

Data Sharing: Knotty Among Scholars in Nigeria

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ABSTRACT

Research transparency and data sharing maintain core principles of research in academic environment. Data is a valuable resource and funding agencies are encouraging data sharing as it increases transparency and improves the accuracy of research. For this, data sharing has continually been considered as a vital instrument for the advancement of knowledge and preservation of research against misconduct. However, this paper reports some of the challenges making it difficult for researchers to share data with others which bring a lot of setbacks to research progression. The objective of this paper is to recognise the fences that hinder data sharing practices in Nigeria. Qualitative method was employed for data collection. A total of 12 researchers (experts) partook in an interview beholding current problems that influence data sharing practices in academic environment. The interview responses were analysed using thematic and open coding techniques to categorised the responses. the results showed most of the interviewees are not satisfied with their current data sharing practices as majority of the researchers agreed that based on certain obstacles, they are not willing to share their data to support researchers' data sharing practices. The study reveals diverse blockages restrict academics from getting access to relevant data. The study further provides an ample opportunity for academics to insights on varieties of problems restricting them to share data despite describing data sharing as a key part of a movement towards promoting academic careers and research enhancement. Finally, this study stresses for further exploration by engaging the use of mixed method that would help in providing careful information and better facilitate data sharing among academics.

Keywords: Data sharing; unpleasant; Nigeria; Researchers.

INTRODUCTION

Open science is an unruly phenomenon which is presently evolving globally particularly in Europe, America and Asia. In their quest to provide quality research, academics consider sharing of data as vital as the data itself. Piwowar 2013 observed that in modern research, the sharing of data becomes so critical which cannot not be neglected (Heather & Vision, 2013). The term data sharing has recently gained prominence, sharing and recycling data has become a significant part of both research and intellectual debate in the academic communities (Tenopir et al., 2015). Despite all these, sharing datasets is no daily practice when compare to either information or knowledge sharing in academics (Roche et al., 2014). Many researchers are reluctant to share data

due to lack of academic credits, insufficient preservation infrastructure, Perceived effort, time or cost required and disciplinary practices (Borgman, 2012; Hanson, Sugden, & Alberts, 2011; Tenopir et al., 2011).

Prior studies show that there are low or limited literatures on data sharing in the developing countries of Africa. This has rightly pointed out by (Denny, Silaigwana, Wassenaar, Bull, & Parker, 2015) Data sharing remains unsupported and there are often no research practices to support data sharing in Africa. (Fecher, Friesike, & Hebing, 2015), who provided a systematic review on what drives academic data sharing? Stated that though Though “the idea of data sharing finds support within the academics yet, academic researchers rarely make their research data available to others. There are a lot of worries on how barriers of data sharing among researchers would be identified thus, a matter of concern, and to address this issue and fill the gap, this paper is timely and necessary. It is absolutely significant to recognise the hurdles that hinder data sharing practices among Nigerian academics.

LITERATURE REVIEW

With the advent of technology, it is clear that researchers are producing a lot of data by means of new methods and instrumentation. While others are eager to share data, some researchers may wish to mine these data for new discoveries and innovations. “Data sharing” has diverse meanings, for the purpose of this article, it can be considered as a situation that makes researchers provide their datasets available for use to others. Many researchers are reluctant to share their dataset publicly because of real or perceived individual costs and this probably explains why sharing datasets is no daily practice (Pitt & Tang, 2013; Roche et al., 2014). Despite a number of funding agencies, academic journals and the kind of support rendering by many researchers towards data sharing practices, “it remains to a large extent an ideal that is rarely implemented” (Andreoli-Versbach & Mueller-Langer, 2014). This prompts for additional empirical studies since the assertion of open data is to let healthier cooperation across academia, government, and the private sector (Groves, 2018). Despite it significant to academics, data sharing exercises among academics are susceptible to various problems which constrained by individual, technical, motivational, social, economic and legal barriers among others van Panhuis et al., (2014). Thus, data sharing in most cases are proven to be difficult.

The competition for reputation among academics is an obstacle within the researchers to share data. Sometimes certain data may have confidential restrictions that disallow them from being shared (Puniewska, 2014). Misuse of data often affect data sharing among the academics, as many researchers were concern that making unanalysed data accessible could result to inappropriate use of the data or incorrect interpretation (Bezuidenhout, 2013). Researchers consider datasets as intellectual property thus, do not want others to benefit from it, the idea of extra monopolistic of data makes data sharing not to be a common practice among the academic communities (Goodman et al., 2014).

