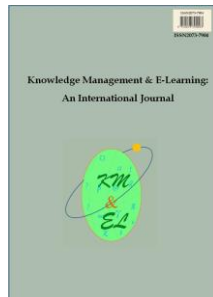

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Inter-professional collaboration and knowledge management practices among clinical workforce in Federal Tertiary Hospitals in Nigeria

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Abstract: Effective health service delivery hinges on the interface between professionals rendering health services to the sick and the injured. This paper examined the inter-professional collaboration and knowledge management practices among the clinical workforce in Federal Tertiary Hospitals in three Geopolitical Zones of Nigeria. The study employed a non-experimental survey design. 550 questionnaires were administered out of which 479 were completed for analysis comprising 204 Medical Doctors, 180 Nurses and 95 Health Information Management Officers, which resulted into 87% response rate. Findings from the study revealed that knowledge acquisition was the most practiced, closely followed by knowledge application. In addition, cooperation was the most practiced form of inter-professional collaboration, next to it is partnership. The study revealed a significant relationship between inter-professional collaboration and knowledge management practices. It shows that only cooperation significantly influenced knowledge management practices while knowledge capturing and knowledge dissemination significantly influenced inter-professional collaboration. The study concluded that Federal Tertiary Hospitals in Nigeria will perform better if they can sustain the culture of knowledge management practices and inter-professional collaboration.

Keywords: Inter-professional collaboration; Knowledge management; Clinical workforce; Tertiary Hospitals; Nigeria

Biographical notes: Jacob Kehinde Opele is a Senior Lecturer in the Department of Library and Information Science, Federal University Oye-Ekiti. He is a scholar of the Graduate School, Babcock University. He bagged his Master's and Doctoral degrees in Information Resources Management with specialization in Knowledge Management. He obtained a Bachelor of Science Degree (BSc.) in Economics, a Postgraduate Diploma (PGD) in Technology Management as well as a National and Higher National Diplomas in Health Records and Information Management. He has been involved in multidisciplinary research in the areas of information resources management, health information and knowledge management. He has more than 60 published articles in Library and Information Science Journals, Education and Social Science Journals as well as Nursing and Medical Journals. He is the Editor-in-Chief of LivingSpring Journal of Library and Information Science. He is a member of two other academic journals in his university. He is a member of the Nigerian Library Association (NLA), Health Records and Information Management Practitioners of Nigeria (HRIMPN). Dr Opele is a Data Scientist with over 15 years' experience in data management and has participated in more than three National Research and Experimental Development (R&D)

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1. Introduction and literature review

Knowledge is conventionally associated with the people in an organization who possess it and such knowledge is commonly created and shared through human interaction (Opele et al., 2015). Knowledge is an intangible asset, which has likewise been viewed to be important as the physical asset of an organization (Opeke & Opele, 2014; Turyahikayo, 2021). Every organization has its own knowledge assets that help in achieving its vision and mission (Awogbami et al., 2020). Literature have shown that intangible assets account for more than 75% of the total assets in most organizations (Opele, Adeyeye, Iyanda, & Olagoke, 2020). Two types of knowledge tacit and explicit are reported in the extant literature (Dlamini, 2017; Charles & Nawe, 2017; Awogbami et al., 2020). The first, tacit knowledge is regarded as being the most valuable type of knowledge that is found in organizations (Poell & Van der Krogt, 2003; Ali et al., 2014; Kamal & Buniyamin, 2018) Tacit knowledge is context specific and is highly personalized; it is a kind of knowledge that is deeply rooted in action, commitment and involvement. Tacit knowledge is understood and developed from direct experience act which is normally shared through a highly interactive conversation, story-telling, and collective know-how (Jain & Moreno, 2015; Birasnav, 2014; Ratnapalan & Uleryk, 2014; Shajera & Ahmed, 2015; Gil & Carrillo, 2016; Halawi et al., 2017).

