Chapter١: Introduction

١.1Background

Knowledge sharing and knowledge flows of scientific groups have become an important factor affecting the development of the groups. On account of the mutual communication and collaboration in scientific, academic and research paper field, an invisible relationship network has been formed among them knowledge sharing of scientific group network.

Knowledge sharing Among the challenges confronting knowledge management, knowledge sharing comes in the second. There are three aspects involved in knowledge sharing: content construction, technology construction and interpersonal construction. However, interpersonal construction hasn't gained enough attention in the research of knowledge sharing.

Knowledge sharing should cover two areas: socialization of invisible knowledge and internalization of explicit knowledge. Knowledge is not a simple information reallocation, but a process of interpersonal exchange of knowledge in specific environment [1].

1.2 Problem statement

- There is a need to investigate the factors that affect the knowledge sharing in the scientific group.

- There is no obviousmodeland the process of sharing knowledge in scientific groups. Sothere is aneed to solve this problem for attributes we need to build it.

1.3 Aims and Objectives

1.3.1 Aim

To Investigating the impact of scientific group activities in Social Network Sharing Systems.

1.3.2 Objectives

1- Analyze the main attributes used to evaluate the knowledge sharing activities in scientific group.

2- Proposea model for the attribute that affect knowledge sharing.

3- verify the model to Investigate the factors that affect knowledge Sharing within (Sudanese Scientific Group) on Social media.

1.4 Research Scope

This research covered the activities of theSudanese scientific societies.

1.5 Methodology

The following figure shows the main steps of the methodology

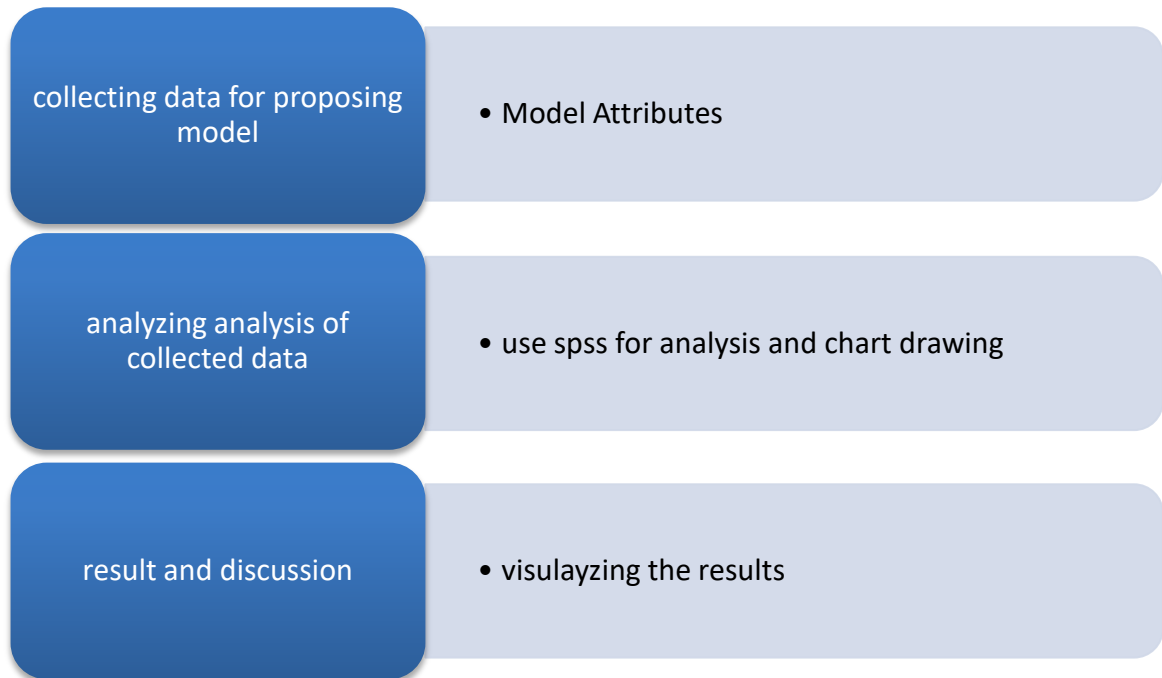| collecting data for proposing model | • Model Attributes |
| analyzing analysis of collected data | • use spss for analysis and chart drawing |
| result and discussion | • visulayzing the results |

Figure (1.1): steps of methodology

1.6 Thesis Outline

This research is organized as follows:

Chapter (1) begins with the introduction, problem statement and research objectives. Chapter (2)introduce literature review and related work. Chapter (3) describe methodology. Chapter (4) shows data collection and data analyses. Chapter (5) result and discussion. Chapter (6) the conclusion and recommendation for further studies in the research.

CHAPTER 2: Literature Review

2.1 Overview

In this chapter the literature review was included for the social network knowledge sharing also a related work was introduced based on scientific papers.

2.2 Theoretical Background

2.2.1 Analysis of Social Network

A social network is a social structure made up of a set of social actors (such as individuals or organizations) sets of dyadic ties and other social interactions between actors. The social network perspective provides a set of methods for analyzing the structure of whole social entities as well as a variety of theories explaining the patterns observed in these structures. The study of these structures uses social network analysis to identify local and global patterns, locate influential entities, and examine network dynamics.[2]

Social networks and the analysis of them is an inherently interdisciplinary academic field which emerged from social psychology, sociology, statistics, and graph theory. These approaches were mathematically formalized in the 1950s and theories and methods of social networks became pervasive in the social and behavioral sciences by the 1980s. Social network analysis is now one of the major paradigms in contemporary sociology, and is also employed in a number of other social and formal sciences. Together with other complex networks, it forms part of the nascent field of network science.[3]

2.2.2 Social networking Service

A social networking service (also social networking site or SNS or social media) is an online platform which people use to build social networks or social relations with other people who share similar personal or career interests'activities backgrounds or real-life connections.

Social networking services vary in format and the number of features. They can incorporate a range of new information and communication tools, operating on desktops and on laptops, on mobile devices such as tablet computers and smartphones. They may feature digital photo, video, sharing and "web logging" diary entries online (blogging). Online community services are sometimes considered social-network services by programmers and users though in a broader sense a social-network service usually provides an individual-centered service whereas online community services are groupcentered. Defined as "websites that facilitate the building of a network of contacts in order to exchange various types of content online social networking sites provide a space for interaction to continue beyond in person interactions.These computers mediated interactions link members of various networks and may help to both maintain and develop new social ties [4].

Social networking sites allow users to share ideas, digital photos and videos, posts, and to inform others about online or real-world activities and events with people in their network.

While in-person social networking such as gathering in a village market to talk about events has existed since the earliest development of towns the Web enables people to connect with others who live in different locations ranging from across a city to across the world. Depending on the social media platform.Members may be able to contact any other member. In other cases, members can contact anyone they have a connection to and subsequently anyone that contact has a connection to and so on. [5]

2.2.2.1 Types of social networking services

The main types of social networking services contain category places (such as age or occupation or religion) means to connect with friends (usually with self-description pages) and a recommendation system linked to trust One can categorize social-network services into three types:

- socializing social network services used primarily for socializing with existing friends (e.g Facebook)
- networking social network services used primarily for non-social interpersonal communication (e.g LinkedIn, a career and employment-oriented site)
- social navigation social network services used primarily for helping users to find specific information or resources (e.g Goodreads for books).[6]

2.2.3 Social Media and Knowledge Management

Social media platforms from Facebook to Snapchat are an integral part of everyday life for many people and businesses They let everyone communicate with each other It's a principle that leads to successful knowledge management at companies because it motivates employees to preserve and share knowledge. It's a fact businesses can use to their advantage by uncovering and making useful the knowledge that lies hidden throughout the company.

Social media gives everyone the ability to discover knowledge and contacts as they exchange information and collaborate, making it an ideal complement to knowledge management. It's no longer unusual in any way to post one's thoughts and knowledge participate in discussions ask questions and leave comments. If you want to know something you'll frequently find the answer on social media. There are practically no limits to what can be discovered. As such employees also have a desire to connect with one another and share in the knowledge of others. The main focus is sharing experience and expertise within the company.[7]

2.2.4 Knowledge Sharing

In general, knowledge sharing occurs when people who share a common purpose and experience similar problems come together to exchange ideas and information. The process of knowledge sharing between individuals involve the conversion of the knowledge held by an individual into a form that can be understood absorbed and

used by other individuals . It is basically a mechanism by which knowledge is transferred from one individual to another.[8]

2.2.4.1 Types of Knowledge and Knowledge Sharing

Knowledge can be classified into two broad categories explicit and tacit.

- **Explicit knowledge:** can be easily communicated shared and expressed in words and numbers It is for example the type of knowledge found in academic papers books and the web.
- **Tacit knowledge:** on the other hand, includes information that is difficult to formalize and communicate because it is rooted in experience insightand intuition This type of knowledge is best shared through conversation and the South-South Experience Exchange Facility helps countries do that. [9]

2.2.5 A community of practice (CoP)

Is a group of people who share a concerna set of problemsor a passion about a topic and who deepen their knowledge and expertise in this area by interacting on an ongoing basis.Cops can be small or large,can be internal or linked to partners outside the organization also can be virtual or physical, develop and must be tailored to their member'sneeds. ACop is a place where people collaborate. They learn from othersand share with them. And members manage their tacit and explicit knowledge in a given field as effectively as they can. [10]

2.3 Related Works
2.3.1   Social Networks for Knowledge Management

- Ryan Zammitsayed sayed proposed the new concept of *temporary ties* that are aided through social networks. It also described the work in progress and findings so far on the use of social networking technology and habits for aiding knowledge management. social software is becoming part of a standard arsenal of tools deployed within companies, tools that may help knowledge management, Evidence is presented from a review of relevant literature and through survey via online social network ,asking respondents usage of social networking for knowledge management purposes in both their private lives and also work-related practices.[11].

- Tsungaisayed aresearch aims to argues that Web 2.0 primarily facilitates Personal Knowledge Management (PKM),identifies the group features of social network platforms as the prime locations for networking and learning, Theoretically based on Cheong and Tsui's PKM 2.0 model in particular the Interpersonal knowledge

transferring phase that in turn is based on Nonaka's SECI model of knowledge conversion,Starts out with considering the distinction and relationship between Organizational Knowledge Management (OKM) and Personal Knowledge Management (PKM),The research comes to the conclusion that the group features of Web 2.0 social network platforms are useful for Knowledge Management, because it is indeed a component of users' Personal Knowledge Management [12].

- Groth said this reasearch aims to using social networks to support knowledge management and collaboration in an organization is an interesting approach focus on awareness systems using mobile technologies,social networks in an organization can be supported through awareness information [13].

2.3.2   Social media and knowledge sharing

- Eid said this research aims to empirically examine the various categories of SNS use including chatting,online discussion ,creating knowledge,Information content, file sharing. Andenjoyment and entertainment by tertiary employee at a in Saudi Arabia.and the results show that there are significant positive relationships between both chatting and online discussion and file sharing and knowledge sharing, and entertainment and enjoyment with employee learning. [14].

- Mainz said the research aims to understand if and how the usage of social media in working environments for networking.Information search,Idea generation may influence creativity, knowledge creation and innovation,interviews with knowledge workers from universities and public research institutes in Germany and examine the sources of information in the course of idea generation as well as the impact of social media on creative processes [15].

- Waddah Hamoudusing the concept of knowledge management and social media, and   the research aims to critically analyze the various models and theories related to knowledge management and social media for IT organizations,The capabilities of ICT knowledge management process if developed via social media tools allow the organizations to identify the loopholes and develop proper strategy to remove it.And involvement of social media tools in developing knowledge management process is more helpful and beneficial for any business organization as they can learn about the evaluation methods of online information into real life [16].

- Bakhuisen addressed the importance of knowledge sharing in organization and confirmed its relation to better performance in organization,their research found out the followings the contacts with co-workers and updates in their professional social network provided a bridge to find experts and information, Social media contacts

with professionals outside the organization were useful when sharing knowledge with weak ties that can provide new ideas, Sharing professional content on social media turned out to be related to sharing tacit knowledge [17].

2.4 summary of related work

Table 2.1: summary of related work:

No.	Paper Title	Publication Date	Author	Methods
1	Social Networks for Knowledge Management	2013	Ryan Zammit, Mark Woodman	social networking technology and habits for aiding knowledge management
2	Social Networking for Knowledge Management: Group Features as Personal Knowledge Management Tools	2014	Cleopatra Tsungai Mushonga	Web 2.0 primarily facilitates Personal Knowledge Management (PKM)
3	Using social networks for knowledge management		Kristina Groth	Awareness systems using mobile technologies ,social networks in an organization.
4	Social networking, knowledge sharing, and employee learning: The case of university employee	2016	Mustafa I Eid	Chatting. Online discussion. Creating knowledge. Information content. File sharing. And enjoyment.
5	Social media for the purpose of knowledge creation and creativity management - a study of knowledge workers in	2016	Hochschule Mainz	knowledge creation innovation and interviews with knowledge workers from universities and public research institutes.

	Germany			
6	Developing the Main Knowledge Management Process via Social Media in the IT Organizations: A Conceptual Perspective	2016	Mohammad Waddah Hamoud	analyze the various models and theories related to knowledge management and social media for IT organizations, evaluation methods of online information into real life
7	Knowledge Sharing using Social Media in the Workplace	2015	Nicolette Bakhuisen	Social media and knowledge sharing to pring tacit knowledge from people to share it.

CHAPTER 3: Research Methodology

3.1Overview

This chapter an overview to the knowledge sharing activities and the impact of the scientific groups on the increasing the knowledge, a customized model was developed to evaluate the gain, also a questionnaire helps to collect data.

This research a descriptive analysis was used as it is the most suitable to its nature because it studies the phenomena under question as it exists, describes it in details and expresses it either quantitatively or qualitatively as need be. It is the method mostly used in studies about social networks impacts. The impact was determined by evaluating the performance of the group based on a customized model that is proposed.

3.2 Methodology

Investigating the realted work

Choose the attributes

• Bulding the model

Verify the model

• Build the questionair
• Collect the data
• Analyze the data

Results and Discusion

Conclusion and Recommendation
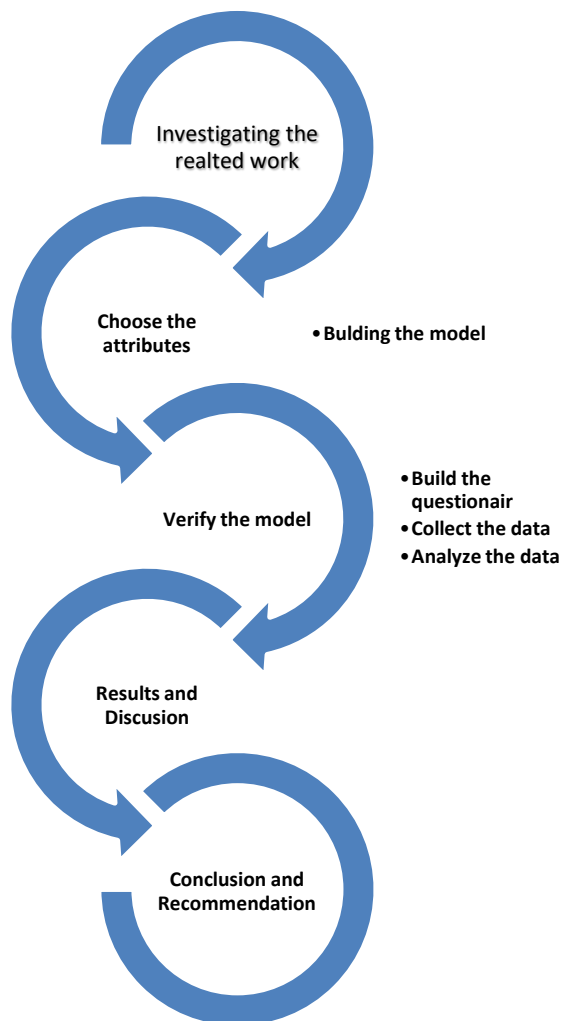
Figure (3.1): Show the methodology

3.2.1 Investigating the related work

According to the related work on the previous chapter it was notice that most of the papers the authors uses Model or Framework to evaluate the impact or performance of the social network in term of knowledge sharing. In this project a questionnaire was done and a new customized model was used for analyzing the impact.

