

Comparative Study of Knowledge on Team Building Between Healthcare Workers in Two Federal Tertiary Health Facilities in Different Geo-political Zones of Nigeria

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Abstract

Introduction: Team building has been found to improve effectiveness and efficiency of workforce in the healthcare system generally. The objective of this study was to compare knowledge of team building between healthcare workers in two federal tertiary health facilities in South-South and South-East geopolitical zones of Nigeria. **Materials and Methods:** This was a descriptive cross sectional study carried out using multistage sampling technique to select a total of 242 subjects from ten categories of health professionals working in South-East (SE) geopolitical zone (Nnamdi Azikiwe University Teaching Hospital, NAUTH Nnewi) and South-South (SS) geopolitical zone (Federal Medical Centre, FMC Asaba) with 121 subjects in each geopolitical zone. Respondents participated in the study using same self-administered questionnaire for both geopolitical zones. **Results:** A total of 242 respondents participated, 121 each from the two different geopolitical zones. Majority were in the age group of 41-50 years and 21-30 years for SE and SS zones respectively. Majority were female and had first degree education for SE and SS zones respectively. Seven variables of knowledge of team building were collected and analysed with SPSS version 22 with results for SE and SS zones respectively with statistical significance set at $p < 0.01$. This consisted of respondents that heard of team in healthcare 74.4% and 91.0% ($p < 0.01$), those that heard of inter-professional team composition in healthcare 65.9% and 78.7% ($p > 0.01$), those that defined correctly team building 75.6% and 91.0% ($p < 0.01$), those that defined correctly inter-professional team building to involve different professionals 73.5% and 81.4% ($p > 0.01$), those with sources of information on team building in health healthcare 57.3% (mainly health publication) 65.1% (mainly lectures/conferences) ($p < 0.01$), those that defined correctly a team 70.4% and 88.4% ($p < 0.01$), those that had good knowledge of competencies to possess to be an effective team member 65.9% and 69.6% ($p > 0.01$). **Conclusion and recommendations:** Proportion of respondents for the seven variables were higher for the South-South geopolitical zone tertiary health facility than the South-East geopolitical zone tertiary health facility though with no statistical significant difference across all seven variables. It is, therefore, recommended that needs assessment for team building knowledge be done for healthcare workers in health facilities located in different geopolitical zones before team building training and re-training institutionalization building in order to persistently improve their knowledge of team building as a mechanism to reduce inter-professional conflicts and ultimately improve health outcomes in line with the National Health Policy 2016 of the Federal Government of Nigeria. More research is needful to assess intra- and inter-departmental/ and -professional level of knowledge on team building among healthcare workers in any health facility in a geopolitical zone.

Keywords: Team building, Knowledge, Health facilities, Healthcare workers, Geo-political zones, Nigeria

INTRODUCTION

Team building definitions and concepts vary. Some of the definitions are as follows: Team building is the process of helping a workgroup become more efficient in accomplishing its tasks and in satisfying the needs of group members.¹ Team building is an intervention conducted in a work unit as an action to deal with a condition(s) seen as needing improvements.¹ Another definition views it as a process by which members of a group diagnose how they work together and plan changes which improve their effectiveness.¹

In the healthcare sector, human resources for health otherwise referred to as healthcare workers has been defined by the World Health Organization (WHO) as those who promote and preserve health as well as those

who diagnose and treat diseases.² Health management and support workers who help to make the health system function but who do not provide health services directly are also included.²

A 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 more larger social systems and who manage their relationships across organization borders.³ Since the recommendation by the 2006 World Health Report that task shifting, which is the delegation of tasks from one cadre of profession (for example a physician) to another cadre of profession (for example a nurse), is the answer to the human resources crises in Africa, there has been a great deal of debate about the efficacy and modalities of task shifting.^{4,5}

In Nigeria, across the different states, poor knowledge of team building for teamwork among healthcare workers has caused low quality of healthcare outcomes.^{6,8-15} While some authors think medical doctors are the major sources of these conflicts, others have blamed medical training programmes that set up a hierarchical model with other health professionals in a relatively subservient role.^{6-8,9}

Poor quality of health outcomes as a result of inter-professional friction in healthcare arena is well documented in medical literature emphasizing the need for team building among health workers.^{3,8-11,15-23} The WHO has identified inter-professional education in 1978 as an important aspect of primary health care and that the positive aspect of team working is greater than the sum of the contributions of individual team members.¹⁸

