

## Effect of Interpersonal Communication Training Program on Knowledge, Attitude, and Reinforcing/Support Skills of Anti-retroviral Therapy Providers in Gombe State Hospitals

Suraj Abdulkarim A<sup>1\*</sup>, Bappah Lawan<sup>2</sup>, Stephen John<sup>3</sup>, Olutayo F. Martins<sup>4</sup>

<sup>1</sup>Ph.D in Public health, Department of Public Health, Texila American University, Guyana

<sup>2</sup>Department of Education, Federal College of Education Technical Gombe State

<sup>3</sup>Janna Health Foundation Adamawa State, Nigeria

<sup>4</sup>Department of Public Health, Modibbo Adama University Teaching Hospital Yola, Nigeria

### Abstract

Evidence from the developed world suggests that healthcare practitioners with greater Interpersonal communication (IPC) skills have better health outcomes after IPC training. There is less evidence from developing nations. This study examined the impact of an IPC training program on the knowledge, attitude, and reinforcing/supporting skills of ART practitioners at public ART hospitals in Gombe state, Nigeria. The study used a quasi-experimental design with two groups and two stages, as well as a multi-stage sampling approach. The knowledge disposition, attitude, and reinforcing and supporting IPC skills of 120 ART practitioners from six randomly selected hospitals were assessed. Then three weeks later, a 2-day IPC training using a self-administered structured questionnaire was carried out. SPSS Software (v. 22) was used to perform descriptive and inferential analyses on the data. At baseline, the Chi-Square test indicated no association between the groups on any of the demographic factors. The pre-intervention mean knowledge score was significantly higher ( $p = 0.019$ ) in the experimental group than in the control group, although there were no significant differences in attitude ( $p=0.32$ ) or reinforcing and support skills ( $p=0.786$ ). After the IPC skills training program, significant differences were noticed between the experimental and control groups in terms of knowledge ( $p=.000$ ) and attitude ( $p=0.006$ ), but not in terms of reinforcing and support skills ( $p=.119$ ). Training in interpersonal communication skills influences the knowledge and attitude of ART health providers in Gombe State. As a result, in-service IPC training is suggested for ART Health Providers in the State.

**Keywords:** Anti-retroviral therapy (ART), Interpersonal communication (IPC), Reinforcing and supporting skills.

### Introduction

Healthcare providers' interpersonal communication (IPC) skill is one of the most important elements in a medical session for improving client satisfaction, compliance, and health outcomes [1, 2]. IPC is important because it leads directly to better health outcomes by establishing a pathway that links processes, such as the way health care providers communicate, to proximate outcomes, such as patient satisfaction and recall, to final outcomes, such as

client compliance with treatment regime and improved health results. Thus, the need to improve provider communication skills [2].

In the short term, improved communication leads to more effective identification and treatment of health problems. In the medium term, it leads to more compliance with treatment programs, better usage of services, and enhanced feelings of awareness and confidence for both client and provider, while in the long run, it improves greater symptom relief, prevention,

Received: 14.01.2023

Accepted: 28.02.2023

Published on: 30.03.2023

\*Corresponding Author: drsurajkwami@gmail.com

and morbidity and mortality reductions. Furthermore, in some circumstances, it lowers overall healthcare costs [2].

IPC is considered effective when it results in the five outcomes listed below: 1) the patient discloses sufficient information about the illness to allow for an accurate diagnosis; 2) the provider, in consultation with the client, chooses a medically appropriate treatment that is acceptable to the client; 3) the client understands his or her condition and the prescribed treatment regimen; 4) the provider and the client establish a positive rapport; and 5) the client and the provider are both committed to fulfilling their responsibilities during treatment and follow-up [2]. Steps are required for effective interpersonal communication. In general, these steps include encouraging a two-way dialogue, establishing a partnership between patient and provider, creating a caring environment, bridging any social gaps between provider and client, accounting for social influences, effectively using verbal and nonverbal communication, and giving patients ample time to tell their story [3].

Although the significance of interpersonal communication is well acknowledged, the subject is not given sufficient emphasis in medical education. Roemer and Montoya-Aguilar [4] brought attention to the fact that there is not much research that has been done that investigates the quality of interpersonal communication. The quality-of-care study found that health counseling and communication between physicians and patients are consistently lacking across countries, regions, and health systems, particularly in developing countries [5]. Strong evidence from developed nations shows that effective communication leads to better health outcomes. Patient satisfaction, recall of information, compliance with therapeutic regimens, and attendance at scheduled appointments, as well as improvements in physiological markers such as blood pressure and blood glucose levels and functional status measures, have all been linked to provider-client communication [6].

