EVALUATION OF TEAM COMPOSITION ACTIVITIES AMONGST HEALTH WORKERS IN NIGERIA USING LOGISTIC REGRESSION ANALYSIS

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ABSTRACT: *This study evaluated team composition activities amongst health workers in Nigeria using Delta State University Teaching Hospital as a case. The objectives of this study were to determine the contribution of demographic variables on the likelihood of knowledge of team in health care, to ascertain the impact of demographic variables on the likelihood of knowledge of inter-professional team composition activities and to determine the attitude competence that contributes significantly to the likelihood of knowledge of team amongst health workers in Delta State University Teaching Hospital, Oghara. The source of data used was primary source of data collection with the aid of questionnaire administered to 204 health workers at Delta State University Teaching Hospital Oghara. The statistical tools employed in this study include; the logistic regression analysis, percentage distribution, bar chart and pie chart analysis. The findings of this study revealed that 57.8% of the respondents have knowledge of team for health care, while 44.1% of the respondents have knowledge of Inter-professional team composition for healthcare. The result of the Nagelkerke R Square showed that the logistic model explained the likelihood of knowledge of team for healthcare strongly than the likelihood of knowledge of inter-professional team composition for healthcare. This result implies that majority of the workers have knowledge of team than knowledge of inter-professional team composition. Also, it was found that the attitude competencies that contributed significantly to the logistic model for likelihood of knowledge of team for health care were facilitation of participation and judgement attitude. The result further revealed that the attitude competencies identified to enhance effective healthcare were cooperative attitude, encouraging others and positive attitude.*

KEYWORDS: Attitude, Competence, Healthcare, Likelihood

INTRODUCTION

Team building/composition is an intervention conducted in a work unit as a proactive measure to deal with a condition(s) seen as needing improvements. Team processes describe subtle aspects of interaction and patterns of organizing that transform input into output. Teams require the right number of members with the appropriate mix and diversity of tasks and interpersonal skills. A balance between homogeneity and heterogeneity of members' skills, interests and backgrounds is preferred (Hackman, 1990). A team therefore is 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 intact social entity embedded in one or larger social system and who manage their relationships across organization borders (Oandasan et al., 2006). They further explained that teamwork requires an explicit decision by team members to co-operate in meeting the shared objective. Consequently, teamwork requires that team members sacrifice their autonomy, allowing their activities to be co-

ordinated by the team, either through decisions by the team leader or through shared decisions making. This implies that the responsibilities of professionals working as a team include not only activities they deliver because of their specialized skills or knowledge, but also those resulting from their commitment to monitor activities performed by their teammates, including managing the conflict that may result. Health professionals' perception as to whether or not they belong to a team varies as in some cases these professionals see themselves as working in uni-professional teams (for example a nursing team); while others see themselves as inter-professional team working in institutionally based teams such as a stroke team comprised of a range of professionals. On their part, Nazzaro and Strazzabosco (2009), defined a team as a group that has a job to do, whether as paid participants or as volunteers. They added that it is a group that has spent some time together, whether in smaller increments over a long period of time, or by spending a weekend or more working together on something. It is a group that achieves cohesiveness; a team's strength is found in the relationships among the team members. It is a group with a common objective, whose members are very clear about working towards one purpose. It is a group whose members are interdependent. Whereas other groups may recognize the strengths of each member, team members rely on the strengths of each member to accomplish the objective. According to Salas et al., (2008), team processes describe subtle aspects of interaction and patterns of organizing that transform input into output in an establishment. This includes communication, co-ordination, cohesion, decision-making, conflict management, social relationships and performance feedback.

Team processes can be described in terms of seven characteristics; coordination, communication, cohesion, decision making, conflict management, social relationships and performance feedback (Mickan and Rodger, 2000). Tierney (2002) defined team building as a process by which members of a group diagnose how they work together and plan changes which improve their effectiveness. Team building represents a varied concept for different professional groups with a common agreement that team building is a process aimed at improving the performance of a group. Team building is the process of helping a workgroup become more efficient in accomplishing its tasks and in satisfying the needs of group members. Team building is a new concept used in business circles and amongst business executives to stimulate work teams. Its objective is to build team spirit, team synergy or to consolidate teams. Developed at the beginning of the 1980's in the United States, team building has become the most popular group and leadership training approach in both Europe and North America. The majority of middle and large businesses use this type of activity at one time or another (Phaneuf, 2007). Homogenous teams are composed of similar individuals who complete tasks efficiently with minimal conflict. In contrast, heterogenous teams incorporate membership diversity and therefore facilitate innovation and problem solving. Healthcare teams are often large, due to norms of professional representation, regardless of contribution to patient care. In the healthcare sector, human resources for health have been defined by the World Health Organization (WHO) as those who promote and preserve health as well as those who diagnose and treat diseases. Also included are health management and support workers who help to make the health system functional but do not provide health services directly. This definition includes the medical doctors, nurses, nutritionists, psychologists, social health workers, health record keepers, administrators, security personnel among others. Oandasan et al., (2006) clarified that the aim of team building is to achieve teamwork and not necessarily collaboration because not all collaborations give rise to inter-professional teamwork. According to them, teamwork is the interaction or relationship of two or more health professionals who work interdependently to provide care for patients. In

essence, teamwork achieved when members of the team are mutually dependent, see one another as working collaboratively to provide patient care, share information which may lead to shared-decision making and know when teamwork should be used to optimize patient-centred care.

Statement of the Problem

Knowledge sharing refers to the provision of task information and know-how to help others and to collaborate with others to solve problems, develop new ideas or implement policies or procedures (Cummings, 2004; Pulakoset et al., 2003). Knowledge sharing can occur via written correspondence or face-to-face communications, through networking with other experts, or documenting, organizing and capturing knowledge for others (Cummings, 2004; Pulakoset et al., 2003). On the need for studies on knowledge sharing, Bakker et al. (2006) reported that only a few studies have investigated a small number of team characteristics and processes in relation to knowledge sharing. The results of these studies suggest that team characteristics and processes influence knowledge sharing among team members. For example, the longer a team has been formed and the higher the level of team cohesiveness, the more likely team members are to share knowledge. De Vries et al. (2006) examined team communication styles, agreeable and extravert styles, and found that they were positively associated with knowledge sharing willingness and behaviours towards executing a given task. Team building comes to life when available tools (for example, team task analysis, performance measurement or task simulation and exercises), delivery methods (for example information, demonstration or practice-based) and content are combined. Process intervention activities are designed to assist individuals and groups to examine, diagnose, and act upon their behaviour and interpersonal relationships. The ideal end results of these activities are improved team attitudes and effectiveness. Team building consists of four components: goal setting, interpersonal relationships, role clarifications and problem-solving (Salas et al., 2008). The need for team composition among health disciplines is crucial to patient care and team morale and administrative efficiency has been supported in numerous Medicine, Nursing and public health journals (Hope et al., 2005, Oandasan et al., 2006). The Nigerian health sector faces intricate human resources challenges, characteristic of health systems in many developing countries, especially in the area of poor interpersonal relationships and inter-professional friction among healthcare workers. This is because health professionals' associations and regulatory agencies tend to focus on their special areas (as uni-professional team), limiting understanding of issues within the larger healthcare system. Strengthening collaboration between regulatory bodies and associations would enable role definitions, complementariness and standards. Specialization has brought great quality of health outcomes but also problems of communication, a lack of shared understanding and fragmentation of shared responsibility. In healthcare, it is not enough for each profession to take care of their own responsibility; it must also take responsibility into interdependent specialties. The problems that arise do so because each profession self-righteously blames the other and also vigorously defends its boundaries (Adeniji, 2012). Inter-professional conflicts in the Nigerian health sector has been described as very intense, deep-rooted and crippling (Iyang, 1998). The division of labour among medical, nursing and allied health professionals implies that no single professional can deliver a complete package of healthcare; therefore the need for inter-professional team building among healthcare workers is a sine qua non (Leggat, 2007). Hence, the need for evaluating team composition activities amongst health workers in Nigeria using Delta State as a case is not to be overemphasized.