The findings of this study would provide evidence-based suggestion for inclusion into the National Health Act of the Federal Government of Nigeria for training on team building in the three tiers of healthcare delivery. This study should positively impact the current healthcare situation by improving inter-professional teamwork as it relates to knowledge of healthcare workers as evidenced by findings in other countries.^{1,3,16,18,20,24,25,28}

MATERIALS AND METHODS

Description of The Study Sites/Areas

The study locations were the Nnamdi Azikiwe University Teaching Hospital (NAUTH), Nnewi and the Federal Medical Centre (FMC), Asaba. They were purposively selected based on having similar comparable characteristics of being both federal 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 average population density of 2159 people per km².⁵³⁻⁵⁵ Staff strength and number of departments of NAUTH as at time of study was 1,590 personnel and thirty departments respectively.⁵⁶

The Federal Medical Centre (FMC), Asaba (the capital of Oshimili South Local Government Area) was one of the two tertiary health facilities in Delta State (the other is the Delta State University Teaching Hospital, Oghara).^{53,57,60} Oshimili South Local Government Area occupies an area of about 300 square kilometres with population of 150,032 (Male -76,078 and Female- 73, 954).^{53,55, 57} Staff strength and number of departments of FMC Asaba as at time of study was 989 personnel and thirty departments respectively.⁶⁰

Study Design

The study employed a descriptive cross-sectional design with NAUTH representing the South-East(SE) geo-political zone of Nigeria and FMC representing South-South(SS) geo-political zone of Nigeria.

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.^{56,59}

Inclusion Criteria

Only members of staff that had permanent employment or have been employed for over one year duration and belonged to recognised professional associations were included in this study.

Exclusion Criteria

Internists and members of staff that were not permanently employed were excluded from the study.

Also, 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. This was confirmed with cross-checking of different sources from chairperson(s) of different health professionals associations in NAUTH and FMC.

Furthermore, 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: ⁶¹

$$n = \frac{2(z^2 pq)}{d^2}$$

Where n= the minimum sample size, z = confidence level =1.96

D = margin of error, p= prevalence

The total minimum sample size for the two comparable hospitals was $109 \times 2 = 218$.

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

The study sample size for NAUTH group was approximately 121 as well as the same for FMC group.

Sampling Technique

A multistage sampling technique was used.

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

Data Collection

This made use of a pre-tested semi-structured self administered questionnaire.

Eight (8) research assistant were trained for a week period 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 computer software package SPSS version 17. Frequency distribution of all variables were presented in tabular forms.

Means and standard deviations were calculated.

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

Ethical Consideration

Ethical approval was obtained from the ethics committees of Nnamdi Azikiwe University Teaching Hospital Ethical Committee and Federal Medical Centre Asaba . Permission was obtained from the hospital management and heads of each department of the two hospitals to access their healthcare workers.

Written informed consent was obtained from respondents and confidentiality of their information assured.

RESULTS

A total of 242 professionals of the study and control groups were recruited for the study (with 121 professionals representing each group). 121 and 121 respondents participants in NAUTH and FMC groups respectively.

Table 1a: Socio-demographic variables of respondents in NAUTH and FMC groups.

Variables	NAUTH group (n=121) n(%)	FMC group (n=121) n(%)	Total	X ²	df	P-value
Age (years)						
21-30	32(26.8%)	98(40.5%)	66(54.6%)	32.78	3	0*
31-40	25(20.7%)	27(22.1%)	52(21.6%)			
41-50	49(40.2%)	13(11.0%)	62(25.6%)			
>51	15(12.3%)	15(12.3%)	30(12.3%)			
Sex						
Male	38(31.7%)	30(24.4%)	68(28.1%)	1.31	1	0.253
Female	83(68.3%)	91(75.6%)	174(71.9%)			
Highest level of education						
First degree	98(81.5%)	90(74.6%)	188(77.7%)	4.34	2	0.114
Second degree	19(15.4%)	19(15.3%)	38(15.7%)			
Third degree	4(3.1%)	12(10.1%)	16(6.6%)			

*= Statistical Significance

Table 1a above showed majority of respondents were in the age bracket of 41-50 years (40.2%) and 21-30 years(54.6%) for the NAUTH group and FMC group respectively. There was statistical significant difference between the ages of respondents in the two group (p = 0.00).

