
**Measure of Healthcare
Professionals' Behavioral Outcomes
using a Social Learning Theory**

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Healthcare System in Pakistan

- Under the constitution of Pakistan, health is a Provincial Government subject. However, the Central Government plays an important role in policy making, seeking foreign assistance, providing technical support, trainings and establishing coordination among various health organizations. The Provincial Government executes the provision of health care delivery at the ground root level of every District through the Executive District Officers, Health.

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- The largest Province of Pakistan, Punjab has a broad network of public and privately managed health infrastructure, however Government is the major provider of health care throughout the province. Public sector health care delivery system comprises four tiers:
 - (i) **Outreach and community based services,**
 - (ii) **Primary health care,**
 - (iii) **Secondary health care, and**
 - (iv) **Tertiary care.**

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- A relatively large infrastructure of primary and secondary health care exists in Pakistan which includes;
 - 5534 basic health units (BHU's),
 - 600 rural health centers (RHC's), and about
 - 7500 other first-level care facilities (e.g., dispensaries and MCH centers).
- A BHU provides health care services to the population of around 10,000 and RHC between 30,000 to 45,000. However, tertiary care hospitals are situated in major cities for more specialized outdoor and indoor patient's care.

Social Learning Theory

- “In the 1970s, Albert Bandura published a comprehensive framework for understanding human behavior which he named the ‘Social Cognitive Theory’, often called ‘Social Learning Theory’. According to Social Learning Theory, factors that play a role in behavior change are;
 - Behavioral capability,
 - Outcome expectations,
 - Self-efficacy, and
 - Observational learning.
- Behavioral capability maintains that a person needs to know what to do and how to do it; thus, clear instructions and/or training may be needed.

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- Outcome expectations are the outcomes that a person thinks will occur as a result of recommended action. Self-efficacy, which Bandura considers the single most important aspect of efforts to change behavior, is self-confidence in one's ability to successfully perform a specific type of action" (Burroughs, Wood, 2000).