3.2.2 Steps of the methodology

3.2.2.1 Collecting data

The following model attribute used to collect the data for the analysis based on the frequency of usage, type of social media, knowledge sharing, purpose of using social media scientific groups, the total time consumed on the group.

3.2.2.1.1 Model Attributes

These are the attribute that affect knowledge sharing on social media within scientific group. Following attributes was used to evaluate the impact of the scientific group.Activities in increasing the knowledge sharing.
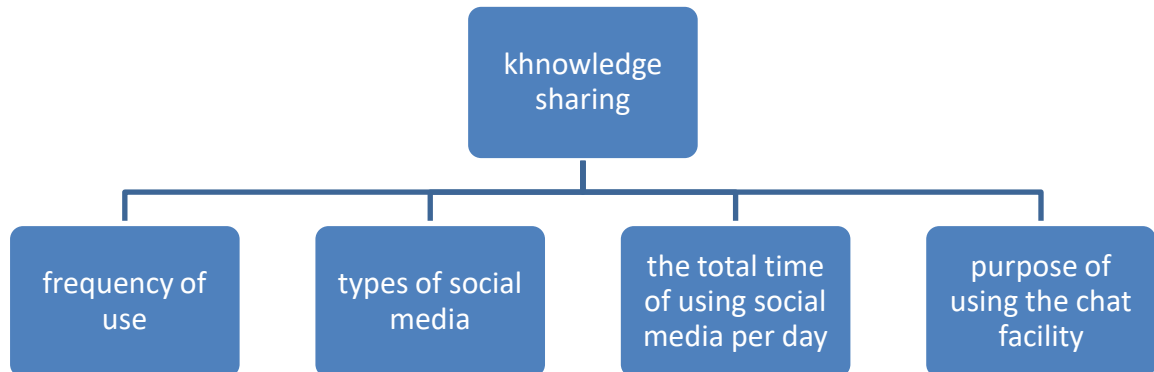
Figure (3.2): Show Model Attributes

3.2.2.1.1.1 Frequency of using social media

This attribute examine how much is the usage of the social media usage per day, per month and per year this factor is the main and primary attribute that can determine the approximation value of knowledge that the user can obtain in the consumed hours.

3.2.2.1.1.2 Types of Social Media

One of the main attributes is the density on the social media type of preferred platform, in this attribute, every group can choose the best way and best group that spend hours used mostly on a specific group to gain knowledge such as Facebook, YouTube and other. The platform simplicity and quality can help increase the density.

3.2.2.1.1.3 Knowledge sharing via social media

The knowledge sharing is the main attribute that is used to examine how much the gain of the information through communication through a group in a social media, as known people subscribe into the social media in order to engage into different criteria depend on the culture, environment and the mutuality of the users.

3.2.2.1.1.4 Purpose of using the chat facility

More than one purpose the users enter to chat, including knowledge sharing and knowledge transfer, and different chat rooms offer different kind of knowledge, usually the engagement of the members to the groups give an increasing to their knowledge, the scientific group increase the knowledge in scientific way.

3.2.2.1.1.5 The total time using social media per day

The average number of hours of use of scientific groups is it daily, weekly, monthly, and rarely. The average rate of being in the daily groups is more than ten hours per week or less or more than 30 hours per week.

Average number of hours of daily use of scientific groups in disseminating knowledge in sharing and disseminating knowledge and it can be measure the time consumed on line for predicting the knowledge gain.

3.2.2.2 Analysis of collected data

After collecting data through questionnaire the analysis of data will be done using SPSS program in order to analyze the data and evaluate the group activity and their effectiveness on the group members and the degree of knowledge sharing.

3.2.2.3 Results and Discussion

The SPSS analysis will give the viewer a kind of clear vision to the obtained results, a discussion then will be made in order to discuss the bases or standards to evaluate these attributes. A comparison then is done between the attributes internally and with an external attribute in the general evaluation model.

3.3The purpose of using the following attributes

The proposed model used to investigate the Impact of Scientific Group Activities in Social Network Sharing Systems. Following attributes was used to evaluate the impact of the scientific group activities in increasing the knowledge sharing.

3.4 Metrics

The following metrics designed to apply quantized analysis and qualitiesby:

- Activity inside the social network.
- Hours spend on internet.
- Kind of social media.
- Knowledge gaining.
- Learningfrom socialnetwork
- Number of times spent on internet.

3.5 Knowledge Sharing Performance Metrics

The following figure show the relation between knowledge sharing activities and attributes:

Frequency of use social media

- number of times spent on internet.

Types of Social Media

- kind of social media platform.

Knowledge sharing via social media

- khnowledge gaining .
- learning from social network.

Purpose of using the chat facility

- activity inside the social network.

The total time using social media per day

- hours spend on internet.
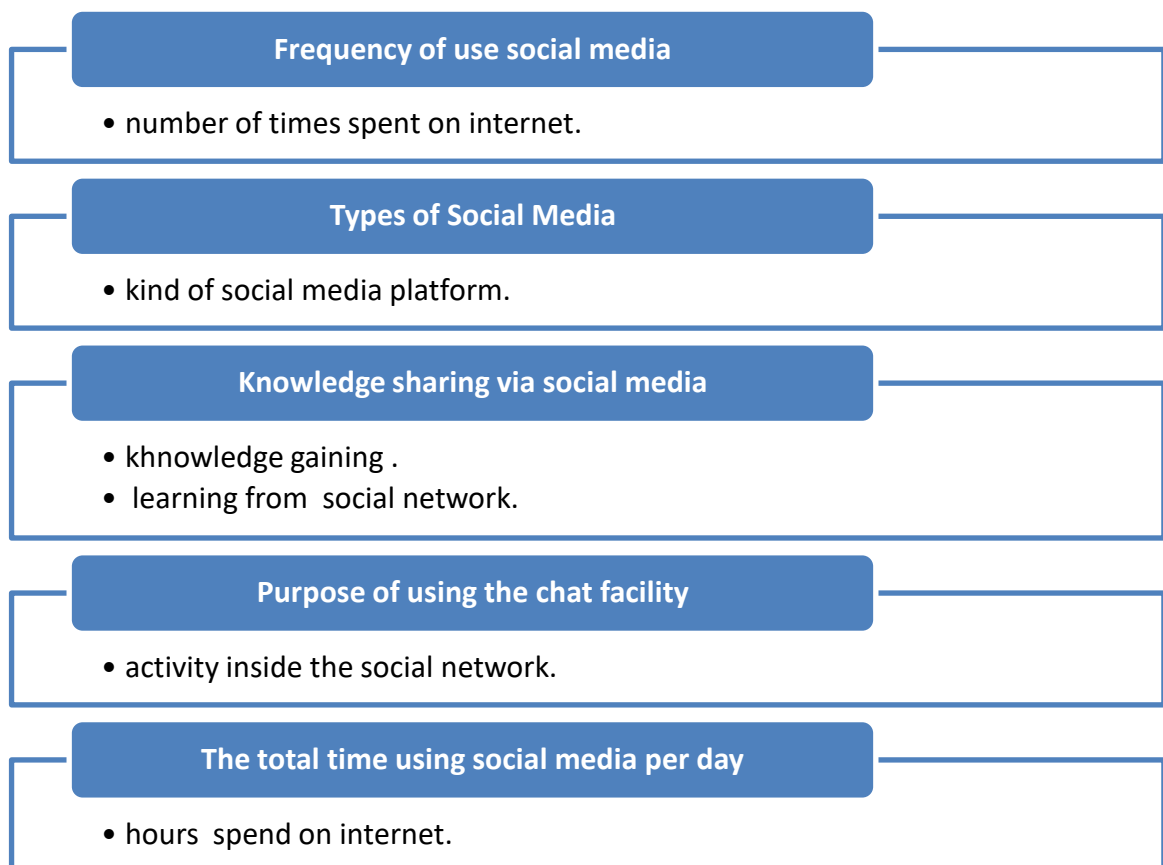
Figure (3.3): Show Performance Metrics

CHAPTER 4: Data Collection and Data Analyses

4.1 descriptive statistics:-

After the description of sample in the first part of the this chapter, this part is considered to analyze all **Model's attributes**, in this data the total questionnaire number of the sample was (120) members and only (101) was valid and complete, the data collected during November 2018, using simple random sample, this chapter show the methodology of descriptive statistics to describe the sample and analysis to analyze all responses.

4.1.1 Gender:

Table (4.1) Distribution according to sex

	Frequency	Percent
Male	56	55.4
female	45	44.6
Total	101	100.0

We can observe from Table (4.1) and figure (4.1)we can notice that the case study contained 55.4 % males, and 41.6% females, and that shows that people from the two genders use scientific group in Sudan.
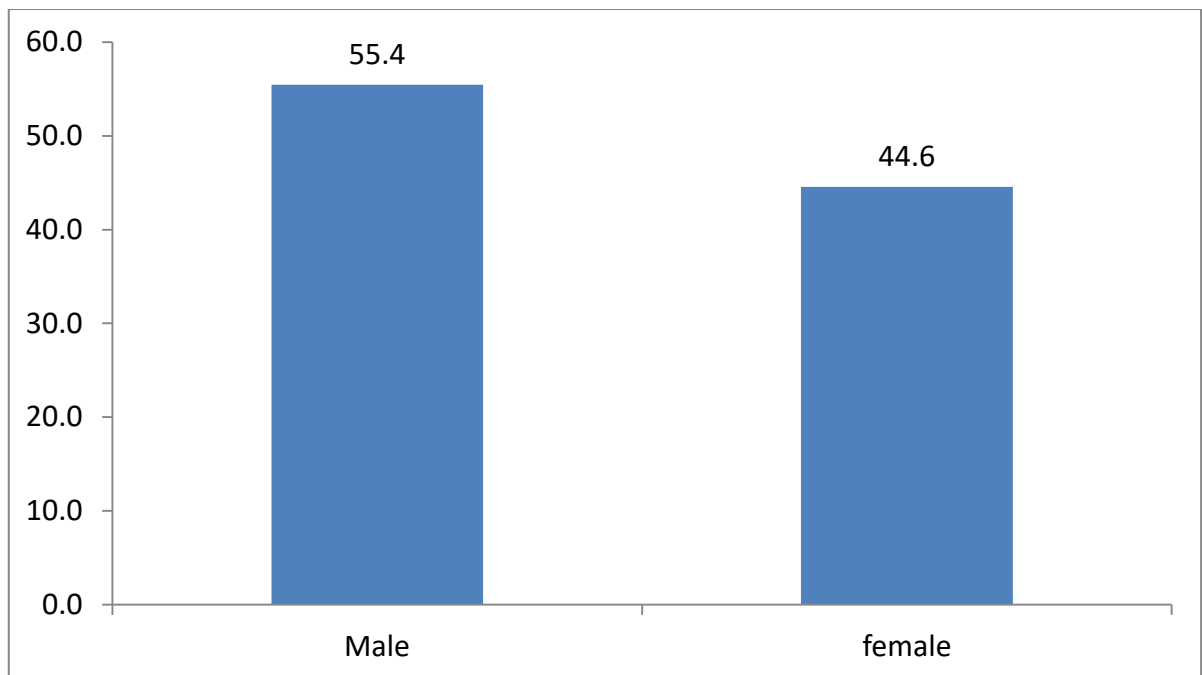
Figure (4.1) Distribution according to sex

We observe this percentage can be taken advantage of. This means that men use social media more than women, interact in scientific groups, and exchange knowledge more than women. It also means that they have more sitting and interacting with computers than women.

4.1.2 Age

Table (4.2) Distribution according to age

	Frequency	Percent
less than 25	14	13.9
from 25 to 35	52	51.5
above 35	35	34.7
Total	101	100.0

Table (4.2) and figure (4.2) shows that 85.1% of sample was over 25 years old.
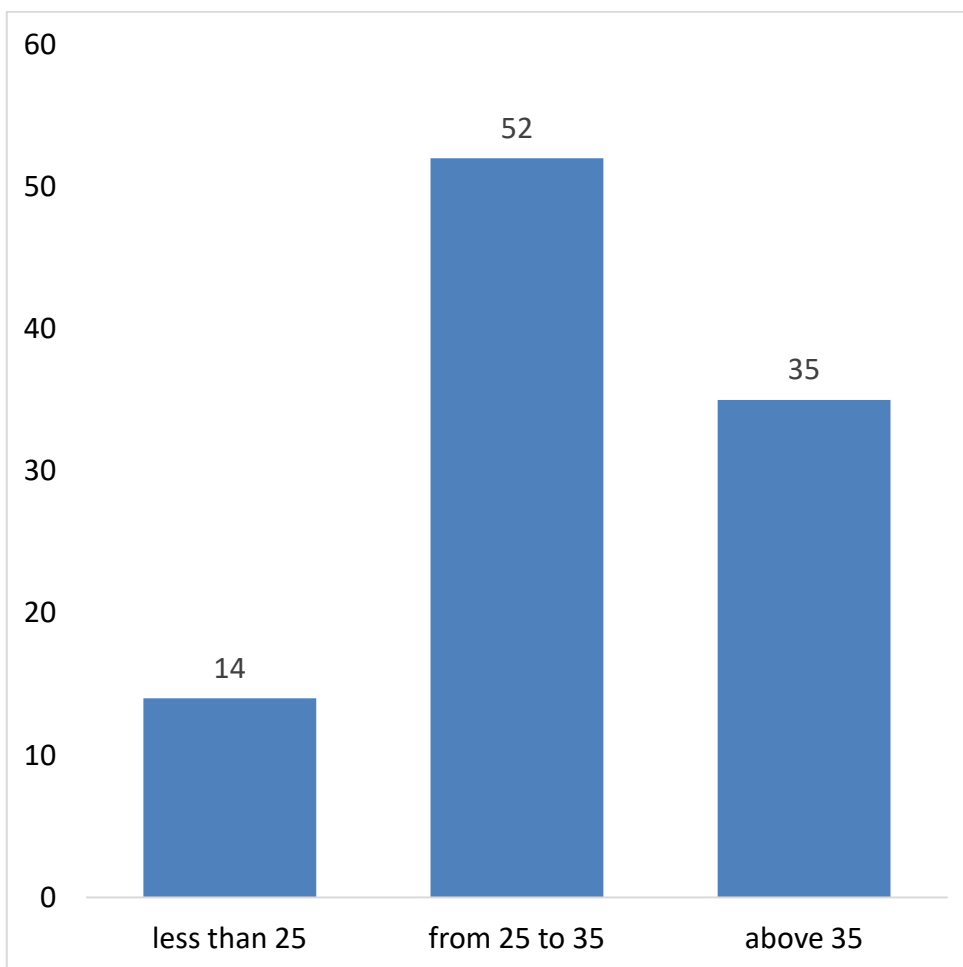
Figure(4.2) Distribution according to age

