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**Experience of Internet Utilization by Post Graduate Students at Nishtar
Medical College, Multan, Pakistan**

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Abstract

This study reports the Internet usage, purposes, difficulties while using internet by the Post Graduate Students at Nishtar Medical College (NMC), Multan and also identifies the usage of different health related websites and databases to supplement learning by PGS. This study is based on comprehensive literature review and pre-tested questionnaire that was distributed among 210 PGS. The response rate was very satisfactory 85%. The collected data was finally analyzed by using SPSS version 17. The results show that 33(18.5%) were female and 145(81.5%) male in total 178 respondents. All of the respondents used internet except only one respondent. Majority of the respondents always use Internet for their education purpose frequently use it for research, for up to date information, to obtain information about health and entertainment purposes. Results show that PGS were using Pubmed database sometimes and MedScape, PakMediNet and EBSCOhost occasionally. The study concludes for the need of awareness, orientation and trainings to utilize different databases for seeking scholarly information.

Keywords: PGS, Internet usage, information seeking, purposes of usage, medical databases, social communication

Introduction

Internet is being proved as an appropriate pedagogic instrument for learning at all levels. Use of electronic resources by medical students is helpful for seeking relevant and current information and is being increased rapidly. Thus, assessing the ever-changing information consulting,

accessing and retrieving modes of information users is helpful to create a continuous improvement in information provision system. The current study is based on comprehensive review available literature on internet usage by medical students and analyzes the preference of medical student towards internet at Nishtar Medical College, Multan. Limited studies have been conducted on this topic in South Punjab, Pakistan, thus this study aims to explore internet utilization tendency among PGS having considered the increased use of internet among medical students globally.

Purpose of the Study

This study was conducted to explore the PGS's attitude towards internet and use of different health related websites and databases, usage purpose, frequency and problems faced while using internet at Nishtar Medical College, Multan South Punjab Pakistan.

Research Methodology

This study is based on comprehensive literature review in order to identify the exploitation of internet resources by medical students. The study adopted a descriptive research method. A literature-based and pre-tested questionnaire was designed and distributed among 210 Post Graduate Students at the Nishtar Medical College of Multan. The response rate was 85%. Acquired data were analyzed with the help of SPSS software.

Literature Review

In (2010) Judd & Kennedy examined "A five-year study of on-campus Internet use by undergraduate biomedical students". The basic aim of their study was to evaluate the use of internet by undergraduate biomedical students. Researchers described in their study that most often the major activity of internet users were information seeking. The researchers stated that the usage of different digital resources for seeking information was rapidly increased by the students during their study period. Their research indicate that most of the students depend on

different information tools for seeking information, mostly Google and Wikipedia were used by students to support their learning activities. Gray, et al. (2005) surveyed the “Health information seeking behavior in adolescence: the place of the internet”. They described in their study that young people have been facing many difficulties, in accessing their required information from traditional information services while the access of information through online services was so convenient.

According to Hughesa, Joshib & Warehama (2009) Web 2.0 play vital role in information seeking for medical education and clinical decisions. Researchers concluded from their study that the use of Web 2.0 technologies by medical students was very helpful to share their information and cross check information. Shanahan (2008) discussed the “Transforming information search and evaluation practices of undergraduate students”. It showed that undergraduate students use very short range of information resources to meet their learning and information needs. Most students depend on the internet and they use primary search methods as like search engines, to meet their information needs. Researcher described in his study that large numbers of medicals students use databases and also described that 70% medical student’s often use databases to search their required information.

Shanahan (2007) stated in his study that the successful learners know where to look for information in their required study area to meet their required information needs. Shanahan indicated in his study that the students should improve their information literacy skills that could be helpful in seeking information. Health professionals and students working in the environment information technology and suggested that there was need for organizing workshops to developing information literacy skills.