Purpose of the Study

1. To determine the contribution of demographic variables on the likelihood of knowledge of team in health care amongst health workers in Delta State University Teaching Hospital.

2. To ascertain the impact of demographic variables on the likelihood of knowledge of inter-professional team composition activities in health care amongst health workers in Delta State University Teaching Hospital.

3. To determine the attitude competence that contributes significantly to the likelihood of knowledge of team in health care amongst health workers in Delta State University Teaching Hospital.

4. To determine the attitude competence that contributes significantly to the likelihood of knowledge of inter-professional team composition activities in health care amongst health workers in Delta State University Teaching Hospital.

LITERATURE REVIEW

Team effectiveness depends heavily on the ability of individual members to successfully manage interpersonal relations with one another (Perkins and Abramis, 1990). This individual capacity is referred to as "interpersonal competence," which refers to the ability to maintain healthy working relationships and react to others with respect for ideas, emotions, and differing viewpoints. Babcock (2004) noted that because of the potential benefits that can be realized from knowledge sharing, many organizations have invested considerable time and money into knowledge management (KM) initiatives including the development of knowledge management systems (KMS) which use state-of-the-art technology to facilitate the collection, storage, and distribution of knowledge. Despite these investments, it has been estimated that at least $31.5 billion are lost per year by Fortune 500 companies as a result of the failure to share knowledge. Wu et al., (2007) used social exchange theory to examine how trust and justice, two key components in interpersonal relationships relate to knowledge sharing. They concluded that examining trust and justice is important because knowledge sharing involves providing knowledge to another person or a collective such as a team or community of practice with expectations for reciprocity. Lipman (2007) maintained that team building activities creates an open climate for communication, promote trust, establish rapport, stimulate creativity, promote learning, provide opportunity for hidden problems to surface, and of course, strengthen teamwork and motivation. Schepers and Van den Berg (2007) explained that justice-knowledge sharing relationship has received little research attention although the role of justice in affecting the quality of social exchange relationships between employers and their employees may be well established. They found procedural justice to be positively related to perception of knowledge sharing among employees. Lin (2007b) using part-time business administration students in Taiwan found that both distributive and procedural justice had positive indirect effects on tacit knowledge sharing via organizational commitment while distributive justice also influenced knowledge sharing through trust in co-workers.

In their contribution, Bock et al. (2005) stressed that it appears that job and organizational attitudes have a significant influence on knowledge sharing. Attitudes toward knowledge

sharing have been shown to not only have a direct effect on knowledge sharing but also have an indirect effect on self reported sharing behaviour through positively influencing intentions to share.

Baker et al., (2005), observed that outside healthcare, teams working together in high-risk and high-intensity work environments make fewer mistakes than do individuals. They added that this includes empirical evidence from commercial aviations, the military, fire-fighting and rapid-response police activities. They found a strong relationship between qualities such as flexibility, adaptability resistance to stress, cohesion, retention and morale with effective team performance. Oandasan *et al.*, (2006), noted that teamwork, when enhanced by inter-professional collaboration, could have a range of benefits. Although the link is far from definitive, it appears that teamwork and team composition could have positive effects, particularly in quality and safety. Also, some recent attempts endeavour to capture and evaluate individual training programs to enhance teamwork, with some evidence of effectiveness. They added that patient safety studies have found that team training and decision aids, such as checklists and communication protocols can be used to improve team processes. On the impact of inter-professional teambuilding, Coster *et al.*, (2008), noted that attitudes of undergraduate's health profession post-course evaluation after 4 years showed that 61% of the participants rated the course to be very beneficial. They also added that ratings of contacts among participants was high immediately after training and declined over the four-year period. In their contribution on knowledge and attitudes towards the healthcare team, Gallangher *et al.* (2010) reported that their exists a significant difference in knowledge areas with increase in awareness of community agencies that provide healthcare services, increase in awareness of the skills and strengths of other healthcare team members and increase in the extent of experience working with other healthcare professionals. Kvarnstrom (2008), using qualitative analysis observed that majority of the primary care organizations in England and Wales identified the need to develop a strategic approach of inter-professional teamwork, to meet educational needs of primary care professionals, for fruitful alignment of objectives to be rewarding for participants. Mickan and Rodger (2000), noted that the ability to trust originates from self-knowledge and competence. Trust must be slowly built up across team members who have different competencies, assumptions and priorities, through developing confidence in each other's competence and reliability. Trusting individuals are willing to share their knowledge and skills without fear of being diminished or exploited. They added that self-knowledge and an ability to trust others are the building blocks of commitment. Commitment to a unified set of team goals and values provides direction and motivation for individual members. Healthcare teams generate commitment through a shared goal of comprehensive patient care and a common belief that the team is the best way to deliver this coordinated care. Committed individuals are more willing to invest personally in the team, contribute to the decision making and respect the balance of interdependence and collaboration. Ogbimi and Adebamowo (2006) regretted that the problem of poor inter-professional collaboration is seriously threatening the expected outcomes of team building in the healthcare sector as corroborated by a survey of doctors and nurses working in four university teaching hospitals in Southern Nigeria with results that nurse-doctor working relationships were significantly statistically affected by poor social interaction, staff shortages, activist unionism, disregard for ones profession and hospital management and government policies. They added that team building training is the set of tools and methods that form an instructional strategy, which provides team members with the opportunities to practice skills and receive feedback in a rich learning environment. The strategy is dependent on many variables, such as the knowledge, skills and attitudes (KSAs) that need to be trained

and the resources available. Regardless of the strategy, team building focuses on the development of a robust instructional method for influencing team processes (such as communication, collaboration and coordination) and outcomes.

