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Research Data Management and Data Sharing among Research Scholars of Life Sciences and Social Sciences

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ABSTRACT

This study investigates perception of research scholars towards research data management and sharing. A survey was conducted among research scholars from Faculty of Life Sciences and Social Sciences, Aligarh Muslim University (AMU). In total, 352 participants filled out the questionnaire. The study shows that research scholars ofFaculty of Social Sciences are more willing to share their research data as compared to Research Scholars of Life Sciences. Contributing to scientific progress and increasing research citations and visibility were the key factors that motivated researchers to share data. However, confidentiality and data misuse were the main concerns among those who were unwilling to share. Finally, some recommendations to improve the of data management and sharing practices are presented.

Keywords: Research data management; Research data sharing; Scholarly communication; Data preservation; Research scholars.

1. INTRODUCTION

Data are the building blocks of empirical research, whether in the social, behavioral, biological, or physical sciences. To view and extend the work of others, researchers often require access to the data on which that work is based. Research data management and sharing have become critical because of their important and valuable role in enhancing science through building on previous works by reusing data produced and acquired by other researchers. Research data includes every piece of data acquired and generated during the research process. Research data comes in many different formats and is gathered using a wide variety of methodologies and may comprises, among others, text, spreadsheets, questionnaires, photographs, films, test responses, laboratory notes, statistics, observations, slides, results of experiments, samples, scripts, algorithms, workflows, scripts, interview notes and many other forms. Research data can be defined as recorded authentic material often accepted in the scientific community as necessary to prove research findings; although the majority of such data is created in digital format, all research data is included regardless of the format in which it is created.

Data sharing is not a new concept in scholarly communication. It refers to the practice of making data used for academic research available to other investigators. A number of funding agencies and science journals require authors of peer-reviewed papers to share any additional information necessary to understand develop or reproduce published research. The data sharing practices must be followed as they help to verify the research findings, dataof publicly funded research must be accessible to one and all to see, verify, reinterpret and re-analyse; this will lead to the broadening of the extreme limits of knowledge. Other researchers in the field can evaluate data from a different perspective thus more knowledge and theories may be generated conserving the time spent for data generation. Sharing data has many benefits and it is manifestly clear and widely accepted. Research Data Management (RDM) plan is a plan which identifies the type of data that will be generated, how it will be documented, stored, and shared. In addition to any further information such as copyright, backup, responsibilities, and cost, etc.

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2. LITERATURE REVIEW

Review of literature facilitates the researcher to acquire knowledge on a topic under consideration for research and it also helps in avoiding duplication of work. For the this work the investigator has collected articles from various sources such as *Emerald Insight, Research Gate, ProQuest* and different academic journals related to several disciplines. After reviewing several articles published in various journals, the investigators have selected the most relevant articles which fulfill the purpose of the literature review.

Elsayed, A.M. & Saleh, E.I.[1] A study was conducted and it has underscored that researchers' personal experience is their only source of guidance for data management plan and only 42 per cent were unfamiliar with data managements plans. Regarding sharing data, researchers' at the three Arab Universities displayed a positive attitude towards sharing data, especially older researchers. Tripathi, M, et al.[20] investigated

and studied researcher's perceptions towards research data in India. Their study shows that the researchers and Faculty members generated a broad spectrum of data types but did not use any metadata for their organisation. The study has highlighted the efforts made in India to put research data in open access, which can be reused, re-analysed, reinterpreted for further study and thus add to the already existing knowledge. It has underlined that the researchers and Faculty members believe that the data should be freely available for anyone to use but they are themselves reluctant to share.

Shen, Yi[18] conducted a similar study and investigated research data assessment and landscape study in the institutional context of Virginia Tech to determine the data sharing and reuse practices of academic Faculty researchers. The studies reveals that there is a significant gap between the rather limited sharing activities and the highly perceived reuse and repurpose values regarding data, indicating that the potential values of data for future research are lost just after original work is done.

Tenopir, C, *et al.*[19] also conducted a similar study to investigate the perceptions of scientists towards data sharing and also the practices which they prefer. This study revealed that these scientists do not make their data electronically available to others for various reasons, including insufficient time and lack of funding.Most of the organisations do not provide support to their researchers for data management both in the short and long-term. There are also significant differences and approaches in data management practices based on primary funding agency, age, work focus, subject discipline and world region. In another study, Schöpfel , J., and Prost, H.[17] four groups can be distinguished, i.e. pioneers, motivated, unaware and reluctant.The survey results helped them to improve the information about data management, deposit and sharing and to launch a training program for PhD students, as part of their doctoral education.Along the same lines, Cragin, Melissa H, *et al.*[5] aims to study data sharing in institutional repositories. In this study they found that participants generally had positive views of data sharing and expressed openness to sharing their own data, particularly with people in their field. But 60 per cent of them identified a need to restrict some or all of their data from public access for any length of time.

3. OBJECTIVES OF THE STUDY

The present study is aims to analyse evaluate and compare the research data management and sharing activities among researchers of Faculty of Life Sciences and Social Sciences at AMU, Aligarh.