In order to facilitate data sharing practices in academics, the provision of functional linking devices for potential sharing and reuse of the dataset is unavoidable. In developing countries, suitable infrastructure that can help data sharing are not readily available which make researchers reluctant in their effort to data sharing practices. As rightly observed by (Omolewa, 2007), that there is inadequate infrastructure in most of the Nigerian tertiary institutions. In developed countries, infrastructure and training are available to facilitate researchers' participation in research. For instance, Mantra research data management training (Whitmire, 2015). The present of internet has fostered the spirit of sharing among researchers, individuals who share data and or knowledge with others prepare it through online and are always expecting others to do to them (Liao, To, & Hsu, 2013). There is presently a great interest of sharing data within the researchers who usually wish to share with others but lack resources to do so instead focused on doing something else (Ferguson, Nielson, Cragin, Bandrowski, & Martone, 2014).

OBJECTIVES

This research intent to recognise the fences that hinder data sharing practices in Nigerian universities. From the researchers' point of view, data sharing is being facing with a series of obstacles in Nigerian universities. Even though, literature suggested that data sharing facilitates collaboration among researchers and allows them to examine results and reproduce experiments. Our interviews show data sharing practices in Nigerian universities is unpromising.

Based on this research objective, this paper attempts to answer the research question; what are the hitches affecting data sharing in Nigerian universities?

RESEARCH METHOD

Data were collected using semi structured interview. The target participant consists of researchers from Nigerian universities. A random sampling technique was applied which meant to be an unbiased representation of the total population, as it is a sampling technique in which each participant has an equal probability of being chosen. The interview had one session, during which questions were asked from the interviewees in order to obtain the current barriers that influence data sharing of academics in Nigerian Universities. A total number of twelve (12) academics with each representing a department were interviewed between January to March, 2018. The choice of these universities was due to the low level of research conducted in those areas compared to other parts of the country as a result of the on going crisis in that region (Ugwumba & Odom, 2015). Face-to-face interviews were conducted with all the respondents, the average length of an interview was 30 minutes and all interviews were audio-recorded for the convenience of transcription. Questions followed a funnel interviewing fashion, where respondents were initially asked to talk more about the barriers affecting data sharing. Then the interview moved ask about their readiness to share data within and

outside their institutions allowing for a better understanding and interpretation of their narratives.

For ethical thought, participants reassured that all the information received would exclusively be used for the purpose of this research and neither their data nor identity would be uncovered. For trustworthiness, there was an agreement that participants could be communicated after the study if the need arises.

Data Analysis

The data was analysed by conveying codes for identifying; naming, categorising and describing the participants to discern contexts, gather insight, and draw patterns on the barriers of research data sharing. After each interview session, a report is produced.

Findings

Interviews revealed conditions that contribute to the difficulties in data sharing practices in the areas under study.

Participants of the study

This research encompassed the total of twelve (12) participants which were coded as (HD) and involves both sexes with ages ranging from 49 to 56. The research also consists of three universities with a representative from each department, as it is put in a diagram below.

Table 1: Participants of the study

Institution	Department	Participant	Gender	Age
Bauchi State university	political science, Physics, accounting & agricultural science.	HD1	M	51
		HD2	M	50
		HD3	M	49
		HD4	M	51
Gombe state university	chemistry, sociology, commerce & engineering	HD5	M	56
		HD6	F	55
		HD7	M	50
		HD8	M	51
Yobe state university	agric., Biology, education & engineering.	HD9	F	53
		HD10	M	55
		HD11	M	56
		HD12	M	52

The main question asked in the interview was what are the concerns affecting data sharing in Nigerian universities? Series of hurdles were mentioned during the interview

but six major categories were created to represent the different emerging themes identified during the interviews. a) Individual factors, b) infrastructure, c) community culture, d) technical barriers, e) economic barriers, and f) legal barriers.