Lia-Hoagberg et al., (2009) in their study among school health programme staff in Minnesota USA on knowledge of team-building observed that nearly all participants identified open communication as a major element. 50 % mentioned shared vision, respect and valuing other team members, adequacy of time to hold meetings, space and facilities. After training, they observed that there was marked improvement in the level of trust, feelings of respect and support, greater understanding of their own and others roles and shared commitments to teamwork, 85% reported increased understanding of characteristics of an effective team, their ability to give positive affirmations and constructive requests for change.

According to Stockely (2007) teamwork is important because it can increase employee morale and motivation, as well as increase productivity. Many Activity Directors and professionals work alone, which can lead to stress, lack of morale, feelings of inadequacy, and eventually, a high turnover rate. For some reason, Activity Professionals tend to shy away from asking for help, and at the same time, have the inability to say "no" when asked to take on additional assignments. He also suggested that teamwork is essential because individuals often do not have all of the knowledge and skills necessary. Activity Professionals can highly relate to this because the job requires a vast array of leisure talents, skills and knowledge. Since not everyone is good at singing, doing a craft, cooking, and so on, there is a need to share talents, expertise, resources and such. Once, again, teamwork becomes a vital component of providing meaningful activities that meets the individual needs and interests of the residents, patients, and clients in health care facilities.

World Health Organization (2012) noted that the nature of teams is varied and complex, ranging from teams that draw from a single professional group (that is, uni-professional team); inter-professional team; teams that work closely in one place; teams that are geographically distributed; teams with constant membership and teams with constantly changing membership. Regardless of the nature of teams, they share certain characteristics which include : members having specific roles and communicate to achieve a common goal; teams make decisions; teams possess specialized knowledge and skills and often function under conditions of high workloads; teams differ from small groups in as much as they embody a collective action arising from task interdependency. In their study, Aronu *et al.* (2013) measured the knowledge and attitude of team building activities amongst health workers at Anambra state and Enugu state in Nigeria using the Mantel test statistic. The findings of their study found a weak negative resemblance on the knowledge of team building activities among health workers at the two states with an association of -46.71% and a P-value of 0.87 which falls on the acceptance region of the hypothesis assuming a significance level of 5% ($\alpha = 0.05$). They also observed the existence of a strong positive resemblance on the attitude of team building activities among health workers at the two states with an association of 74.65 and a P-value of 0.00 which falls on the rejection region of the hypothesis assuming a significance level of 5% ($\alpha = 0.05$). They concluded to the existence of a significant resemblance on the attitude of team building activities in the health sector of the two states. Speaking on factors that affect the practice of team work in surgical teams, Leach et al., (2011) observed that the factors affecting the practice of teamwork for most surgical teams were communication (14.29%), interpersonal relationships (14.29%), leadership (4.76%), managing the team (47.62%), teamwork /good cohesion (19.05%), ability

to perform (5.88%), accountability (23.53%), consistency (5.88%), managing stress (35.29%), professionalism(11.76%), management style (5.88%), temperament (11.76%), creating the environment (77.78%), and patient-focused (22.22%). On their part, Delva et al, (2008) employed qualitative content analysis in their study and noted that the factors that affect team effectiveness are combining educational responsibilities (for resident health professionals) and clinical obligations to patient care; purpose, motivation and team goals; team membership, understanding of members roles; adjustment and problem solving as a team; team process; communication; recognition; support from fellow members; overcoming barriers to effective teamwork (which include absenteeism, disorganized teams, too little time for team building and unwillingness to accommodate a fellow member); organizational factors (governance); team meetings.

RESEARCH METHODOLOGY

Logistic Regression Analysis

Logistic regression is used to predict the odds of being a case which can be based on the explanatory variables or covariates. Generally, logistic regression is well suited for describing and testing hypotheses about relationships between a categorical outcome variable and one or more categorical or continuous predictor variables. The odds are defined as the probability of a case divided by the probability of a non case. The odds ratio is the primary measure of effect size in logistic regression and is computed to compare the odds that presences in one group will lead to a case outcome with the odds that presences in some other group will lead to a case outcome (Karp, 2007). The odds ratio denoted "OR" is simply the odds of being a case for one group divided by the odds of being a case for another group. An odds ratio of one indicates that the odds of a case outcome are equally likely for both groups under comparison. The further the odds deviate from one, the stronger the relationship. The odds ratio has a floor of zero but no ceiling (upper limit) - theoretically, the odds ratio can increase infinitely. As well as other forms of regression analysis, logistic regression makes use of one or more explanatory variables that may either be continuous or categorical data (Peng, et al., 2002). Also, like other linear regression models, the expected of the response variable is fit to the covariates - the expected value of a Bernoulli distribution is simply the probability of a case. However, in logistic regression, the base rate of a case for the null model is fit to the model including one or more covariates. The logit of a logistic model is referred to as the link function in logistic regression - although the output in logistic regression is binomial and displayed in a contingency table, the logit is an underlying continuous criterion upon which linear regression is conducted (Ahani et al., 2010). The simple logistic model for multiple covariates has the form

Logit (Y) = natural log (odds)

$$= \ln\left(\frac{p}{1-p}\right) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_k X_k \qquad (1)$$

Taking the antilog of the equation 3.1 on both sides, one derives an equation to predict the probability of the occurrence of the outcome of interest as follows:

P= probability (Y= outcome of interest given X=x, as specific value of X)

$$= \frac{\ell^{(\alpha + \beta_1 x_1 + \beta_2 x_2 + \cdots + \beta_k x_k)}}{1 + \ell^{(\alpha + \beta_1 x_1 + \beta_2 x_2 + \cdots + \beta_k x_k)}}$$

(2)

Where P= probability of the outcome of interest or in this study malaria status,

α = Y intercept and β' x =regression coefficients

SIGNIFICANCE TESTS OF COEFFICIENTS

The Likelihood Ratio Test

The likelihood ratio test is used to assess if the model fit is also the recommended procedure to assess the contribution of individual predictors or explanatory variables to a given model. In the case of a single predictor model, one simply compares the deviance of the predictor model with that of the null model on a chi-square distribution with a single degree of freedom. If the predictor model has a significantly smaller deviance (chi-square using the difference in degrees of freedom of the two models), then one can conclude that there is a significant association between the predictor or independent variable and the outcome or dependent variable.