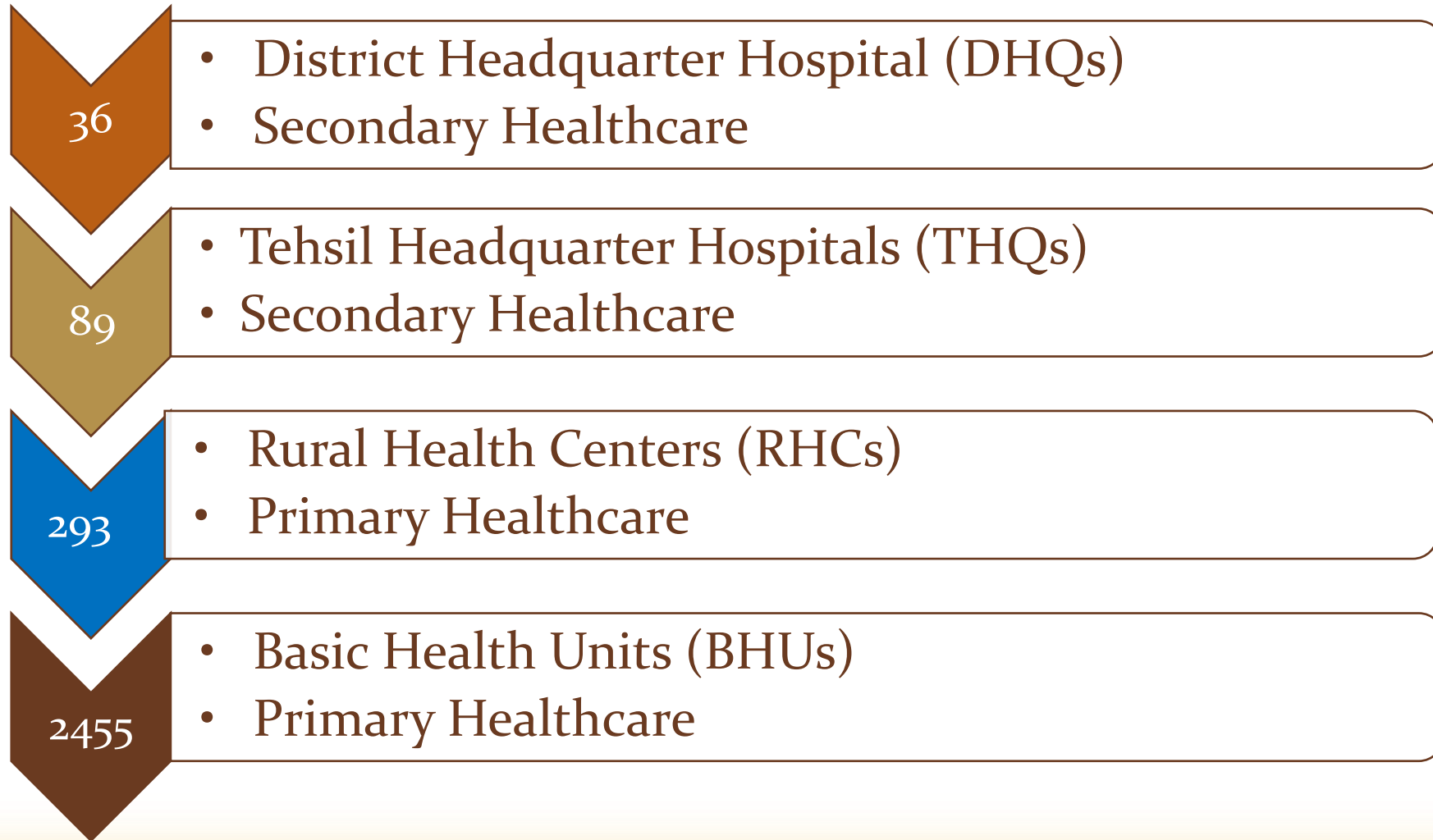
Objective of the Study

- To measure the healthcare professionals' (HCPs) behavioral outcomes (knowledge, attitude, intentions, and behaviors) about specific health information resources available online in order to determine the stage of behavioral change using social learning theory.

Research Design and Methodology

- Cross sectional survey design
- Questionnaire

The study was conducted in following healthcare facilities;



- Physicians,
- Surgeons,
- Gynecologist,
- Pediatricians,
- Anesthetists

Population of the Study

(N=4033)

Primary Healthcare
2273 (56.36%)

Secondary
Healthcare
1760 (43.64%)

Sample Size

- Krejcie and Morgan (1970) - Table
- Minimum sample size of (n= 357).
- Non-probability sampling technique, quota sampling adopted
- The reason for using a quota sampling was to assemble the representative proportion from different groups of the entire population with respect to their healthcare facilities (e.g., BHUs, RHCs, THQs and DHQs).

N=4033

APPENDIX B4. Sample Size Calculation Table

Population Size	Confidence = 95%				Confidence = 99%			
	Margin of Error				Margin of Error			
	5.0%	3.5%	2.5%	1.0%	5.0%	3.5%	2.5%	1.0%
10	10	10	10	10	10	10	10	10
20	19	20	20	20	19	20	20	20
30	28	29	29	30	29	29	30	30
50	44	47	48	50	47	48	49	50
75	63	69	72	74	67	71	73	75
100	80	89	94	99	87	93	96	99
150	108	126	137	148	122	135	142	149
200	132	160	177	196	154	174	186	198
250	152	190	215	244	182	211	229	246
300	169	217	251	291	207	246	270	295
400	196	265	318	384	250	309	348	391
500	217	306	377	475	285	365	421	485
600	234	340	432	565	315	416	490	579
700	248	370	481	653	341	462	554	672
800	260	396	526	739	363	503	615	763
1,000	278	440	606	906	399	575	727	943
1,200	291	474	674	1067	427	636	827	1119
1,500	306	515	759	1297	460	712	959	1376
2,000	322	563	869	1655	498	808	1141	1785
2,500	333	597	952	1984	524	879	1288	2173
3,500	346	641	1068	2565	558	977	1510	2890
5,000	357	678		3288	586	1066	1734	3842
7,500	365	710	1275	4211	610	1147	1960	5165
10,000	370	727	1332	4899	622	1193	2098	6239
25,000	378	760	1448	6939	646	1285	2399	9972
50,000	384	773	1464	8058	655	1318	2520	12455

