

EVIDENCE THAT AN INTERVENTION ON ATTITUDINAL PREDICTORS OF INTER-PROFESSIONAL TEAM BUILDING AMONG HEALTHCARE PROFESSIONALS GIVES IMPROVEMENT IN NIGERIA?

Henry Akpojubaro Efegbere

Department of Community Medicine, Faculty of Clinical Sciences, College of Medical Sciences, Edo State University, Uzairue, Edo State, Nigeria

Arthur E. Anyabolu

Department of Internal Medicine, Faculty of Clinical Sciences, College of Medical Sciences, Nnamdi Azikiwe University Awka, Anambra State, Nigeria

Abstract:

Introduction: *The Nigerian health sector faces intricate inter-professional challenges in the aspect of incessant inter-professional friction among healthcare professionals that lead to poor outcomes. This study aims to investigate evidence that an intervention on attitudinal predictors of inter-professional team building among healthcare professionals gives improvement.*

Methods: *This was a longitudinal prospective study design using a multistage sampling technique to select respondents working at a tertiary health facility in Nnewi, Nigeria. The conceptual framework for intervention was a mix of models. There was the evaluation of change on eight variables of attitudinal predictors of inter-professional team building three months post-intervention.*

Results: *A total of 121 professionals were interviewed. Respondents that agreed inter-professional team building to benefit their organization were 87(71.8%) and 111(91.8%) at pre- and post-intervention phases ($p<0.01$), respondents that agreed to participate in inter-professional team building were 86(70.7%) and 110(90.9%) at pre- and post-intervention phases ($p<0.01$), respondents that agreed to recommend inter-professional team building to improve inter-professional working relationship were 81(67.1%) and 117(97.1%) at pre- and post-intervention phases ($p<0.01$), respondents that disagreed to inter-professional team building as waste of time and money were 83(63.3%) and 121(100%) at pre- and post-intervention phases ($p<0.01$), respondents that agreed to recommend inter-professional team building to resolve conflict were 65(53.7%) and 114(93.9%) at pre- and post-intervention phases ($p<0.01$), respondents that agreed assertive behaviour, cooperative attitude and courage to disagree were attitudinal predictor competencies components for effective inter-professional team membership were 44(36.6%) and 96(79.1%) , 87(71.9 %) and 118(97.5%) and 58(47.6%) and 82(67.6%) respectively at pre- and post-intervention phases ($p<0.01$).*

Conclusion: *This study showed there is an evidence-based consistent improvement of a minimum of 20% (20% to 42.5%) with a significant statistical difference across all eight variables of attitudinal predictors of inter-professional team building among healthcare professionals in Nigeria. It is therefore recommended that the Federal Ministries of Health and Science and Technology, and related Ministries, Departments*

and Agencies of the Federal Government of Nigeria implement interventions on attitudinal predictors of inter-professional team building among healthcare professionals to fast track Medical Biotechnology for Nigeria to achieve the Sustainable Development Goals of the United Nations.

Keywords: *Intervention, attitudinal predictors, inter-professional team building, healthcare, professionals, Nigeria*

INTRODUCTION

Inter-professional team building is an intervention conducted in a work unit as an action to deal with a condition(s) seen as needing improvements.¹ World Health Organization has defined human resources for health as those who promote and preserve health as well as those who diagnose and treat diseases.² This includes clinical and support service professionals.

An inter-professional team is defined as a collection of individuals who are interdependent in their tasks, who share responsibility for outcomes, who see themselves and who are seen by others as an intact social entity embedded in one or larger social systems and who manage their relationships across organization borders.³ The Nigerian health sector faces intricate human resource challenges, characteristic of health systems in many developing countries, especially in the aspect of poor interpersonal relationships and inter-professional friction among healthcare workers.^{2,4-12}

In a longitudinal study post-intervention on attitudinal predictors of inter-professional team building the attitudes improved significantly among health professionals with medical students perception of the importance of nurses and midwives improved by 15%.¹³

In another study conducted in the UK among health professionals, the variation of the attitudes towards inter-professional team-building was as follows: Baseline values showed dietetics had the highest enthusiasm (81.49 mean score), physiotherapy (78.54 mean score), pharmacy (77.00 mean score), occupational therapy (76.86 mean score), nursing (76.70 mean score), midwifery (75.17 mean score), and dentistry (73.33 mean score) was least enthusiastic of team building. However, on graduation, after four years most disciplines, except nursing, dietetics and pharmacy, students reported significantly more negative attitudes towards inter-professional team building than their baseline data.¹⁴