Individual influence

Individual factor is one of the obstacles mentioned by the interviewees as personal barriers that they believe are hindering data sharing among researchers. The participants frequently stated words like exertion, threat, lack of confidentiality and mistrust as personal difficulties affecting them from participating in data sharing.

i. Exertion

The time and effort which involved in sharing is an important issue that influence researchers' data sharing practices and behaviours. It is the situation where the researcher believes that data sharing would demand extra energy, work and extra time, for example, forming, fixing and preparing data can result to data withholding. Most of the participants revealed that a lot of time and energy is needed in the process of data sharing as expressed by all the respondent (HD1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12). For example, HD1 said *"I felt discourage in sharing my data whenever I think of the time spend in doing so."* Coincidentally, was in line with findings of other authorities such as, (Campbell et al., 2002) in their study found that 80% of geneticists avoid making data freely available for the reason that preparing and producing research data takes too much time. Louis with his counterparts (2002) correspondingly pointed out that more than two-thirds of geneticists were always not ready to share pre-publication results for the reason that extra time and effort involved in sharing data. HD 2 in his own part, viewed that *"demanding extra work in data sharing stops me from sharing data with others"*. Researchers believe that data sharing would demand extra energy, work and sometimes even extra time, so are not always ready to share data (Carlson & Stowell-Bracke, 2013; Kim & Stanton, 2016). As a result of this, researchers may fear data requests as it needs to spend a considerable amount of time addressing these requests (Heather Alyce Piwowar, 2010).

ii. Threat

This has to do with the potential uncertain and negative outcomes in the process of sharing data. Researchers consider data sharing as risk that can involve losing publication, misuse and misinterpretation as while as criticism by their peers, which may negatively influence researchers' data sharing practices. Ten respondents (HD1, 2, 4, 5, 6, 7, 8, 10, 11 & 12) expressed this view. For instance, HN3 said *"Threat of been exposed normally depressed me to share my research data"*. Data sharing become risky and put doubt in whether to share or not to share data with other researchers. A number of researches have equally identified perceived risks involved in data sharing to be one of the reasons why some researchers stay away from sharing their data with others (Tenopir et al., 2011). As pointed out by HD8 *"I am afraid of sharing my data for the fear of losing my publication to other researchers"*. Many researchers are reluctant to share their dataset publicly because of real or perceived individual costs and this probably explains why sharing datasets is no daily practice" (Pitt & Tang, 2013; Roche et al., 2014). Therefore, affects scholars' career undesirably.

iii. *Lack of confidentiality*

Several investigators have indicated that lack of confidentiality is another important feature that influences how researchers go about sharing their data. The concern about participants' privacy prevents researchers from sharing research data, eleven interviewees concurred to this point. This can be seen from the word of HD 4 who observed that *"The secret of my research would be revealed once I share my data with other investigators"*. These concerns are applying more by some researchers than others, for instance, those from the clinical or medical are more concerned about protecting their data. To share is good and considered a perfect idea yet, researchers are afraid their data will be used in ways they do not intend to and thus perceived a real privacy concern (Reichman, Jones, & Schildhauer, 2011).

iv. *Mistrust among researchers*

Lack of confidence in other researchers' integrity, fairness, and reliability can definitely affect how researchers can share data. Six respondents expressed this fear (H2, 4, 5, 8, 9, & 12). From our findings, it is revealed that researchers have less trust within themselves. According to H6 *"I trust no body to share my research data with in this academic environment"*. This coincidence with findings of other scholars in the other part of the world. For example, trust promote social exchange, and are less pronounce within the academic circle (Yoon, 2017). Trust can encourage researchers to exchange knowledge and improve value through that particular exchange (Holste & Fields, 2010). This shows how trust can lead to effective exchange in relation to data sharing practices.

Insufficient Infrastructure

Inadequate infrastructure was cited by the participants as another problem affecting the smooth running of data sharing in universities. Inadequate training, suitable connectivity and lack of functional data repository are identified in most of the Nigerian tertiary institutions.

i. *Inadequate Training*

For researchers to effectively involve in data sharing they requires to gain certain skills which can only be provided through training and retraining. This interview revealed that there is inadequate infrastructure for training in Nigerian universities. Seven participants (H1, 2, 4, 6, 7, 10 and 11) expressed similar assertion. According to H4 *"we usually have insufficient infrastructure to support series of training including sharing data"*. This has coincided with other research findings for instance, research revealed that in Africa and Nigeria in particular, suitable infrastructure for such training are not readily available which make researchers reluctant in their effort to data sharing practices (Ogunsola, 2005). In developed countries, training are organized to improve researchers' participation in research for instance, Mantra research data management training (Whitmire, 2015). The skills acquired during training can help to enhance the researchers' ability to share their data with others. Preferably, such data management skills training should be incorporated in postgraduate research methods training (Corti & Van den Eynden, 2015). Having thorough training and familiarity with skilled support services, support researchers be less cautious about data sharing dictates and

emboldens positive relationship with various research centers. To accomplish task of managing and sharing data requires both technical and research skills that are obtainable via training (Van den Eynden & Corti, 2017).