Chatterley & Chojecki (2010) investigated “Personal digital assistant usage among undergraduate medical students: exploring trends, barriers, and the advent of smart phones”. The basic aim of this study was to assess personal digital assistant usage and the resource needs to undergraduate medical students. Researchers indicated with the help of personal digital assistant (PDA), medical or health professionals seeks the required information and find the answers for better patient safety and decision taking. Vezzosi (2009) conducted a study titled “Doctoral students' information behavior: an exploratory study at the University of Parma (Italy)”. Researcher selected 18 participants from the population of doctoral students in the field of biology for his research. The purpose of his study was to explore the information behavior of doctoral students in biological field and also explore their information needs. Vezzosi find out that students mostly depend on the internet for their research work and they focus on simple and easy information research tools and their use of library was restricted to using few services. Researcher suggested that awareness of internet and other digital resources are very helpful for the students in information seeking and librarians should pay attention to this particular type of users and devote his time to explore and understand their needs.

Romanov & Aarnio (2006) explored the medical and dental student’s use of electronic scientific information resources. A web survey method was used and 49.9% students responded out of 837 students. They concluded that the uses of electronic resources among medical and dental students were different. Training about information searching skills also plays a pivotal role to use of information resources, so the training in searching skills will increase the use of electronic information resources. Romanov & Aarnio discussed in their study that only one third of medical students and one tenth of dental students were regular users of electronic information resources and the use of full text articles by using electronic information resources increases at

the end of study among both medical and dental students. They conclude that, the use of electronic resource for their information seeking, should be encouraged in the medical curriculum and students searching skill should be improved with the help of training programs.

The main purpose of study by Byrnes, Kulick & Schwartz (2004) was to know how many health professionals in clinical practice site are linked with libraries and others organizations to access their required information needs. In their study they suggested that practitioners should use computers (linked with internet) in their offices, to upgrade their information and interlink with each other.

Curtis, Weller & Hurd (1997) aimed to study the impact of new information technologies. Researchers described in their study that information technologies change the behavior of seeking. Researchers described that faculty members of health sciences mostly use the internet for e-mails or subscribed to electronic discussion groups, to exchange their knowledge and information with their colleagues. They highlighted the need to promote and change models for training on the use of new digital and electronic resources.

McCann, Schneiderman & Hinton (2010) studied the “E-Teaching and Learning Preferences of Dental and Dental Hygiene”. In their study researchers identify the students’ preferences with electronic technologies for learning and teaching. It shows that dental school’s students preferred web based class over traditional lecture based class for easy to use, easy to access and for repeated practices. Researchers described from their study that students preferred text books as compare to digital.

The basic purpose of study by Ge (2010) was to determine the information needs and seeking behavior of academic researchers in digital age. Qualitative method was used for data collection with two types of interviewees: doctoral students and faculty members.. Researcher

stated in his research that majority of the students rely on electronic sources as compared to print sources to meet their research needs. Rajab & Baqain (2005) discussed the “Use of Information and Communication Technology among Dental Students at the University of Jordan”; it showed that male students mostly used the computers as compared to females. Dorup (2004) studied the ‘Experience and Attitudes towards Information Technology among First-Year Medical Students in Denmark’. The aim of his study was to investigate the attitude and usage of information technology among students. Researcher used web-based questionnaire method for collecting and analyzing the data and response rate of his study was 78%. The results show from his study that majority of the male students were interested to change the traditional learning and teaching methods with Information and Communication Technologies as compared to females.

Data Analysis and Discussion

He also described the advantages of the electronic resources. Researcher stated that e-resources are suitable and easy to use. A large number of information available on e-format but some students do not rely on e-source as compared to books or print version because most of the books are not in e-format. Researcher concluded from his study that e-resources played a pivotal role in seeking information for researchers.

They suggested in his study that electronic learning helpful for students, to work speedily and on time. Quantitative method was used for data collection and questionnaire consists of 28 questions. Researchers described in their study that majority of the students gained use of information technology skills through personal experiences, study and discussions with fellows o

or colleagues. Researchers find out from their study that majority of the student were used computers for their academic activities.