In another study, with longitudinal study design, to assess attitudes predictors of interdisciplinary team building over four years the impact of team building on attitudes of undergraduates of health profession post-course evaluation after 4 years had 61% of participants rate course as very beneficial or beneficial.¹⁴ The ratings of contacts among participants was high immediately after training and declined over the four years. In addition, attitudes towards inter-professional team building over four years was strengthened over time for pharmacy ($r= 0.13$ to 0.43) and occupational therapy students ($r= -0.03$ to 0.31) and relatively stable for nursing students ($r=0.29$ to 0.21) and physiotherapy students

($r=0.25$ to 0.23) and decreased for dentistry and dietetics ($r=0.48$ to 0.18). For medical students, the correlation was weak throughout ($r=0.11$ to 0.08). This showed that willingness for interdisciplinary team building varied over time, with positive correlations among students of a profession that shared activities more frequently with students of other professions while negative correlations resulted from students of a profession that shared minimal activities with students of other professions.¹⁴

In another study on error reduction and performance improvement through interdisciplinary team building the attitude towards teamwork was from 75.0 mean scores (pre-intervention) to 78.0 mean score (post-intervention); staff perception of support was 76.2 mean score to 83.1 mean score (post-intervention).¹⁵

In a study conducted among different health professionals in Vanderbilt University Medical Centre in the USA by Grogan et al the attitudes regarding the potential for Crew Resource Management to improve safety and quality in healthcare received the highest mean score (4.58) with 86% of participants expressing agreement or strong agreement. In addition, 95% of respondents agreed that the course training would reduce errors in their practice. Analysis of the human factors attitude survey responses revealed statistically significant attitude shifts in 20 of 23 attitudinal markers after course training. The three questions that did not yield to statistically significant difference pre-and post-training were: good communication and coordination are as important as technical proficiency for the safety of operative procedure; with trained and experienced staff members, good decisions are almost automatic in the planning and executing of operational requirements; and once team leaders have made a decision and announced it to the team, they should listen to the reservations of team members.¹⁷ After the training, respondents also indicated positive attitudes towards new skills acquired such as leadership, coordination and communication in creating and maintaining effective teams recognizing clinical errors and conducting systematic briefings and debriefings.¹⁷

Conceptual Framework of Training on Interdisciplinary Team Building

Several medical team-building training programmes have been developed in recent years. Some of these programmes have been used in military settings, while others were developed more for the health system. Certain programmes are domain-specific, while others are interdisciplinary, however, each of these programmes was inspired by crew resource management concepts and all share the common goal of reducing the number and severity of medical errors.¹⁹ The crew resource management concept is involving three main elements: informational instruction and awareness training, practice and feedback and recurrent training opportunities.^{15,18} For this study several theoretical components were used as a basis for conceptualizing the training model. First, information was used on interdisciplinary team building since this theoretical base was central to the training intervention.^{3,15,20-24}

Second, the modern adult learning theory identified by Knowles was used to work with inter-professional teams.^{31,49} Basic principles from the work suggest that adults come into learning settings with specific learning needs, that adults' orientation to learning is life-centred and that experience is the richest resource for adults learning.^{16,25}

The third theoretical component was the Health Belief Model.²⁶⁻²⁸ The Health Belief Model is a psychological model that attempts to explain and predict health behaviours. This is done by focusing on the attitudes and beliefs of individuals.²⁷ The core assumptions and statements of the Health Belief Model are based on the understanding that a person will take a health-related action can be avoided; has a positive expectation that by taking a recommended action, he /she will avoid a negative health condition; and believes that he/ she can successfully take a recommended action.^{27,28}

The model was spelt out in terms of four constructs representing the perceived threats and net benefits as follows: perceived susceptibility, perceived severity, perceived benefits and perceived barriers.^{27,28} These constructs were proposed as accounting for people's "readiness to act".^{27,28}

Two recently added concepts are cues to action which would activate that readiness and stimulate overt behaviour and the concept of self-efficacy, or one's confidence in the ability to successfully act.^{27,28}

METHODS

Description of The Study Area

The study location was the Nnamdi Azikiwe University Teaching Hospital (NAUTH), Nnewi. NAUTH was selected by simple random sampling technique as tertiary health facilities.