In contrast, explicit knowledge is more precisely and formally articulated. It is sometimes referred to as know what (Haqani & Ahlan, 2015). This type of knowledge is easy to identify, store and retrieve. Explicit knowledge is more easily codified, documented, transferred or shared. Explicit knowledge is normally expressed in words and numbers, scientific formulas, product specifications, manuals, databases, memos, notes, documents, and universal principles. These two types of knowledge need to be effectively managed for the organization to remain competitive (Nwokedi, Nwokedi, Chollom, & Adah, 2017; Opele & Okunoye, 2019; Opele, Adepoju, & Adegbite, 2020). Today, management of knowledge has emerged as an important activity in many organizations and has become an increasingly important management tool for sustainable development (Opele, Adeyeye, Iyanda, & Olagoke, 2020). Local and international corporations are investing massively in their knowledge assets with a view to delivering goods and services in a completely different way (Agarwal & Marouf, 2014). Management of such knowledge has been described as 'a set of activities, initiative, and strategies that organizations' use to generate, store, transfer and use to enhance organizational performance (Donate & Guadamillas, 2011; Donate & Sánchez de Pablo, 2015).

Essentially, knowledge management is all about facilitating the processes by which knowledge is created, shared and effectively used in organizations (Jain & Moreno, 2015; Bavik, Tang, Shao, & Lam, 2018). The need for knowledge management initiative in the health institutions cannot be overemphasized. This is because, in addition to having a pull of specists that offer health services to the citizens, health care institutions also engage in research activities that require that its expert system agrees to collaborate to share skills and competencies (Opele, & Okunoye, 2019). The essence of a knowledge management initiative in the health institution is to encourage the sharing of best practices (Ejoigu & Sule, 2012; Kurniawan et al., 2019).

Knowledge sharing involves collaborative actions oriented towards a common goal thereby improving the quality and safety of patient care (D'amour, Ferrada-Videla, San-Martin- Rodriguez, & Beaulieu, 2005; D'amour, Goulet, Labadie, Martín-Rodriguez, & Pineault, 2008). It involves honest communication, mutual trust, respect and pursuance of common set goals between care providers which helps to achieve sustainable inter-professional collaboration (Sherer, 2010; Breitbach & Richardson, 2015; Chan et al., 2013). Failure to share the highly specialized knowledge in the hospital will have an adverse effect on the treatment of the sick and the injured who visit the hospital to receive treatment (Breitbach & Richardson, 2015; Tang, 2017; Adewole & Opele, 2019). Therefore, the administration of the hospital needs to ensure that its tacit knowledge is well articulated and effectively shared and managed (Lwoga et al., 2010; Styhre et al., 2002; Haqani & Ahlan, 2015; Halawi et al., 2017).

Knowledge management is a process that underlines the need for generating, capturing and sharing of know-how and integrating these activities into operational practices and decision making in the organization (Chang & Taylor, 2016; Gutierrez-Gutierrez et al., 2018). To sustain knowledge management practices, the parties involved must be willing to collaborate with one another. According to (Opele & Okunoye, 2019), collaboration includes sharing, partnership, power, interdependence and processes. Collaboration occurs in health institutions when multiple health workforce who had different professional pieces of training are willing to provide all-inclusive services by working with patients, family members, caregivers, and societies to deliver utmost quality of care across the health facilities (Vanderwielen et al., 2014). However, achieving this requires inter-professional collaboration among the parties involved (Nissen, Evald, & Clarke, 2014).

Inter-professional collaboration is highly needed to achieve the goal of providing patient-centered, safe and effective care that meets the rising and multifaceted needs of a health care organization (Kenaszchuk et al., 2011; De Vet, Terwee, Mokkink, & Knol, 2011). The inter-professional collaboration will not only increase knowledge sharing but will also enhance sustainable health service delivery (Kaini, 2017). Inter-professional collaboration requires that knowledge in an organization is articulated for collaboration purposes (Bienkowski et al., 2014). Knowledge collaboration refers to the 'sharing, transfer, accumulation, transformation and co-creation of knowledge (Faraj et al., 2011; Juzwishin et al., 2017). Therefore, increased inter-professional collaboration among clinical workforce will enhance the propensity for knowledge management practices.