The major objectives are:

- To identify and compare how research scholars of Faculty of Life Sciences and Social Sciences manage their data
- To examine and compare the use of data management plan in both the faculties
- To study and compare the reasons due to which research scholars share their own data
- To identify and compare the type of research data do research scholars share among others
- To examine and compare how do they share research data with other researchers
- To study and compare the duration and ways in which research scholars preserve their data
- To identify and compare the factors that influence the sharing of data among research scholars.

4. METHODOLOGY

Methodology has its importance in scientific investigation because impartiality in any research cannot be obtained unless it is carried out in a very systematic and planned manner. Questionnaire method was used to collect data from research scholars. For this present study, investigators have used the modified version of questionnaire developed by A.M. Elsayed and E.I. Saleh, in their study (2018) entitled, "Research Data Management and Sharing among researchers in Arab Universities: An exploratory study". For this very purpose, questionnaires of open ended in nature for research scholars of two faculties, have been prepared. A total number of 410 questionnaires were administered among the research scholars of Faculty of Life Sciences and Social Sciences, AMU, out of which 354 questionnaires were returned. Response rate is 86.34 per cent. Among these questionnaires, 352 were considered for the analysis of data as 2 were found incomplete.

4.1 Sample Technique

- Departments were selected using Census and Random sampling method. In the case of Faculty of Life Sciences, departments were selected according to Census method as the Faculty consists of five departments only. In the case of Faculty of Social Sciences, Random Sampling method was used to select five departments
- Random sampling has been used for the purpose of selecting Research Scholars for administering questionnaires.

4.2 Sample Population

The target population comprises of research scholars of Faculty of Life Sciences and Social Sciences of Aligarh Muslim University Aligarh. Survey method was used to carry out this study. The collection of data from the entire population of research scholars of Faculty of Life Sciences and Social Sciences is huge to be adequately covered in a single study. Therefore, 200 total numbers of questionnaires were administered among research scholars from 5 different departments of Faculty of Life Sciences: Biochemistry, Botany, Museology, Wildlife Sciences and Zoology out of which 150 filled questionnaires were returned back whereas 210 questionnaires were administered among research scholars from 5 departments of Faculty of Social Sciences: Economics, Sociology, Psychology, History and Library and Information

Table 1. Sample size

Faculties	Questionnaire Distributed	Questionnaire Received	Response Percentage
Life Science	200	150	75
Social Science	210	202	96.19
Total	410	352	85.85

Table 2. Number of male and female research scholars

Faculties	Male (%)	Female (%)	Total no. of research scholars (%)
Life Science	46 (30.67)	104 (69.33)	150 (75)
Social Science	126 (62.38)	76 (37.62)	202 (96.20)

Science, out of which 202 filled questionnaires were returned back. Hence, total numbers of 352 filled questionnaires were used for analysis of data (Table 1).

4.3 Data Collection Procedure Adopted

One set of questionnaire was prepared for collecting data from the research scholars of Faculty of Social Sciences and life science, AMU. The questionnaire contained 13 questions of close ended nature. The investigator visited departments of both the faculties in the month of March, 2019 and requested the research scholars to fill in the questionnaire. For this purpose 410 questionnaires, each containing 13 questions were administered among the target population. Out of 410 questionnaires, 210 were distributed among the research scholars of Faculty of Social Sciences, AMU. Total 202 questionnaires were received back; 126 from male and 76 from female research scholars with complete responses. On the other hand 200 questionnaires were assorted among the research scholars from Faculty of Life Sciences, AMU, out of which 150 completely filled questionnaires were returned from 46 males and 104 female research scholars as shown in Table 2. Thus a total of 352 questionnaires were used for analysis of data. The analysis and interpretation of collected data from the research scholars of both faculties i.e. Social Sciences and Life Sciences is presented in the form of tables and graphs as follows:

5. FINDINGS

The whole collected data is presented in the following tables. The most and least exercised option can be checked either by looking at the answers or at its percentage.

5.1 Types of Research Data Generated

Table 3 shows that 61.39 per cent of research scholars of Faculty of Social Sciences mostly generate questionnaires as research data but the number of male research scholar'sresponse (23.94 %) is low in comparison to female researchers. A good number (60.4 %) of research scholars said that they also generate statistical data during their research.It was also found that 49.5 per cent of research scholars generate survey responses.It is also revealed that films (3.96 %) and laboratory notes (4.95 %) are least generated by them. On the other hand,

Table 3. Types of research data generated by research scholars of both the faculties