NAUTH is a federal tertiary health facility situated in Nnewi North Local Government Area, Anambra State. Nnewi has an area dimension of 72 km² and an approximate population of 155,443 (77,517 males and 77,926 females) with an average population density of 2159 people per km².²⁹ Nnewi is an urban community and the inhabitants are known for their commerce, arts and crafts as means of livelihood. The people are mainly Christians with few Muslims and traditional worshippers. The Igbo language is the vernacular though English is widely spoken. There were about 64 registered private clinics/ hospitals at Nnewi, 2 missionary hospitals, 1 federal tertiary hospital which was the Nnamdi Azikiwe University Teaching Hospital and 1 state tertiary health facility (Anambra State University Teaching Hospital) and 24 primary health centres.³⁰

Nnamdi Azikiwe University Teaching Hospital is presently located at the former General Hospital Nnewi, Anambra state. It was commissioned on 19th July 1991 as a state teaching hospital and subsequently taken over by the Federal Government of Nigeria by Decree 68 of 10th September 1992. The hospital has the main site at Nnewi, with annexes at the Guinness Eye Centre, Onitsha, the Trauma Centre, Oba, Centres for Community Medicine/ Primary Health Care at Neni, Umunya, Awka and Ukpou respectively offering primary health care services.³¹ This study was purposively restricted to the main site at Nnewi because this was a pilot study that will be scaled-up, depending on the study outcomes, for other annexes of NAUTH members of staff to benefit. The staff strength of the main site was 1590. It had thirty departments including Community Medicine, Surgery, Nursing, Administration, Accounts, among others, with medical doctors, administrators, nurses, among others as professionals.³²

Study Design

The study employed a longitudinal prospective study design.

Study Population

This was drawn from healthcare workers in different professional associations of thirty departments of Nnamdi Azikiwe University Teaching Hospital Nnewi and Federal Medical Centre Asaba. The population were as follows: medical doctors, nurses, medical laboratory scientists, pharmacists, administrators, accountants, medical social service providers, nutritionists, works engineers and medical records professionals, among others. The first four categories of professionals were referred to as clinical service professionals while the other categories were referred to as support service professionals.^{32,33}

Inclusion Criteria

Only members of staff that had permanent employment and have been employed for over a one-year duration were recruited for this study. This was because they will be available to do the continuous team-building mentoring of their colleagues.

Only members of staff that belonged to recognised professional associations were enlisted for the study.

Exclusion Criteria

Internists and members of staff that were not permanently employed were excluded from the study. Members of staff that have undergone any training on inter-professional team building or similar topics were excluded from the study to avoid confounding effects.

Members of staff that did not belong to recognised professional associations were excluded from the study.

Sample Size Determination

The minimum sample size was determined using the formula:³⁴

$$n = \frac{\{ u \sqrt{[\pi_1(1-\pi_1)] + \pi_2(1-\pi_2)} + v \sqrt{[\pi(1-\pi)]} \}^2}{(\pi_2 - \pi_1)^2}$$

Where n= the minimum sample size

u= probability of finding a significant result (power) at 80 % = 0.84

v= significance level at 1% (that is, confidence interval of 99 %) = 2.5758

π_1 = baseline proportion of healthcare workers who had knowledge of and attitude towards team building= 0.7⁴

π_2 = expected proportion of healthcare workers who should have increased knowledge of and attitude towards team building after intervention = 0.85

$$\pi = \frac{\pi_1 + \pi_2}{2} = \frac{0.7 + 0.85}{2} = 0.775$$

Thus, by substituting the respective values into the formula

$$n = \frac{\{ 0.84 \sqrt{[0.7(1-0.7) + 0.85(1-0.85)]} + 2.5758 \sqrt{[0.775(1-0.775)]} \}^2}{(0.85-0.7)^2}$$

$$n = \frac{\{ 0.84 \sqrt{[0.21 + 0.1275]} + 2.5758 \sqrt{0.1744} \}^2}{0.15^2} = \frac{\{ 0.84 \times 0.58 + 2.5758 \times 0.42 \}^2}{0.0225}$$

$$n = \frac{\{ 0.4872 + 1.0818 \}^2}{0.0225} = \frac{1.569^2}{0.0225} = \frac{2.4618}{0.0225} = 109$$

Considering anticipated response rate of 90% and attrition rate of 10%

(with a follow-up study), the study sample size for the two groups respectively = $\frac{109}{0.9} = 121$.

0.9

That is, the study sample size for the group was approximately 121.

Sampling Technique

A multistage sampling technique was used.

Stage I: Simple random sampling technique was used to select NAUTH.

Stage II: Purposive sampling technique was used to select ten categories of professionals from NAUTH Nnewi and FMC Asaba respectively. Of the ten categories of professionals the clinical service professionals were medical doctors, nurses, pharmacists and medical laboratory scientists while the support service professionals were administrators, accountants, works engineers, medical records, physiotherapists, and nutritionists.

Stage III: Simple random sampling technique was used to select twelve (12) professionals from each of the ten categories of professionals except medical doctors which were thirteen (13). This was to make up the study sample size of 121 for each of NAUTH and FMC respectively.