Male sex distributions were 31.7% and 24.4% for NAUTH and FMC groups respectively while the female sex distributions were 68.3% and 75.6% for the NAUTH and FMC groups respectively. There was no statistical significant difference between the sex distributions for the two groups (p=0.253).

The commonest level of education that was first degree for the study group (81.5%) and control group (74.6%). There was no statistical difference between the two groups on the level of education (p=0.114).

Table 1b: Socio-demographic variables of respondents in NAUTH and FMC groups .

Variables	NAUTH group (n=121) n(%)	FMC group (n=121) n(%)	Total	X ²	df	P-value
Clinical service professionals						
Medical doctors	13(10.7%)	13(10.7%)	26(10.7%)	0.00	3	1
Pharmacy	12(9.9%)	12(9.9%)	24(9.9%)			
Nurses	12(9.9%)	12(9.9%)	24(9.9%)			
Medical Lab. Scientists	12(9.9%)	12(9.9%)	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%) for the NAUTH and FMC groups respectively. Other professionals were of the same percentage (9.9%) for the NAUTH and FMC groups respectively. There was no statistical significant

difference between the sex distributions for the two groups ($p = 1.0$)

Table 1c: Socio-demographic variables of respondents in NAUTH and FMC groups .

Variables	NAUTH group (n=121) n(%)	FMC group (n=121) n(%)	Total	X ²	df	P-value
Support service professionals						
Health records	12(9.9%)	12(9.9%)	24(9.9)	0.00	5	1
Works engineers	12(9.9%)	12(9.9%)	24(9.9)			
Administrators	12(9.9%)	12(9.9%)	12(9.9)	24(9.9%)		
Accountants	12(9.9%)	12(9.9%)	24(9.9)			
Nutritionists	12(9.9%)	12(9.9%)	24(9.9)			
Physiotherapist	12(9.9%)	12(9.9%)	24(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%) for the study and control groups respectively. There was no statistical significant difference between the distributions for the two groups ($p = 1.0$)

Table 2: Comparison of mean of age and sex variables of respondents in NAUTH and FMC groups.

Variable	NAUTH group (n=121)		FMC group (n=121)		t-test	P-value
	Mean	SD	Mean	SD		
Age	30.3	± 14.3	30.3	± 24.6	0.00	1.00
Sex						
Male	19.0	± 15.7	15.0	± 21.5	1.65	0.0997
Female	42.0	± 11.8	46.0	± 23.1	1.70	0.0911

Table 2 above showed the mean age for the study and control groups were 30.3 ± 14.3 years and 30.3 ± 24.6 years respectively. There was no statistical significant difference between the two groups ($p = 1.00$).

The mean of male sex for the NAUTH and FMC groups were 19.0 ± 15.7 and 15.0 ± 21.5 respectively while mean of female sex for the study and control groups were 42.0 ± 11.8 and 46.0 ± 23.1 . There were no statistical significant differences for the two groups for male and female sex ($p > 0.01$).

Table 3a : Comparison of proportion of respondents knowledge of team building among health workers in NAUTH and FMC groups.

Variable	NAUTH group (n=121) n(%)	FMC group (n=121) n(%)	Total	X ²	df	P-value
Proportion that heard Of team in healthcare						
Yes	90(74.4%)	110(91.0%)	200(82.6%)	11.52	1	0*
No	31(25.6%)	11(9.0%)	42(17.4%)			
Proportion that heard of Interprofessional team composition in healthcare						
Yes	80(65.9%)	95(78.7%)	175(72.3%)	4.64	1	0.03
No	41(34.1%)	26(21.3%)	67(27.7%)			

*= Statistical Significance

Table 3a above showed that proportion of respondents that have heard of team in healthcare were 91.0% and 74.4% for control and study groups respectively. There was no statistical significant difference between the two groups ($p = 0.00$).

The table also showed that proportions of respondents that have heard of inter-professional team composition in healthcare were 78.7% and 65.9% for FMC and NAUTH groups respectively. There was no statistical significant difference between the two groups ($p = 0.03$).

Table 3b : Comparison of proportion of respondents knowledge of team building among health workers in NAUTH and FMC groups.