Types of Research data	Faculty of Social Sciences			Faculty of Life Sciences		
	Male (%)	Female (%)	Total Responses (%)	Male (%)	Female (%)	Total Responses (%)
Laboratory notes	4 (3.17)	6 (7.89)	10 (4.95)	22 (47.83)	42 (40.38)	64 (42.67)
Experimental measurements	8 (6.35)	12 (15.79)	20 (9.9)	44 (95.65)	96 (92.31)	140 (93.33)
Statistical data	64 (50.79)	58 (76.32)	122 (60.4)	38 (82.61)	78 (75)	116 (77.33)
Clinical measurements	4 (3.17)	2 (2.63)	6 (2.97)	10 (21.74)	28 (26.92)	38 (25.33)
Samples Data	42 (33.33)	36 (47.37)	78 (38.61)	20 (43.48)	62 (59.62)	82 (54.67)
Clinical measurements	4 (3.17)	8 (10.53)	12 (5.94)	6 (13.04)	16 (15.38)	22 (14.67)
Survey Responses	48 (38.1)	52 (68.42)	100 (49.5)	14 (30.43)	16 (15.38)	30 (20)
Questionnaires	66 (52.38)	58 (76.32)	124 61.39)	6 (13.04)	12 (11.54)	18 (12)
Photographs	14 (11.11)	14 (18.42)	28 (13.86)	14 (30.43)	42 (40.38)	56 (37.33)
Films	4 (3.17)	4 (5.26)	8 (3.96)	0 (0)	8 (7.69)	8 (5.33)
Test Responses	6 (4.76)	16 (21.05)	22 (10.89)	6 (13.04)	30 (28.85)	36 (24)
Observations	44 (34.92)	38 (50)	82 (40.59)	24 (52.17)	50 (48.08)	74 (49.33)
Other	4 (3.17)	8 (10.53)	12 (5.94)	0 (0)	4 (3.85)	4 (2.67)

Multiple answers were permitted

Table 4. Research data format

Research data format	Faculty of Social Sciences			Faculty of Life Science		
	Male (%)	Female (%)	Total Responses (%)	Male (%)	Female (%)	Total Responses (%)
Text documents	94 (74.6)	74 (97.37)	168 (83.17)	44 (95.65)	102 (98.08)	146 (97.33)
Structured text/web	26 (20.63)	10 (13.16)	36 (17.82)	4 (8.7)	30 (28.85)	34 (22.67)
Spreadsheet	32 (25.4)	38 (50)	70 (34.65)	16 (34.78)	36 (34.62)	52 (34.67)
Statistical data	54 (42.86)	52 (68.42)	106 (52.48)	28 (60.87)	60 (57.69)	88 (58.67)
Graphics/Images	52 (41.27)	38 (50)	90 (44.55)	36 (78.26)	74 (71.15)	110 (73.33)
Audio files	12 (9.52)	6 (7.89)	18 (8.91)	0 (0)	6 (5.77)	6 (4)
Video/Film files	22 (17.46)	8 (10.53)	30 (14.85)	4 (8.7)	8 (7.69)	12 (8)
Databases	14 (11.11)	22 (28.95)	36 (17.82)	6 (13.04)	22 (21.15)	28 (18.67)
Software applications source code or script	6 (4.76)	8 (10.53)	14 (6.93)	12 (26.09)	18 (17.31)	30 (20)
Configuration data	6 (4.76)	4 (5.26)	10 (4.95)	0 (0)	4 (3.85)	4 (2.67)
Other	4 (3.17)	0 (0)	4 (1.98)	0 (0)	2 (1.92)	2 (1.33)