Data Collection/ Training Intervention

A quantitative method of data collection was used to collect data at Pre-intervention and Post-intervention phases.

Pre-intervention phase:

This made use of a pre-tested semi-structured self-administered questionnaire adapted from studies on inter-professional team building events .¹

Post-intervention phase:

The same set of questionnaires used at the pre-intervention phase was re-administered to respondents at the post-intervention phase after three (3) months to assess any effect of the intervention on attitudinal predictors of inter-professional team building.

Eight (8) research assistants were trained for a week on data collection tools and record-keeping.

Validation of Study Instrument

Pre-testing of the instrument was conducted on similar participants in a federal tertiary health facility in Enugu state to check for its reliability and validity and necessary adjustments made.

Data Entry and Analysis

Data collected were cleaned and edited manually, and analysed using the computer software package SPSS version 17.

Tests of statistical significance were carried out using appropriate tests like chi-square and with the level of statistical significance set at a p-value equal to or < 0.01.

Ethical Consideration

Ethical clearance and approval were obtained from the Nnamdi Azikiwe University Teaching Hospital Ethical Committee (NAUTHEC). Permission was obtained from the hospital management and heads of each department of the Nnamdi Azikiwe University Teaching Hospital, Nnewi. Written informed consent was obtained from all the respondents. Confidentiality and freedom to opt-out at any stage without consequence(s) was also assured.

Limitations/ Constraints

All information from respondents were based on self-reports.

Expected subject loss due to following up during the waiting time after the training sessions were taken care of by factoring in attrition rate in sample size determination

RESULTS

Table 1a:Socio-demographic variables of respondents at pre-and post-intervention phases.

Variables	(n=121) n(%)
Age (years)	
21-30	32(26.8%)
31-40	25(20.7%)
41-50	49(40.2%)
>51	15(12.3%)
Sex	

Male	38(31.7%)
Female	83(68.3%)
Highest level of education	
First degree	98(81.5%)
Second degree	19(15.4%)
Third degree	4(3.1%)

Table 1a above showed a majority of respondents were in the age bracket of 41-50 years (40.2%).

Male to female sex distribution was 31.7% to 68.3%. There was no statistically significant difference in the age and sex distributions between the phases.

The commonest level of education was first degree (81.5%).

Table 1b: Socio-demographic variables of respondents at pre-and post- intervention phases.

Variables	(n=121) n(%)
Clinical service professionals	
Medical doctors	13(10.7%)
Pharmacy	12(9.9%)
Nurses	12(9.9%)
Medical Lab. Scientists	12(9.9%)

NB: where n is the total number of clinical and support service professionals

Table 1b above showed the four categories of clinical service professionals with the medical doctors being the highest percentage(10.7%)

Table 1c: Socio-demographic variables of respondents at pre-and post- intervention phases.

Variables	(n=121) n(%)
Support service professionals	
Health records	12(9.9%)
Works engineers	12(9.9%)
Administrators	12(9.9%)
Accountants	12(9.9%)
Nutritionists	12(9.9%)
Physiotherapists	12(9.9%)

NB: where n is the total number of clinical and support service professionals

Table 1c above showed all the support service professionals were of the same percentage (9.9%).

Table 2: Comparison of proportion of respondents attitudinal predictors of inter-professional team building among health workers at pre-intervention and post-intervention phases.

Variable n(%)	Pre-intervention	Post-intervention	X ²	df	P-value
	(n=121) n(%)	(n=121) n(%)			
Proportion that believed inter-professional team building events may result to benefits in their organization					
Agree	87(71.8%)	111(91.8%)	16	1	0*
Indifferent	34(28.2%)	10(8.2%)			
Disagree	0(0.0%)	0(0.0%)			
Proportion that may participate in inter-professional Team building if given an opportunity					
Agree	86(70.7%)	110(90.9%)	15.46	1	0*
Indifferent	35(29.3%)	11(9.1%)			
Disagree	0(0.0%)	0(0.0%)			
Proportion that may recommend inter-professional Team building to improve Inter-professional working relationship					
Agree	81(67.1%)	117(97.1%)	36	1	0*
Indifferent	40(32.9%)	4(2.9%)			
Disagree	0(0.0%)	0(0.0%)			

*= Statistical Significance

Table 2 showed that the proportions of respondents that agreed to inter-professional team building events resulted in benefits to their organizations were 91.8% and 71.8 % for post-intervention and pre-intervention phases respectively. There was a statistically significant difference between the two phases (p = 0.00).