Data Analysis

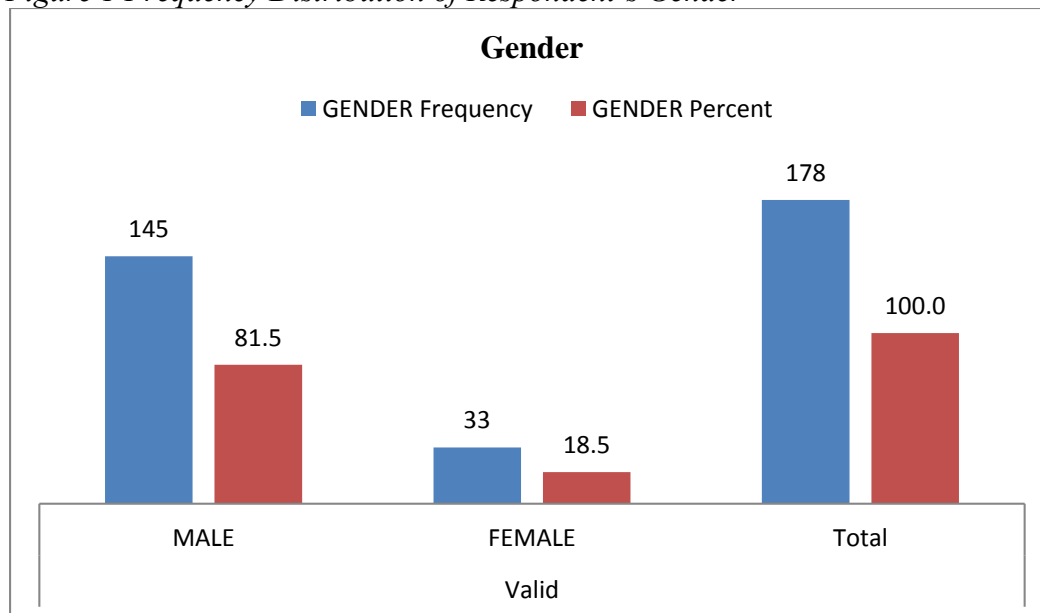
Demographic Profile of Respondents

First section of the questionnaire consisted of the personal information of the respondent, professional experience, qualification, age and gender.

Respondent's Gender

Figure 1 shows the gender distribution, there were 33(18.5%) female and 145(81.5%) male in total 178 respondents.

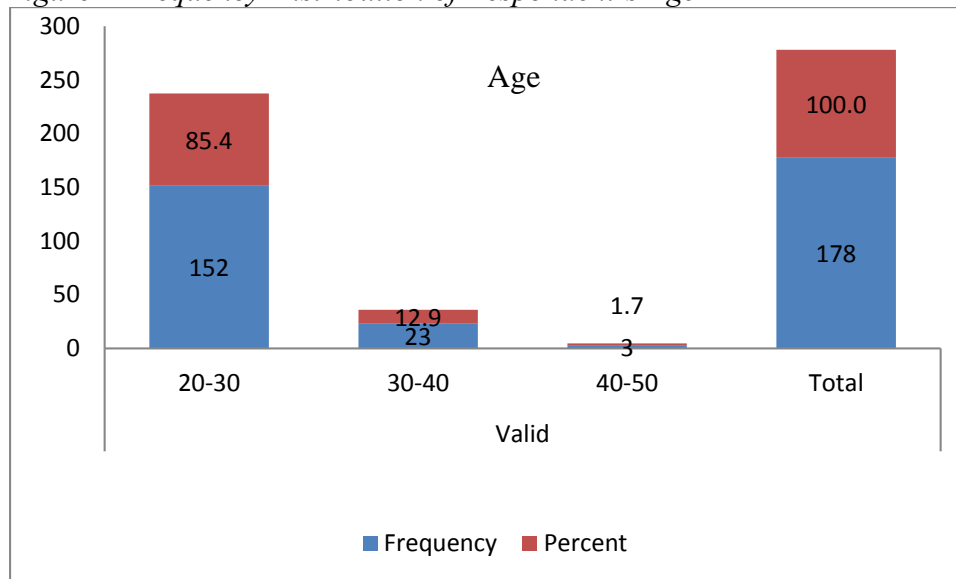
Figure 1 Frequency Distribution of Respondent's Gender



Respondent's Age

The figure 2 presents the respondent's age. The result shows that 152(85.4%) respondents were 20-30 years of age. Whereas 23(12.9%) were 30-40 years of age. Only 3(1.7%) respondents belong to the age group of 40-50 years.