Multiple answers were permitted

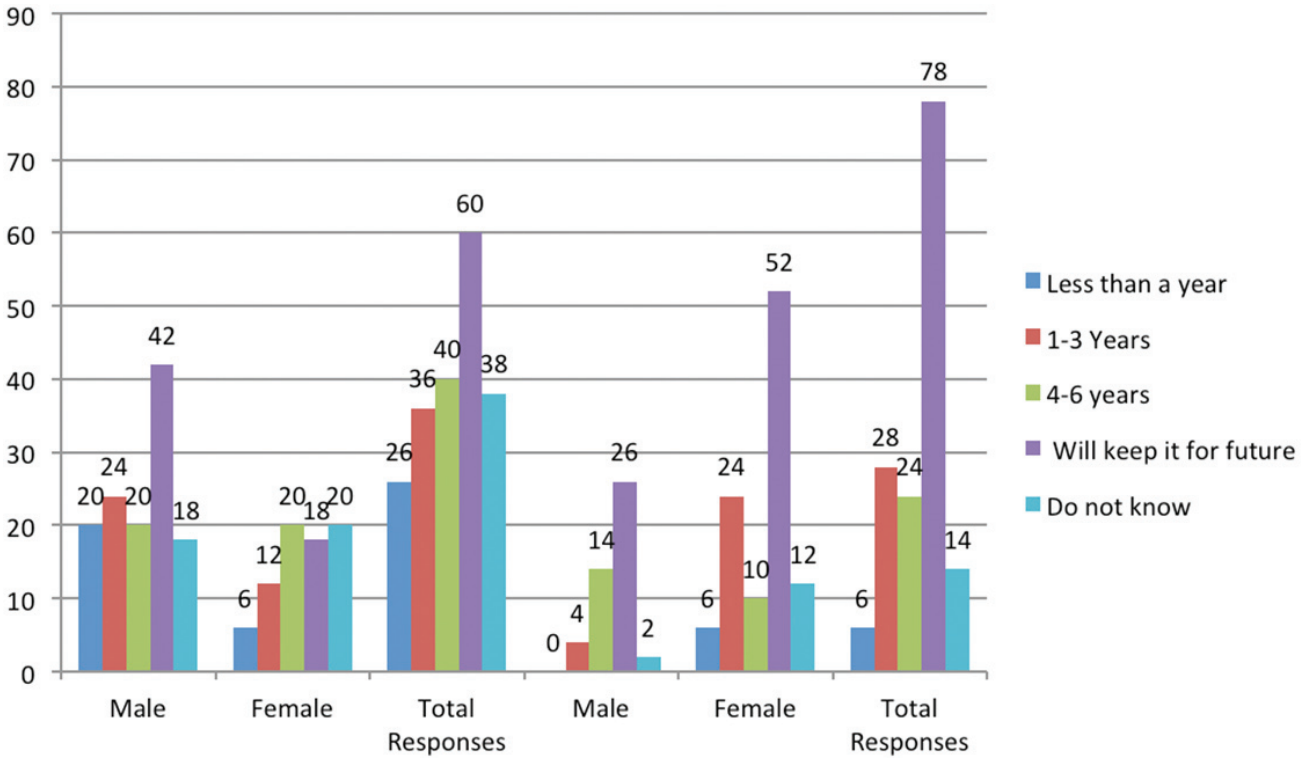

Figure 1. Time period to preserve research data.

a majority of research scholars (93.33 %) of Faculty of Life Sciencesgenerates experimental measurements followed by statistical data (77.33 %) and sample data (54.67 %) during their researches. Only few number of research scholars of Life Sciences generate films (5.33 %) and questionnaires (12 %).

It is depicted from the Table 3 that majority of research scholars of Social Sciences generate questionnaires as a research data while only few of them generates laboratory notes whereas in Faculty of Life Sciences, it is exposed that majority of the research scholars generates experimental measurements while only few of them generates films.

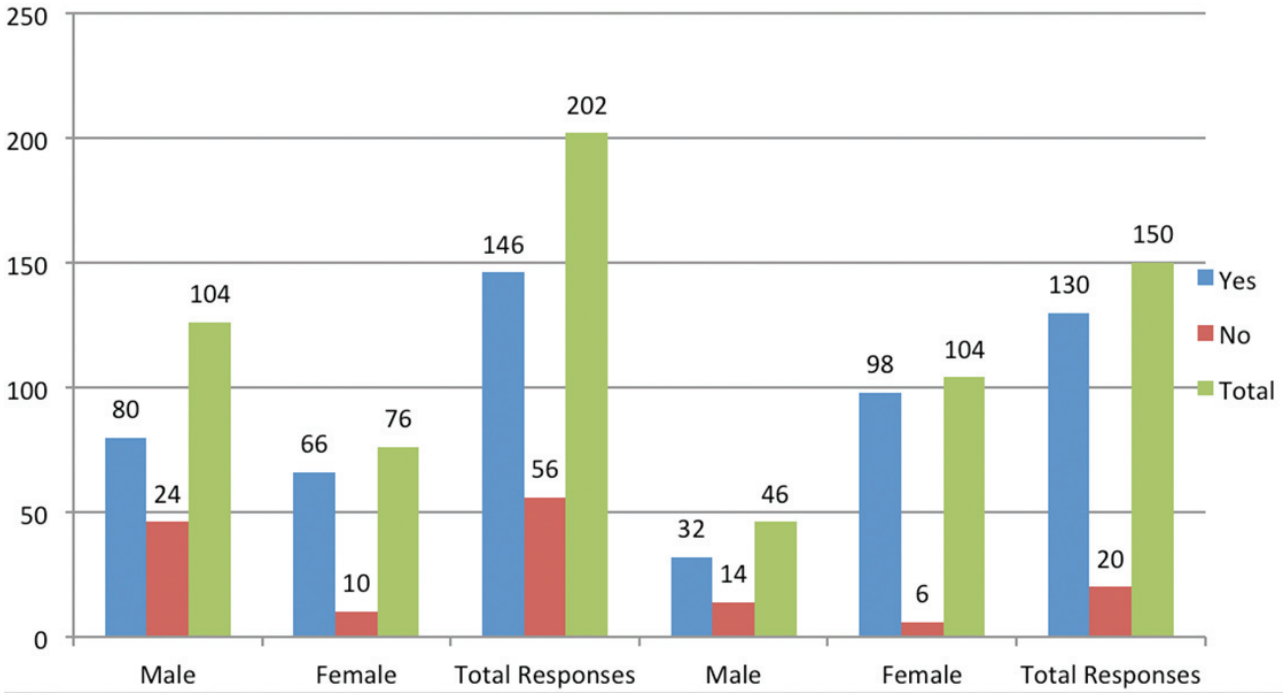

Figure 2. Use of research data management plan.