Positive engagement with HIV/AIDS patients begins with interpersonal communication. Positive interactions with HIV/AIDS patients do not happen by chance but rather as a result of ongoing interpersonal communication and supportive practices that encourage and ensure HIV status disclosure, stigma management, relationship building with health providers, and participation in care support groups. The practice of accepting one's HIV status emerged as particularly influential in instigating supportive practices, such as participating in peer groups or developing health-enabling patient-provider relationships. Accepting or denying one's HIV-positive status, thus, had knock-on effects on other practices associated with HIV service engagement. The configuration of this complex of supportive or conflicting practices appeared to be co-dependent on the elements of effective interpersonal communication [3].

Interpersonal communication boosts patient involvement. Practices that promote close relationships between patients and service providers have been found to improve collaborative involvement [1]. A study has reported that interpersonal interaction made patients feel like they were more than just HIV care users but rather, they considered themselves to be parents, husbands, breadwinners, and leaders [2]. Close interaction with care services and complementary medical practices by patients during their medical sessions encouraged their positive engagement with HIV services [3]. In the same light, this study recommended that HIV service engagements should be placed within the context of positive interpersonal communication practices that accommodate what is required to promote optimal HIV care service engagement [3]. Effective interpersonal communication between ART clinicians and patients is critical for boosting patient adherence, improving patient outcomes, reducing malpractice claims, building a trusting doctor-patient relationship, and increasing patient and physician satisfaction

with medical visits [7]. As recognized, interpersonal communication is a key clinical skill for all healthcare practitioners, but it is especially crucial for ART providers [7].

Unfortunately, ART provider-client communication is typically deemed insufficient [8]. Communication was shown to be one of the top three characteristics a physician should have, but ART patients have typically assessed their own doctors' interpersonal communication skills as unsatisfactory [9]. The latter and other study findings point to the necessity for ART providers to receive training to improve their interpersonal communication abilities. Assessing the effectiveness of a training program in interpersonal communication is crucial since it helps to identify its advantages, determine the need for additional training, and determine the value of training efforts. Therefore, this study investigates how an Interpersonal Communication Training Programme influenced the knowledge, attitude, and support abilities of ART health care professionals in Gombe State ART Clinics in Nigeria. The outcomes of this study will be valuable to HIV treatment facility personnel, facility heads, HIV control program officers, and health development practitioners in general.

In particular, the study aimed to:

1. Determine the baseline assessment of ART healthcare workers' personal-level dispositions of knowledge, attitudes, reinforcement, and support abilities in this study.
2. Evaluate the intervention's influence on ART healthcare professionals' personal-level dispositions of knowledge, attitudes, reinforcement, and support skills in this study.

## Research Hypothesis

**H<sub>a</sub>:** There will be significant difference in score of self-reported level of disposition of knowledge, attitude and reinforcing and support skills between ART service providers in the

experimental group than those of the control group.

**H<sub>0</sub>:** There will be no significant difference in the score of self-reported level of disposition of knowledge, attitude, and reinforcing and support skills between ART service providers in the experimental group than those of control group.

## Material and Methods

### Study Design

This study employed a quasi-experimental approach with pretest and post-test experimental and control groups. This designed was adopted because the study included a treatment package (training on interpersonal communication) to the ART providers in the treatment group with the aim of making the comparison with those in the control group to determine the effect of the training on knowledge, attitude, and reinforcing/support abilities in Gombe State, Nigeria.

### Study Area, Participants, Sample and Sampling Technique

Gombe State is one of the 36 states in Nigeria's North-east region, with a projected population of 3.9 million inhabitants in 2022 and a land area of 20,265 km<sup>2</sup> [10]. There are 615 public and private health facilities in the state, of which 18 public facilities provide comprehensive ART services, 53 HIV counselling and testing (HCT) services, and 27 services for preventing mother-to-child transmission (PMTCT) [11]. This study was carried out between June and October of 2022. A multi-stage cluster sampling procedure was used for the study. First, clustering the state into three zones based on senatorial districts. In the second stage, we randomly selected two ART Hospitals per zone totalling six. At the third stage, one hospital was randomly assigned using a coin (head or tail) as experimental while the other as control hospital for the study giving a total of 3 intervention groups (one from each region) and 3 control groups (one from each region). Experience from prior research in