4.1.3 Education

Table (4.3) Distribution according to educational level

	Frequency	Percent
Diploma	10	9.9
Bachelor	46	45.5
Master	40	39.6
PhD	5	5.0
Total	101	100.0

Table (4.3) and figure (4.3) shows that 85.1% of samples holdBachelor
And master ineducation, 9.9% of sample hold diploma and 5.0% hold PhD in education.
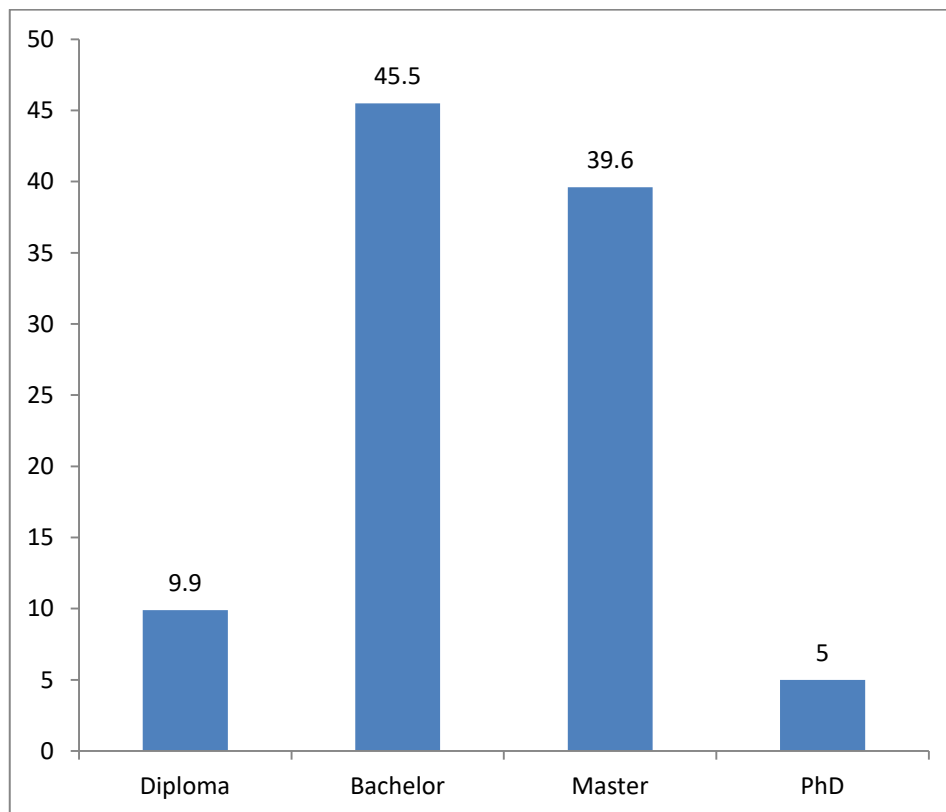
Figure (4.3) Distribution according to educational level

The distribution of the case study according to employment status was as the following;
35.4 % are students, 53.8% are employed, and 10.8 % are unemployed, all of the 65 people
in the case study answered this question.

4.1.4Rate of uses of scientific Group

Table (4.4) **Rate of uses of scientific Group**

	Frequency	Percent
Daily	39	38.6
weekly	9	8.9
monthly	42	41.6
Rarely	11	10.9
Total	101	100.0

Table(4.4)and figure(4.4) shows that 10.9% of sample use scientific group rarely, and the rest of sample uses periodically.
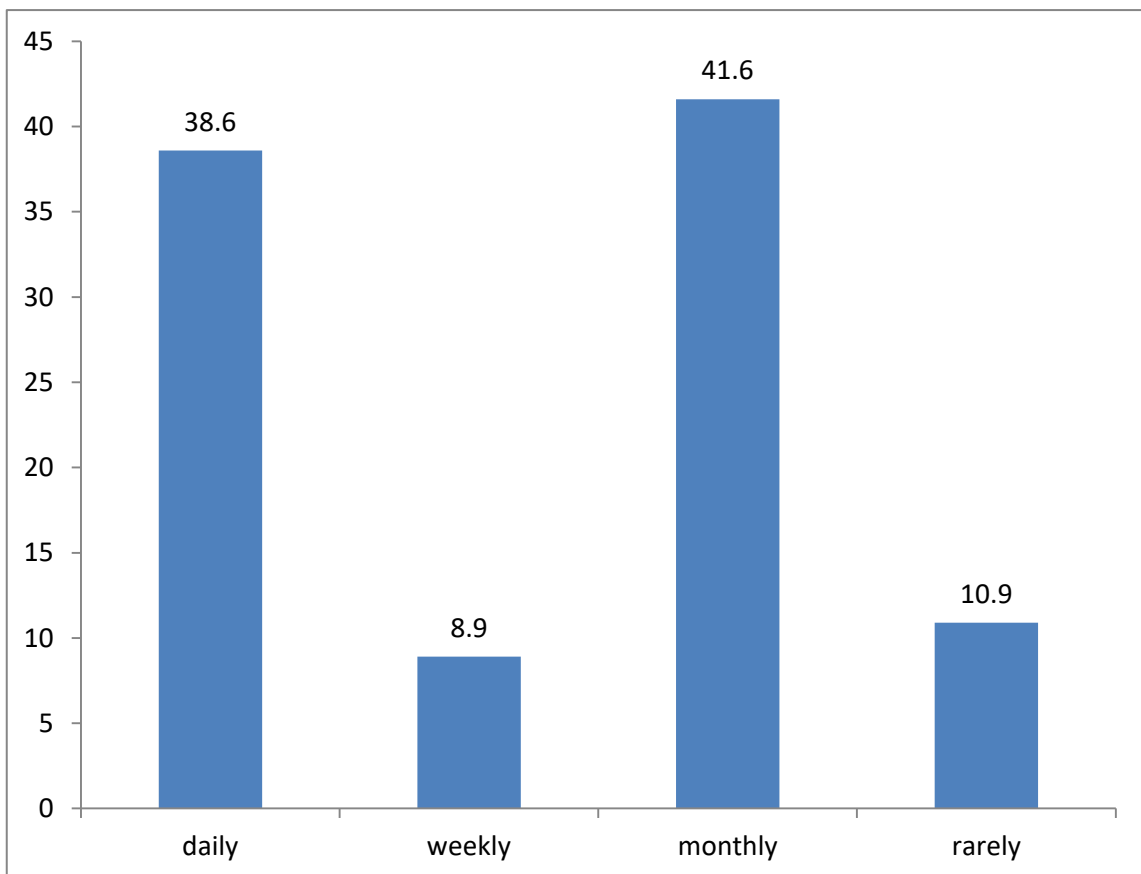
Figure (4.4)Rate of uses of scientific Group

4.1.5 Rate of being on scientific Group

Table (4.5)Rate of being on scientific Group

	Frequency	Percent
10hours per week	72	71.3
15 hours per week	24	23.8
More than 30 hours per week	5	5.0
Total	101	100.0

Table (4.5) and figure (4.5) shows that 71.3% of sample spent 10 hours per week, 23.8%15 hours per week , 5.0% More than 30 hours per week on scientific Group .
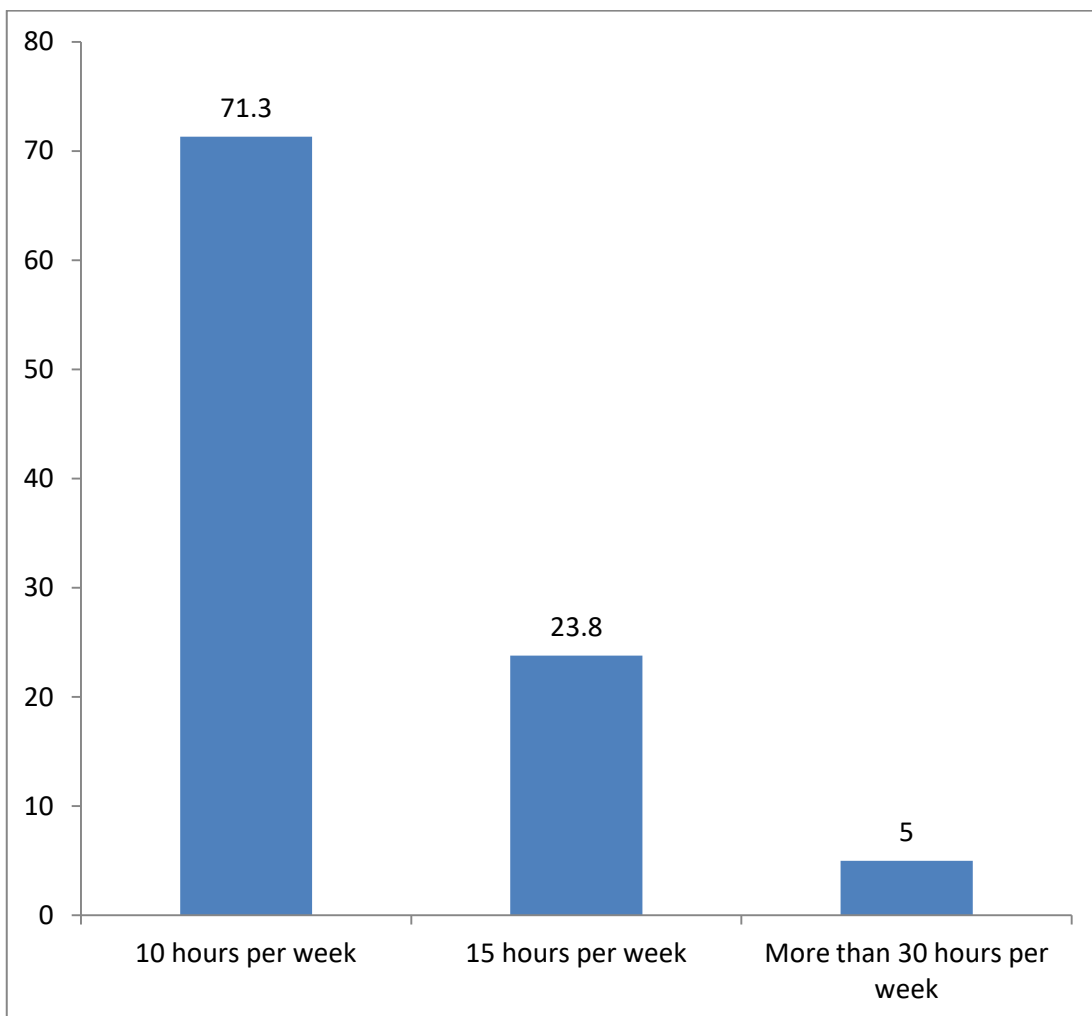
Figure (4.5)Rate of being on scientific Group

4.1.6 Scientific Groups Used to learn all new

Table (4.6) Scientific Groups Used to learn all new

	Frequency	Percent
disagree	3	3.0
agree	38	37.6
strongly agree	60	59.4
Total	101	100.0

Table (4.6) and figure (4.6) shows that 97.0% of sample between agree and strongly agree , 3.0% of sample disagree in Scientific Groups Used to learn all new .
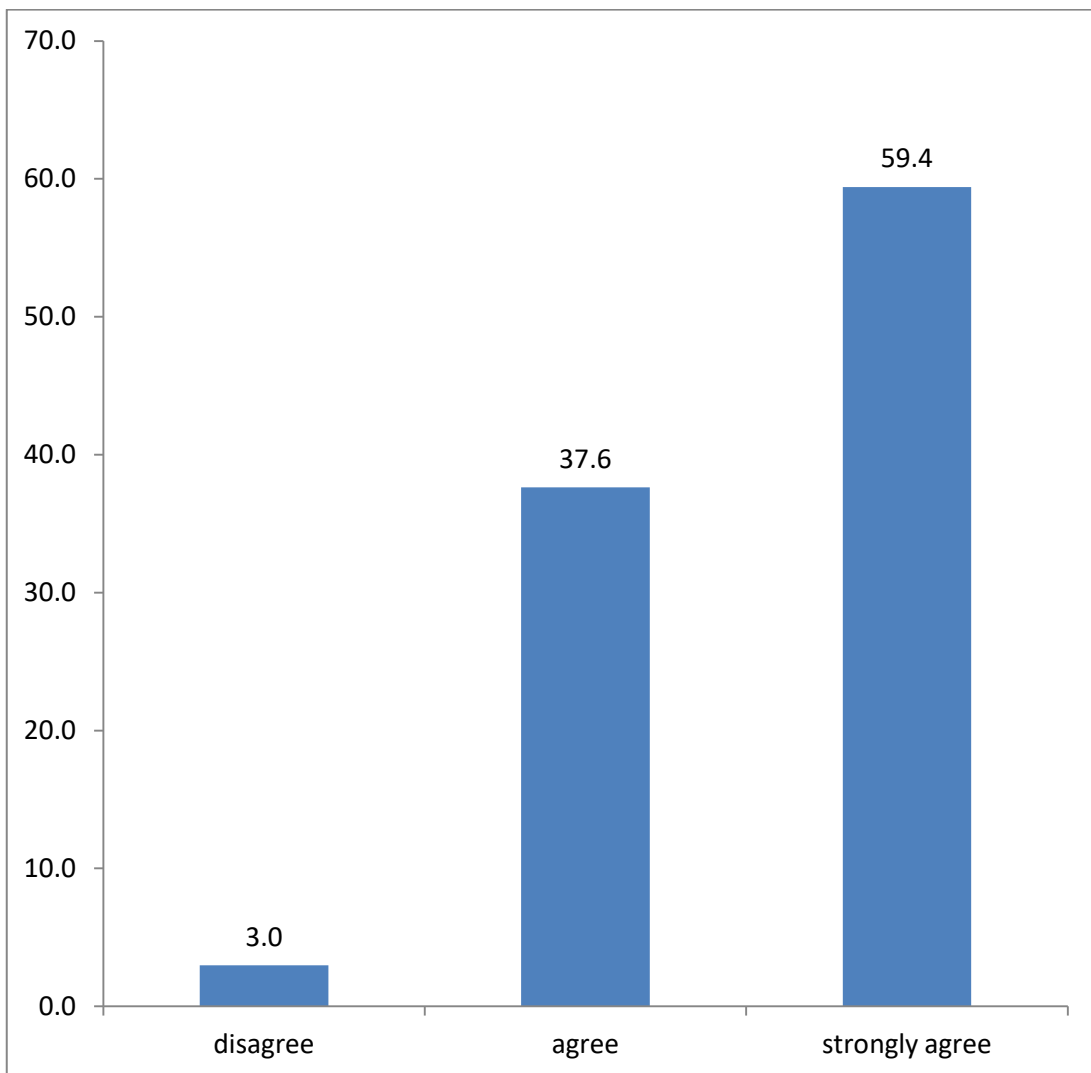
Figure(4.6) Scientific Groups Used to learn all new

4.1.7 Scientific articles are used periodically

Table (4.7)scientific articles are used periodically

	Frequency	Percent
disagree	12	11.9
agree	51	50.5
strongly agree	38	37.6
Total	101	100.0