Table 5. Reasons for not having any RDM plan

Reasons	Faculty of Social Sciences			Faculty of Life Science		
	Male (%)	Female (%)	Total Responses (%)	Male (%)	Female (%)	Total Responses (%)
I do not know what it is	10 (21.73)	2 (20)	12 (21.42)	2 (14.3)	1 (16.67)	3 (15)
I do not know how to make it	18 (39.13)	1 (10)	19 (34)	8 (57.14)	4 (66.67)	12 (60)
I think it is not necessary	10 (21.73)	6 (60)	16 (28.57)	2 (14.3)	1 (16.67)	3 (15)
I have no time for it	8 (17.4)	1 (10)	9 (16.07)	2 (14.3)	0 (0)	2 (10)
Other	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

5.2 Research Data Format

While analyzing Table 4, it is found that majority of research scholars preserve text documents in both the faculties. Majority (83.17 %) of research scholars of Social Science preserve text documents followed by statistical data (52.48 %). Whereas only 4.95 per cent of research scholars preserve configuration data during their researches. It is also revealed that female research scholars are 15.16 per cent ahead of male research scholars in preserving text document. While in Life science Faculty 97.33 per cent of total research scholars preserve text document while they preserve only 2.67 per cent of configuration data.

Table 4 reveals that majority of the research scholars are preserving text documents in both the faculties followed by graphical images and statistical data. Very few number of research scholars are preserving configuration data i.e. 4.95 per cent (Social Sciences) and 2.67 per cent (Life Science).

5.3 Time Period for Preservation of Research Data

Analysing the Fig. 1 it is found that a good number of research scholars of Social Science (29.7 %) and Life Science (52 %) will preserve their research data for their future purposes. Only 13 per cent of Social Science research scholars preserve data for less than a year whereas, only 4 per cent of the research scholars of Faculty of life science preserve their data for less than a year. Figure 1 below enumerates that majority of research scholars will preserve their research data for their future use. The least number of research scholars having their data for less than a year are 13 per cent and 4 per cent in Faculty of Social Sciences and Life Sciences respectively.

5.4 Research Data Management Plan

Figure 2 below depicts the research scholar's response on use of research data management (RDM) plan, in response to this question, 72.28 per cent of research scholar of Faculty

Table 6. Storage of research data

Medium of Storage	Faculty of Social Sciences			Faculty of Life Science		
	Male (%)	Female (%)	Total Responses (%)	Male (%)	Female (%)	Total Responses (%)
Personal storage devices	98 (77.78)	74 (97.37)	172 (85.15)	40 (86.96)	96 (92.31)	136 (90.67)
Cloud based storage	6 (4.76)	4 (5.26)	10 (4.95)	4 (8.7)	2 (1.92)	6 (4)
Research data repositories	50 (39.68)	42 (55.26)	92 (45.54)	36 (78.26)	52 (50)	88 (58.67)
University's server or repository	24 (19.05)	14 (18.42)	38 (18.81)	14 (30.43)	24 (23.08)	38 (25.33)
Hardcopy or printed form	54 (42.86)	44 (57.89)	98 (48.51)	20 (43.48)	42 (40.38)	62 (41.33)
Other	4 (3.17)	6 (7.89)	10 (4.95)	0 (0)	9 (7.69)	8 (5.33)

Multiple answers were permitted.

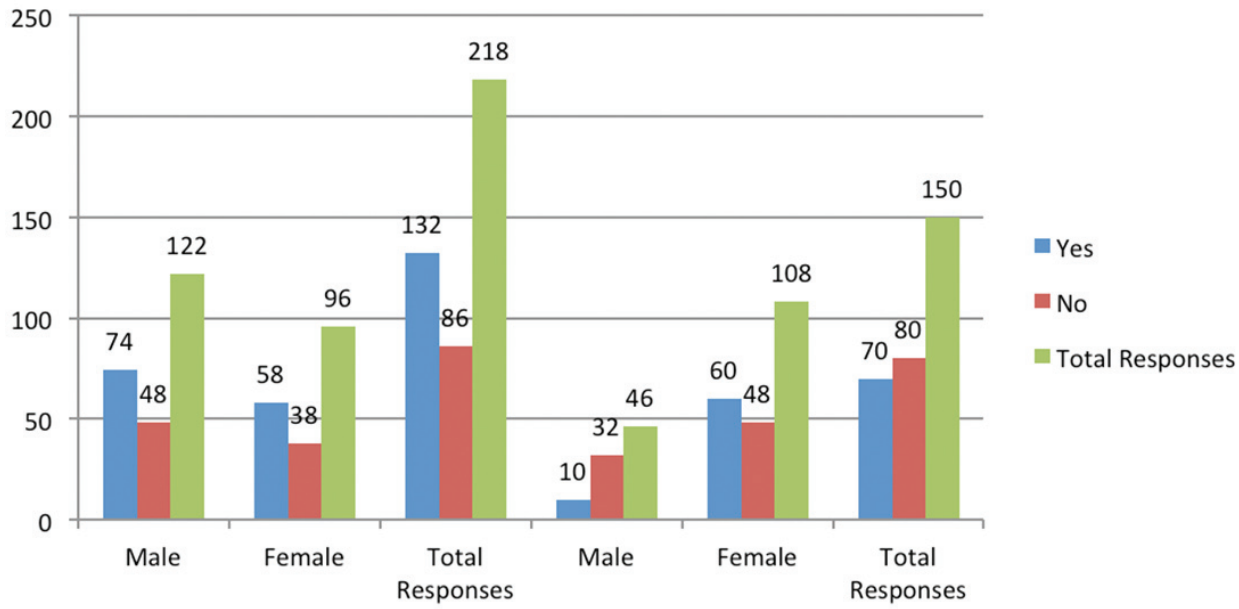

Figure 3. Sharing of research data.