Honduras, Trinidad, and Egypt [12] indicated that the sample size spans between 40 and 60 providers; consequently, the sample size for the study was determined to be 60 ART providers for the experimental facilities and 60 ART providers for the control facilities. The sample size was then distributed proportionally according to the number of ART practitioners in each of the six selected sites. Invited to participate in IPC training were all eligible and willing ART unit physicians, nurses, pharmacists, laboratory scientists, and community health environmental workers from chosen facilities. Exclusion criteria for IPC training included providers who had had IPC training within the preceding year, non-permanent ART providers such as national corps members and locum doctors, and individuals who did not consent.

### **Data Collection/ Instrumentation**

The study used a training module for the training of ART providers on IPC skills and a Questionnaire on Knowledge Disposition & Attitude of ART Providers' Interpersonal Communication. The training manual was developed by the researcher through an intensive review of kinds of literature which include the Quality Assurance Project (QAP) and The Johns Hopkins University (JHU) [13] manual used for similar studies in other countries like Honduras, Egypt etc. [12] [14]. A questionnaire used was adapted and used to collect data on ART providers' knowledge, attitude and support skills. The questionnaire was completed by the ART clinicians both before and after the training. The questionnaire includes a section on demographic information as well as three other areas that assess ART practitioners' knowledge, attitude, and support skills. The knowledge and attitude portions. The knowledge and attitude portions had 15 items each, while the support skills area had 10. All items are scored on a 5-point scale, with 1 being strongly disagreed, 2 being disagreed, and 3 being uncertain. 4=agree, 5=strongly agree.

## **Intervention**

### **Training of ART Providers on IPC**

A two-day facility-based IPC training was conducted in the three randomly selected public ART facilities with the goal of increasing the interpersonal communication skills of healthcare personnel. The training occurred over the period of two weeks at various times that were convenient for the facility, typically after the employees had completed their work shifts. The training sessions utilized a range of training methodologies, such as demonstration and brainstorming to guarantee that participants learned these new abilities, boosted their sense of expertise, and applied cutting-edge IPC procedures while using their existing skills and competencies. The training module was divided into two segments. The first section comprised the training guide, while the second half contained a description of the training's content and the expected activity of the participant. There were brief presentations about specific communication, interactive plenary sessions with brainstorming and question-and-answer sessions so that participants "discover" the new skills for themselves, and role plays that demonstrate the various communication strategies and give participants the opportunity to practice them. The content of the training included the meaning of IPC, principles of IPC, components of IPC, the importance of IPC, styles of IPC, reinforcing and support skills in IPC, skills needed for effective IPC, barriers to effective IPC in ART, and ways of improving IPC in ART care.

### **Evaluation of Training and Training Content**

At the conclusion of the training, training evaluation forms were distributed for participants to evaluate the training by rating course methods on a scale from 1 (never) to 5 (always), identifying what they liked most and least about the training, and identifying which aspects of the course were most and least useful,

as well as making suggestions for the improvement of the training for other ART providers and health workers in the public health care system.

### **Instrument and Training Module Pretest**

The training program and data collection tools were pre-tested with 30 ART providers in three (3) health institutions in Bauchi State, which is which shares common characteristics with Gombe state. The Cronbach Alpha reliability coefficients obtained for the knowledge disposition, attitude, and reinforcing and support skills sections of ART health care providers' interpersonal communication skills were 0.722, 0.781, and 0.809, respectively, while the overall Cronbach alpha was 0.91. Brief training was further given to establish the effectiveness of the training module using a pretest and post-test. The data were collected using a 10-item subset of the main questionnaire. A p-value of .000 (less than 0.05) was obtained using T-test. So, the training module can be used to improved providers' IPC skills.. Thus, the training module was effective in enhancing the IPC abilities of service providers.

### **Baseline and Post-test Evaluations of ART Practitioners' IPC Knowledge, Disposition, Attitude, and Skills**

Prior to training, both the experimental and control groups had baseline assessments of their ART Service Providers' Interpersonal Communication Knowledge, Attitude, and Reinforcing and Supporting Skills. Following that, the experimental group received training, and they were examined three weeks later using the same questionnaire to determine the impact of the training.