Quota Sampling

Determining the proportion of subgroups in the population (N=4033)

Stratum	A	B	C	D
Population size	1668	605	822	938
Proportion of each stratum to population	41%	15%	21%	23%
Sampling proportion	9%	9%	9%	9%
Final sample	150	54	74	84
Proportion of each sampling stratum to total sample size	41%	15%	21%	23%

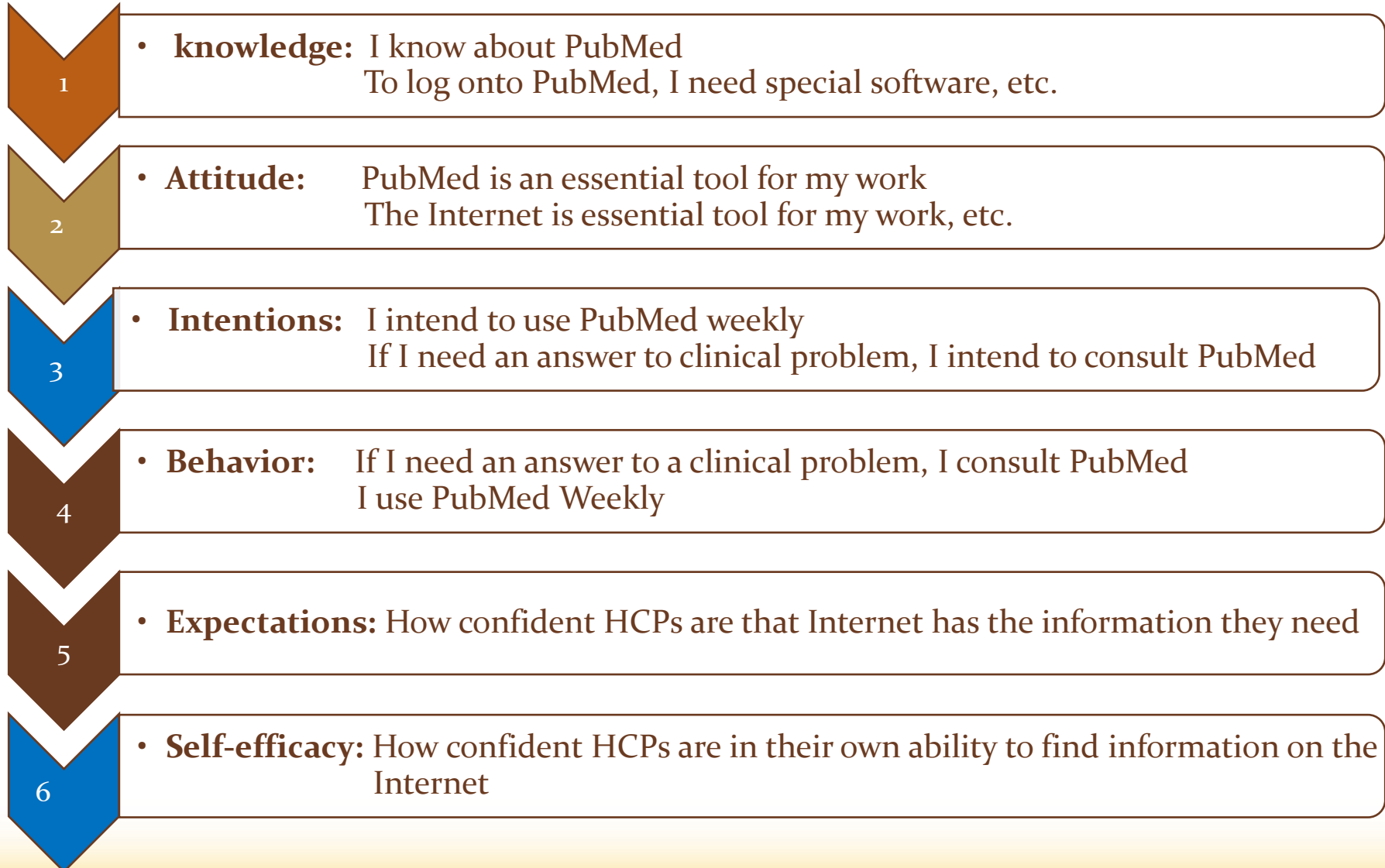
Stratum A= Basic Health Units (BHUs)