Globally, most scholars engage with research data sharing and publishing had rigorous training with advanced knowledge, for instance, at the UK Data Service, for staff to be involved in research data sharing and publishing he or she must undergo severe training regarding sharing and publishing, and those who provide training must equally have extensive research expertise (Van den Eynden & Corti, 2017). In recent times, a survey was conducted on institutional repository workforce in Australia and New Zealand discovered the important of training to member staff on their day to day responsibilities, identified several skills and knowledge gap within the staff (Simons & Richardson, 2012). For effective training, majority of the researchers chosen one-day workshop, (Ngozi I. Anasi, J. Akpan, & Adedokun, 2014) informal discussions and panel sessions and also wanted to practice skills and interact with other scholars around issues that talked much about training prioritization (Bresnahan & Johnson, 2013). Researchers' training is inevitable; data literacy skills are pertinent to researchers' daily activities. To support researchers' practices in the face of a hurriedly changing research enterprise that increasingly relies on data literacy skills, relevant training should be guaranteed to all scholars (Federer, Lu, & Joubert, 2016). Therefore, providing data sharing based training programs to researchers will likely increase their level of data sharing practices.

ii. Connectivity

In order to facilitate data sharing practices in academics, the provision of functional linking devices for potential sharing and reuse of the dataset is unavoidable. Findings of this paper indicated inadequate resources such as shortage of internet and other connectivity devices in Nigerian universities. This was identified by four of the participants (H1,6,7 and 12). For example, H6 alleged that "*we frequently encounter problem of having interrupted power supply*" and is in agreement with other studies. The present of internet has fostered the spirit of sharing among researchers, individuals who share data and or knowledge with others prepare it through online and are always expecting others to do to them (Liao et al., 2013). There is presently a great interest of sharing data within the researchers but lack resources to do so made them instead focused on doing something else (Ferguson et al., 2014). Those with less connectivity find it difficult to share with colleagues, in fact, it has been well established that scholars with less or from rural areas are in a considerable disadvantaged position regarding ICT infrastructure and connectivity that will help in sharing as compare to their counterparts with well connectivity (Martínez Suárez, de Salvador Agra, & de Salvador González, 2015; Roberts, Anderson, Skerratt, & Farrington, 2016). Although, high cost and inadequate income have always been the uniquely identified by many organizations as the reasons for the insufficient infrastructure or lack of adoption of such connectivity (Townsend, Sathiaselan, Fairhurst, & Wallace, 2013).

Nevertheless, in some cases, University may provide and explore technological adoption to ease sharing and other related activities to researchers but lack of interest from the part of these scholars plays a vital role. Absence of interest has been arose in recent years as a purpose for not using the internet as revealed in a research conducted in England and Sweden (Pavez, Correa, & Contreras, 2017). Provision of effective social

network can also enhance the connectivity among organizational staff. Inaccessibility and lack of social networks, are exclusively identified in a study as some imperative rudiments of non-use among young people (Eynon & Geniets, 2012).

iii. Lack of functional data repository

This concept can be described as an initiative aims at storing data for an analytical or reporting purpose. Interviews revealed that Nigerian universities have few data repositories that can help their researchers to store, share and obtain data for reuse. 5 Participants are with this notion (H2, 4, 6, 7, and 8). H7 said *“No serious researcher will avoid data repository as it facilitates collaboration within researchers but unfortunately we have no one in my university”*. This coincides with other studies with similar findings that emphasised the important of data repository to data sharing. Having recognized the significant and the relevancies of the term data sharing, academic communities have to establish different data repositories to realize their dreams (Gewin, 2016; Tenopir et al., 2015). Current development in the area of technologies brought about data repositories which enabled researchers to share their research data without difficulty, thus achieving the main objective of modern research which is data driven on shared data sets (Kim, 2017). Currently, collaboration in form of data sharing in academics needs the composition of institutional support like providing data repositories, technological set-up and even interpersonal relations (Kim & Stanton, 2012). Correspondingly, a successful academic’s data sharing must encompass the similar three ranges of infrastructure, institutions and people. If we really consider data sharing practices as significant and an evolving tributary in research, creating data repositories becomes critical to modern academic communities.