Orchard, Curran, and Kabene (2005) proposed four interrelated elements of inter-professional collaboration such as partnership, cooperation, coordination and shared decision making upon which the construct in this research is based (Orchard et al., 2005). Inter-professional collaboration among health care providers allows both the individuals and collective skills and experience of the team to function together more effectively than each would achieve alone (Vanderwielen et al., 2014; Breitbach & Richardson, 2015). When the clinical workforce decides to work together, patient outcomes and level of happiness improve (Wong et al., 2017). Therefore, health care institutions must understand that inter-professional collaboration is not just working together but working well with others outside their fields.

In the past decades, the health sector in Nigeria has failed to achieve sustainable health service delivery due to poor inter-professional collaboration and knowledge management practices among its clinical workforce (Corwin et al., 2012; Olajide et al., 2015; Ojo & Akinwumi, 2015). Another impediment to achieving sustainable health service delivery in Nigeria is getting people who are willing to share their hard-won

knowledge and expertise (Awodoyin et al., 2016; Opele & Iyanda, 2015). This paper thus seeks to examine the identified issues that are affecting the process of achieving sustainable health service delivery with a view to establishing the link between inter-professional collaboration and knowledge management practices among the clinical workforce in Federal Tertiary Hospitals in Nigeria and how the interaction can enhance sustainable health service delivery in the country. The objectives of this study include:

- To examine the knowledge management practices mostly employed by the clinical workforce in federal tertiary hospitals in Nigeria;
- To determine inter-professional collaboration practices mostly employed by the clinical workforce in federal tertiary hospitals in Nigeria;
- To examine the interaction between inter-professional collaboration and knowledge management practices among the clinical workforce in Nigeria;
- To ascertain the influence of inter-professional collaboration on knowledge management practices among the clinical workforce in Nigeria; and
- To determine the influence of knowledge management practices on collaborative practices on inter-professional collaboration practices among the clinical workforce in federal tertiary hospitals in Nigeria.

2. Research context

This study was conducted with clinical workforce (Doctors, Nurses and Health Information Management Officers) in Federal Tertiary Hospitals in three geopolitical zones in Nigeria comprising North-Central, South-South, and South-West. This is illustrated in Fig. 1.

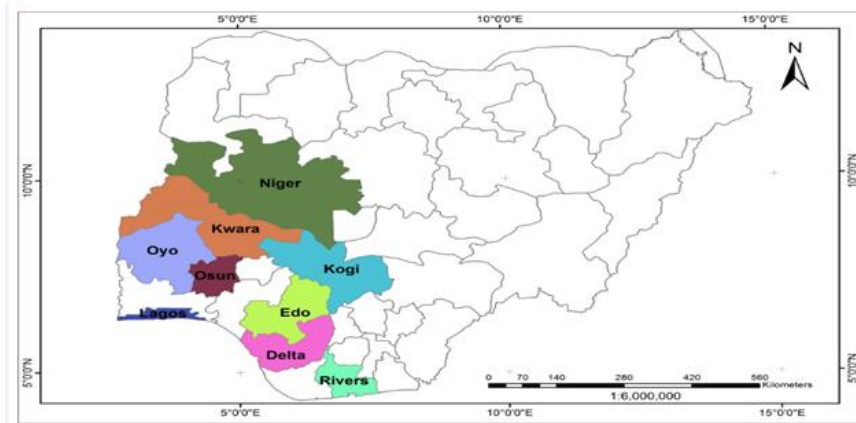


Fig. 1. The research context

3. Method

This study employed a descriptive survey design. The survey was conducted with Medical Doctors, Nurses and Health Information Management Officers at the Federal Tertiary Hospitals in three geopolitical zones in the Federal Republic of Nigeria. There were 479 respondents which consisted of 204 Medical Doctors, 180 Nurses and 95

Health Information Management Officers. The survey was carried out at the outpatient departments of the selected hospitals using multistage sampling techniques. The questionnaire was the main instrument used for data collection; the instrument comprised two main sections. The first section focused on KM practices and comprised 30 items that followed a 4 points Likert-Type scale of strongly agree = 4, agree = 3, disagree = 2, strongly disagree =1. Most of the items in this section were adapted from Ajayi (2015) and Adewuyi (2015) PhD dissertations. The second section focused on interprofessional collaboration and comprised 20 items that followed a 5 points Likert-Type scale ranging from always = 5, most of the time = 4, occasionally = 3, rarely =2, never = 1. All the items in this section were adapted from Orchard et al. (2005) Interprofessional Team Collaboration Scale (AITCS). Data analysis involves the use of frequency counts, percentage distribution, mean and standard deviation, correlation and regression analysis.