of Social Sciences replied that they have research data management plan while only 25.74 per cent denied to use it. Similarly, 86.67 per cent research scholars of Life Sciences admitted that they have RDM plan whereas 13.33 per cent do not have any RDM plan.

5.5 Reasons for not Having any RDM Plan

Table 5 reveals the reasons because of which research scholars do not use any RDM plan. The major reason behind the denial of the use of RDM Plan is that research scholars do not know how to make it in both the faculties. In Social Sciences Faculty, 16.07 per cent of research scholars do not have time for it. Whereas in faculty of life sciences, 15 per cent of research scholars do not have any RDM plan because they do not know what it is and they also do not have time for it. About 28.57 per cent and 15 per cent of research scholars respectively think that it is not necessary.

It is depicted from the table that majority of the research scholars of faculty of Life Sciences (60 %) and Social Sciences (34 %) expressed that they do not know how to make it.

5.6 Storage of Research Data

Table 6 shows the medium of data storage. Table 6 enumerates that 85.15 per cent of the total research scholars of Social Sciences are using personal storage devices for storing their research data. The percent recorded for the use of Cloud based storage is the lowest in Social Science Faculty which is 4.95 per cent. Hardcopy or printed form got the second highest response which is 48.51 per cent. Similarly, majority (90.67 %) of research scholars of Life Sciences also use personal storage devices for storing their research data. The percent recorded for storing data into Cloud based storage is the lowest which is 4 per cent. The other storage media are research data repositories (58.67 %), university's server or repository (25.33 %).Whereas the research scholar of both the faculties also mention the use of other storage media.

Table 7. Factors motivating research scholars to share data

Reasons	Faculty of social sciences			Faculty of life science		
	Male (%)	Female (%)	Total responses (%)	Male (%)	Female (%)	Total responses (%)
Contribute to scientific progress	30 (23.81)	44 (57.89)	74 (36.63)	24 (52.17)	40 (38.46)	64 (42.67)
Take part in open science	6 (4.76)	12 (15.79)	18 (8.91)	16 (34.78)	14 (13.46)	30 (20)
Avoid duplication of scientific efforts	16 (12.7)	8 (10.53)	24 (11.88)	8 (17.39)	14 (13.46)	22 (14.67)
Required by research funder	10 (7.94)	8 (10.53)	18 (8.91)	4 (8.7)	6 (5.77)	10 (6.67)
Required by journal publisher	26 (20.63)	24 (31.58)	50 (24.75)	12 (26.09)	18 (17.31)	30 (20)
Increase my research citation and visibility	30 (23.81)	24 (31.58)	54 (26.73)	10 (21.74)	22 (21.15)	32 (21.33)
Prove confidence in research results	26 (20.63)	26 (34.21)	52 (25.74)	12 (26.09)	12 (11.54)	24 (16)
Increase transparency of research	28 (22.22)	38 (50)	66 (32.67)	14 (30.43)	16 (15.38)	30 (20)
Increase my chance of obtaining a grant	6 (4.76)	10 (13.16)	16 (7.92)	4 (8.7)	2 (1.92)	6 (4)

Multiple answers were permitted.

It is clearly depicted from the Table 6 that majority of research scholars of both the faculties use personal storage devices as a medium of storing their research data whereas only few of them use cloud based storage for storing their research data.

5.7 Sharing of Research Data

Figure 3 shows sharing of research data. It is evident from the table that 55.44 per cent of research scholars of Faculty of social sciences share their research data with others, in which, male research scholars are 8.73 per cent ahead of female research scholars in sharing research data. In contrast, research scholars of Life Sciences refused to share their data with others. The percent recorded is 53.33 per cent. In fact, in Life Sciences, male research scholars are 25.12 per cent ahead of female research scholars in not sharing their data with others.

Figure 3 clearly revealed that male researchers of Faculty of Social Sciences are more willing to share their data as comparison to female research scholars whereas this is opposite in the case of Faculty of Life Sciences.