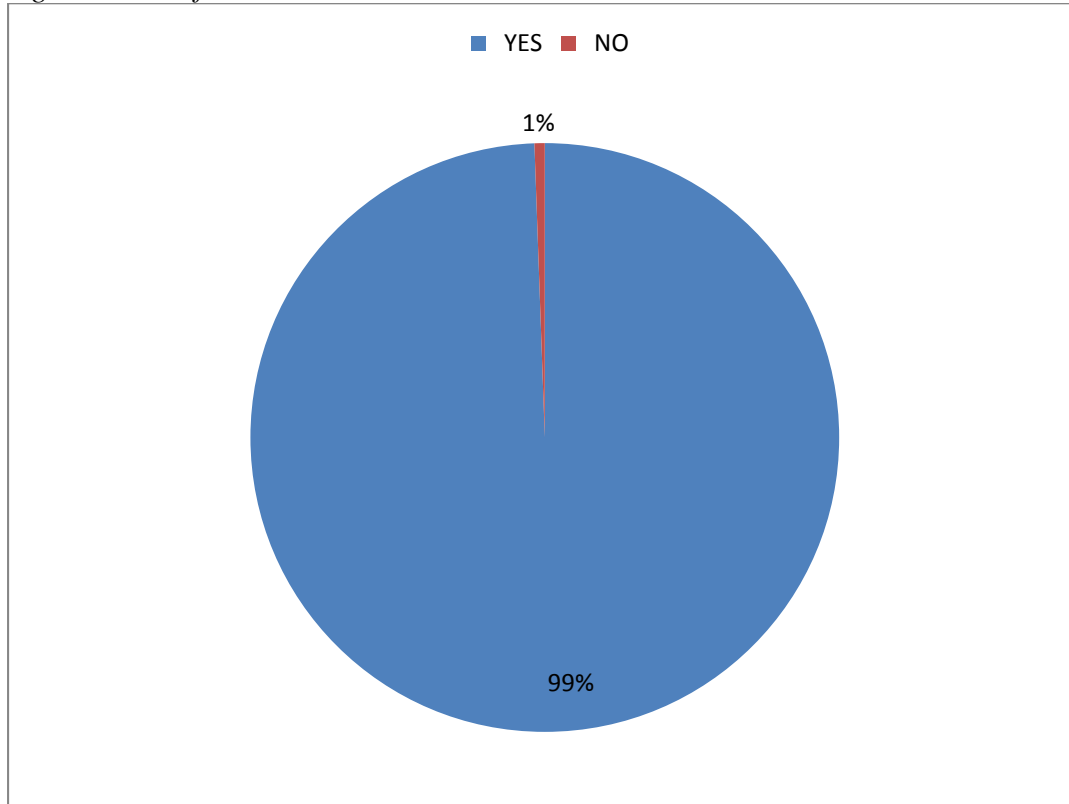
Figure 2 Frequency Distribution of Respondent's Age



Internet use

Almost all of the respondents used internet except only one respondent. 177 used internet out of 178 and one did not use internet.

Figure 4 Use of Internet



Preferred Formats for Getting Information

The result shows that print material was being preferred by majority of the respondents. Electronic material was their second preferred material while audiovisual form was their third preference.