Table (4.7) and figure (4.7) shows that 88.1% of samplebetween agree and strongly agree, rest of sample 11.9%disagree in Scientific articles are used periodically .
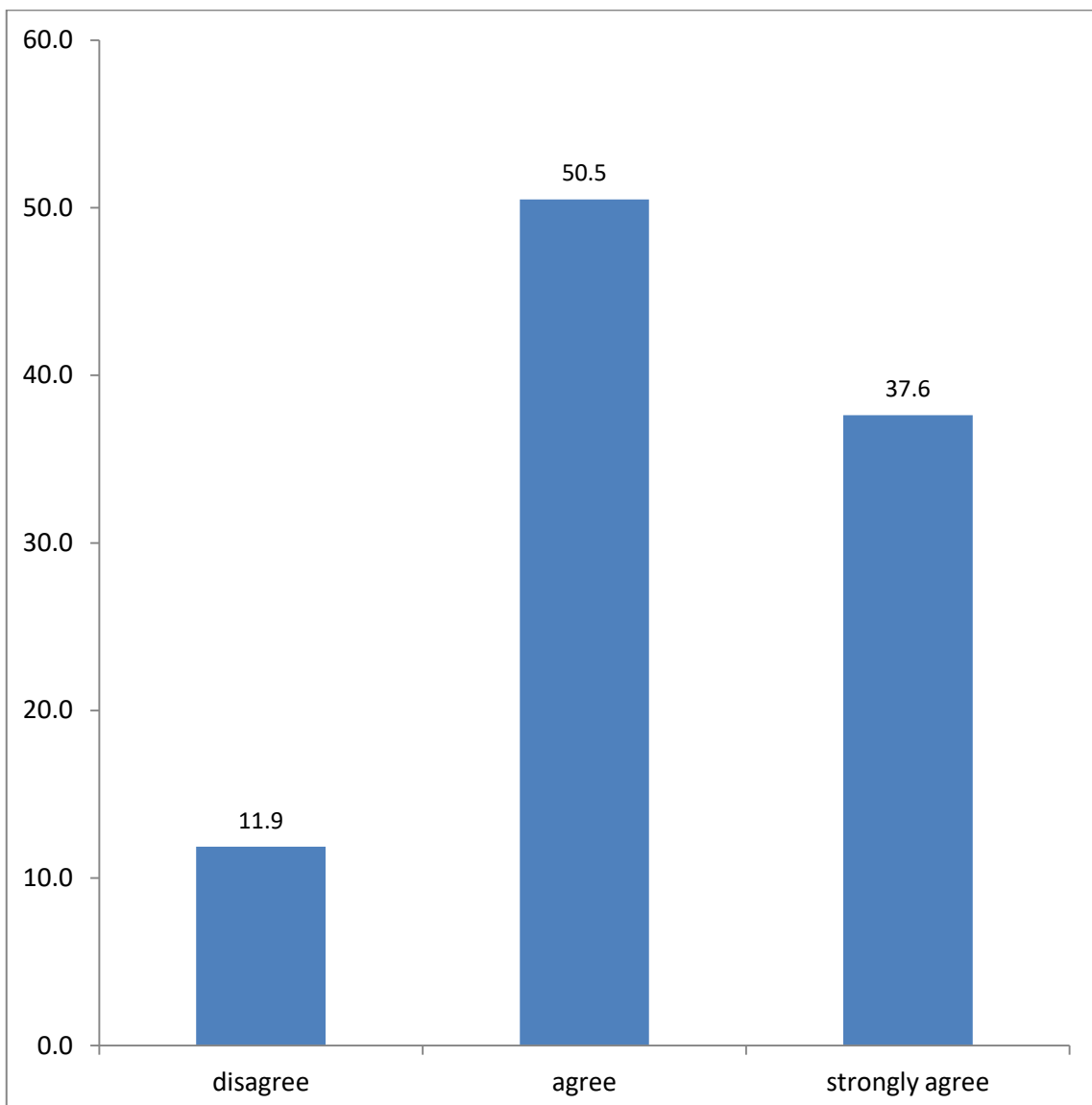
Figure (4.7)scientific articles are used periodically

4.1.8 Scientific Groups Used to share knowledge

Table(4.8)Scientific Groups Used to share knowledge

	Frequency	Percent
disagree	4	4.0
agree	42	41.6
strongly agree	55	54.5
Total	101	100.0

Table (4.8) and figure (4.8) shows that 96.0% of sample between agree and strongly agree,rest of sample 4.0% disagree in Scientific Groups Used to share knowledge.
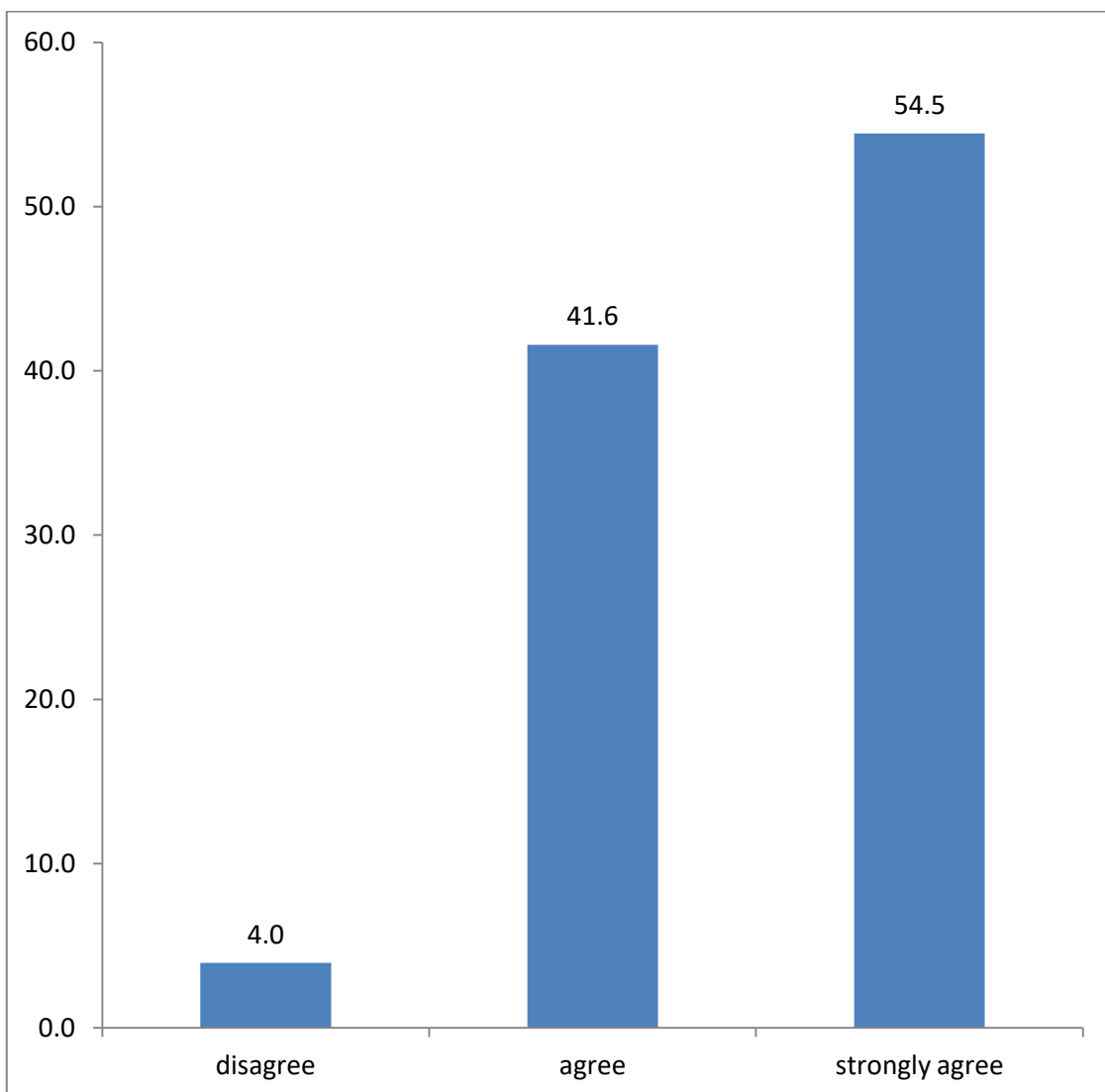
Figure(4.8) Scientific Groups Used to share knowledge

4.1.9 Type of media used affects the sharing of knowledge

Table (4.9)Type of media used affects the sharing of knowledge

	Frequency	Percent
disagree	9	8.9
agree	45	44.6
strongly agree	47	46.5
Total	101	100.0

Table (4.9) and figure (4.9)shows that only 8.9% of sample disagree and rest of sample 91.1% between agree and strongly agree in Type of media used affects the sharing of knowledge.
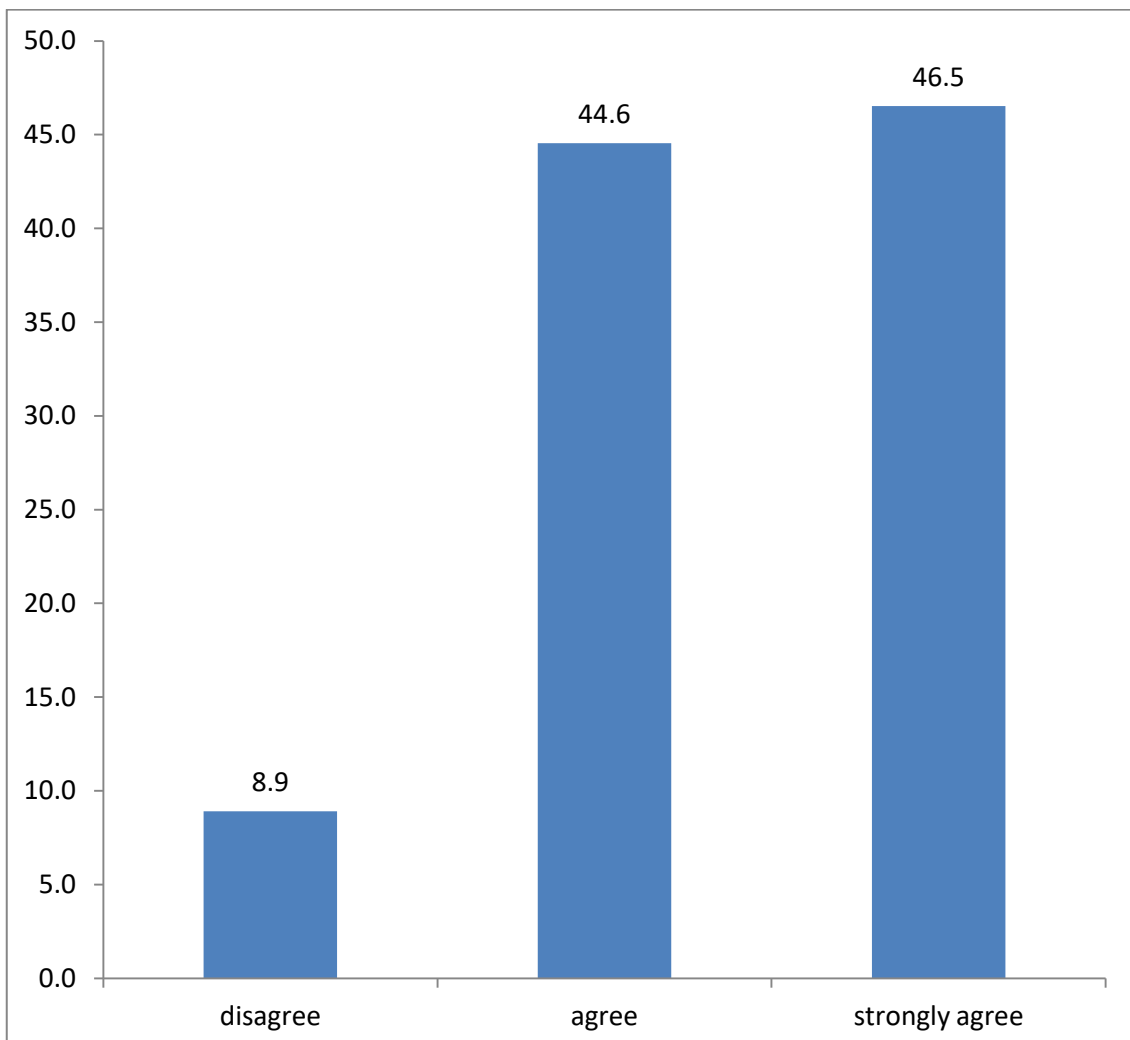
Figure (4.9)Type of media used affects the sharing of knowledge

4.1.10 Types of media used determine how knowledge is disseminated

Table (4.10)Types of media used determine how knowledge is disseminated

	Frequency	Percent
disagree	16	15.8
agree	54	53.5
strongly agree	31	30.7
Total	101	100.0

Table (4.10) and figure (4.10) shows that only84.2% between agree and strongly agree , 15.8% of sample disagree in Types of media used determine how knowledge is disseminated .
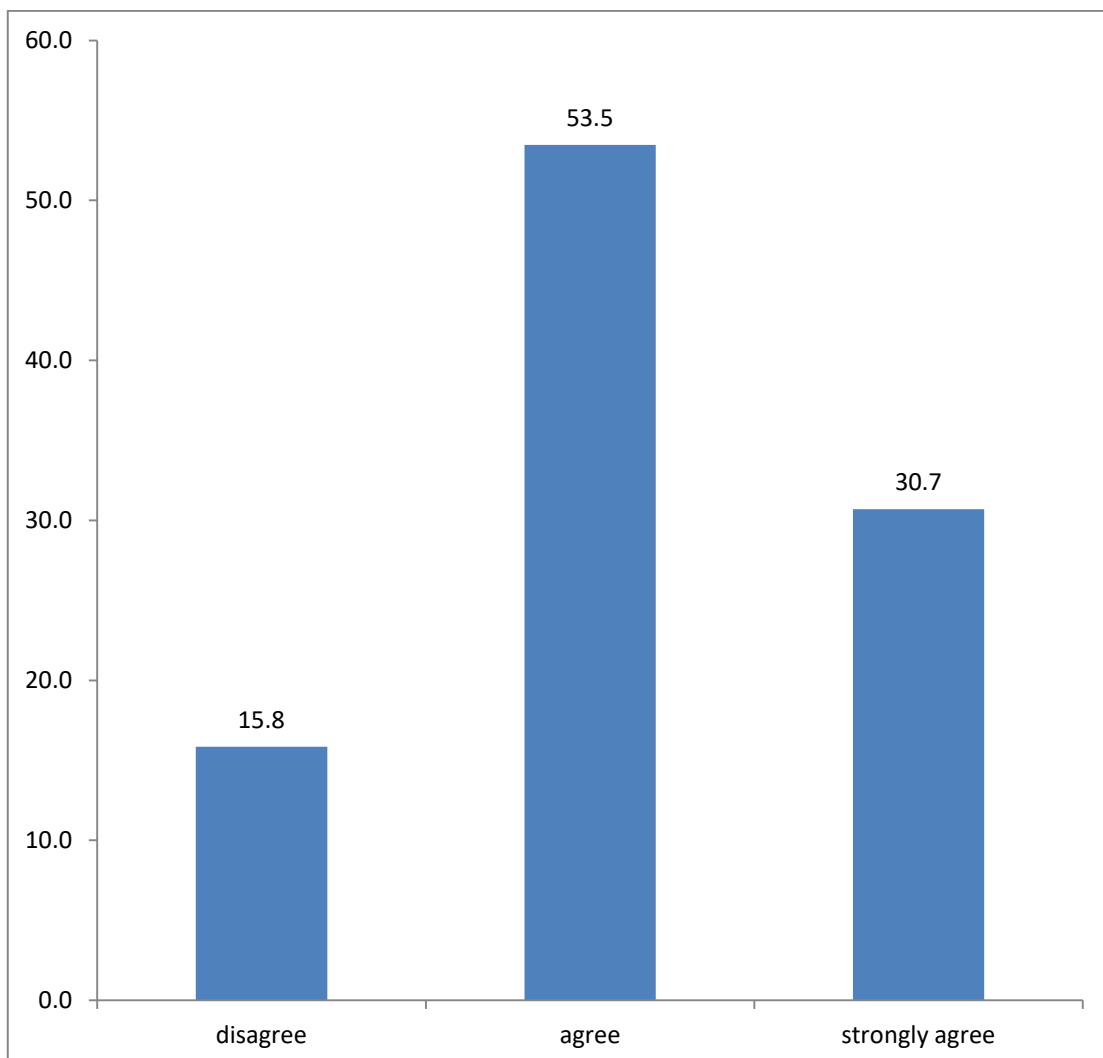
Figure (4.10) Types of media used determine how knowledge is disseminated

