), Ms Maria-Inti Metzendorf (assisted in doing systematic search), and Dr Sabrina Kastaun (for proof reading the final document).

I wish to thank Prof. Pål Gulbrandsen, Institute for Clinical Medicine, Campus Ahus University of Oslo, Oslo, Norway and his colleagues for providing me with papers from their studies.

I want to thank the owners of Jefferson Empathy Scales (Jefferson Medical College, Centre for Research in Medical Education and Health Care) for permitting me to use the Jefferson Scales of Empathy Health Professions Student- version in this study.

I must say this journey of research will not have been possible without the loving support, patience, and encouragement from my family. I wish to thank my wife (Mrs Sanatu Alidu Mustapha) who supported and provided care for our children at this time of my studies, had to go through difficult periods. My children Neina, Mbo and Dingari-Yurilim had to endure this period of absentee father have been incredible. My children's Aunty- Feruza has been a key supporter to the family at a time that both my wife and I were absent. I do not know what words to use in thanking her.

I will also want to thank my close friend Mr Mohammed Fuseini of the Payroll department, University for Development Studies for his support to the family during my absence and getting things done on my behalf.

Finally, I wish to thank the research assistants, especially Mr Ahmed A. Majeed for his great assistance in the communication skills training (CST) and data collection. I will like to thank the management of the Nursing and midwifery college Tamale – Ghana and their 2014 batch of second year students for participating in this study. Also the management of Tamale Teaching Hospital, Tamale West Hospital, Yendi Hospital, Salaga Hospital along with the patients who took part in the explorative study deserves a thank you.

For those, I have not mentioned, it is my pleasure for your diverse contribution.

# Curriculum Vitae


| | |
|---|---|
| Name | Mustapha Alhassan |
| Official Email | Mustapha.Alhassan@med.uni-duesseldorf.de |
| Private Email | mbemustapha@yahoo.com |
| Nationality | Ghana |
| Sex | Male |
| Date of Birth | 27.06.1966 |


**Educational Training**

| *Institution and location* | *Degree* | *Year(s)* | *Field of study* |
|---|---|---|---|
| Institute for General Practice, Heinrich Heine University Düsseldorf – Germany. | Doctor of Public Health student | April 2014 - present | Public Health |
| Institute for Medical Psychology, Charité Medical University - Berlin Germany | Dr. rer. medic (changed university) | October 2012 March 2014 | Medical Psychology |
| University of Ghana, Legon-Accra. Ghana | Master of Philosophy | 2007 - 2010 | Psychology |
| University of Ghana, Legon-Accra. Ghana | Bachelor of Arts | 2001 - 2004 | Psychology |

**Positions and employment**

| | |
|---|---|
| 2014 -2015 | Researcher at the Institute for General Practice, Heinrich Heine University Düsseldorf – Germany. |
| 2012 -2014 | Researcher at Institute for Medical Psychology, Charité Medical University - Berlin Germany |
| 2010 - present | Lecturer at University for Development Studies, Tamale Ghana |
| 2005 - 2010 | Senior Research Assistant at University for Development Studies, Tamale Ghana |

**Doctoral work** Worked with Uni. -Prof. Dr. med. Stefan Wilm, Institute for General Practice, Heinrich-Heine-University Düsseldorf Germany. From April 2014 to June 2016

**Topic:** Communication skills training (CST) to enhance nursing and midwifery students empathy, communicative competence, communication skills attitude and self-efficacy

**Honours and Awards**

| | |
|---|---|
| 2012 - 2015 | Stipend from Deutscher Akademischer Austauschdients - German Academic Exchange Programme (DAAD) and Ghana Government Scholarship Secretariat |

**Research Fields**

Nursing education, communication skills training, social skills training

Mustapha Alhassan
Düsseldorf, 06.05.2016

# Eidesstattliche Versicherung

Eidesstattliche Versicherung

Ich versichere an Eides statt, dass die Dissertation selbständig und ohne unzulässige fremde Hilfe erstellt worden ist und die hier vorgelegte Dissertation nicht von einer anderen medizinischen Fakultät abgelehnt worden ist.

Datum, Vor- und Nachname

Unterschrift