Table 1 Preferred Formats, for Seeking Information

Formats	Mean	Median	Mode	Std. Deviation
Printed	2.86	3.00	3	.348
Electronic	2.09	2.00	2	.699
In audiovisual form	1.89	2.00	1	.813

Note: 3.Print, 2.Electronic1.Audiovisual

Sources of Information to Fulfilling Education and Research Needs

Respondent were asked about the information sources for fulfilling the education and research needs. The collected data shows that information sources (formal and informal) were use always by respondents as medical books, (64%) respondents were use always medical books as a source of information. Internet search engines (50.6%) and medical journals (39.9%) use frequently by the respondents (mean score= 3.56 and 3.53 respectively). Result shows that respondents used sometimes discussions with colleagues (22.5%), personal collection (23.6%), dictionaries (35.4%), conferences/ seminars and workshops (26.4%) and their mean values are (mean values are 3.42, 3.35, 3.28, 3.06 respectively) to get their required information. The respondents also sometimes used encyclopedia (24.2%) and online databases (19.7%) to meet their information needs (mean values are 2.60 and 2.57).The result of collected data shows that

the respondents seldom used other sources like abstract (12.9%), citation (10.1%), media: TV, radio & newspaper (23%), main library catalogue (14.6%), departmental library catalogue (19.7%), review of the articles (23.6%), websites of book stores (14%), annual reports (29.8%), in house databases (12.9%) and online publisher catalogue (20.2%) respondents used these sources seldom and their mean values are (mean values are 2.48, 2.42, 2.42, 2.30, 2.26, 2.26, 2.22, 1.98, 1.94, 1.91 & 1.80 respectively).

Table.2 Source of Information

Information sources	Mean	Median	Mode	Std. Deviation
Main library catalogue	2.30	2.00	1	1.393
Departmental library catalogue	2.26	2.00	1	1.250
Online publisher's catalogues and flyers	1.80	1.00	1	1.063
Through purchase	2.84	3.00	1	1.576
Discussion with colleagues	3.42	4.00	4	1.087
Ask the librarian	1.98	2.00	1	1.164
Personal collection	3.35	4.00	4	1.341
Medical books	4.43	5.00	5	.901
Medical journals and periodicals	3.53	4.00	4	1.245
Citations	2.42	1.00	1	5.531
Review articles	2.26	2.00	1	1.193
Encyclopedias	2.60	2.00	2	1.317
Dictionaries	3.28	3.00	3	1.184
Abstracts	2.48	3.00	3	1.241
Internet search engines	3.56	4.00	4	1.193

Conferences, seminars, workshops	3.06	3.00	4	1.139
Annual repots	1.94	2.00	1	1.111
Online databases	2.57	3.00	1	1.401
In house databases	1.91	1.00	1	1.106
Websites of book stores	2.22	2.00	1	1.343
Media, TV, radio and newspaper	2.42	2.00	1	1.270

Note: 5.Always, 4.Frequently, 3.Sometimes, 2.Seldom, 1.Never

Purpose of Internet Usage

Purpose of Using Internet was inquired from the respondents. It is plausible to know that majority stated that they always use Internet for their education purpose (Mean= 4.52). They mentioned that they frequently use it for research, for up to date information, to obtain information about health and entertainment purposes. They sometimes used it for internet surfing, general information sports information and news.

Table. 3 Reason of using internet

Purposes	Mean	Median	Mode	Std. Deviation
For education	4.52	5.00	5	.691
For research	3.89	4.00	4	1.137
For up to date information	3.89	4.00	5	1.216
For entertainment	3.67	4.00	5	1.368
For news	2.94	3.00	1	1.537

For health information	3.85	4.00	4	1.237
For sports	2.78	3.00	2	1.454
For general information	3.25	3.00	3	1.364
For internet surfing	3.30	4.00	5	1.572

Note: 5.Always, 4.Frequently, 3.Sometimes, 2.Seldom, 1.Never

Difficulties Faced By Students Seeking and Assessing Information on Internet

The study revealed the problems being faced by PGS include problem in finding authentic information, slow speed of internet, subscription of latest journal is expensive on the internet, unavailability of Internet in the department and load shedding problem. They face problem due to lack of searching skills, lack of time, required information is not accessible to some extent.