### **Ethical Consideration**

The Ethics and Research Committee of the Gombe state ministry of health granted ethical approval (MOH/ADM/S/621/V.1/4). Before participation in the study, informed written

agreement was obtained from the subjects after the objectives and methods were presented. The permission of participating ART health Facilities were also obtained.

### **Data Analysis**

The data were entered and analyzed using version 22 of Statistical Package for the Social Sciences (SPSS). Before analysis, data were cleansed by running frequency and recorded as appropriate. Using cross tab, percentage, and mean, descriptive statistics were obtained. The demographic data was tested for independence using Chi-square while ART providers' knowledge, attitude, and support skills before and after the training were compared to measure the effectiveness of the IPC training using Paired Sample T-test at 0.05 level of statistical significance.

### **Results**

#### **Demographic Characteristics of the ART Providers**

Demographic characteristics of the ART providers in the 6 selected health facility, which formed both the control and intervening group of the study, is presented in Table 1 below.'

Table 1 shows the characteristics of the ART service providers in the control group (n=60) and the experimental group (n=60). It showed there were more male ART service providers (51.7%) in the control group than male service providers (48.3%) in the intervening group. Majority (43.3%) of the ART service providers possessed a bachelor's degree. It can also be seen from table 1 that the majority (40.0%) of them are between the age of 31-40 years. Nurses constitute the largest percentage of the providers (57.5%).

The result also showed that largest percentage (56.8%) are married, and the majority (38.3%) were found to have 10 years of working experience. No significant association was seen between the 2 groups in all the demographic characteristics.

**Table 1.** Demographic Information of ART Providers

Demography	Study Groups		Total (N=250) n (%)	P-value
	Control Group (N=125) n (%)	Experimental Group N=125) n (%)		
<b>Gender</b>	4	-	-	-
Male	34(56.7)	28(46.7)	62(51.7)	0.284
Female	26(45.3)	32(53.3)	58(48.3)	-
<b>Education Level</b>	-	-	-	-
Nursing	124(40.0)	25(41.7)	49(40.8)	0.654
Bachelor's Degree	29(48.3)	23(38.3)	52(43.3)	-
Master's Degree	5 (8.3)	20(3.3)	25(20.8)	-
PhD	52 (3.3)	2(3.3)	4(3.3)	-
<b>Age</b>	557	-	49.5	-
Less than 20 Years	0(0)	4(6.7)	4(3.33)	0.837
21-30 Years	7(11.7)	20(33.3)	27(22.5)	-
31-40 Years	25(41.7)	23(38.3)	48(40.0)	-
41-50 Years	19(31.7)	5(8.3)	24(20.0)	-
51-60 Years	15(8.3)	7(11.7)	5(4.2)	-
60 years and above	4(0.8)	1(1.7)	11.4	-
<b>Occupation</b>	-	-	-	-
Nurse	437(61.7)	32(53.3)	69(57.5)	0.852
Doctor	49(15.0)	7(11.7)	16(13.3)	-
Others	14(23.3)	21(35.0)	35(29.2)	-
<b>Marital status</b>	-	-	-	-
Single	311(18.3)	16(26.7)	73(29.2)	0.278
Married	49(81.7)	43(71.7)	142(56.8)	-
Widowed	0(0)	1(1.7)	17(6.8)	-
Divorced	40(0)	0(0)	29(11.6)	-
<b>Years of experience</b>	-	-	-	-
Less than 10 years	120(33.3)	26(43.3)	46(38.3)	0.967
11-20 years	111(18.3)	21(35.0)	32(26.7)	-
21-30 years	322(36.7)	9(15.0)	31(25.8)	-
Above 30 years	7(11.7)	4(6.7)	11(9.2)	-

*Chi square test (X2): Significance at  $p < 0.05$*

### **Baseline Assessment of Personal-level dispositions of Knowledge, Attitudes, Reinforcing and Support Skills of ART health care Providers**

The baseline data on personal-level dispositions of knowledge of ART health care providers from the six facilities is presented in

Table 2. Table 2 depicts that the mean of respondents in the experimental group on attitude, Reinforcing, and support skills is more than that of those in the control group before the training. At the same time, a significant difference exists between the experimental group and the control group on knowledge.