5.8 Reasons for not Sharing Research Data

This study also revealed reasons of not sharing research data which was responded by only those who responded to the previous query with answer 'NO'. It is clear from the table that majority (42.22 %) of research scholars of Social Sciences do not want to share their research data due to data privacy and confidentiality concerns followed by intellectual property issues(10 %) and they don't have rights to make the data public (10 %). Whereas only few number of them do not share due to lack of institutional support (2.22 %), Citation and credit issue (2.22 %), and lack of understanding regarding how to share data (2.22 %). On the other hand, research scholars of Life Sciences responded the same .The percent recorded for data privacy and confidentiality concerns is 35 per cent.Whereas only 1.25 per cent of them stated citation and credit issue.Lack of interest in data sharing (3.75 %), no one will be interested in their data (3.75 %) are some other reasons which is responded by few of them.

5.9 Factors Motivating Research Scholars to Share Data

From Table 7 revealed factors motivating research scholars to share data. It was found that participants who said that they shared their research data with other scholars identified many factors motivating them to do so. It was found that 36.63 per cent of research scholars of Faculty of Social Sciences shared data in order to contribute to scientific progress, 32.67 per cent did so to increase transparency of research. Lowest proportion (7.92 %) mentioned factor i.e. 'increase their chance of obtaining grant'in contrast 42.67 per cent of research scholars of Life Sciences identified the factor that is motivating them to share their research data is contribution to scientific progress. 21.33 per cent did so to increasetheir research citations and visibility and the lowest proportion (4 %) did so to increase chance of obtaining grant.

It is revealed from the Table 7 that a good number of research scholars from both the faculties found the major factor motivating them to share their data is contribution to scientific progress. Whereas the factor which is least responded is increase chance of obtaining grant.

5.10 Methods of sharing research data

Table 8 reveals different methods of sharing research data. It was found that research scholars of Social Science faculty used a number of different data-sharing methods: 30.69 per cent

Table 8. Different methods of sharing research data

Methods	Faculty of Social Sciences			Faculty of Life Science		
	Male (%)	Female (%)	Total responses (%)	Male (%)	Female (%)	Total responses (%)
Post data to personal website	7(11.11)	1 (2.63)	8 (7.92)	3 (13.04)	1 (1.92)	4 (5.33)
Deposit data in open data repositories	3 (4.76)	3 (7.89)	6 (5.94)	0 (0)	3 (5.77)	3 (4)
Deposit data in an institutional data repository service	4 (6.35)	2 (5.26)	6 (5.94)	5 (21.74)	6 (11.54)	11 (14.67)
Publish data through academic social networks	15 (23.81)	15 (39.47)	30 (29.7)	7 (30.43)	15 (28.85)	22 (29.33)
Publish in a research journal	12 (19.05)	19 (50)	31 (30.69)	6 (26.09)	11 (21.15)	17 (22.67)
As supplementary files for the paper on a journal's website	7 (11.11)	2 (5.26)	9 (8.91)	5 (21.74)	2 (3.85)	7 (9.33)
Make data available to peers on request	12 (19.05)	7 (18.42)	19 (18.81)	7 (30.43)	11 (21.15)	18 (24)
Make data available within a research group	7 (11.11)	11 (28.95)	18 (17.82)	0 (0)	4 (7.69)	4 (5.33)
Other	0 (0)	1 (2.63)	1 (0.99)	0 (0)	0 (0)	0 (0)

Multiple answers were permitted.