Table 2 also revealed that the proportion of respondents that agreed to participate in inter-professional team building if given an opportunity were 90.9% and 70.7% for post-intervention and pre-intervention phases respectively. There was a statistically significant difference between the two phases (p = 0.00).

Table 2 further revealed that proportions of respondents that agreed to recommend inter-professional team building to improve inter-professional working relationships were 97.1% and 67.1% for post-intervention and pre-intervention phases respectively. There was a statistically significant difference between the two phases (p = 0.00).

Table 3: Comparison of proportion of respondents attitudinal predictors of inter-professional team building among health workers at pre-intervention and post-intervention phases.

Variable n(%)	Pre-intervention	Post-intervention	X ²	df	P-value
	(n=121) n(%)	(n=121) n(%)			
The proportion that believed inter-professional team building events may Be waste of time and money					

Agree	0(0.0%)	0(0.0%)	45.08	1	0*
Indifferent	38(31.7%)	0(0.0%)			
Disagree	83(68.3%)	121(100.0%)			
Proportion that may recommend inter-professional team building to resolve conflict					
Agree	65(53.7%)	114(93.9%)	62.4	2	0*
Indifferent	49(40.2%)	0(0.0%)			
Disagree	7(6.1%)	7(6.1%)			

*= Statistical Significance

Table 3 showed that the proportions of respondents that agreed to inter-professional team building events to be a waste of time and money were 0.0% and 0.0% for post-intervention and pre-intervention phases respectively. Those that disagreed were 100.0% and 68.3% for post-intervention and pre-intervention phases respectively. There was a statistically significant difference between the two phases ($p = 0.00$).

Table 3 also revealed that proportions of respondents that agreed to recommend inter-professional team building to resolve the conflict were 93.9% and 53.7% for post-intervention and pre-intervention phases respectively. There was a statistically significant difference between the two phases ($p = 0.00$).

Table 4: Comparison of proportion of respondents attitudinal predictors of inter-professional team building among health workers at pre-intervention and post-intervention phases

Variable n(%)	Pre-intervention (n=121) n(%)	Post-intervention (n=121) n(%)	X ²	df	P-value
The proportion that believed to be an effective inter-professional team member					
The attitudinal predictor competencies to be possessed should be as follows:					
Assertive behaviour					
Agree	44(36.6%)	96(79.1%)	69.39	2	0*
Indifferent	27(21.9%)	25(20.9%)			
Disagree	50(41.5%)	0(0.0%)			
Cooperative attitude					
Agree	87(71.9%)	118(97.5%)	30.75	2	0*
Indifferent	31(25.6%)	3(2.5%)			
Disagree	3(2.5%)	0(0.0%)			
Courage to disagree					
Agree	58(47.6%)	82(67.6%)	13.07	2	0*
Indifferent	47(39.0%)	35(29.0%)			
Disagree	16(13.4%)	4(3.4%)			

*= Statistical Significance

Table 4 showed that proportions of respondents that agreed to assertive behaviour as attitudinal predictor competencies component were 79.1% and 36.6% for post-intervention and pre-intervention phases respectively. Those that disagreed with it were 0.0% and 41.5% for post-intervention and pre-

intervention phases respectively. There was a statistically significant difference between the two phases ($p = 0.00$).

Table 4 also revealed that proportions of professionals that agreed to cooperative attitude as attitudinal predictor competencies component were 97.5% and 71.9% for post-intervention and pre-intervention phases respectively. There was a statistically significant difference between the two phases ($p = 0.00$).

Table 4 further revealed that proportions of respondents that agreed to courage to disagree as attitudinal predictor competencies component were 67.6% and 47.6% for post-intervention and pre-intervention phases respectively. There was a statistically significant difference between the two phases ($p = 0.00$).

DISCUSSION

The majority of respondents were in the age group of 41-50 years (40.2%) for the study group, and this was similar to that obtained in a study by Leggat¹⁵ with the majority of respondents in the age group of 40-59 years. The finding that the majority of respondents were female in both groups is in keeping with that reported in a quasi-experimental study by Morey et al³⁰ where the majority were female in the experimental and control groups. The level of formal education with the highest frequency was first-degree education in both groups. This underscores the minimal challenges the respondents had with the self-administered questionnaires.