It is equally important to know that research data sharing transpires in miscellaneous forms, including uploading data in data repositories, succumbing data as journal supplements and providing data by means of personal communication methods upon demand (Kim, 2017). By implication, University communities with data repositories may involve in sharing practices more than those without. Similarly, even in similar communities, data sharing practices can vary based on the present of data repositories. In science, there is no doubt that the volume of data being assembled is speedily increasing more especially in biomedical research laboratories, physics experiments and genomics which necessitated the need for data repositories (Farber, 2017). Establishing data repositories in our Universities can really help and influence data sharing activities of our scholars. A latest perspective (Stephens et al., 2015) claims that the quantity of sequencing data created is amplifying every seven months and it has been assessed that the unit cost of storage capacity declines haphazardly, this is coarsely dependable with the development of data appears to be cumulating by an order of magnitude roughly every 31 months since January 2009 (Health; Kodama, Shumway, & Leinonen, 2011). Data repositories over the years is influencing and changing data sharing practices in the academic environment by permitting researchers to deposit their raw data and making such data mostly available to everybody who might want to use them.

Community culture

Culture is a way of life of a group of people which include the behaviours, symbols, values, belief that people accept, that are normally passed from one generation to another. The culture of the community was also a factor that influence the researchers' performance concerning data sharing. This was supported by 3 participants (H8,10 and 12) and has been stated in ways by the interviewees for example, H10 *"It is not secret that our culture discouraged sharing important things with others"*. Also H12 has this *"Based on our culture, I hardly share my data with other researcher including you"*. Nigerian community culture has the idea of extra monopolistic and like exclusive preservation of their property which in turn discourage sharing of any kind Lewis, et al (2009).

The way in which our communities stare and cogitate data sharing influence its practices among the researchers. In every academic community, sharing especially of ideas, and other research resources are considered a significant features of scholarly collaboration (Franceschet & Costantini, 2010). Between all these sharable materials, research data is perceived as a cherished basis since it permits researchers to create differences in virtually all areas of development (Corti, Van den Eynden, Bishop, & Woollard, 2014). Consequently, research data sharing has become gigantic effort with a common-sense practice (Jeng, He, & Oh, 2016). Despite the fact that community culture differences occur between several academics, all of these communities necessitate more access to data and more transparency (Elman & Kapiszewski, 2013). Therefore, they normally give strong emphasis about data sharing among different scholars. Despite these differences, since the late 1990's, communities are strategizing how to improve accessing and managing resources within a community; all are acknowledged as thoughtful requirements for data management and curation services (Bos et al., 2007). Hence, the fast progression in data sharing offers new opportunities across various communities to develop and expand their research.

In the modern society where accountability and transparency are more pronounced, every community for their best interest must involve in data sharing practices and seize the opportunities afforded by making experimental data more widely available. Irrespective of community culture, generally, there are some barriers to data sharing such as evolving community consent about terms and definitions, recognizing data stewardship strategies and structure, permitting researchers to participate in sharing and reuse of datasets, applying practices that safeguard intellectual chattels and tolerate appropriate citation of data, and creating models that are supportable (Briggs, 2016; McKiernan et al., 2016; Steckler et al., 2015; Zinner, Pham-Kanter, & Campbell, 2016). Even though, community data culture raised a lot of logical as well as sociocultural concerns (Hirschfeld, 2012; Pearce & Smith, 2011; Visscher & Weissman, 2011).

Technical barriers

Existing of internet and other online activities has necessitate researchers to be conversant with the use of technology. Our interviewees revealed that researchers in

Nigerian universities are face with numerous technical challenges, data sharing involves a number of technical barriers these are understood mostly affect the oldest researchers and continue to be a major hurdle for data sharing practices, as most of them lack specialized expertise required to make data available to others (Barry & Bannister, 2014). Participant like H2, 5 and 9 confessed that they lack technical knowledge to sufficiently sharing data. According to H 9 *"I may wish to share my data but lack of technical skills discouraged me from doing so because i don't want to risk my data"*. Similarly, absent of this technical expertise may come from the other party involved in sharing that can lead to data being exposed to less secure environment (Dallmeier-Tiessen et al., 2014; Sayogo & Pardo, 2013; Volk, Lucero, & Barnas, 2014).