4.1.11 the type of media determines the size of the material that contains the knowledge

Table (4.11)the type of media determines the size of the material that contains the knowledge

	Frequency	Percent
disagree	22	21.8
agree	51	50.5
strongly agree	28	27.7
Total	101	100.0

Table 4.11 and figure 4.11shows that only 21.8% of sample disagree , rest of sample 78.2% between agree and strongly agree in The type of media determines the size of the material that contains the knowledge .
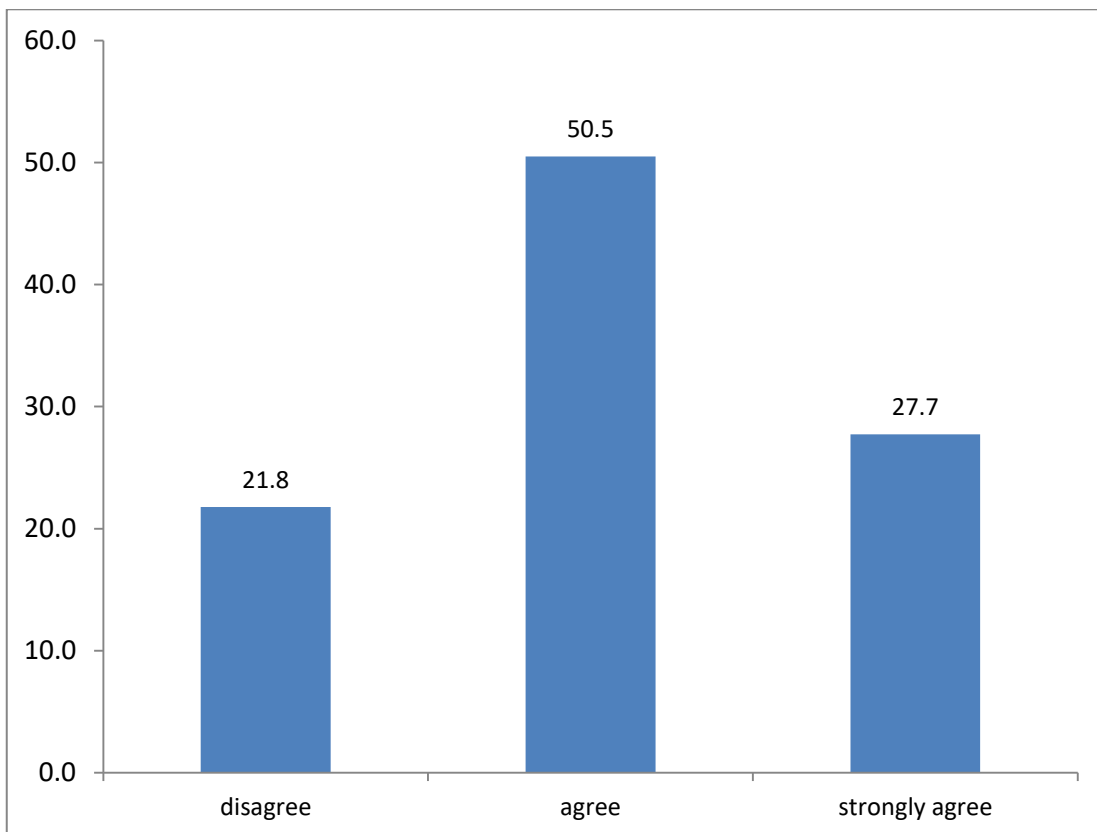
Figure (4.11)The type of media determines the size of the material that contains the knowledge

4.1.12 Scientific Groups are a good environment for knowledge sharing

Table (4.12)Scientific Groups are a good environment for knowledge sharing

	Frequency	Percent
strongly disagree	1	1.0
disagree	12	11.9
agree	58	57.4
strongly agree	30	29.7
Total	101	100.0

Table (4.12) and figure (4.12) shows that only 12.9% of sample between disagree and strongly disagree ,87.1% of sample between agree and strongly agree in Scientific Groups are a good environment for knowledge sharing .
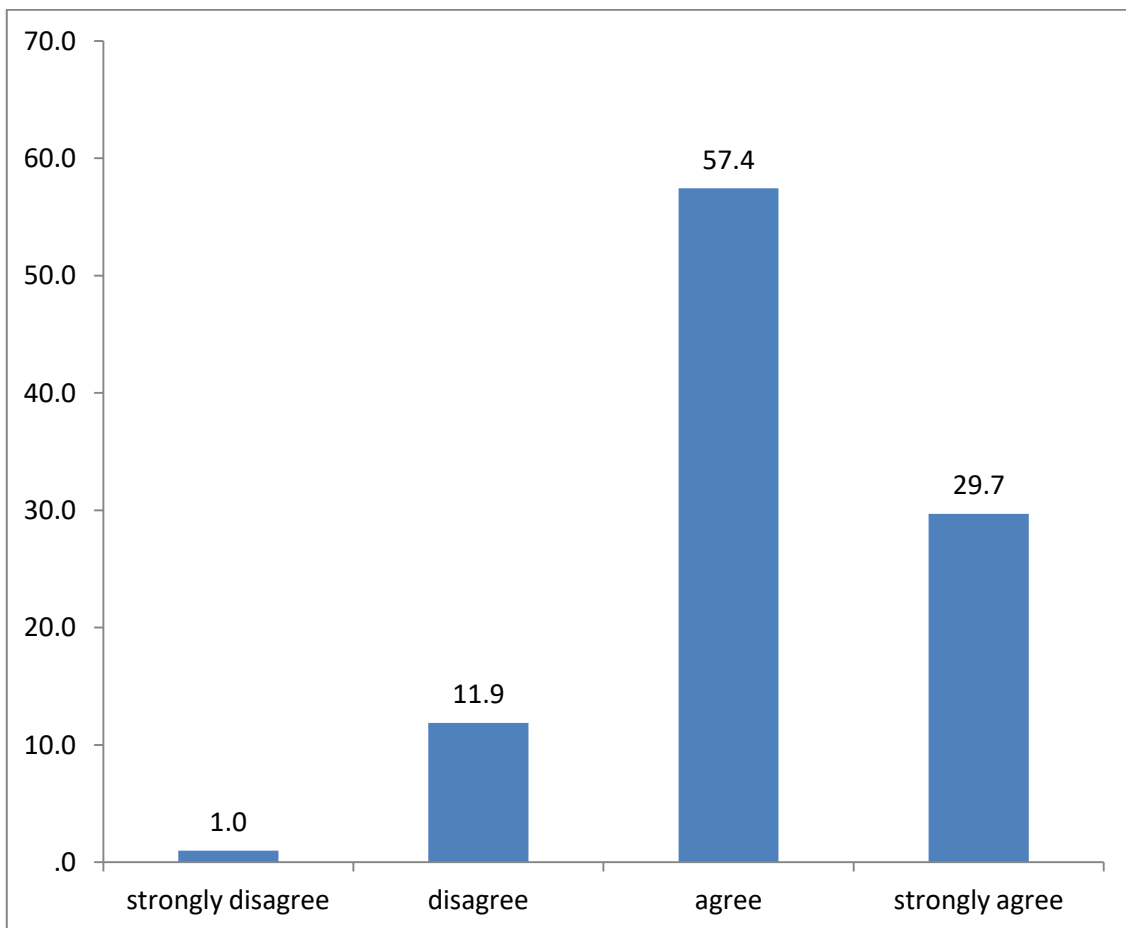
Figure (4.12)Scientific Groups are a good environment for knowledge sharing

4.1.13 The participants are encouraged to share their knowledge

Table (4.13)The participants are encouraged to share their knowledge

	Frequency	Percent
strongly disagree	5	5.0
disagree	24	23.8
agree	45	44.6
strongly agree	27	26.7
Total	101	100.0

Table (4.13) and figure (4.13)shows that 71.3 % of sample between agree and strongly agree, rest of sample 28.8%   between disagree and strongly disagree in The participants are encouraged to share their knowledge .
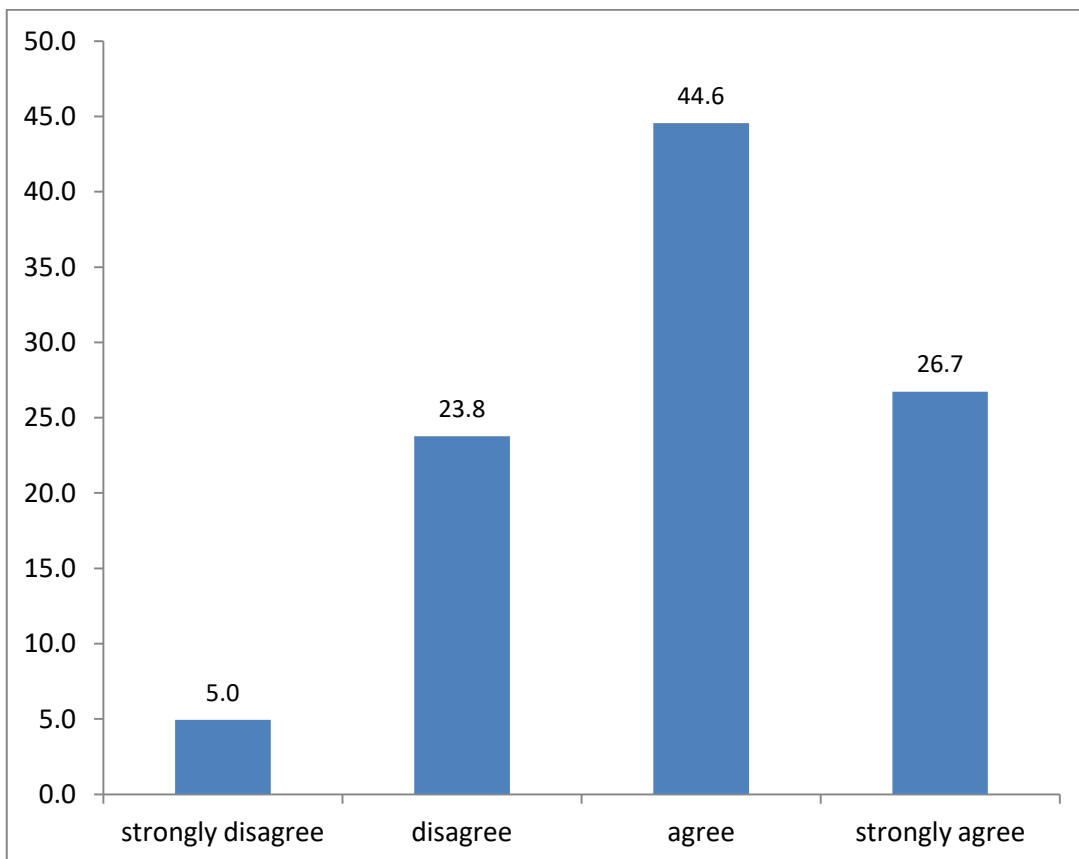
Figure (4.13)the participants are encouraged to share their knowledge

4.1.14 the knowledge that is shared is available to everyone

Table (4.14)the knowledge that is shared is available to everyone

	Frequency	Percent
Disagree	15	14.9
Agree	52	51.5
strongly agree	34	33.7
Total	101	100.0

Table (4.14)figure (4.14) shows that only 14.9% of sampledisagree but rest of sample 85.2% between agree and strongly agree in the knowledge that is shared is available to everyone.
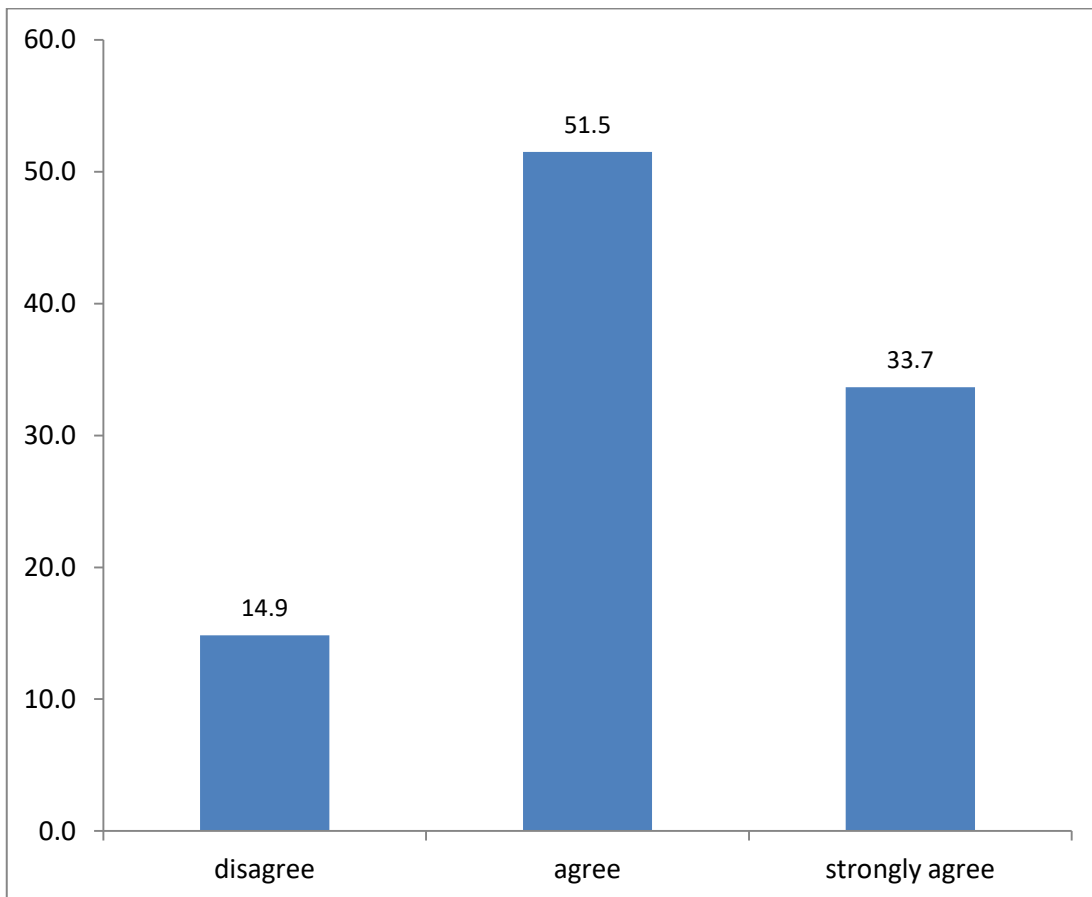