Clinical and support service professionals were recruited for this study because all categories of health workers are relevant in team building for the quality delivery of health services in the health system.^{2,3}

The assessment at pre-and post-intervention phases of attitudinal predictors of inter-professional team building showed that the majority improved from 71.8% to 91.8% respectively ($p < 0.01$) agreed to inter-professional team building resulted in benefits in their organization. This finding is in keeping with that of other authors where most respondents agreed that team building events they attended benefited their organizations.¹

This study also found that most respondents improved from 70.7% to 90.9% at pre-and post-intervention phases, respectively ($p < 0.01$) agreed to participate in inter-professional team building if given an opportunity. This finding is supported by those obtained in studies by Aronu³⁵ and Coster¹⁴ where most respondents agreed to participate in team-building if given an opportunity. This means respondents were likely willing to expend resources to participate in inter-professional team building events because it benefitted them. The finding most respondents improved from 67.1% to 97.1% at pre-and post-intervention, respectively ($p < 0.01$), agreed to recommend inter-professional team building to improve an inter-professional working relationship is in keeping with a study by Aronu³⁵ where most respondents agreed to recommend it to improve the inter-professional working relationship to reduce conflicts that have led to poor quality of health service delivery.^{2,4,6-9}

The majority of respondents improved from 63.3 % to 100% at pre-and post-intervention phases, respectively ($p < 0.01$) disagreed with the belief that inter-professional team building was a waste of time and money as supported by other authors.^{1,35} Most respondents improved from 53.7% to 93.9% at pre-and post-intervention phases, respectively ($p < 0.01$) agreed to recommend team building to resolve conflict which is in keeping with that reported in a study by Grogan et al¹⁷ that most respondents (73%) recommended inter-professional team building to create and manage an inter-professional team to avoid conflicts and 89% respondents recommended it as a means of recognizing the adverse situation.

On the attitudinal predictor competencies to possess to be an effective inter-professional team member assertive behaviour was agreed to as attitudinal predictor competencies component by respondents, with improvement from 36.6% and 79.1% at pre-and post-intervention phases, respectively ($p < 0.01$). Those that disagreed with it decreased from 41.5 % to nil at pre-and post-intervention phases, respectively

($p < 0.01$). Assertive behaviour by an inter-professional team leader could be a necessary virtue to make progress when the going is tough in some instances and to get lackadaisical members re-focused on their jobs.^{36,37} Those that were indifferent / disagreed with it perhaps viewed it as a negative virtue that should not be regarded as an attitude competencies component. This finding is perhaps in keeping with that reported by Leggat¹⁵ that 14.1% of respondents agreed to assertive behaviour as an attitude competencies component. There is a need to be cautious in exercising assertive behaviour if an inter-professional team member wants the best contribution of other team members in any assigned task.

Cooperative attitude is another attitudinal predictor competencies component most respondents, with improvement from 71.9% to 97.5% at pre-and post-intervention phases, respectively ($p < 0.01$), agreed to. This finding is in keeping with that reported by Lia-Hoagberg¹⁶ where cooperative attitude led to a shared vision, respect and valuing of other team members. Another study that validated its importance was that 47.5% of respondents regarded it as an attitudinal predictor competencies component.¹⁵ In other studies it was reported that most health professionals with cooperative attitudes identified the need to develop a strategic approach for inter-professional teamwork to meet the educational needs of inter-professional healthcare.^{38,39}

Courage to disagree is also another attitudinal predictor competencies component that most respondents, with improvement from 47.6% and 67.6% at pre-and post-intervention phases, respectively ($p < 0.01$), agreed to as a possessive attitudinal predictor to be an effective inter-professional team member. This finding is in keeping with a study where 45.5% of respondents agreed to courage to disagree as attitudinal predictor competencies component.¹⁵

The traditional training and socialisation of health professionals tend to emphasise individual skills, accountability and achievement and the healthcare system continue to foster individual and discipline-specific rewards, supervision and education which consistently leads to difficulties with collaboration across professions, and reliance on the hierarchy to manage coordination needs and mediate conflict.⁴²⁻⁴⁴ There needs to be a radical shift in human resource management in healthcare to train, performance manage and reward attitudinal predictors that result in healthcare leaders through the organization – leaders that can foster the organizational commitment and psychological safety that is likely to improve knowledge of and attitude towards team building for teamwork outcomes.⁴¹

CONCLUSION

This study showed there is an evidence-based improvement with a significant statistical difference of all eight variables of attitudinal predictors of inter-professional team building among healthcare professionals in Nigeria. It is recommended for further research that assessment for intervention evidence should be done in multiples of succeeding years to establish the needs for re-intervention activities because unfavourable attitudinal predictors could be difficult to unlearn to assimilate favourable attitudinal predictors for sustained inter-professional behaviour.

ACKNOWLEDGEMENTS

We especially appreciate all eight research assistants that assisted in this study.