Stratum B= Rural Health Centers (RHCs)

Stratum C= Tehsil Headquarter (THQs)

Stratum D= District Headquarters (DHQs)

Important Variables related to Social Learning Theory



- **Response rate:** Over 2000 phone calls were made to almost 2000 HCPs in order to seek their participation in the survey, of which 1204 HCPs agreed to participate in the study.
- A copy of questionnaire was posted to HCPs who agreed to participate. Of the 1204 HCPs, 396 returned the completed questionnaire with a response rate (32.89 percent), after three follow-up with a gap of two weeks.
- On the other hand, an online link to the questionnaire was sent to 660 HCPs through WhatsApp, out of which 118 responded with a response rate (17.87 percent).
- Overall, the response obtained from HCPs against targeted response from different healthcare facilities was (100 percent).

- **Ethical Approval.** The study was begun after the approval of the Departmental Research Committee of the Department of Library and Information Science, and Advanced Studies and Research Board of The Islamia University of the Bahawalpur. Pakistan.
- **Data analysis.** The collected data analyze using a Statistical Package for Social Sciences (SPSS version 20)

Results

Table 1. Demographic Information (Gender, Age Group, and Clinical Experience)

	Primary Healthcare		Secondary Healthcare			Total (N=517)
	BHUs (N=199)	RHCs (N=63)	THQs (N=118)	DHQs (N=101)	Others (N=36)	
Gender						
Male	144 (41%)	33 (9.4%)	76 (21.7%)	70 (19.9%)	28 (8%)	351 (67.9%)
Female	55 (33.1%)	30 (18.1%)	42 (25.3%)	31 (18.7%)	8 (4.8%)	166 (32.1%)
Total	199 (38.5%)	63 (12.2%)	118 (22.8%)	101 (19.5%)	36 (7%)	517 (100%)
^a Age Group						
21-30	103 (38.0%)	32 (11.8%)	69 (25.5%)	53 (19.6%)	14 (5.2%)	271 (52.4%)
31-40	65 (34.6%)	23 (12.2%)	41 (21.8%)	43 (22.9%)	16 (8.5%)	188 (36.4%)
41-50	23 (53.5%)	6 (14.0%)	8 (18.6%)	4 (9.3%)	2 (4.7%)	43 (8.3%)
51-60	8 (53.3%)	2 (13.3%)	0 (0.0%)	1 (6.7%)	4 (26.7%)	15 (2.9%)
Total	199 (38.5%)	63 (12.2%)	118 (22.8%)	101 (19.5%)	36 (7%)	517 (100%)
^b Clinical Experience						
< 5	107 (39.3%)	31 (11.4%)	68 (25.0%)	53 (19.5%)	13 (4.8%)	272 (52.6%)
6-10	52 (33.1%)	19 (12.1%)	33 (21%)	39 (24.8%)	14 (8.9%)	157 (30.4%)
11-15	14 (38.9%)	6 (16.7%)	8 (22.2%)	4 (11.1%)	4 (11.1%)	36 (7%)
15 >	26 (49.1%)	7 (13.7%)	9 (17.6%)	5 (9.8%)	5 (9.8%)	52 (10%)
Total	199 (38.5%)	63 (12.2%)	118 (22.8%)	101 (19.5%)	36 (7%)	517 (100%)

Table 2. Measure of Behavioral Outcomes (Knowledge)