Table. 4 Difficulties faced during searching information on internet

Difficulties during searching on Internet	Mean	Median	Mode	Std. Deviation
Problem in locating authentic information	3.85	4.00	4	.983
Lack searching skills	3.38	3.00	3	.864
Slow speed	3.62	4.00	4	.850
Searching on internet is time consuming	3.44	3.00	3	1.030
Required information is not accessible	3.40	4.00	4	.941

Subscription of latest e-journals is expensive	3.90	4.00	5	1.058
Electricity load shedding problem	4.25	4.50	5	.893
Unavailability of Internet facility in the departments	4.14	5.00	5	1.056

Note: 5.Fully agreed, 4.Agreed, 3.Agreed to some extent, 2.Disagreed 1.Fully disagreed

Use of Different Databases among Respondents

As it is shown in results mentioned above that PGS mostly prefer print sources of information so when the questions of different databases was asked it showed that they were not much familiar with the use of database services. They used Pubmed database sometime and occasionally use MedScape, PakMediNet and EBSCOhost. The respondents never used NLMcatalogue, CDC and HSTAT.

Table. 5 Use of databases among respondents

Databases	Mean	Median	Mode	Std. Deviation
Pubmed	2.58	2.50	1	1.645
MedScape	1.71	1.00	1	1.294
NLMcatalogue	1.34	1.00	1	.737
PakMediNet	1.93	1.00	1	1.374
CDC(center for disease)	1.25	1.00	1	.718
HSTAT	1.20	1.00	1	.576
EBSCOhost	1.71	1.00	1	1.294

Note: 5.Always, 4.Frequently, 3.Sometimes, 2.Seldom, 1.Never

Use of Search Engines for Seeking Information

A list of search engines consist of eight items was given in the questionnaire and respondents were asked to rate the usage of these search engines in seeking of their required information. The results show that the Google search engine ranked at first (mean=2.61) and used daily for seeking information. The search engine Yahoo ranked on second (mean=1.93) and used weekly for seeking information. The lowest ranked search engine use Lalacos.com (mean=1.00). The descriptive data shows that Google is the most used search engine for information retrieval by respondents.

Table.6 Use of Search engines, for seeking purpose

Search engine	Mean	Median	Mode	Std. Deviation
Google.com	2.61	3.00	3	.594
Yahoo.com	1.93	2.00	1	.887
MSN.com	1.27	1.00	1	.505
Alta Vista.com	1.04	1.00	1	.195
Snake.com	1.01	1.00	1	.075
Kapok.com	1.01	1.00	1	.150
Lalacos.com	1.00	1.00	1	.000
Excite.com	1.02	1.00	1	.149

Note: 3.Daily, 2.Weekly, 1.Rarely

Conclusion

The results indicated that large numbers of the post graduate students use the internet always for education purpose, research purpose and up to date information. The results revealed that majority of the respondents use PubMed sometimes to retrieve their required information. The usage of databases among medical students was very low if we compare it to studies with other developed and developing countries. Unawareness about the use of databases for their health related information seeking and accessing purposes, lack of time, less number of computers, internet connectivity, slow speed of internet, and lack of information and digital literacy may be a possible reasons behind it. Most students retrieved their required information from others information tools like as search engines. Majority mostly used Google daily as compared to others search engines and use Yahoo search engine weekly for seeking their information. While others search engines used by the respondents rarely as compared to Google and Yahoo search engines.

The study explored that majority of the respondents relied on printed format like as, Book format at the same It identified that almost all (99.4%) of the respondents use the internet except one respondent. Respondents mentioned that due to lack of information searching skills, they face problem in searching authentic piece of information on Internet. They also mentioned that the speed of Internet is very slow which causes problems during searching for information. The medical college and its library should organize workshops and offer information literacy programs to improve students' internet based searching skills.

It shows that the Post Graduate Students (PGS) faced different problems, when they use different library services for seeking their required information. They

consider that searching on internet is time consuming, required information is not accessible and subscription of latest e-journals is expensive. Students should be equipped with basic skills to exploit electronic resources for obtaining clinical information and patient care. Steps must be taken to remove these obstacle for enhanced provision of PCs and internet facility.

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