Variable	NAUTH group (n=121) n(%)	FMC group (n=121) n(%)	Total	X ²	df	P-value
Proportion that Defined team building						
Process of playing Politics	2(1.7%)	0(0.0%)	2(0.8%)	11.21	2	0*
Process of helping a group accomplish its task	91(75.6%)	110(91.0%)	201(83.1%)			
Everybody is nobody	0(0.0%)	0(0.0%)	0(0%)			
Undecided	28(23.2%)	11(9.0%)	39(16.1%)			
Proportion that defined Interprofessional team Building to involve Different professionals						
Good	89(73.2%)	98(81.4%)	187(77.3%)	3.56	2	0.19
Fair	30(24.8%)	23(18.6%)	53(21.9%)			
Poor	2(2.0%)	0(0.0%)	2(0.8%)			

*= Statistical Significance

Table 3b above showed that proportions of respondents that defined team building correctly as a process of helping a group accomplish its task were 91.0% and 75.6% for FMC and NAUTH groups respectively. There was statistical significant difference between the two groups (p = 0.00).

Table 3b also showed that proportions of respondents that were rated as having good knowledge for defining inter-professional team building as events that involve different professionals were 81.4% and 73.2% for control and study groups respectively. There was no statistical significant difference between the two groups (p = 0.19).

Table 3c : Comparison of proportion of respondents knowledge of team building among health workers in NAUTH and FMC groups.

Variable	NAUTH group (n=121) n(%)	FMCgroup (n=121) n(%)	Total	X ²	df	P-value
Proportion of source of information On team building in healthcare						
Nurse	4(3.3%)	4(3.3%)	8(3.3%)	82.97	5	0*
Medical doctors	6(4.9%)	12(9.7%)	18(7.4%)			
Relatives	0(0.0%)	0(0.0%)	0(0.0%)			
Friends	0(0.0%)	0(0.0%)	0(0.0%)			
Radio	3(2.4%)	8(6.8%)	11(4.5%)			
Health publications	69(57.3%)	8(6.8%)	77(31.8%)			
Lectures/conferences	24(19.5%)	79(65.1%)	103(42.6%)			
Others	15(12.2%)	10(9.8%)	25(10.4%)			

*= Statistical Significance

Table 3c above showed that proportions of professionals with knowledge of source of information on team building in healthcare were mainly 65.1% (lectures/ conferences) and 57.3% (health publications) for FMC and NAUTH groups respectively. For FMC group, this was followed by other sources not strictly related to health (9.8%) and medical doctors (9.7%). For NAUTH group, this was followed by lectures/conferences (19.5%), other sources not strictly related to health (12.2%). No respondents ever heard it from relatives nor friends in FMC and NAUTH groups. There was statistical significant difference between the two groups (p=0.00).

Table 3d : Comparison of proportion of respondents knowledge of team building among health workers in NAUTH and FMC groups.

Variable	NAUTH group (n=121) n(%)	FMC group (n=121) n(%)	Total	X ²	df	P-value
Proportion that defined a team						
A collection of individuals Independent in task	6(4.9%)	0(0.0%)	6(2.5%)	14.34	2	0*
A collection of individuals Interdependent in task	85(70.4%)	107(88.4%)	192(79.3%)			
Undecided	30(24.7%)	14(11.6%)	44(18.2%)			
Proportion that knew Knowledge competencies to possess to be an effective team member						
Good	80(65.9%)	84(69.6%)	164(67.8%)	2.57	2	0.28
Fair	41(34.1%)	35(29.1%)	76(31.4%)			
Poor	0(0.0%)	2(1.3%)	2(0.8%)			

*= Statistical Significance

Table 3d above showed that proportions of respondents that correctly defined a team as a collection of individuals that are interdependent in task were 88.4% and 70.4% for FMC and NAUTH groups respectively. There was statistical significant difference between the two groups (p = 0.00).

Table 3d also revealed that proportions of respondents that were rated to have good knowledge of knowledge competencies to possess to be an effective team member were 69.6% and 65.9% for the FMC and NAUTH group respectively. There was no statistical significant difference between the two groups (p = 0.28)

DISCUSSION

The mean age of respondents studied was 30.3 ± 14.3 years for NAUTH group and 30.3 ± 24.6 for FMC group . There was no statistical significant difference between the two groups (p > 0.01).