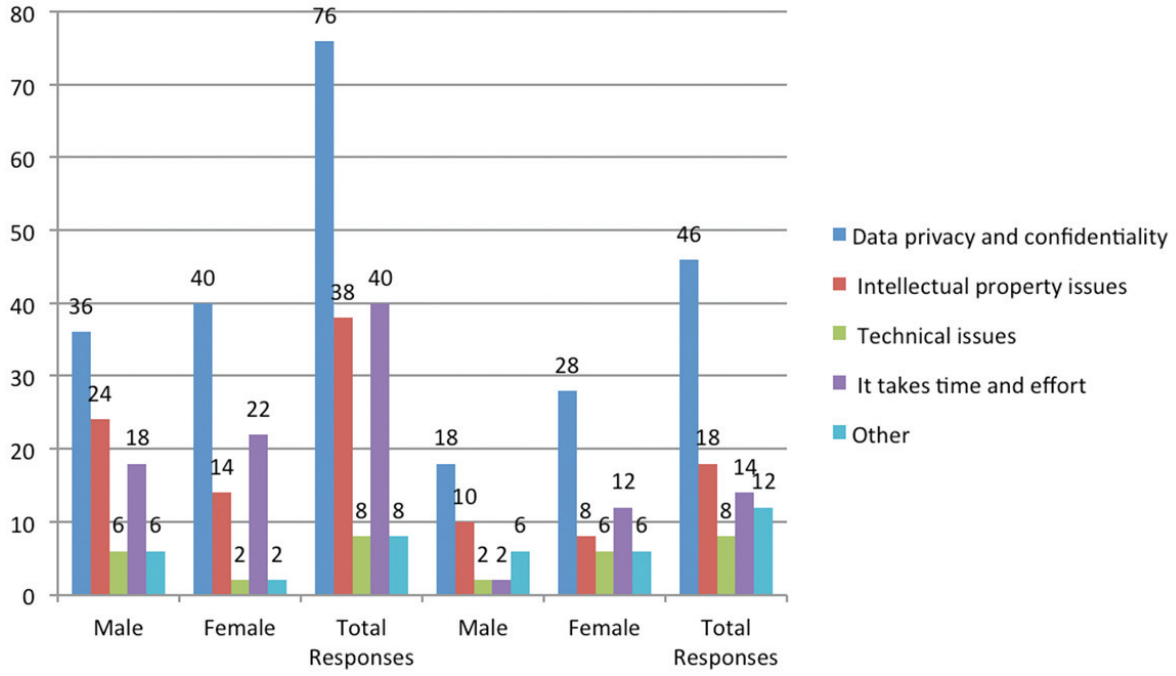

Figure 4. Main obstacle in sharing research data.

stated that they shared their data by publishing in a research journal; 29.7 per cent through academic social networks; and 18.81 per cent said that they made their data available to peers on request.Depositing data in open data repositories and in an institutional data repository service are the least preferred way of making data electronically available to others (5.94 %), conversely, research scholars of Life Sciences used number of different data-sharing methods: 29.33 per cent through Publish data through academic social networks; 22.67 per cent shared their data by publishing in a research data journal and 24 per cent said that they made their data available to peers on request. Depositing data in open data repositories (4 %) is the least preferred way of sharing data.

This is clearly depicted from Table 8 that a good number of research scholars of Faculty of Social Sciences share their data by publishing in a research journal (30.69 %). Whereas only few of them deposit data in open data repositories and in an institutional data repository service and they are least

preferred way of making data electronically available to others. In comparison to male research scholars of Social Sciences, 50 per cent of female research scholars used research data journal for sharing their data. Research scholars of Faculty of Life Sciences publish their data through academic social networks. Whereas depositing data in open data repositories is the least preferred way of sharing data.

5.11 Obstacles Preventing the Sharing of Research Data

Figure 4 indicates the main issues in sharing of research data.To address challenges, research scholars of both the faculties were asked to indicate obstacles they encountered in sharing their research data. The leading obstacle among research scholars of Social Sciences was data privacy and confidentiality (37.62 %) followed by the time and effort required to share data (19.8 %). Technical issues (3.96 %) was opted by very few of them. Similarly, majority of research scholars of Faculty of Life Sciences revealed the leading obstacle in sharing research data i.e. data privacy and confidentiality (30.67 %). Only 5.33% of research scholars responded to technical issues.

This is clearly depicted from the Fig. 4 that confidentiality seems to be a common concern among both the research scholars who share and those who are unwilling to share. In faculty of Social Sciences, female research scholars are facing more obstacles in comparison to male research scholars, on the other hand, in Faculty of Life Sciences, male research scholars are facing more impediment than female research scholars.

6. SUGGESTIONS

There should be a proper orientation programs for Research Scholars to make them aware the importance of RDM plan at the early stage of their admission.Research scholars must be aware of benefits of sharing their data and there should be awareness regarding the factors that can motivate others for sharing data.University may organise mock classes for data preservation for research scholars. This includes detail training sessions for preserving data on various devices and their uses. Both the faculties must provide sufficient information to their research scholars regarding method of sharing data, so that by knowing these, they can share their data in future.Research scholars suggested that they needed training for research data management and they also stated that their universities play a significant role in supporting research data management and sharing.Research scholars also suggested that there should be a certain policies and guidelines for research data management and sharing.

7. CONCLUSIONS

The study highlights the perspectives of research scholars towards research data management and sharing. It has highlighted that majority of research scholars of Faculty of Social Sciences as well Life Sciences are using certain RDM plan. Quite a good percentage of research scholars from both the faculties preserve their research data for the future. As, expected, it is found that personal storage devices are widely used to store their data. As far as sharing of data is concerned, research scholars of Social Sciences have a positive attitude towards sharing research data whereas the case is opposite for research scholars of Life Sciences. Publishing in a data journal is the preferred method of sharing data in the case of Social Sciences research scholar whereas publishing data through academic social networks is the way preferred by research scholars of Life Sciences. Privacy and confidentiality are found to be the leading reasons that restrict research scholars from sharing data.

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Dr. P.M Naushad Ali presently working as professor in the Dept. of Library and Information Science, Aligarh Muslim University has over 20 years of teaching and research experiences. He has several research papers to his credit and has completed six major research projects funded by national funding agencies. He has also delivered many talks in national and international conferences and seminars. He also served as Chairman, department of Library and Information Science, AMU during the period 2009-2012. He is the editor-in-chief of the journal, Journal of Knowledge and Communication Management (JKCM). Prof. Ali is also an active member of national and international professional bodies like International Council of Knowledge Management (ICKM), International Association of Computer Science and Information Technology (IACSIT), American Society for Research (ASR), ISKO, ILA, IASLIC, IATLIS, IASS etc.The present study has been conducted under the supervision and guidance of Prof. Ali and he was involved in suggesting useful improvements to the content of the dissertation, manuscript and put his expertise in preparing the final draft of the paper