4. Results

4.1. Objective 1: Knowledge management practices mostly employed by clinical workforce in federal tertiary hospitals in Nigeria

Six knowledge management practices (knowledge acquisition, knowledge application, knowledge creation, knowledge sharing, knowledge dissemination and knowledge capturing) were examined in the study.

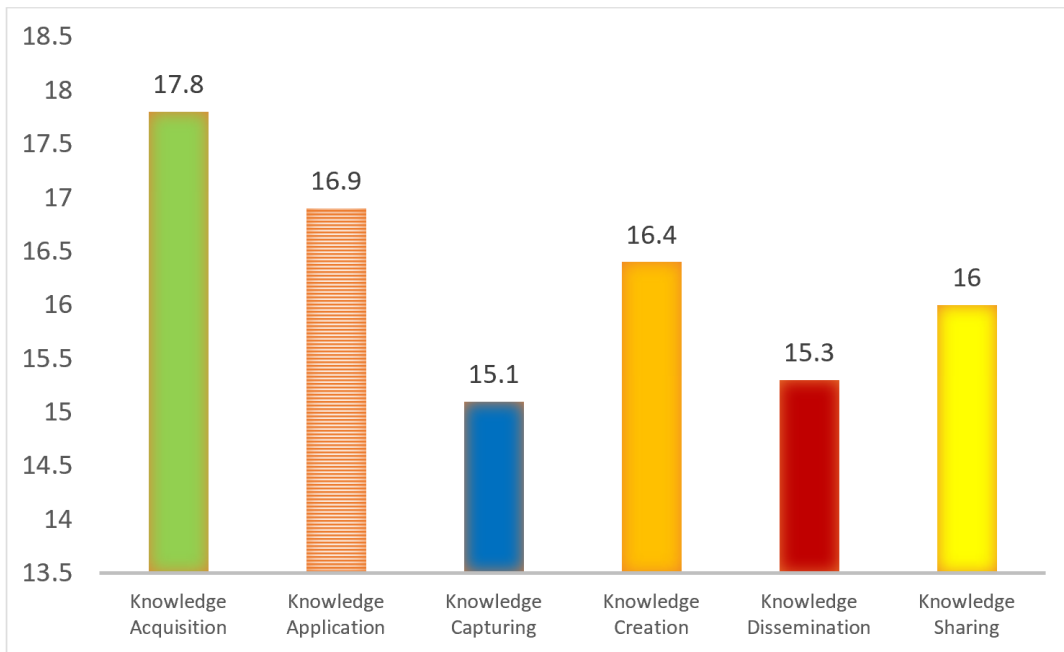


Fig. 2. Mean distribution of knowledge management practices by clinical workforce

Fig. 2 revealed that knowledge acquisition was the most practiced with the highest mean score of (17.8), closely followed by knowledge application (16.9), knowledge creation (16.4), knowledge sharing (16.0), knowledge dissemination (15.3) and knowledge capturing with a score of (15.1) on the scale of 20 points. This implies

that the respondents focused more on knowledge acquisition than other practices. This may be partly due to the demand for their jobs, which required the acquisition of additional degrees for enhanced productivity. The results also suggest that the respondents regularly engaged in knowledge application that is demonstrated on the job. It is expected that the knowledge acquired in the course of additional training will be useful by way of application. This may be a reason for engaging in knowledge application.