Figure (4.14)the knowledge that is shared is available to everyone

4.1.15 Scientific Groups identify the type of knowledge to be shared

Table (4.15) Scientific Groups identify the type of knowledge to be shared

	Frequency	Percent
strongly disagree	3	3.0
Disagree	22	21.8
Agree	47	46.5
strongly agree	29	28.7
Total	101	100.0

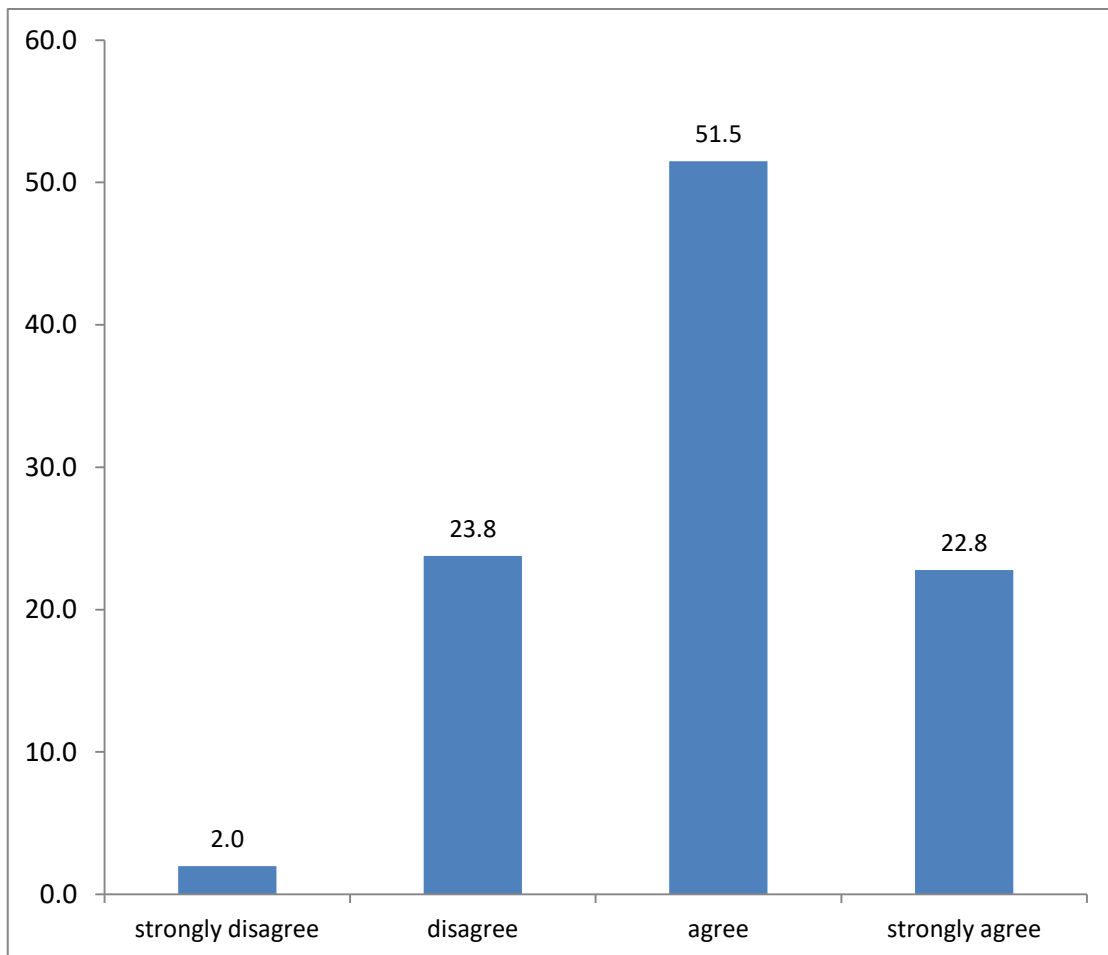Table (4.15) and figure(4.15) shows that 75.2% of sample sample between agree and strongly agree , 24.8% of sample between agree and strongly agree in Scientific Groups identify the type of knowledge to be shared .
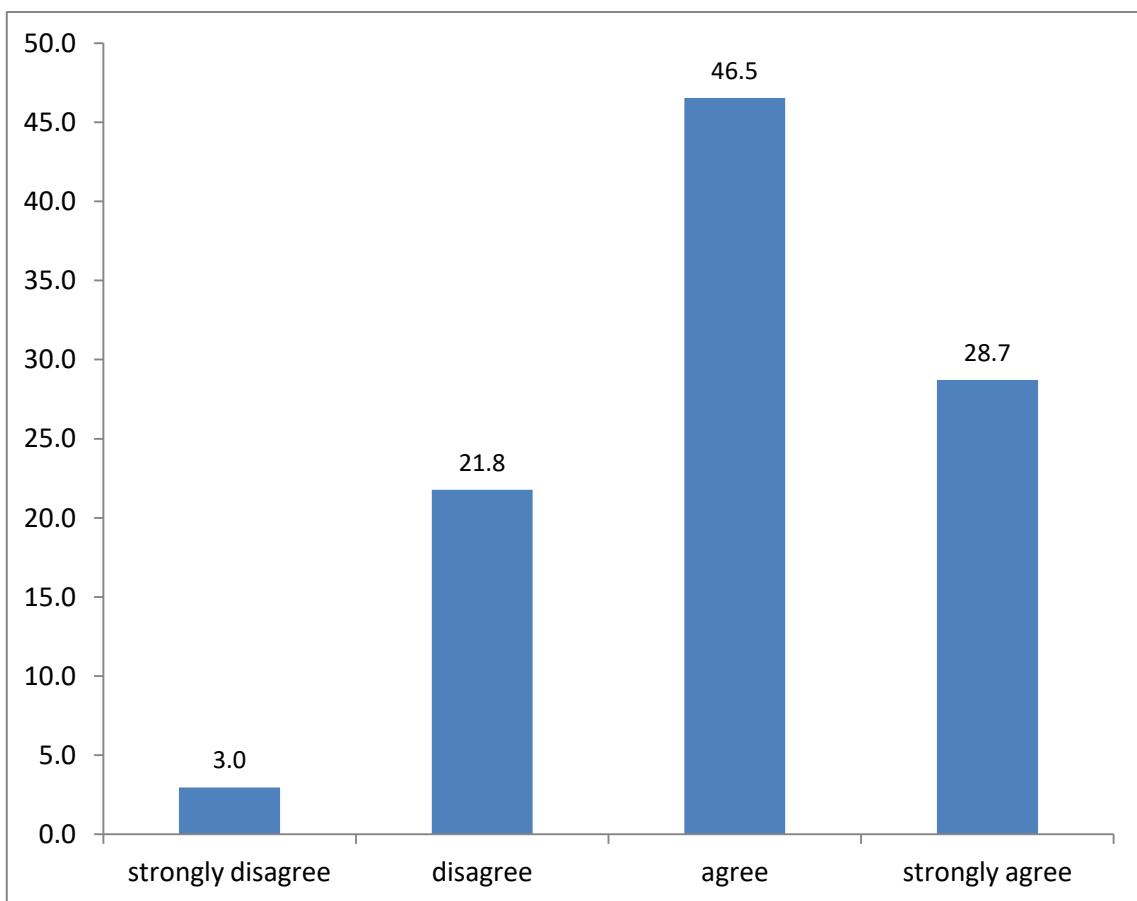
Figure (4.15)Scientific Groups identify the type of knowledge to be shared

4.1.16 Scientific Groups allow interaction with all knowledge materials

Table (4.16) Scientific Groups allow interaction with all knowledge materials

	Frequency	Percent
strongly disagree	2	2.0
Disagree	24	23.8
Agree	52	51.5
strongly agree	23	22.8
Total	101	100.0

Table (4.16) and figure (4.16) shows that 74.3% of samplebetween agree and strongly agree, 25.8% of sample between disagree and strongly disagree.

Figure (4.16) Scientific Groups allow interaction with all knowledge materials

4.1.17 Questions and queries in Groups are being answered

Table (4.17)Questions and queries in Groups are being answered

	Frequency	Percent
strongly disagree	1	1.0
Disagree	36	35.6
Agree	45	44.6
strongly agree	19	18.8
Total	101	100.0

Table (4.17) and figure (4.17) shows that only36.6% of sample between disagree and strongly disagree, rest of sample 63.4% between agree and strongly agree in Questions and queries in Groups are being answered.
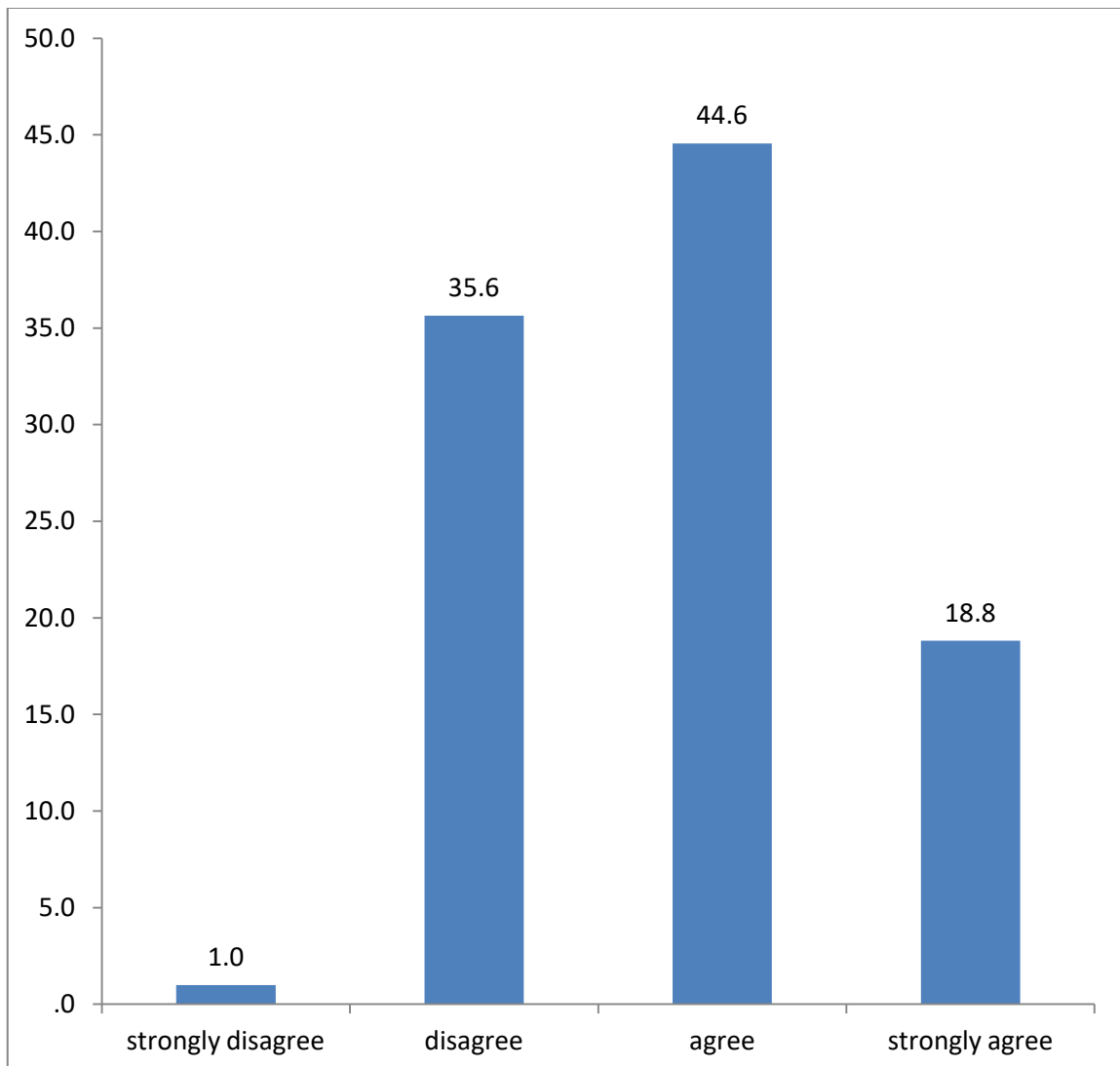
Figure (4.17) Questions and queries in Groups are being answered

4.1.18Group admins help to manage knowledge content in Groups

Table (4.18)Group admins help to manage knowledge content in Groups

	Frequency	Percent
strongly disagree	2	2.0
disagree	29	28.7
agree	44	43.6
strongly agree	26	25.7
Total	101	100.0

Table 4.18 and figure 4.18 shows that 69.3% of sample between agree and strongly agree, 30.7% of sample between disagree and strongly disagree in
Group admins help to manage knowledge content in Groups.
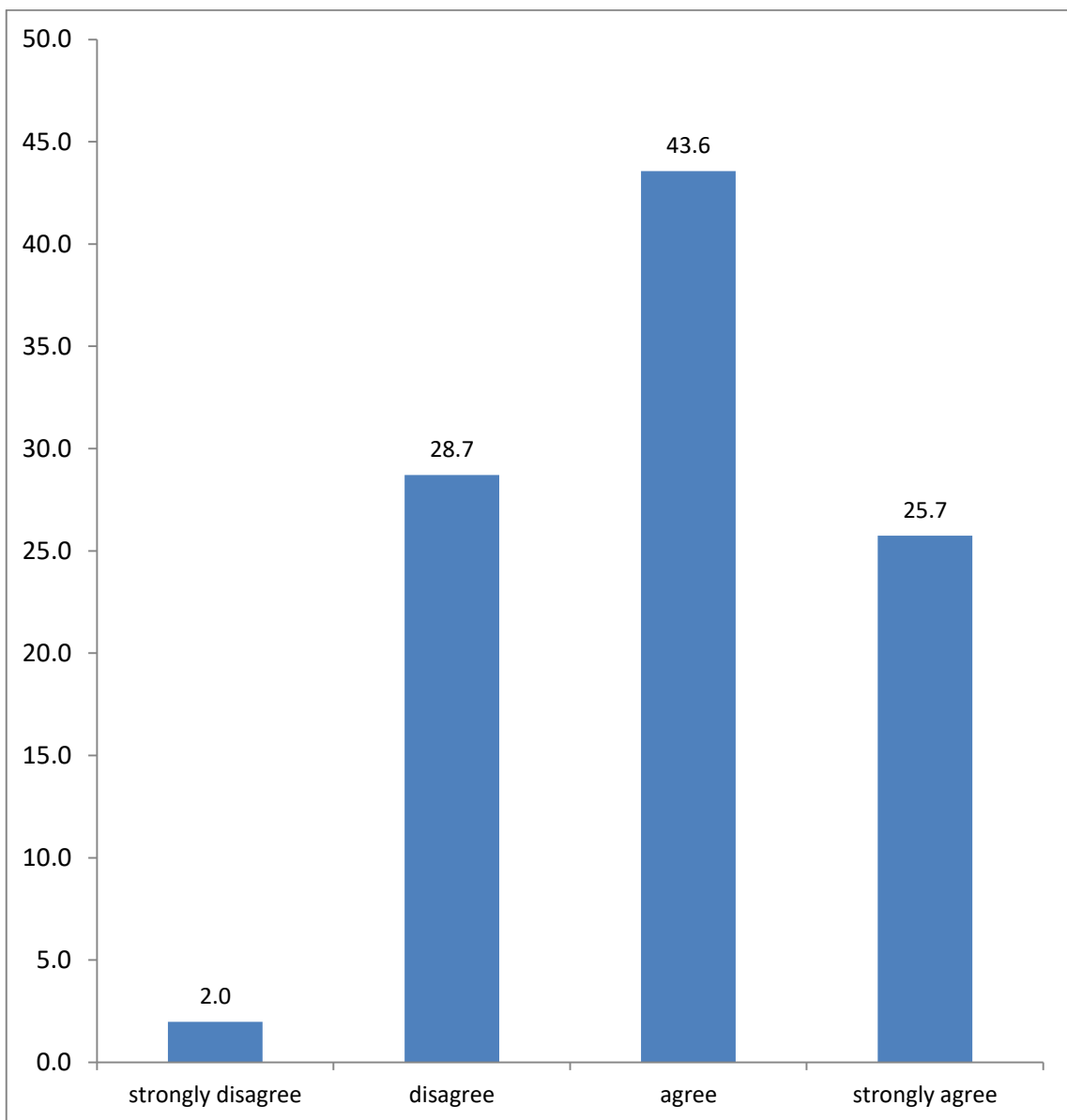
Figure (4.18)Group admins help to manage knowledge content in Groups