Wald statistic

Alternatively, when assessing the contribution of individual predictors in a given model, one may examine the significance of the Wald statistic. The Wald statistic, analogous to the *t*-test in linear regression, is used to assess the significance of coefficients. The standard error represents the approximate standard error of the odds ratio (calculated using the delta method, see e.g., Agresti, 2002). Since the sampling distribution of the odds ratio is not well approximated by a normal distribution, the Wald statistic and confidence interval are derived using the log odds and its standard error. The Wald statistic is the ratio of the square of the regression coefficient to the square of the standard error of the coefficient and is asymptotically distributed as a chi-square distribution (Peng, et al., 2002). Decision Rule: The decision rule is reject the null hypothesis when the P-value is less or equal to the α=0.05, otherwise, accept the null hypothesis. The test statistic for the Wald test is given as

$$z = \frac{\hat{\beta}}{SE(\hat{\beta})}$$

(3)

Source of Data Collection

The source of data for this study was generated using questionnaire administered randomly to a sample of 204 workers from population 0f 418 workers at Delta State Teaching Hospital Oghara using the Yamene's sample Size formula (Yamene, 1967). The sample was generated from a sampling frame obtained using systematic sampling technique from a population of 19 departments. The following departments were obtained as the sampling frame; Accident & Emergency, Anaesthesia/ICU, Community Medicine, Medicine, Nursing & Midwifery,

Obstetrics & Gynaecology, Surgery, Paediatrics, Pharmacy and Administration. See summary of data presentation Table 1, in the Appendix I.

DATA ANALYSIS

Logistic Regression Analysis on Knowledge of Team

Table 2: Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	204	100.0
	Missing Cases	0	.0
	Total	204	100.0
Unselected Cases		0	.0
Total		204	100.0

a. If weight is in effect, see classification table for the total number of cases.

Table 3: Dependent Variable Encoding

Original Value	Internal Value
.00	0
1.00	1

Block 0: Beginning Block

Table 4: Classification Table[a,b]

		Predicted		
		teamstatus		Percentage Correct
Observed		.00	1.00	
Step 0	Team Status .00	0	86	.0
	1.00	0	118	100.0
	Overall Percentage			57.8

a. Constant is included in the model.

b. The cut value is .500

Block 1: Method = Enter

Table 5: Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	94.894[a]	.592	.796

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Table 6: Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Sex	-.694	.628	1.221	1	.269	.499
	Marital Status	.070	.207	.114	1	.736	1.072
	Department	-.303	.135	5.032	1	.025	.738
	Education	.319	2.075	.024	1	.878	1.376
	Age	-.126	.355	.126	1	.722	.882
	Item8	-.754	.309	5.950	1	.015	.471
	Item9	-2.437	1.143	4.550	1	.033	.087
	Item10	2.853	1.206	5.596	1	.018	17.347
	Item11	-21.728	7015.419	.000	1	.998	.000
	Item12	-6.672	14108.949	.000	1	1.000	.001
	Item13	.456	29263.519	.000	1	1.000	1.578
	Item14	23.681	28410.165	.000	1	.999	1.926E10
	Item15	5.685	14108.949	.000	1	1.000	294.525
	Item16	-2.464	1.049	5.519	1	.019	.085
	Item17	-.051	.643	.006	1	.936	.950
	Item18	-5.937	2.268	6.850	1	.009	.003
	Item19	.494	1.076	.210	1	.647	1.638
	Item20	-1.902	1.491	1.627	1	.202	.149
	Item21	.552	.644	.737	1	.391	1.737
	Constant	11.386	6.990	2.653	1	.103	88044.527

a. Variable(s) entered on step 1: Sex, Marital Status, Department, Education, Age, Item8, Item9, Item10, Item11, Item12, Item13, Item14, Item15, Item16, Item17, Item18, Item19, Item 20, Item 21.

LOGISTIC REGRESSION ANALYSIS ON KNOWLEDGE OF INTER-PROFESSIONAL TEAM

Block 0: Beginning Block

Table 7: Classification Table[a,b]

	Observed		Predicted		
			Inter-professional Team		Percentage Correct
			.00	1.00	
Step 0	Inter-professional Team	.00	114	0	100.0
		1.00	90	0	.0
	Overall Percentage				55.9

a. Constant is included in the model.

b. The cut value is .500

Block 1: Method = Enter

Table 8: Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	171.273[a]	.413	.553

a. Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Table 9: Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Sex	-.250	.420	.356	1	.551	.779
	Marital Status	-.035	.159	.048	1	.826	.966
	Department	-.014	.088	.025	1	.873	.986
	Education	-.614	1.289	.227	1	.634	.541
	Age	-.168	.229	.539	1	.463	.845
	Item8	-.175	.188	.866	1	.352	.840
	Item9	.223	.431	.269	1	.604	1.250
	Item10	-.370	.446	.687	1	.407	.691
	Item11	1.357	1.085	1.566	1	.211	3.886
	Item12	6.166	2086.160	.000	1	.998	476.162
	Item13	21.480	28404.514	.000	1	.999	2.132E9
	Item14	-24.035	28404.514	.000	1	.999	.000

Item15	-6.797	2086.160	.000	1	.997	.001
Item16	.732	.675	1.176	1	.278	2.079
Item17	-33.595	5900.484	.000	1	.995	.000
Item18	2.476	1.565	2.503	1	.114	11.894
Item19	.147	.561	.069	1	.793	1.159
Item 20	-.378	.769	.242	1	.623	.685
Item 21	-.140	.466	.090	1	.764	.869
Constant	35.952	5900.486	.000	1	.995	4.108E15