Next to the application is knowledge creation, the respondents create knowledge in discussion groups and during seminars and conferences which is a culture in the hospital environment. The fourth most practiced was knowledge sharing. It indicates that the clinical workforce in federal tertiary institutions in Nigeria does not have the culture of sharing knowledge probably due to people's natural inflexible nature in giving up their hard-won knowledge and expertise. The results show that the least practiced of the six was knowledge dissemination and knowledge capturing. In other words, it shows that the respondents do not disseminate the knowledge acquired talk less of capturing the knowledge for future use.

4.2. Objective 2: The inter-professional collaboration practices mostly employed by clinical workforce in federal tertiary hospitals in Nigeria

Fig. 3 revealed that cooperation (16.2) was the most practiced, closely followed by the partnership (16.1), shared decision making (14.9) and coordination (14.3). The respondents cooperated among themselves probably with a view to receiving assistance from each other when their relatives (patient) need medical attention. However, beyond this, cooperation would improve inter-professional collaboration if well intended. Literature has shown that partnership is germane to sustaining inter-professional collaborative practices among the clinical workforce. The results of the current study showed that the respondents engaged less in coordination and shared decision making. Any organization that fails to engage in coordination and a shared decision would have difficulty sustaining inter-professional collaborative practices.

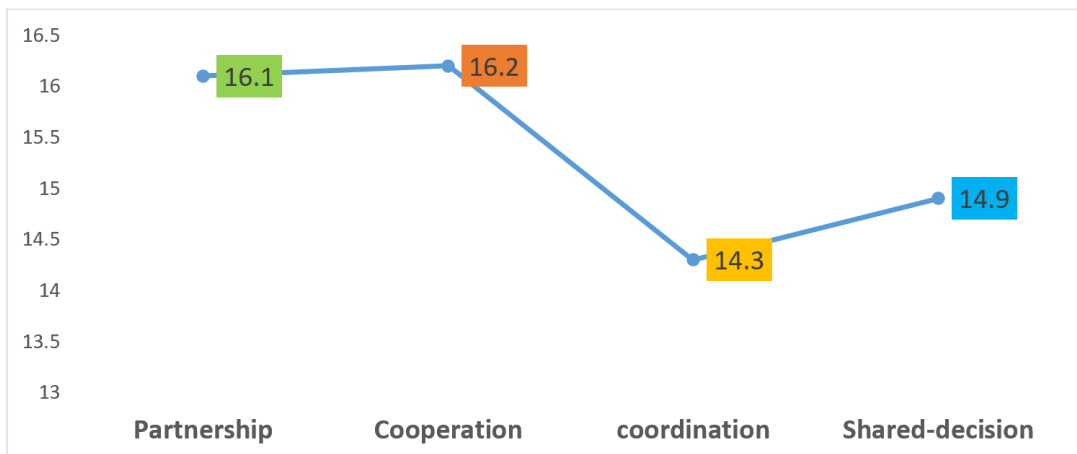


Fig. 3. Mean distribution of inter-professional collaboration practices most employed by clinical workers

4.3. Objective 3: The interaction between inter-professional collaboration and knowledge management practices among clinical workforce in Nigeria

Table 1 shows the correlation between the variables. It revealed that cooperation had a significant positive relationship with all the six knowledge management practices, i.e., knowledge capturing ($r = 0.213, p < .01$), knowledge creation ($r = 0.191, p < .01$), knowledge sharing ($r = 0.220, p < .01$), knowledge dissemination ($r = 0.212, p < .01$), knowledge acquisition ($r = 0.160, p < .01$) and knowledge application ($r = 0.161, p < .01$) in the study at 0.05 level of significance. This implies that there is a strong correlation between knowledge management practices and inter-professional collaboration in the federal tertiary hospitals in Nigeria.