4.1.19 Group management preserves publishers' copyright

Table (4.19)Group management preserves publishers' copyright

	Frequency	Percent
strongly disagree	4	4.0
Disagree	48	47.5
Agree	28	27.7
strongly agree	21	20.8
Total	101	100.0

Table 4.19and figure 4.19 shows that only51.5% of sample between disagree and strongly disagree, 48.5% of sample between agree and strongly agree in Group management preserves publishers' copyright.
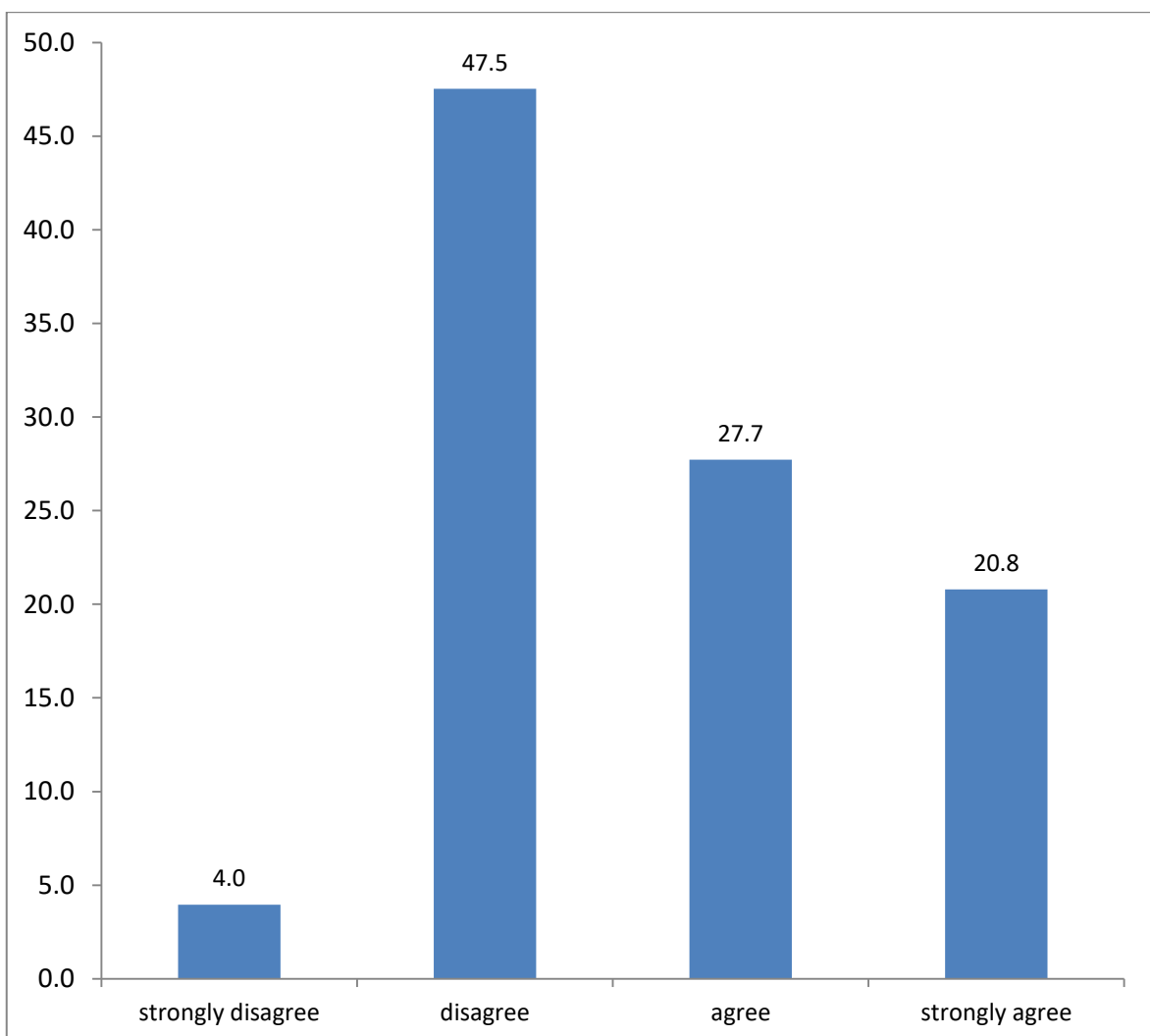
Figure (4.19)Group management preserves publishers' copyright

4.1.20 The Membership Department maintains the privacy of members

Table (4.20)The Membership Department maintains the privacy of members

	Frequency	Percent
strongly disagree	4	4.0
Disagree	39	38.6
agree	35	34.7
strongly agree	23	22.8
Total	101	100.0

Table 4.20 and figure 4.20showthat, only57.5% of sample between agree and strongly agree,42.6% of sample between disagree and strongly disagree in The Membership Department maintains the privacy of members.
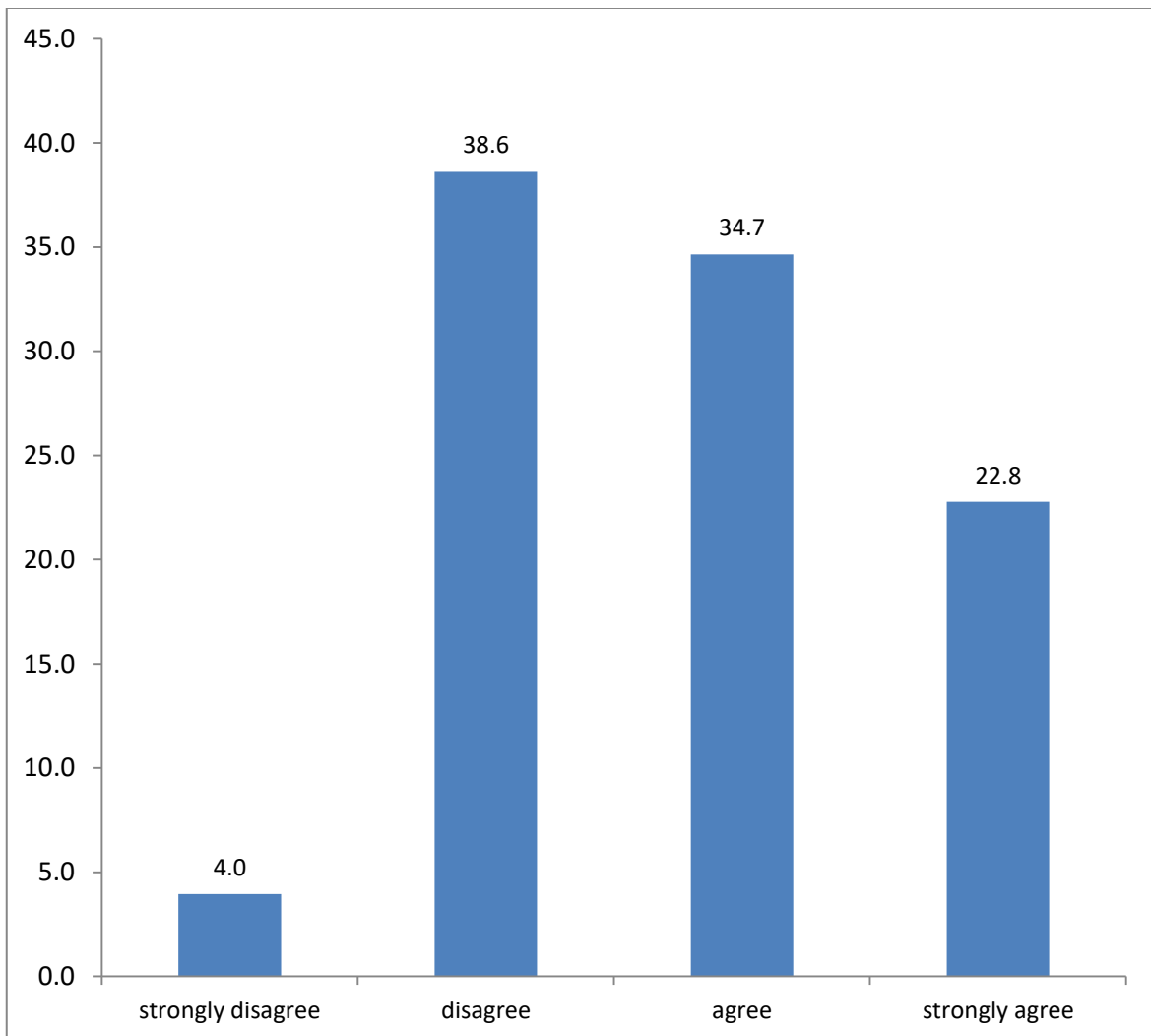
Figure (4.20)The Membership Department maintains the privacy of members

4.1.21Scientific subjects take into consideration Valuable and important content

Table (4.21)Scientific subjects take into consideration Valuable and important content

	Frequency	Percent
strongly disagree	3	3.0
disagree	30	29.7
neutral	1	1.0
agree	44	43.6
strongly agree	23	22.8
Total	101	100.0

Table (4.21) and figure (4.21)showsthat, 66.4% of sample between agree and strongly agree , 32.7% of sample between disagree and strongly disagree , 1.0% is neutral in Scientific subjects take into consideration Valuable and important content.
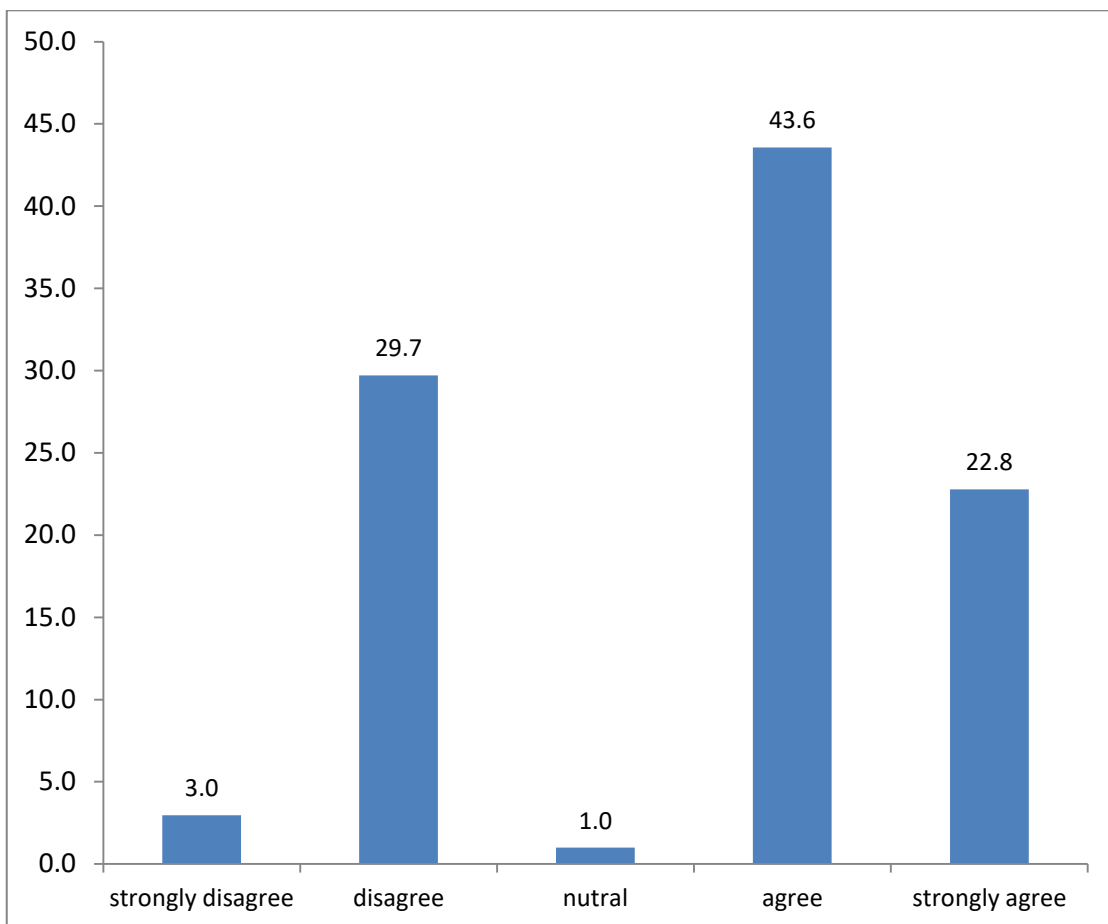
Figure (4.21)Scientific subjects take into consideration Valuable and important content

4.2 Data analysis:

Likert scale: it is the most widely used approach to scaling responses in survey research, such that the term (or more accurately the Likert-type scale) is often used. Interchangeably with rating scale, although there are other types of rating scales. The scale named after its inventor, psychologist Rensis Likert.In this research, we used Likert 5 – point scale (Strongly Agree, Agree, neutral Disagree and Strongly Disagree), and the weight of each category is (5, 4, 3, 2 and 1) respectively, the means of this category is calculated by the formula:

= ((5*Strongly Agree+4*Agree +3*neutral +2*Disagree+ 1*Strongly Disagree)/ (total responses))

And as the category weighted the percent column represent the means we calculated before for 100%, the range for it is shown as:

- 100% – 80% strongly agree.
- <80% - 60% Agree.
- <60% - 40% Neutral.
- <40% - 20 Disagree.
- <20% - 0% Strongly Disagree.