a. Variable(s) entered on step 1: Sex, Marital Status, Department, Education, Age, Item 8, Item 9, Item10, Item11, Item12, Item13, Item14, Item15, Item16, Item17, Item18, Item19, Item 20, Item 21.
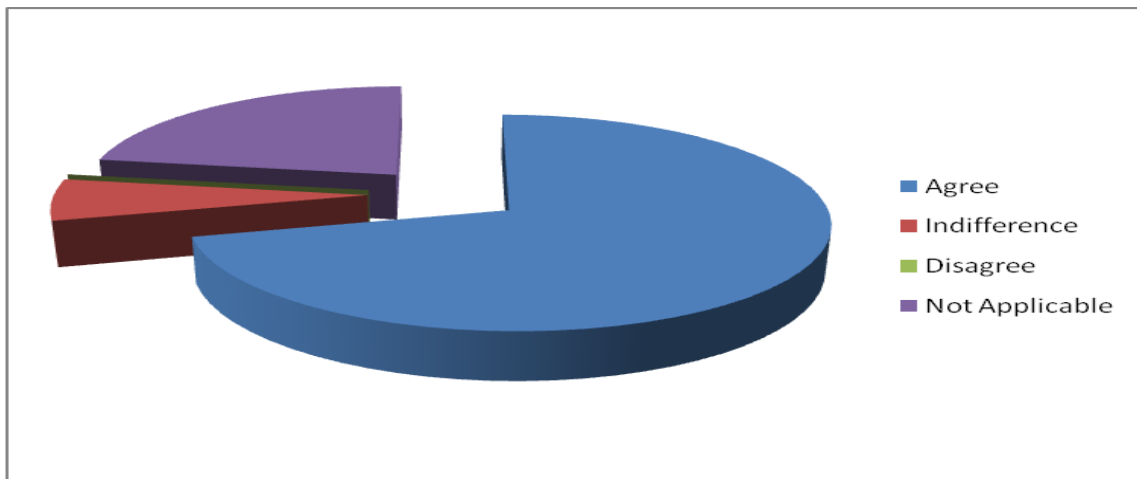
Figure 1: Distribution of responses on definition of Team Building
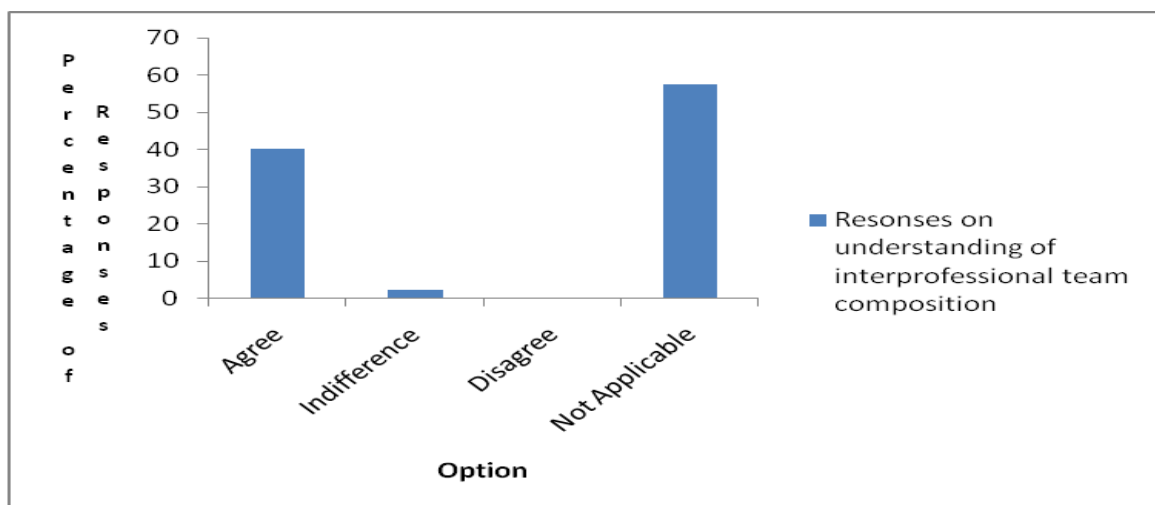
Figure 2: Distribution of responses on understanding of Inter-professional Team Composition
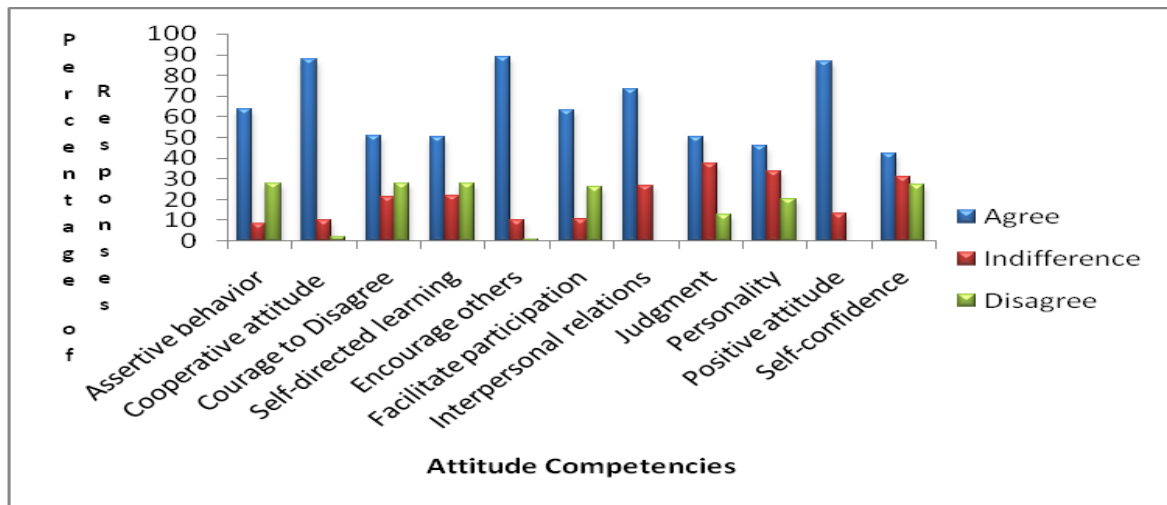
Figure 3: Distribution of responses on Attitude Competencies required for effective health care

INTERPRETATION

The result of the Logistic Regression analysis revealed (see Table 4) that 57.8% (118 respondents) claim they have knowledge of team for health care. Table 4 expressed that the Nagelkerke R Square denotes that 79.6% of the variation in the outcome variable (Team Status which represents knowledge of Team for health care) was explained by the logistic model obtained. It was observed in Table 6 that explanatory variables such as Department, Item8, Item9, Item10, Item16, and Item18 contributed significantly to the status of knowledge of Team for health care since their p-values were obtained as 0.03, 0.02, 0.03, 0.02, 0.02 and 0.01 respectively. This is because their corresponding p-values are less than $\alpha= 0.05$, assuming a 95% confidence level; hence the null hypothesis was rejected.

The predicted logit model was established using six variables (Department, Item8, Item9, Item10, Item16, and Item18) out of 19 explanatory variables in the model were significant using the Wald's Chi-square statistic. However, others were dropped because they did not contribute significantly to the model. The implication of their exclusion is that they have minimal or no influence on the likelihood of knowledge of team for healthcare amongst healthcare workers at Delta State University Teaching Hospital, Oghara. The model is of the form.

Predicted logit= β'x = 11.39 – 0.30 * Department – 0.75 * Item8 – 2.44 * Item9 + 2.85 * Item10 – 2.46 * Item16 – 5.94 * Item18

Also, it was observed that as Department (Accident & Emergency=1, Anaesthesia/ICU= 2, Community Medicine= 3, Medicine= 4, Nursing & Midwifery= 5, Obstetrics & Gynaecology= 6, Surgery= 7, Paediatrics= 8, Pharmacy= 9 and Administration= 10) increases by one unit the likelihood of knowledge of team for healthcare increases by 26% since the odds ratio was obtained as 0.738 (Exp(B)= 0.738).

The result of the Logistic Regression analysis showed in Table 7 that 44.1% (90 respondents) claim they have knowledge of Inter-professional team composition for healthcare. Table 8 expressed that the Nagelkerke R Square denotes that 55.3% of the variation in the outcome variable (Inter-professional team Status which represents knowledge of inter-professional team composition for healthcare) was explained by the logistic model obtained. It was observed in Table 9 that none of the explanatory variables contributed significantly to the behaviour or status of knowledge of inter-professional team composition. This is because their corresponding p-values were observed to be greater than $\alpha = 0.05$, assuming a 95% confidence level; hence, they fall on the acceptance region of the hypothesis. This implies that none of the explanatory variables was able to contribute significantly to the model.