Table 1
Relationship between collaboration and knowledge management practices

Collaboration practices	Knowledge Management Practices					
	Knowledge Capturing	Knowledge Creation	Knowledge Sharing	Knowledge Dissemination	Knowledge Acquisition	Knowledge Application
Partnership	.212**	.159**	.169**	.145**	.055	.117*
Cooperation	.213**	.191**	.220**	.212**	.160**	.161**
Coordination	.090*	.140**	.133**	.184**	.036	.087
Shared-decision	.174**	.185**	.166**	.159**	.127**	.133**

Note. **: Correlation is significant at the 0.01 level (2-tailed)
*. Correlation is significant at the 0.05 level (2-tailed)

4.4. Objective 4: The influence of inter-professional collaboration on knowledge management practices among clinical workforce in Nigeria

Table 2
Multiple regression analysis showing the influence of inter-professional collaboration on knowledge management practices

Inter-professional collaboration	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	Beta	Std. Error	Beta		
(Constant)	78.469	3.135		25.027	.000
Partnership	.104	.222	.027	.467	.640
Cooperation	.663	.195	.204	3.406	.001
Coordination	-.037	.169	-.012	-.217	.828
Shared decision making	.333	.179	.109	1.863	.063

R² = .083, Adjusted R² = .075, F(4, 474) = 10.680, $p < .05$

Note. The regression equation is: Knowledge management practices = 78.469 constant + 0.104 partnership + 0.663 cooperation - 0.037 coordination + 0.333 shared decisions making

Table 2 indicates that inter-professional collaboration explained the variability in the knowledge management practices by 8.3 % ($R^2 = 0.083$; Adjusted $R^2 = .075$, $F(4, 474) = 10.680, p < .05$) which indicates a significant relationship between inter-professional collaboration and knowledge management practices. The analysis revealed that of the four indicators of inter-professional collaboration, only cooperation ($\beta = 0.663, t = 3.406, p < .05$) significantly influenced knowledge management practices. Besides, partnership ($\beta = 0.104, t = .467, p > .05$), coordination ($\beta = -0.037, t = -0.217, p > .05$) and Shared

decision making ($\beta = 0.333$, $t = 1.863$, $p > .05$) did not significantly influence knowledge management practices among clinical workforce in federal tertiary hospitals in Nigeria.

4.5. Objective 5: Influence of knowledge management practices on inter-professional collaboration among clinical workforce in federal tertiary hospitals in Nigeria

Table 3 shows that the six indicators of knowledge management practices explained the variability in the inter-professional collaboration by 8.6% ($R^2 = 0.086$). Implying that the regression model predicts the dependent variable significantly well (Adjusted $R^2 = .075$, $F(6, 472) = 7.428$, $p < .05$) which indicates a significant relationship between knowledge management practices and inter-professional collaboration. The analysis revealed that two out of the six predictors; knowledge capturing ($\beta = 0.523$, $t = 2.351$, $p < .05$) and knowledge dissemination ($\beta = 0.488$, $t = 2.508$, $p < .05$) significantly influenced inter-professional collaboration. However, knowledge creation ($\beta = 0.413$, $t = 1.607$, $p > .05$), knowledge sharing ($\beta = 0.319$, $t = 1.353$, $p > .05$), knowledge acquisition ($\beta = -0.158$, $t = -0.698$, $p > .05$) and knowledge application ($\beta = .050$, $t = 0.197$, $p > .05$) did not significantly influence inter-professional collaboration among clinical workforce in federal tertiary hospitals in Nigeria.

Table 3

Multiple regression analysis showing the influence of knowledge management practices on inter-professional collaboration

Knowledge management practices	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	Beta	Std. Error	Beta		
(Constant)	39.632	4.293		9.232	.000
K. Capturing	.523	.222	.116	2.351	.019
K. Creation	.413	.257	.092	1.607	.109
K. Sharing	.319	.236	.078	1.353	.177
K. Dissemination	.488	.194	.128	2.508	.012
K. Acquisition	-.158	.226	-.040	-.698	.485
K. Application	.050	.253	.011	.197	.844

$R^2 = .086$, Adjusted $R^2 = .075$, $F(6, 472) = 7.428$, $p < .05$

Note. The regression equation is: Inter-professional collaboration = 39.632 constant + 0.523 knowledge capturing + 0.413 knowledge creation + 0.319 knowledge sharing + 0.488 knowledge dissemination - 0.158 knowledge acquisition + 0.050 knowledge application