Statements	N		BHUs (N=199)	RHCs (N=63)	THQs (N=118)	DHQs (N=101)	Others (N=36)	Total (N=517)
I know about PubMed	415	Yes	30 (7.2%)	10 (2.4%)	31 (7.5%)	29 (7%)	5 (1.2%)	105 (25.3%)
		No	131 (31.6%)	41 (9.9%)	61 (14.7%)	58 (14%)	19 (4.6%)	310 (74.7%)
I know about HEC digital library	412	Yes	7 (1.7%)	2 (.5%)	4 (1%)	2 (.5%)	1 (.2%)	16 (3.9%)
		No	152 (36.9%)	48 (11.7%)	88 (21.4%)	85 (20.6%)	23 (5.6%)	396 (96.1%)
To log onto PubMed, I need special Software	92	Yes	6 (6.5%)	1 (1.1%)	3 (3.3%)	4 (4.3%)	1 (1.1%)	15 (16.3%)
		No	21 (22.8%)	5 (5.4%)	23 (25%)	25 (27.2%)	3 (3.3%)	77 (83.7%)
To use HEC digital library, I must have Static IP address from Internet service providers (ISPs)	30	Yes	3 (10%)	1 (3.3%)	3 (10%)	2 (6.7%)	2 (6.7%)	11 (36.7%)
		No	8 (72.7%)	3 (75%)	6 (66.7%)	2 (50%)	0 (0%)	19 (63.3%)
PubMed is only for health care professionals	92	Yes	21 (22.8%)	6 (6.5%)	23 (25%)	23 (25%)	2 (2.2%)	75 (81.5%)
		No	7 (7.6%)	3 (3.3%)	4 (4.3%)	1 (1.1%)	2 (2.2%)	17 (18.5%)
I have enough knowledge of specific information resources available online	132	Yes	10 (7.6%)	3 (2.3%)	9 (6.8%)	10 (7.6%)	0 (0%)	32 (24.2%)
		No	35 (26.5%)	9 (6.8%)	29 (22%)	20 (5.3%)	7 (5.3%)	100 (75.8%)

Table 3. Behavioral Outcomes of the Healthcare Professionals (HCPs)

*Respondents' Attitude	Mean	Std. Deviation
PubMed is an essential tool for my work	4.21	.632
The Internet is an essential tool for my clinical practice	4.19	.693
Compare to other Internet sources for health information, PubMed is beneficial	4.12	.602
The information available on Internet is largely reliable	3.67	.837
Compared to other Internet sources for health information, HEC digital library is beneficial	3.36	.929
HEC Digital library is an essential tool for my work	2.95	.524
*Respondents' Intentions		
I intend to use PubMed weekly	3.95	.784
If I need an answer to a clinical problem, I intend to consult PubMed.	3.94	.793
I intend to use HEC digital library weekly	3.70	.811
If I need an answer to a clinical problem, I intend to consult HEC digital library.	3.65	.852

*Scale: 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

Behavioral Outcomes of the Healthcare Professionals (HCPs)

	Mean	Std. Deviation
*Respondents' Behavior		
If I need an answer to a clinical problem, I consult PubMed.	2.01	1.212
I use PubMed weekly.	2.00	1.122
If I need an answer to a clinical problem, I consult HEC digital library	1.61	.623
I use HEC digital library weekly	1.60	.623
**Respondents' Confidence		
How confident are you in your own ability to find information on the Internet? (Self-efficacy)	2.57	.913
How confident are you that the Internet has information you need? (Expectations)	3.41	1.148

*Scale: 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

**Scale: 1= Totally Unconfident, 2= Slightly Confident, 3= Reasonably Confident, 4= Very Confident, 5= Totally Confident

Conclusion

- The results of the study concluded that the majority of the HCPs' knowledge of online healthcare information resources is limited. However, their attitude and intention towards using the online healthcare information resources for day-to-day clinical practice is positive.

- The study recommends launching promotional and educational activities through which HCPs' interest and awareness of online healthcare information resources and services are increased.
- The results of this study carry some important practical implications for health sciences librarians, policy makers, and professional associations such as Pakistan Library Association (PLA) and Health Department to introduce the strategies that could help improve the behavioral outcomes of HCPs so they could be able to utilize the healthcare information from HEC digital library, PubMed and other online resources effectively, which could ultimately increase the quality of patient care decisions.

Thank You