REFERENCES

1. Efegebere HA, Tabowei BI, Anyabolu AE, et al. A Comparative Study on knowledge of Team building between healthcare workers in two federal tertiary health facilities in different geopolitical zones of Nigeria. 2017; J of Health, Med and Nurs. Vol. 43: 82-92

2. Federal Government of Nigeria. National Human Resources for Health Strategic Plan 2008-2012. Federal Ministry of Health Abuja publication, 2007[cited 2012 May 20]: 1-84. Available from who.int/workforcealliance/countries/Nigeria_HRHStrategicPlan_2008_2012.pdf
3. Oandasan I, Baker GR, Barker K. Teamwork in healthcare: Promoting effective teamwork in healthcare in Canada. Policy synthesis and recommendations. Canadian Health Services Research Foundation, 2006 [cited 2020 Jan 22]: 1-46. Available from: www.chsrf.ca
4. Ogbimi RI, Adebamowo CA. Questionnaire survey of working relationships between nurses and doctors in university teaching hospitals in Southern Nigeria. BMC Nursing. 2006 [cited 2012 September 2] ; 5: 2. Doi: 10. 1186/1472-6955-5-2. Available from : <http://www.biomedcentral.com/1472-6955/5/2>
5. Adeniji FO. Groupthink among health workers: The Nigerian Perspective. Research Journal. 2012 [cited 2012 October 2] ; 2(5): 1-4. Available from http://www.sciencepub.net/researcher/research/0205/01_0880_research/0205_1-4.pdf
6. Iyang US. Interprofessional conflict in Nigeria health care system. Nigerian Journal of Health Planning and Management. 2007; 3 : 47-50.
7. Ogbimi RI. Career development: the unexplored source of job satisfaction in the Nigerian health care delivery system. Journal Nig Inst Mgt. 2007; 38: 23-33.
8. Sweet SJ, Norman IJ. The nurse-doctor relationship: a selective literature review. J of Adv Nursing. 2005; 22: 165-170.
9. Health Nairaland Forums. Why the professional rivalry and disharmony among medical and health workers? 2012 May 11[cited 2012 October 2]:20.Available from <http://www.nairaland.com/935694/why-professional-rivalry-disharmony-among>
10. Alubo SO. The political economy of doctors strikes in Nigeria: a marxist interpretation. Soc Sc Med. 2008; 22: 467-477.
11. Institute of Health Service Administration of Nigeria at the 2007 National Conference/ General Meeting and National workshop. In J inst. 2007; 3(1): 45-46.
12. Abiodun AJ. Patients satisfaction with quality attributes of primary health care services in Nigeria. J Health Mgt. 2010; 12 (1): 39-59.
13. Hope JM, Lugassy DM, Meyer R, Jeanty F, Meyers SP. Bringing Interdisciplinary and multicultural team building to health care education: The Downstate Team building Initiative. Academic Medicine. 2005; 80(1): 74-83
14. Coster S, Norman I, Murrells T, Kitchen S, Meerabeau E. Interprofessional attitudes among undergraduate students in the health professions: A longitudinal questionnaire survey. International J of Nursing studies.2008; 45: 1667-1681.
15. Morey JC, Simon R, Jay GD, Wears RL, Salisbury M, Dukes KA, et al. Error reduction and performance improvement in the emergency department through formal team training: Evaluation results of the MedTeams Project. Health Services Res.2012 [cited 2012 Jul 2]; 37(6): 1553-1581. Dio:10.1111/1475-6773.01104
16. Lia-Hoagberg B, Nelson P, Richard A. An Interdisciplinary Health team training programme for school staff in Minnesota. Journal of School Health.2009 [cited 2012 Jul 2]; 67(3): 94-97. Doi :10.1111/j.1746-1561.1997.tb03421.x