The result on Figure 1 showed that majority of the respondents agreed that team building could be defined as the process of helping a work group becomes more efficient in accomplishing its tasks and in satisfying the needs of the group members since about 71.1% choose the option "Agree". The results on Figure 2 however showed that majority of the respondents do not understand the concept of inter-professional team composition since about 57.4% choose the option "Not applicable". The graphical expression represented in Figure 3 showed that majority of the respondents agreed that encouraging others, cooperative attitude and positive attitude are the major attitude competencies required for effective health care since about 88.7%, 87.7% and 86.8% respectively responded "agreed".

CONCLUSION

This study evaluated team composition activities amongst health workers in Nigeria using Delta State University Teaching Hospital as a case. From the findings of this study, it was found that 57.8% of the respondents which is about 118 respondents have knowledge of Team for health care while 44.1% of respondents (90 respondents) have knowledge of Inter-professional team composition for healthcare. This result implies that majority of the respondents have knowledge of team for healthcare than knowledge of inter-professional team composition. It was observed that explanatory variables such as Department, Item8 (response on definition of team composition), Item9 (response on definition of inter-professional team composition), Item10 (response on knowledge competencies for inter-professional team composition), Item16 (response on attitude competency "facilitate participation"), and Item18 (response on attitude competency "judgement") contributed significantly to the likelihood of knowledge of Team for healthcare while none of the explanatory variables was able to contribute to the likelihood of knowledge of inter-professional team composition for quality healthcare.

Also, it was observed as Department increases by one unit the likelihood of knowledge of team for healthcare increases by 26%. In addition, the Nagelkerke R Square result showed that the logistic model explained the likelihood of knowledge of team for healthcare strongly than the likelihood of knowledge of inter-professional team composition for healthcare. This result implies that majority of the workers have the knowledge of team than the knowledge of inter-professional team composition. Also, it was found that the attitude competencies that contributed significantly to the logistic model for likelihood of knowledge of team for health care were facilitation of participation and judgement attitude. Furthermore, it was found that the attitude competencies identified to enhance effective healthcare were cooperative attitude, encouraging others and positive attitude. From the findings of this study, we can conclude

that a reasonable number of health workers at Delta State University Teaching Hospital, Oghara have knowledge of team for healthcare but do not have knowledge of inter-professional team composition for quality healthcare. Hence, the likelihood of knowledge of team is greater than the likelihood of knowledge of inter-professional team composition/building amongst healthcare workers at Delta State University Teaching Hospital, Oghara.

RECOMMENDATION

This study concluded that a reasonable number of health workers at Delta State University Teaching Hospital, Oghara have knowledge of team for healthcare but do not have knowledge of inter-professional team composition for quality healthcare. To this note, we call for intervention programs on knowledge and practice of inter-professional team compositions for healthcare in Delta State to enhance the quality of health care delivered in the State. This is because the benefit of inter-professional team composition is to achieve cohesiveness, improve the team attitude, effectiveness and enhance service delivery.

We advocate that the Federal Ministry of Health in Delta State should focus on institutionalization of inter-professional team composition trainings at all levels of healthcare system in the State. This we believe would most likely reduce the incessant inter-professional (inter-departmental) and intra-professional (intra-departmental) conflicts that is believed to have bedevilled the health system in Nigeria.

We recommend study on determining the contribution of other variables such as depth of intervention and years of experience not included in this present study, on likelihood of team and inter-professional team composition as fruitful area for future research.

Also, we suggest the application of the method used in this study in examining and comparing the likelihood of team and inter-professional team composition in two or more healthcare systems in Nigeria as a fruitful area for further research.

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APPENDIX I

Table 1: Summary of Responses on Knowledge of Team and Inter-professional Team Composition in Healthcare

S/No	Team Status	Inter-professional Status	Sex	Marital Status	Department	Education	Age
1	1	0	1	1	2	3	2
2	1	0	0	1	2	3	2
3	1	0	0	1	2	3	3
4	1	0	1	1	3	3	3
5	1	1	0	1	3	3	3
6	1	1	1	1	1	3	3
7	1	0	0	1	1	3	1
8	0	0	0	1	1	3	1
9	1	1	1	1	1	3	1
10	1	0	1	1	1	3	1
11	1	1	1	2	1	3	2
12	1	0	1	2	3	3	2
13	1	0	1	2	2	3	3
14	1	1	0	2	2	3	3
15	0	1	1	2	2	3	2
16	1	1	1	2	2	3	4
17	1	1	0	2	2	3	2
18	0	1	1	2	2	3	4
19	0	0	0	2	3	3	1
20	0	1	1	2	3	3	1
21	1	0	1	2	2	3	1
22	1	1	0	2	5	3	1
23	1	0	0	1	5	3	3
24	1	1	1	1	5	3	3
25	1	0	1	1	5	3	2
26	1	1	1	1	5	3	4
27	1	0	0	1	5	3	3
28	0	1	1	1	5	3	3
29	1	0	1	1	5	3	4
30	1	0	0	1	5	3	2
31	0	0	0	1	5	3	3
32	0	0	0	2	5	3	1
33	0	0	1	2	5	3	3
34	1	1	1	2	5	3	1
35	1	0	1	2	5	3	1
36	1	1	1	2	5	3	1
37	1	0	0	2	5	3	1

38	1	1	1	2	5	3	1
39	1	0	1	2	5	3	4
40	1	0	0	2	5	3	3
41	1	1	1	2	5	3	3
42	1	0	1	3	5	3	4
43	1	0	1	3	1	3	2
44	1	0	1	2	1	3	4
45	1	0	1	5	1	3	1
46	1	1	1	5	1	3	1
47	0	0	1	3	1	3	1
48	1	0	1	1	4	3	3
49	1	0	1	2	4	3	3
50	1	0	1	2	4	3	3
51	1	0	1	1	4	3	4
52	0	0	0	1	6	3	2
53	0	1	1	1	6	3	2
54	0	1	0	1	6	3	2
55	0	0	1	1	6	3	2
56	1	1	1	1	6	2	2
57	0	1	0	1	6	3	2
58	1	1	1	1	6	3	2
59	0	1	1	1	1	3	2
60	1	1	1	1	1	3	2
61	0	0	0	1	1	3	2
62	0	0	1	1	1	3	2
63	1	0	1	1	1	3	3
64	1	0	1	3	4	3	3
65	1	1	0	2	4	3	3
66	1	0	1	3	4	3	3
67	1	1	1	2	4	3	3
68	1	1	1	3	4	3	3
69	1	0	1	3	4	3	3
70	1	1	1	2	5	3	2
71	1	1	0	2	5	3	1
72	0	0	1	5	5	3	1
73	1	1	0	5	5	3	1
74	1	1	0	2	5	3	2
75	1	0	1	5	5	3	3
76	1	0	1	5	5	3	3
77	1	1	0	2	5	3	4
78	1	0	1	2	5	3	2
79	0	1	1	2	5	3	2
80	1	0	1	2	5	3	2