For effective sharing, data must be in a well-defined format that is easily accessible, thus, needs to be rigorously defined. Lack of central portal, less support of making data publicly available, fragmentation of software and applications, absence of standards and others constituted a technical barrier in data sharing (Janssen, Charalabidis, & Zuiderwijk, 2012; Pampel et al., 2013). In modern days, for effective data sharing, there must be sound development of infrastructure thus requires significant investments but no ample overview of this infrastructures and their functionalities available (Pampel et al., 2013). Nevertheless, most of the existing technologies designed were insufficient to meet the growing requirements of data sharing practices as most of these technologies fail (Alharthi, Krotov, & Bowman, 2017). Another noticeable barrier is currently, majority of the researchers involving in data sharing practices have inadequate technical skills to handle the practices successful, as this may increase errors and could result to losing valuable data, placing data in an unwanted record and sharing the wrong data (Hoffman & Podgurski, 2013).

In essence, technical concerns for data sharing involve but not limited to language barriers, absence of standardization and incompatibility among surveillance databases. More so, a lot of researchers show their concerns as related to inadequate sharing infrastructures particularly to data architecture and data protection thus, data protection is not always guarantee from been scooped or misused. In academic community, the underlying assumption is that good data sharing will lead to better researches, which will finally enhance academics participation.

Economic challenges

Nigeria's economy recently slipped into recession reflecting adverse economic shocks, the respondents however mentioned that the economic situation has no doubt influenced the way and manner researchers share data. For example, H8 *"We are facing serious challenges with little budget allocated from the government, we can't have enough money to things that will help in sharing data within the researchers"*. Inconsistent economic policies have negative consequently on academic activities. Allocations to Nigerian universities are drastically reduced with less motivation to researchers. Previous studies have indicated in difference areas that data sharing is been discouraged by lack of motivation, lack of funding and technical infrastructure in general (Jeng & Lyon, 2016). In sharing research data, cost and incentives become a major obstacles as researchers are found of refusing to share data for lack of incentives

in academia (Shen, 2016). In respect of the research results, the availability of that study's data would definitely reduce research costs by avoiding unnecessary repetition of experiments for which data are already available (Callahan et al., 2017). Researchers' efforts to share data in some cases have been hijacked and denied when it involved expenses. The inability of the researchers to adequately share their data may not be unconnected to lack of sufficient rewards and incentives, these incentives appear to be either financial, reputation or public recognition.

Data sharing process is critical and involves both human and technical resources for effectiveness and data preparation (Van Panhuis et al., 2014). Other incentives can be in form of reputation and merit which it absents results to resistance to data sharing among investigators. In academic environment, researchers rely on their reputations to signify prominence which is normally gain through the quality of their work. To realize fundamental data sharing, significant time effort, and resources need to be invested, thus, researchers withhold their data and feel that they have already shared their data when an article is published (Cheah et al., 2015).

Legal challenges

The kind of law and restrictions associated with data usage are considered to be another problem that is thwarting the activities of data sharing in Nigerian universities (Akintola, 2018). These barriers are no doubt attached to legal instruments used to restrict data sharing, resulting from the underlying willingness (or not) to share data by the researchers in the academic environment. Participants H4 and 11 shared this assertion. For instance, H4 *"Law regarding data sharing are not favourable for sharing hence it prevents many from participating"*. While H11 has this *"considering the kind of data in my possession that involved human being, restrictions are placed frequently"*. This concurs with other studies, for instance, data sharing practices must occur in accordance with legal requirements that attract restrictions and have the potential to control when, how and who has access to what data (Weller & Kinder-Kurlanda, 2016). Several investigators described how data sharing law and policies in different areas have been accused of not protecting the right of both the data provider and the user (Kaye, 2012). High personal data protection laws preventing data being shared that is not having permission to gain access to and reproduce data reuse of contracts, dispute and litigations, and limited conditions for using data often affect data sharing practices. Some data are prohibited to share, for instance, is normally against the law or even not possible for researchers to share integrated data on HIV/AIDS with others unless with a strong permission (Fecher et al., 2015). To avoid the breach of law on individual privacy can absolutely deter academics from making their data publicly (MA & PA, 2013).