Majority of respondents were in the age group of 41-50 years (40.2%) for the NAUTH group, and this was similar to that obtained in a study by Leggat¹⁵ with majority of respondents in the age group of 40-59 years. The finding that majority of respondents were female in both groups is in keeping with that reported in a study by Morey et al³⁰ where majority were female. 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 quality delivery of health services in the health system.^{2,3}

The assessment of knowledge of proportion of respondents that have heard of team in healthcare were 74.4% for NAUTH group and 91.1% for FMC group, and there was statistical significant difference between the two groups (p<0.01). The proportion of respondents that have heard of inter-professional team composition in healthcare were 65.9% and 78.7% for NAUTH and FMC groups respectively , with no statistical difference between the two groups (p>0.01). These showed that most respondents have heard of team and inter-professional team composition in healthcare and they were likely to cooperate with team building activities. Most respondents 75.6% and 91.0% for NAUTH and FMC groups respectively correctly defined team building as a process of helping a group become more efficient in accomplishing its task and in satisfying the needs of the group members as supported by other authors.¹ This was supported by a similar study conducted in South-East Nigeria by Aronu³³ where majority (70%) agreed to the same team building definition. Some respondents 23.2% and 9.0% for NAUTH and FMC groups were indifferent in the definition of team building. Thus, justifying the need for training on team building in order to improve their knowledge.

The finding that a majority 73.2% for NAUTH group and 81.4% for FMC group were rated to have good knowledge for accepting as correct the definition of inter-professional team building as purposeful activities bringing members of different professions together is in keeping with a similar study conducted in South-East Nigeria by Aronu³³ where majority (60%) agreed to the same inter-professional team building definition. This will likely increase inter-professional tolerance and generally improve team building in the health system.

Regarding the source of information on team building in healthcare majority 57.3% for NAUTH group (preferred health publications) and 65.1% for FMC group (preferred lectures/ conferences) (p< 0.01). This shows likely most respondents in the NAUTH group were good readers of health publications or researchers than FMC group while those of the FMC group that preferred mostly lectures/ conferences could be because their hospital management board gave them more sponsorship and permission to attend. For other sources of

information 4.9% and 9.7% of respondents for NAUTH and FMC groups respectively preferred medical doctors compared to 3.3 % and 3.3% for NAUTH and FMC groups respectively that preferred nurses. These two categories of professionals need to endear themselves to other professionals for others to cite them as preferred sources of information especially for their vital roles in the health system. The finding that no respondents mentioned relatives or radio as source of information is a likely indicator to the poor knowledge of team building in healthcare in the general public domain on one hand and on the other hand most respondents do not listen to radio for such information.

Most respondents, with 88.4% for FMC group and 70.4% for NAUTH group ($p < 0.01$), were able to define a team correctly as a collection of individuals interdependent in their tasks as upheld by other authors.^{3,25} This implies that most respondents likely shared certain characteristics which include specific roles and communicating to achieve a common goal.²⁵

Most respondents , with FMC group (69.6%) more than NAUTH group(65.9%) , were rated to have good knowledge of knowledge competencies (including case/ care management, clinical knowledge, management knowledge, organizational goals and strategies, organizational policies, roles of team members, self-awareness, team development, understanding of individual persons) to possess to become an effective team member. This study reported the different knowledge competencies put together as a composite in comparison with knowledge competencies reported as individual components with their corresponding proportions of respondents recorded in studies by Leggat¹⁵ and Leach et al²⁹. This act of having composite knowledge competencies was aimed at reducing the length of the questionnaire to avoid social desirability bias among respondents.⁶⁶

Conclusion and recommendations: Proportion of respondents for the seven variables were higher for the South-South geopolitical zone tertiary health facility than the South-East geopolitical zone tertiary health facility though with no statistical significant difference across all variable. It is ,therefore, recommended that needs assessment for team building knowledge be done for healthcare workers in health facilities located in different geopolitical zones before team building training and re-training institutionalization in order to persistently improve their knowledge of team building as a mechanism to reduce inter-professional conflicts and ultimately improve health outcomes in line with the National Health Policy 2016 of the Federal Government of Nigeria. More research is needful to assess intra- and inter-departmental/ and professional level of knowledge on team building among healthcare workers in any health facility in a geopolitical zone.

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