81	0	1	1	5	5	3	2
82	0	1	1	5	5	3	2
83	0	1	1	2	5	3	2
84	1	0	1	1	5	3	2
85	1	1	0	2	5	2	2
86	0	0	1	2	5	2	2
87	1	0	1	2	5	2	2
88	1	1	1	2	5	3	2
89	1	1	1	5	5	3	2
90	1	0	0	2	5	3	2
91	0	1	1	2	5	3	2
92	1	0	1	2	5	3	2
93	1	0	0	2	5	3	2
94	0	0	0	2	5	3	2
95	1	1	0	5	5	3	2
96	0	0	1	5	5	2	3
97	0	1	0	5	5	3	3
98	0	0	0	5	5	2	3
99	0	1	0	5	5	3	3
100	0	1	1	5	5	3	3
101	0	0	1	5	5	3	3
102	1	0	0	5	5	3	4
103	0	0	0	5	5	3	2
104	1	0	0	5	5	3	2
105	1	0	0	5	5	3	2
106	0	1	1	2	5	3	2
107	1	0	0	2	5	3	4
108	0	1	0	2	7	2	4
109	1	0	1	2	7	3	1
110	1	0	0	2	7	3	1
111	1	0	1	2	7	3	1
112	1	0	0	2	7	3	1
113	1	0	1	5	7	3	1
114	0	0	0	2	7	3	4
115	0	1	1	2	7	3	2
116	0	0	1	2	7	3	2
117	1	1	1	5	7	3	2
118	0	1	1	2	7	3	2
119	1	0	0	2	7	3	2
120	0	1	1	2	7	3	2
121	1	0	1	5	7	3	3
122	1	0	1	2	6	3	3
123	1	0	1	2	6	3	3

124	1	0	0	2	6	3	3
125	0	0	0	5	6	3	2
126	0	1	1	5	6	3	2
127	1	0	0	5	9	3	2
128	0	0	0	2	9	3	2
129	1	1	0	2	9	3	2
130	1	0	1	2	9	3	2
131	1	0	1	5	9	3	2
132	0	1	1	2	9	3	2
133	1	0	0	5	9	3	2
134	1	1	1	2	9	3	2
135	1	0	0	5	9	3	3
136	1	1	1	2	9	3	3
137	0	0	1	5	9	3	3
138	0	0	1	2	9	3	3
139	1	1	0	5	9	3	3
140	1	0	0	5	9	3	3
141	1	0	1	5	9	3	3
142	0	1	1	5	10	3	3
143	1	0	1	5	10	3	3
144	1	0	1	2	10	3	2
145	0	0	1	2	10	3	3
146	0	0	1	2	10	3	3
147	1	1	1	2	5	3	4
148	1	0	0	2	5	3	2
149	0	1	1	2	5	3	2
150	1	1	1	5	5	3	2
151	1	1	1	2	5	3	2
152	1	1	1	2	5	3	3
153	0	1	1	2	5	3	3
154	1	0	1	2	5	3	3
155	1	1	1	2	5	3	3
156	1	1	1	2	5	3	3
157	1	0	0	2	10	3	3
158	1	0	1	2	10	3	3
159	0	0	1	2	10	3	2
160	0	0	1	5	10	3	2
161	1	0	0	2	10	3	2
162	1	1	1	2	10	3	2
163	1	0	0	5	8	3	2
164	1	0	1	3	8	3	4
165	1	0	1	2	8	3	4
166	1	1	0	2	8	3	3

167	1	1	0	5	8	3	3
168	1	0	1	5	8	3	3
169	1	0	1	1	8	3	3
170	1	0	1	1	8	3	2
171	1	1	0	1	8	3	3
172	0	1	0	1	8	3	4
173	1	0	1	1	8	3	3
174	1	0	0	1	8	3	4
175	1	0	1	2	8	3	3
176	0	0	0	2	8	3	4
177	1	1	0	2	5	3	3
178	0	1	1	2	5	3	4
179	0	1	0	2	5	3	2
180	0	1	0	1	5	3	3
181	1	0	1	1	5	3	3
182	1	0	1	1	5	3	3
183	1	0	1	1	5	3	3
184	0	1	1	1	5	3	3
185	1	0	1	1	5	3	3
186	1	1	1	2	5	3	3
187	1	1	1	2	5	3	2
188	1	1	1	2	5	3	3
189	1	1	0	2	5	3	3
190	0	0	0	2	5	3	3
191	0	0	1	2	5	3	2
192	0	1	1	2	5	3	3
193	0	1	0	2	5	3	3
194	1	0	0	2	10	3	3
195	1	1	1	2	10	3	3
196	1	1	0	2	10	3	3
197	0	1	1	1	10	3	3
198	1	0	1	1	10	3	2
199	0	0	0	1	10	3	3
200	0	1	0	1	10	3	3
201	0	1	1	1	5	3	3
202	1	0	1	2	5	3	3
203	0	1	1	2	5	3	3
204	1	1	0	2	10	3	3

S/No	Item 8	Item 9	Item 10	Item 11	Item 12	Item 13
1	1	1	1	1	1	1
2	1	1	1	1	1	1
3	1	1	1	1	1	1

4	1	1	1	1	1	1
5	1	4	4	1	1	1
6	1	4	4	1	1	2
7	2	4	4	1	1	2
8	2	4	4	2	1	2
9	1	4	4	1	1	2
10	1	4	4	1	1	2
11	1	4	4	1	1	2
12	1	4	4	1	1	2
13	1	4	4	1	1	2
14	1	4	4	3	1	3
15	4	4	4	3	1	3
16	1	4	4	1	1	2
17	1	4	4	1	1	2
18	1	4	4	2	1	2
19	1	4	4	2	1	2
20	1	1	1	2	1	2
21	1	4	4	1	1	1
22	1	4	4	1	1	2
23	1	1	2	1	1	2
24	1	1	2	1	1	1
25	1	1	3	3	2	3
26	1	4	4	3	1	3
27	1	4	4	3	1	3
28	1	4	4	3	1	3
29	4	4	4	3	1	3
30	2	4	4	3	1	3
31	1	4	4	3	1	3
32	2	4	4	2	1	2
33	1	4	4	2	1	2
34	1	4	4	1	1	2
35	1	4	4	1	1	2
36	2	4	4	1	1	2
37	1	4	4	1	1	2
38	2	4	4	1	1	2
39	1	4	4	1	1	2
40	1	4	4	1	1	2
41	1	4	4	1	1	2
42	1	4	4	1	1	2
43	1	1	1	1	1	2
44	2	4	4	1	1	1
45	1	4	4	1	1	1