The establishment of laws and policies regarding data sharing is essential however, literature showed that the laws and policies to guide data sharing practices which provide the mission, function and power of sharing, set standards to safeguard individual rights are lacking (Fan & Yu, 2007; Mauthner & Parry, 2013; Moore et al., 2015). Similarly, relevant data sharing policies, quality assurance and other important ingredients for sharing are not always available to support the exercise, thus, the

schemes for data sharing previously failed (Control, 2013). To promote data sharing practices, relevant laws and policies are needed to control data flow and protect confidentiality (Cadigan et al., 2013).

DISCUSSIONS AND CONCLUSION

The primary objective of conducting this research was to specifically identify the various difficulties facing data sharing in Nigerian academic community. Despite benefits associated with data sharing in academics, participants identified series of problems that made it difficult for researchers to share data in universities. These hindrances identified comprised of individual influences, insufficient infrastructure, community culture, technical, economic and legal factors. Coincidentally, some literature further confirms related problems facing in the process of such sharing among academics which are clearly pointed out in van Panhuis et al., (2014) review of barriers to data sharing in public health, and coincides by findings of Alharthi, Krotov & Bowman, 2017; Barry & Bannister (2014); Janssen et al., (2012).

The current paper found that barriers facing data sharing in academic environment bring a lot of setbacks as they sometime find it difficult to share the most useful relevant data with their colleagues hence become disastrous. The interview revealed that collaboration and sharing data within the scholars is as good as the data itself. This paper further described data sharing as a key part of a movement towards promoting academic careers and research enhancement yet, these challenges restricted scholars from getting access to certain participants' personal data (Butler & Cyranoski, 2013).

Regarding individual barriers, several personal challenges discovered are attached to data sharing as scholars feel discourage in making their data publicly available for exertion and threat involved, confidentiality and mistrust. They claimed that sharing data may lead to misuse and attract criticism from peers which can finally have negative effect on the data donors' career (Bezuidenhout, 2013).

For infrastructure, reasons such as inadequate training, connectivity and lack of functional data repository are identified during the interview. It was revealed that there is no suitable infrastructure for training that can encourage researchers participate in data sharing practices. Nigeria as a nation do not possess the basic infrastructure, has poor connectivity, infrastructure and internet connections (Rao, 2001).

Concerning community culture, our findings discovered that Nigerian community culture enjoy exclusive preservation of property which distress collaboration among researchers. Nigerian community culture has the idea of extra monopolistic and enjoy exclusive preservation of their property which in turn discourage sharing of any kind Lewis, et al (2009).

In terms of technical barriers, this paper indicates that quite a number of researchers, especially the oldest ones lack the technical capacity required to share data with other investigators as most of them lack the specialized expertise required to make data

available to others. Most of the researchers in developing nations lack specialized expertise required to make data available to others (Barry & Bannister, 2014).

Regarding economic barriers, considering the present economic situation in the country, allocations to Nigerian universities are drastically reduced with less motivation to researchers which directly affect most of the researchers' activities including data sharing practices. According to Jeng & Lyon (2016) different studies have claimed that data sharing is been discouraged by various economic bankrupt such as lack of motivations and funding to purchase needed infrastructure.

In respect to legal challenges, most of the participants described how data sharing law and policies in different areas have been accused of not protecting the right of both the data provider and the user as such prevent them from data sharing. This is in line with findings of (Cadigan et al., 2013) certain laws and policies that are significant in safeguarding individual rights, providing the mission, function and power as while as guiding data sharing practices are lacking, such relevant law are seriously needed to control and protect data flow and confidentiality (Cadigan et al., 2013).

RECOMMENDATIONS

In general, this paper shows certain barriers that have negative consequences on data sharing practices in the academic communities. Therefore, administrators as while as the researchers themselves should as a matter of urgency come together to address and provide lasting solutions for the betterment of this practice. This can effectively be done through considering the ethics and privacy of the participant's data before sharing, provision of relevant technical infrastructure and expertise, implementing simple and flexible law and policies that can support sharing, establishing sound data repositories, and giving orientations on the important of data sharing to researchers and above all providing adequate economic resources of any kind to academic communities.

LIMITATIONS AND FUTURE RESEARCH

In conclusion, the use of small sample size has affected the representativeness of the entire sample and generalization of the findings. Therefore, further studies should comprise a large sample transversely the universities for more hearty results. Furthermore, this study has used only the qualitative method, using mixed method would help collect in-depth information and obtain a better barriers data sharing within the academic circles as again the use of qualitative method alone. Hence, there is need for future research to be piloted in outside academic environment this would be useful to many people within and outside the academic communities.

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