4.2.1 Frequency of use:

The First attribute is frequency of use and here we focus on examined how much the usage of the social media in groups determine the approximation value of sharing knowledge   so it is important criteria and must be check. In addition, good indicator of consumed hours:

Table (4.22) Frequency of use

#	Phrase	Strongly Agree		Agree		neutral		Disagree		Strongly Disagree		Means	%	Indicator
		#	%	#	%	#	%	#	%	#	%			
1	Scientific Groups Used to learn all new	59	58	38	38	0	0	3	3	1	1	4	100	Strongly Agree
2	Scientific articles are used periodically	38	38	51	50	0	0	12	12	0	0	4	100	Strongly Agree
3	Scientific Groups Used to share knowledge	55	54	42	42	0	0	4	4	0	0	4	100	Strongly Agree
	Total	152	50	131	43	0	0	19	6	1	0	4	100	Strongly Agree

Table (4.22) represent the respond of sample membersfor each phrase, from the indicator column,we can observe thatthe general thought refer to "Strongly Agree" with 100% which mean the Usability of social media are very important as an attributes

4.2.2 Purpose of creating Science groups:

Table (4.23)Purpose of creating Science groups

	Responses		Percent of Cases
	N	Percent	
science	58	45.3%	57.4%
culture	42	32.8%	41.6%
other	28	21.9%	27.7%
Total	128	100.0%	126.7%

Table (4.23) represent the respond of sample members for Purpose of creating Science groups, Percent of Casescolumn show that 57% of the groups created for science Purpose , 41 % created for Cultural Purpose , 27 % for others.

4.2.3 Group privacy level:

Table (4.24)Group privacy level

	Responses		Percent of Cases
	N	Percent	
secret	85	70.2%	84.2%
private	28	23.1%	27.7%
Public	8	6.6%	7.9%
Total	121	100.0%	119.8%

Table (4.24) represent the response of sample members for Group privacy level, Percent of Cases column show that 84% of the groups are on Secret Level of Privacy, 27% Private, 7% Public.

4.2.4 Type of social media

Table (4.25)Type of social media

#	Phrase	Strongly Agree		Agree		neutral		Disagree		Strongly Disagree		Means	%	Indicator
		#	%	#	%	#	%	#	%	#	%			
1	Type of media used affects the sharing of knowledge	47	47	45	45	0	0	9	9	0	0	4	100	Strongly Agree
2	Types of media used determine how knowledge is disseminated	31	31	54	53	0	0	16	16	0	0	4	100	Strongly Agree
3	The type of media determines the size of the material that contains the knowledge	28	28	51	50	0	0	22	22	0	0	4	100	Strongly Agree
		106	35	150	50	0	0	47	16	0	0	4	100	Strongly Agree

Table (4.25) represent the response of sample members for each phrase, from the indicator column, we can observe that the general thought refer to "Strongly Agree" with 100% which mean the **Type of media** used affects the sharing of knowledge, moreover the type of media is an important as an attributes.

4.2.5 Preferred social media type

Table (4.26)Preferred social media type

	Responses		Percent of Cases
	N	Percent	
Videos	58	37.9%	57.4%
Photos	21	13.7%	20.8%
Text file	4	2.6%	4.0%
Audio	70	45.8%	69.3%
Total	153	100.0%	151.5%

Table (4.26) represent the respond of sample members for Preferred social media type, Percent of Cases column show that 69% of the groups Preferred Audio much then 57 % Videos, 20% Photos and 4 % text File respectively.

4.2.6 Knowledge sharing via social media

Table (4.27)Knowledge sharing via social media

#	Phrase	Strongly Agree		Agree		neutral		Disagree		Strongly Disagree		Means	%	Indicator
		#	%	#	%	#	%	#	%	#	%			
1	Scientific Groups are a good environment for knowledge sharing	30	30	58	57	0	0	12	12	1	1	4	100	Strongly Agree
2	The participants are encouraged to share their knowledge	27	27	45	45	0	0	24	24	5	5	4	100	Strongly Agree
3	The knowledge that is shared is available to everyone	34	34	52	51	0	0	15	15	0	0	4	100	Strongly Agree
4	Scientific Groups identify the type of knowledge to be shared	29	29	47	47	0	0	22	22	3	3	4	100	Strongly Agree
		120	30	202	50	0	0	73	18	9	2	4	100	Strongly Agree

Table (4.27) represent the response of sample members for each phrase, from the indicator column, we can observe that the general thought refer to "Strongly Agree" with 100% which mean Members gain knowledge's from Groups by sharing their own and others.

4.2.7 Type of knowledge users shared

Table (4.28)Type of knowledge users shared

	Responses		Percent of Cases
	N	Percent	
Videos	31	19.4%	30.7%
Photos	50	31.2%	49.5%
Text File	35	21.9%	34.7%
Others	44	27.5%	43.6%
Total	160	100.0%	158.4%

Table (4.28) represent the response of sample members for Type of knowledge that users usually shared, Percent of Cases column show that 49% of shared knowledge are Photos, 43% are others , 34% Text File, 30 are videos.

4.2.8 Purpose of using the chat facility

Table (4.29)Purpose of using the chat facility

#	Phrase	Strongly Agree		Agree		neutral		Disagree		Strongly Disagree		Means	%	Indicator
		#	%	#	%	#	%	#	%	#	%			
1	Scientific Groups allow interaction with all knowledge materials	23	23	52	51	0	0	24	24	2	2	4	100	Strongly Agree
2	Questions and queries in Groups are being answered	19	19	45	45	0	0	36	36	1	1	3	75	Agree
3	Group administrators Help to manage knowledge content in Groups	26	26	44	44	0	0	29	29	2	2	4	100	Strongly Agree
4	Group management preserves publishers' copyright	21	21	28	28	0	0	48	48	4	4	3	75	Agree
5	The Membership Department maintains the privacy of members	23	23	35	35	0	0	39	39	4	4	3	75	Agree
6	Scientific subjects take into consideration Valuable and important content	23	23	44	44	1	1	30	30	3	3	4	100	Strongly Agree
		135	22	248	41	1	0	206	34	16	3	3	75	Agree

Table (4.29) represent the response of sample members for each phrase, from the indicator column, we can observe that the general thought refer to "Agree" with 75% that the scientific groups and their administrators help to share knowledge and increase the benefits of sharing science on groups .

4.3 Conclusion

After checking all attributes that proposed to the model, and from table 4.22 to table 4.29, all responses were agreed on the significant of each one in term of identifying the impact of science group activity on knowledge sharing the important of each attributes. which means this model have to be one of the tools and guide line when the consideration is about analyzing the impact of science group activities in social network on sharing knowledge.

CHAPTER 5: Results and Discussion

5.1 Results

- 10.9% of sample use scientific group rarely, and the rest of sample uses periodically.

- From the table (4.25) we can see that the general idea refers to 100% strongly agree which means that the type of media used affects the sharing of knowledge, as well as the social media type of the preferred platform. The type of media used affects the sharing of knowledge

- Through observation of scientific groups, we observe the table (4.24). The frequency groups of science use are an important feature when we investigate the impact of knowledge sharing in groups. Here we focus on examining the use of social media in groups to determine the value of approximation of knowledge sharing so that the criteria are important and must be verified. This attribute examines how much social media is used on the day, month and year. This is a good indicator of spent hours

- 71.3% of the sample spent 10 hours per week, 23.8% 15 hours per week,and 5.0% More than 30 hours per week on scientific Group.

- Frequency ofusage science's Groups is considered as important attribute when we investigate the impact of sharing knowledge in the groups.

- 57% of the groups created for science Purpose, 41 % created for Cultural Purpose, 27 % for others.

- 84% of the groups are on Secret Level of Privacy, 27% Private, 7% Public.

- The type of media used affects the sharing of knowledge.

- 69% of the groups Preferred Audio much then 57 % Videos, 20% Photos and 4 % text File.

CHAPTER 6: Conclusion and Recommendation

6.1 Conclusion

Knowledge sharing and knowledge flows of scientific groups have become an important factor affecting the development of the groups. In this research we identified the impact of science group activity on knowledge sharing and the important of each attributes. which means this model have been one of the tools and guideline.

These are may attributes that affect knowledge sharing on social media within scientific group those including frequency of use, type of social media, the total time of using social media per day and purpose of using the chat facility.

In this research a designed questionnaire was used for collecting data, after checking all attributes that proposed to the model, it was found that all responses were agreed on the significant of the following attrbites----that affect the knowledge sharing within Sudanese Scientific groups on Social Media.

6.2 Recommendations

- Frequency of usage in the group should be considered as attributes when we measure the impact of science group.

- The type of media (Audio) is an important as one of the attributes that should be measured.

- The type of media (Photos) is an important as one of the attributes that members used to share knowledge and should be measured.

- Members gain knowledge's from Groups by sharing their own and others, which means sharing knowledge via groups should be measured.

- Scientific groups and their administrators should help to share knowledge and increase the benefits of sharing science on groups.

- Recommend to apply this model in another fields with different data type and groups the evaluate the effectiveness and the efficiently of it.

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Appendices

By the name of Allah

Questionnaire to Investigating the factors affecting knowledge Sharing within Sudanese Scientific Group on Social medi

Ladies and gentlemen:

This questionnaire is one of the methods of data collection used to obtain a master's degree at the University of Sudan for Science and Technology (College of Computer Science and Information Technology), and it aims to collect data on the use of scientific groups in Sudan, this study examines the importance of scientific groups in social communication and their impact on publishing Knowledge by developing a proposed model that measures the impact of scientific group activities on disseminating knowledge using different types of media.

Thank you in advance for your collaboration

Researcher

Wafa Mohammed Hamid Mohammed

1.General information:

Please fill the box with (√):

Gender: -   Male   ☐   Female   ☐

Age group: -   ☐ less than 25   25 to 35   ☐   more than 35   ☐

Education: -   ☐ Diploma   Bachelor ☐   Maste ☐   PhD ☐   other ☐

Preferred Social media type: ☐ Text file   Audio ☐   Photos ☐

Group Privacy Level: ☐ secret   private ☐   Public ☐

Rate of being on scientific Group: ☐ 10 hours per   week15 hours per week ☐

More than 30 hours per week ☐

Purpose of creating Science groups ☐ Science   ☐ Culture   Other ☐

Rate of uses of scientific Group: ☐ Daily   ☐ Weekly   ☐ Monthly   Rarely ☐

2. Answer the following questionnaires

Please (√) in front of the answer meet your choice:

#	Title	Strongly Agree	Agree	neutral	Disagree	Strongly Disagree
1	rate of uses of scientific Group					
2	Scientific Groups Used to learn all new					
3	Scientific articles are used periodically					
4	Scientific Groups Used to share knowledge					
5	Type of media used affects the sharing of knowledge					
6	Types of media used determine how knowledge is disseminated					
7	The type of media determines the size of the material that contains the knowledge					
8	Scientific Groups are a good environment for knowledge sharing					
9	The participants are encouraged to share their knowledge					
10	The knowledge that is shared is available to everyone					
11	Scientific Groups identify the type of knowledge to be shared					
12	Scientific Groups allow interaction with all knowledge materials					
13	Questions and queries in Groups are being answered					
14	Group administrators Help to manage knowledge content in Groups					
15	Group management preserves publishers' copyright					
16	The Membership Department maintains the privacy of members					

17	Scientific subjects take into consideration Valuable and important content					

3.Example of gathering data :

	A	B	C	D	E	F	G	H	I
1	Timestamp	ماهر نوع المستخدم	العمر	نوع المستوى التعليمي	إنشاء اضمامك للقروب الغرض من	وسيلة التواصل الاجماعية المفضلة لديك	أنواع القروبات الطبية لديك		ذي تمكلة في التفاعل مع الوهمل إستخدام القروبات الطبية
68	12/22/2018 18:01:34	ذكر	اقل من٢٥	دبلوم	علمي	فيديوهات	خاصة	شهرياً	ة اسبوعيا
69	12/22/2018 18:02:07	انثى	اقل من٢٥	بكالريوس	علمي	ملفات /صصوص	عامة	يوميا	ة اسبوعيا
70	12/22/2018 18:08:23	انثى	من٢٥ الى ٣٥	بكالريوس	صور، ملفات /صصوص، مقاطع صو علمي	خاصة، عامة	إسبوعياً		ات اسبوعيا
71	12/22/2018 18:16:48	ذكر	من٢٥ الى ٣٥	بكالريوس	علمي، اخرى	فيديوهات، صور، ملفات /صصوص	خاصة، عامة	يومياً	ات اسبوعيا
72	12/22/2018 18:18:26	ذكر	من٢٥ الى ٣٥	ماجستير	فيديوهات، صور، ملفات /صصوص، علمي	سرية، عامة	دائراً		ات اسبوعيا
73	12/22/2018 18:22:37	انثى	اقل من٢٥	بكالريوس	علمي	فيديوهات	عامة	إسبوعياً	ات اسبوعيا
74	12/22/2018 18:31:48	ذكر	من٢٥ الى ٣٥	ماجستير	ثقافي	ملفات /صصوص	خاصة	يومياً	ات اسبوعيا
75	12/22/2018 18:36:02	ذكر	اكبر من ٣٥	ماجستير	اخرى	ملفات /صصوص	عامة	يومياً	ات اسبوعيا
76	12/22/2018 18:38:08	انثى	من٢٥ الى ٣٥	ماجستير	ثقافي	ملفات /صصوص	عامة	إسبوعياً	ات اسبوعيا
77	12/22/2018 18:42:07	انثى	من٢٥ الى ٣٥	بكالريوس	علمي	فيديوهات	سرية، عامة	شهرياً	ة اسبوعيا
78	12/22/2018 18:51:23	انثى	من٢٥ الى ٣٥	ماجستير	علمي	فيديوهات	عامة	دائراً	ات اسبوعيا
79	12/22/2018 18:55:46	ذكر	من٢٥ الى ٣٥	ماجستير	اخرى	فيديوهات	عامة	دائراً	ات اسبوعيا
80	12/22/2018 19:17:47	ذكر	اكبر من ٣٥	بكالريوس	ثقافي	فيديوهات	عامة	دائراً	ات اسبوعيا
81	12/22/2018 19:46:43	ذكر	من٢٥ الى ٣٥	دبلوم	علمي	فيديوهات، ملفات /صصوص	عامة	إسبوعيا	ات اسبوعيا
82	12/22/2018 20:43:21	ذكر	من٢٥ الى ٣٥	ماجستير	علمي	ملفات /صصوص	عامة	يومياً	ات اسبوعيا
83	12/22/2018 21:16:40	ذكر	من٢٥ الى ٣٥	بكالريوس	ثقافي	ملفات /صصوص	عامة	إسبوعياً	ات اسبوعيا
84	12/22/2018 22:28:30	ذكر	اقل من٢٥	بكالريوس	علمي، اخرى	فيديوهات، ملفات /صصوص	عامة	دائراً	ات اسبوعيا
85	12/22/2018 23:20:48	ذكر	من٢٥ الى ٣٥	بكالريوس	علمي	فيديوهات، صور	عامة	إسبوعيا	ات اسبوعيا
86	12/22/2018 23:47:14	ذكر	من٢٥ الى ٣٥	ماجستير	علمي	ملفات /صصوص	عامة	يوميا	ات اسبوعيا
87	12/23/2018 0:08:29	انثى	من٢٥ الى ٣٥	ماجستير	فيديوهات، صور، ملفات /صصوص، علمي، ثقافي	عامة	يوميا		ة اسبوعيا
88	12/23/2018 8:52:24	ذكر	اكبر من ٣٥	بكالريوس	ثقافي	ملفات /صصوص	عامة	يوميا	ة اسبوعيا
89	12/23/2018 8:53:31	ذكر	اكبر من ٣٥	بكالريوس	ثقافي، اخرى	صور، ملفات /صصوص	عامة	يومياً	ات اسبوعيا
90	12/23/2018 9:19:36	انثى	من٢٥ الى ٣٥	بكالريوس	علمي	ملفات /صصوص	خاصة	إسبوعيا	ات اسبوعيا

Form Responses 3 | **Form Responses 2** | Form Responses 1

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