46	2	4	4	1	1	1
47	1	4	4	2	1	2
48	1	4	4	1	1	1
49	4	4	4	1	1	1
50	4	4	4	1	1	1
51	4	4	4	1	1	1
52	4	4	4	3	1	3
53	4	4	4	3	1	3
54	1	4	4	2	1	2
55	1	4	4	2	1	2
56	1	4	4	1	1	1
57	4	4	4	3	2	3
58	4	4	4	1	1	1
59	4	2	2	3	2	3
60	1	1	2	1	1	1
61	4	4	4	3	3	3
62	4	4	4	3	2	3
63	1	4	4	1	1	1
64	1	4	4	1	1	1
65	1	4	4	1	1	1
66	1	4	4	1	1	1
67	1	4	4	1	1	1
68	1	1	1	1	1	1
69	1	4	4	1	1	1
70	1	4	4	1	1	1
71	1	2	2	1	1	1
72	1	1	1	2	2	2
73	4	4	4	1	1	1
74	1	4	4	1	1	1
75	1	2	2	1	1	1
76	1	2	2	1	1	1
77	1	4	4	1	1	1
78	1	1	1	1	1	1
79	4	4	4	3	1	3
80	1	4	4	1	1	1
81	1	4	4	3	1	3
82	4	4	4	3	1	3
83	1	4	4	3	2	3
84	1	4	4	1	1	1
85	1	4	4	1	1	1
86	4	4	4	3	1	3
87	1	4	4	1	1	1

88	1	4	4	1	1	1
89	1	4	4	1	1	1
90	1	4	4	1	1	1
91	1	4	4	3	2	3
92	4	4	4	1	1	1
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114	1	1	1	3	1	3
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S/No	Item 14	Item 15	Item 16	Item 17	Item 18	Item 19	Item 21
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7	2	1	2	1	2	2	3

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82	3	1	3	1	2	2	2
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88	1	1	1	1	1	1	1
89	1	1	1	1	1	1	1
90	1	1	1	2	1	1	1
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94	3	2	3	2	2	2	2
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96	3	1	3	2	2	2	2
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125	3	1	3	2	2	2	2
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146	3	1	3	1	2	2	3
147	1	1	1	1	1	1	1
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190	3	1	3	2	3	3	3
191	2	2	2	2	2	2	2
192	3	1	3	1	3	3	3
193	2	2	2	1	2	2	2
194	1	1	1	2	1	1	3
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196	1	1	1	1	1	3	3
197	2	2	2	1	2	2	2
198	1	1	1	2	1	1	3
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200	2	2	2	1	2	2	2
201	3	3	3	1	3	3	3
202	1	1	1	2	1	1	3
203	2	2	2	1	2	2	2
204	1	1	1	1	1	1	3

Source: Field Survey 2013

Key: Team Status (Yes=1 & No=0), Inter-professional Status (Yes=1 & No=0), Sex (Male=1 & Female=0), Marital Status (Never married=1, currently married=2, Separated= 3, Divorced= 4, & Widowed= 5), Age (18 -30=1, 31 – 50=2, 51-70=3, & >70yrs=4), Department (Accident & Emergency=1, Anaesthesia/ICU=2, Community Medicine=3, Medicine=4, Nursing & Midwifery=5, Obstetrics & Gynaecology=6, Surgery=7, Paediatrics=8, Pharmacy=9 & Administration=10), Education Qualification (Primary=1, Secondary=2 & Tertiary=3), Item8 - Item10 (Agree=1, Indifference=2, Disagree=3 & Not Applicable=4) and Item11 – Item21 (Agree=1, Indifference=2, & Disagree=3).

APPENDIX II

SAMPLE OF QUESTIONNAIRE

SECTION A: BIODATA

1.   Sex: Male{131 (35.8%)} Female{73(64.2%)}
2.   Marital status: Never married{51(25%)} currently married{105 (51.5%)} Separated{8 (3.9%)} Divorced{0 (0%)} Widowed{40(19.6%)}
3.   Age: 18 -30{25 (12.3%)} 31 – 50{75(36.8%)} 51 -70{84(41.2%)} >70yrs{20(9.8%)}
4.   Department: Accident & Emergency{16(7.8%)}   Anaesthesia/ICU{10(4.9%)} Community Medicine{5(2.5%)}   Medicine{10(4.9%)}   Nursing & Midwifery{89(43.6%)} Obstetrics & Gynaecology{12(5.9%)} Surgery{14(6.9%)} Paediatrics{14(6.9%)} Pharmacy{15(7.4%)} Administration{19(9.3%)}
5.   Education Qualification : Primary{0(0%)}   Secondary{7(3.4%)} Tertiary{197(96.6%)}

SECTION B: KNOWLEDGE OF TEAM AND INTER-PROFESSIONAL TEAM COMPOSITION

6.   Have you heard of team in healthcare? Yes{118(57.8%)}   No{86(42%)}

7.   Have you heard of inter-professional team composition (that is, different healthcare professionals forming a team for quality healthcare delivery) in healthcare? Yes{90(44.1%)} No{114(55.9%)}

SECTION C: KNOWLEDGE OF TEAM BUILDING FOR QUALITY HEALTHCARE

S/No	Question	Agree	Indifference	Disagree	Not Applicable
8	Team building could be defined as the process of helping a work group becomes more efficient in accomplishing its tasks and in satisfying the needs of the group members	145 (71.1%)	13(6.4%)	0(0%)	46(22.5%)
9	Inter-professional team composition means purposeful activities bringing members of different professionals / departments together as a team	82(40.2%)	5(2.5%)	0(0%)	117(57.4%)
10	The following Case /care management, Clinical knowledge, Management knowledge Organizational goals and strategies, Organizational politics, Roles	72(35.3%)	8(3.9%)	1(0.5%)	123(60.3%)

of team members, Self-awareness, Team development, Understanding of individual persons, are the knowledge competencies that a member of inter-professional healthcare team should possess to be effective				

SECTION D: ATTITUDE COMPETENCIES REQUIRED FOR EFFECTIVE HEALTH CARE

S/No	Attitude	Agree	Indifference	Disagree
11	Assertive behavior	130(63.7%)	17(8.3%)	57(27.9%)
12	Cooperative attitude	179(87.7%)	21(10.3%)	4(2%)
13	Courage to Disagree	104(51%)	43(21.1%)	57(27.9%)
14	Self-directed learning	102(50%)	45(22.1%)	57(27.9%)
15	Encourage others	181(88.7%)	21(10.3%)	2(1%)
16	Facilitate participation	129(63.2%)	22(10.8%)	53(26%)
17	Interpersonal relations	150(73.5%)	54(26.5%)	0(0%)
18	Judgment	102(50%)	76(37.3%)	26(12.7%)
19	Personality	94(46.1%)	69(33.8%)	41(20.1%)
20	Positive attitude	177(86.8)	27(13.2%)	0(0%)
21	Self-confidence	86(42.2%)	63(30.9%)	55(27%)