5. Discussion

The findings from the current study indicates that collaboration and KM practices are critical to the current globalised knowledge-driven society that is dominated by knowledge management practices. These findings corroborated the findings of the studies of (Bonner & Bolinger, 2013; Sorenson et al., 2004; Sharma et al., 2007; Ratnapalan & Uleryk, 2014; Singh, 2009; Andrews & Mostafa, 2019; Opele, 2020; Wong & Aspinwall, 2005). In all of these studies, the importance of collaboration in knowledge management initiative at the individual, groups or organizational levels has been well articulated. Through collaboration either between workers or students, people learn from one another, and this is made essay within online interactions (Oladele et al., 2022). These scholars also argued that collaboration remains a critical factor for effective knowledge management practices in the health sector where diverse professionals work as a team for

common front (patient care). Thus, it can be argued that achieving sustainable inter-professional collaboration requires that practitioners give sufficient attention to the practices and exchange of teamwork practices which has been earlier emphasised by researchers in different sectors of the economy (Orchard et al., 2005; Reeves, 2016; Breitbach & Richardson, 2015; Bourhis et al., 2005).

This study also established that teamwork remains a major ingredient of inter-professional collaboration in such a complex industry as the health sector. Extant literature (Liu et al., 2019; Safrul et al., 2019) have proven that teamwork is needed among clinical workforce than other workers elsewhere whose jobs demands solo practice. In the hospital environment, patient care remains the responsibility of all and hence, there cannot be a cordial working relationship without sustainable teamwork practices. This teamwork approach even begins at training schools when the clinical workforce is undergoing their various professional training programme (Bank et al., 2017; Buttigieg et al., 2011). The need for open collaboration has also been documented in sustaining collaborative learning among workforce (Medero & Albaladejo, 2020).

The current study also underscored the practice of knowledge creation, knowledge capturing (Hoq & Akter, 2012; Halawi et al., 2017), knowledge sharing (Adeyelure et al., 2019; Okyere-Kwakye & Nor, 2020; Igwe & Ononye, 2020), knowledge application (Lwoga et al., 2010; Rincon & Orero, 2004) and knowledge use (Latunji & Akinyemi, 2018; Kaur, Kumar, Kaur, Rani, Ghai & Singla, 2014). Overall, this study has contributed to knowledge, theory and practices of collaboration and KM practices. Knowledge sharing practice in particular can enhance the entire knowledge management practices among hospital workforce and workers in general. This assertion has been further reported in related study in South African Health care system (Adeyelure et al., 2019).

Scholars have also recommended the need to integrate learning which comes through collaboration and team work together with knowledge management practices in organizations (Thongkoo et al., 2019). Hospital workforces are not left out in these practices as it will further enhance their job performance to a large extent. Hence, to sustain the knowledge management practices and collaboration, authors (Fonseca et al., 2019) have reasoned that there must be continuous learning work environment that will enhance mutual sharing of knowledge among workforce in any organization (Okyere-Kwakye & Nor, 2020). Besides, intention to share also has a powerful effect on knowledge management practices of workforce regardless of the organization of affiliation. When the motive and intension is pure, then there will be natural flow of collaborative relationship among workforce in the organization.

6. Conclusion

The outcome of this study reveals that knowledge acquisition was the most practiced followed by knowledge application. Other commonly practices include knowledge creation, knowledge sharing, knowledge dissemination, and knowledge capturing. The study underscored the fact that inter-professional collaboration and KM practices are essential for the growth and development needed for sustainable health service delivery. Besides, this study established that the most employed inter-professional collaboration was cooperation followed by partnership, shared decision-making, and coordination. The study concluded that federal tertiary hospitals in Nigeria will perform better if they can sustain the culture of knowledge management practices and inter-professional collaboration. The implication of the findings of this research for practitioners include the

need for urgent adoption and deployment of knowledge management processes and strategies and inter-professional collaboration practices in the daily activities of the clinical workforce in Federal Tertiary Hospitals in Nigeria.

Author Statement

The author declares that there is no conflict of interest.

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