17. Grogan EL, Stiles RA, France DJ, Speroff T, Morris JA, Nixon B et al. The impact of aviation-based teamwork training on the attitudes of healthcare professionals. *J Am Coll Surg.* 2004; 199: 843-848.
18. Crew Resource Management. Crew resource management: aviation safety. Crew resources management.net. 2014[cited 2014 December 2]; 1; 1-2. Available from www.crewresourcemanagement.net/2.html
19. United States Department of Health and Human Services. Medical team training: the evidence-based relation. Agency for Healthcare Research and Quality. 2005[cited 2014 December 2]; 1-5. Available from <http://www.ahrq.gov/research/findings/final-reports/medteam/chapter4.html>.
20. Bebetos E, Theodorakis ND, Tsigilis N. Relations between role ambiguity and athletes' satisfaction among team handball players. *Sports Journal.* 2007; 10: 35-45.
21. Burke SE, Stagl KC, Klein KC, Goodwin GE, Salas E, Halpin SM. What type of leadership behaviours are functional in teams? : A meta-analysis. *The Leadership Quarterly.* 2006; 17: 288-307.
22. Gilboa S, Shirom A, Fried Y, Cooper C. A meta-analysis of work demand stressors and job performance: examining main and moderating effects. *Personal psychology.* 2008; 61: 227-271.
23. Findlay LC, Coplan RJ. Come out and play shyness in childhood and the benefits of organized sports participation. *Canadian Journal of Behavioural Sc.* 2008; 40: 153-161.
24. Fraser T, Core J. Youths sports: implementing findings and moving forward with research. *Athletic Insight.* 2006; 8: 12-27.
25. Katzenbach JR, Smith DK. The discipline of teams. *Harvard Business Review.* 2005; 83: 1-9.
26. Goette L, Huffman D, Meiers S. The impact of group membership on cooperation and norm enforcement: Evidence using random assignment to real social groups. *American Economic Reviews.* 2006; 96: 212-216.
27. Marriner TA, Raile AM. *Nursing theorists and their work.* 5th ed. St. Louis: Mosby; 2005: 1-200.
28. Polit DF, Beck CT. *Nursing Research: principles and methods.* 7th ed. Philadelphia: Lippincott Williams and Wilkins; 2007: 1-218
29. Potter PA, Perry AG. *Fundamentals of nursing.* 6th ed. St. Louis: Elsevier Mosby; 2006:1-90
30. Federal Government of Nigeria. National Population Census. National Population Commission publication. 2006: 1-7
31. Ministry of Health Awka, Anambra State. Health Facilities in Nnewi North Local Government Area. Anambra State Government publications, 2012: 1-8
32. Nnamdi Azikiwe University Teaching Hospital. Five-Year Strategic Plan 2007-2011. Nnamdi Azikiwe University Teaching Hospital publication. 2007: 1-30
33. Nnamdi Azikiwe University Teaching Hospital Nominal Roll of staff. Nnamdi Azikiwe University Teaching Hospital publication, 2012 Apr 20: 1-20.
34. Walter SB. Determination of Significant related risk and optimal sampling procedures in prospective and retrospective comparative studies of various sizes. *Am J of Epidemiol.* 1977; 105: 387.
35. Aronu CO, Bilesanmi AO. Assessing the knowledge, attitude and factors affecting team-building among health workers in Nigeria using the permutation method for Hotelling T-squared analysis. *American Journal of Theoretical and Applied Statistics.* 2013; 2(6) : 184-190. Doi: 10.1168/j.ajtas.2o13206.15

36. Williams KY, O' Reilly CA, Barsade S. The Impact of Relational Demography on Teamwork. When Majorities are in the Minorities. Graduate School of Business. Stanford University publications. 2009: 1-45.
37. Centre for Clinical Interventions. Assertive behaviour. No date [cited 2013 Jan 26].
38. Kvarnstrom S. Difficulties in collaboration: A critical incident study of interprofessional healthcare teamwork. *Journal of Interprofessional Care*. 2008; 22(2): 191-203.
39. Pinnock H, Huby G, Tierney H, Powell A, Kielmann T. Is a multidisciplinary team the key? A qualitative study of the development of respiratory services in the UK. *J Royal Soc Med*. 2009[cited 2012 Jul 5]; 102(9): 378-390. Doi: 10.1258/jrsm.2009.080356.
40. Leggat SG. Effective healthcare teams require effective team members: defining teamwork competencies. *BMC Health Services Research* .2007[cited 2012 May 5]; 7:17 doi: 10.1186/1472-6963-7-17. Available from <http://www.biomedcentral.com/1472-6963/7/17>.
41. Leggat SG, Bartram T, Stanton P, Fraser B. Exploring the lack of progress in improving patient safety in Australian hospitals. In Working Paper. Melbourne, La Trobe University Publications, 2005; 1-19.
42. Leggat SG, Dwyer J. Improving hospital performance: culture change is not the answer. *Healthcare Quarterly*. 2005; 8(2):60-66.
43. Stanton P, Bartram T, Harbridge R. Human Resources Management practices in the public health sector: lessons from Victoria, Australia. *Journal of European Industry and Training*. 2006; 28(2/3/4):310-328.
44. Committee on Quality of Healthcare in America. *Crossing the Quality Chasm. A New Health System for the 21st Century*. Edited by Medicine I. Washington, D.C., National Academy Press, 2006:1-337.
45. Farmer EA. Assessing the performance of doctors in teams and systems. *Medical Education*. 2006; 36(10) :942-948.