**Table 2.** Baseline Comparison of Knowledge, Attitude, and Reinforcing and Support Skills between Experimental Group and Control Group

Variable	Groups	N	Mean	t-cal	P-value
Knowledge	Experimental group	60	57.9	2.40	0.019
	Control group	60	53.7		
Attitude	Experimental group	60	50.7	.993	0.32
	Control group	60	49.4		
Reinforcing and support skills	Experimental group	60	40.1	.273	0.786
	Control group	60	39.8		

### Effect of Interpersonal Communication Training Program on Knowledge, Attitude, and Reinforcing/Support Skills

To determine the impact of the training, the post-test scores of the ART providers in the experimental and control group were compared

using paired sample t-test. The Tables below present the results of the tests.

Table 3 shows that statistically significant higher means differences were seen between the experimental group and the control group on knowledge ( $p=.000$ ) and attitude ( $p=0.006$ ) while no significant difference was found on Reinforcing and support skills ( $p=.119$ ).

**Table 3.** Effect of Interpersonal Communication Training Program on Knowledge, Attitude and Reinforcing/Support Skills

Variable	Groups	N	Mean	S. D	t-cal	P-value
Knowledge	Experimental group	60	70.85	70.85	17.87	.000
	Control group	60	52.07	52.0		
Attitude	Experimental group	60	54.63	54.63	2.83	.006
	Control group	60	51.80	51.8		
Reinforcing and support skills	Experimental group	60	39.82	39.8	1.583	.119
	Control group	60	38.42	38.4		

### Result of Evaluation of Training and Training Content

The feedback was uniformly good across the board. Most attendees (56 in number; 93%) felt that the workshop was beneficial to them, particularly the role play and the interactive training format. Every participant, except for three (57 participants; 95%) who advocated for a shorter training session, suggested a longer session, preferably in a more secluded and spacious location. Most felt the method was “quite helpful” or “very beneficial.”. Many of the participants (53 in number; 88%) suggested the provision and the use of Job aids, while all (100%) participants unanimously agreed that they would recommend the training to their

colleagues and that it should be made available to other public health personnel.

### Discussion

The study found that although the facilities are located in different locations, there was no significant association between the 2 groups in all the demographic characteristics. Many studies reported similar results that there is no significant difference in the demographic characteristics of the research subject [1, 7, 12].

The study also reported that the mean of respondents in the intervention group on attitude, Reinforcing, and support skills is a more than that of those in the control group before the training. This is in tandem with [1]. However, a significance difference exists

between the intervention group and the control group on the knowledge which agreed with [15,16]. The result further indicated that the IPC training conducted was effective at improving the knowledge and attitude of ART providers. These findings are similar to those of that obtained in a study conducted by [17] conducted in Honduras, Trinidad and Tobago, and Egypt. It also confirms the study of Garland [18] and the findings of study conducted in Oman [1]. The above studies were similar to the present study as they were all conducted on medical personnel and have used a design similar to the one used in this study. According to the findings of a study that was carried out in Indonesia, the knowledge, attitude, and practice of interpersonal relationship skills of clinician improved after participating in a training program for social skills. The study found that the participants' mean post-test scores were significantly higher than their mean pre-test scores, and the difference was significant at the  $p < 0.05$  level [19]. It was discovered in an experimental study that was carried out in Denmark that there was a substantial increase in the mean post-test scores of the components of interpersonal skills at a level that was significantly higher than 0.001 [20].

## Conclusion

This study demonstrates that interpersonal communication skill training had an impact on the personal level disposition of knowledge, and attitude of ART Health providers; thus, in-service IPC training is recommended for ART

Health providers in Gombe and other parts of the countries. Further research assessing the effectiveness of IPC Training in improving the IPC skills of healthcare professionals should focus on patient outcomes rather than healthcare professionals' rating of their perceived abilities.

## Recommendation

Based on the findings of this study, it is recommended that for effective interpersonal communication to be improved, hospital management, heads of departments, and relevant stakeholders should organize an IPC training to the medical personnel at a regular time intervals.

## Conflict of Interest

The authors wish to declare no conflict of interest in this manuscript.

## Acknowledgement

We gratefully acknowledge the Gombe State Ministry of Health's support, the Gombe State Agency for Control of AIDS (GomSACA), the ART providers of Federal Teaching Hospital Gombe, Infectious Disease Hospital Zambuk, General Hospital Billiri, Ashaka Model Hospital, General Hospital Kumo, and General Hospital Kaltungo who assisted us by participating in this study despite their time constraints and work overload, and data collectors. We would like to express our gratitude to the student mentor and staff from Texila American University for their assistance and guidance throughout the academic thesis.

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