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ACKNOWLEDGEMENT

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Exploring the Risk Factors of Eye Health and Dementia: Insights and Implications

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Maintaining good eye health is important for overall well-being because taking care of your eyes is not only crucial for vision but may also play a role in preserving cognitive functions. Recent research shows that poor vision itself can contribute to cognitive decline by limiting the mental stimulating activities. Dementia is not a natural part of ageing it develop when brain is damaged by some disease. The decline in the cognitive functioning like thinking, reasoning and remembering which disrupts the daily life activities. To stop the progression of dementia no effective treatment was available yet so the growing prevalence of dementia has prompted researchers to identify the risk factors to control and prevent dementia. Evidence suggests that various conditions affecting whole body are also modified risk factors for dementia. Numerous studies suggest that systemic conditions like obesity, hypertension, depression and diabetes increase the risk of dementia [1]. When these conditions combine with vision impairment, the risk of dementia is notably higher. Eye conditions such as cataracts, glaucoma, age related macular degeneration (AMD) and diabetes retinopathy are most prevalent in increasing the risk of developing dementia. Several studies have been proposed the relationship between eye health and dementia. Microvascular damage in diabetic retinopathy can increase the risk of dementia. Vision loss due to contracts or any other condition has been link to an increased link of cognitive decline. Regular eye checkup could serve as a valuable tool for early detection of dementia risk. Furthermore, the loss of sensory input may exacerbate brain changes and are associated with dementia [2]. According to recent research it was concluded that age related muscular degeneration and diabetes related eye diseases are associated with an increased likelihood of developing dementia [3]. The association between dementia and eye health underscore the complex connection between the brain and different body systems. By recognizing these conditions healthcare providers can adopt more holistic approaches to patient care. In the era of increasing dementia researchers are ongoing to develop an eye test that helps to detect the early signs of dementia. However, ongoing studies in this era aim to detect the early stages of cognitive decline associated with dementia.

REFERENCES

[1] Livingston G, Huntley J, Sommerlad A, Ames D, Ballard C, Banerjee S et al. Dementia prevention, intervention, and care: 2020 report of the Lancet Commission. The Lancet. 2020 Aug; 396(10248): 413-46. doi: 10.1016/S0140-6736(20)30367-6.

[2] Shang X, Zhu Z, Huang Y, Zhang X, Wang W, Shi D *et al.* Associations of ophthalmic and systemic conditions with incident dementia in the UK Biobank. British Journal of Ophthalmology. 2023 Feb; 107(2): 275-82. doi: 10.1136/bjophthalmol-2021-319508.

{3] Saunier V, Merle BM, Delyfer MN, Cougnard-Grégoire A, Rougier MB, Amouyel P *et al.* Incidence of and risk factors associated with age-related macular degeneration: four-year follow-up from the ALIENOR study. JAMA Ophthalmology. 2018 May; 136(5): 473-81. doi: 10.1001/jamaophthalmol.2018.0504.

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Original Article

Ethical Literacy in Medical Education: A Comparative Study of Medical Ethics among Undergraduate Students in Peshawar, Pakistan

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ABSTRACT

Medical ethics knowledge and practice by healthcare providers is an incredibly critical topic in today's highly advanced and demanding medical care. **Objective:** To assess the knowledge and attitude of undergraduate medical students regarding medical ethics, and to compare the results among the students of public and private medical colleges of Peshawar. **Methods:** Over the course of six months, 1203 undergraduate students from a variety of fields participated in an observational cross-sectional study. A standardized questionnaire about medical ethics knowledge, attitudes, and demographics was filled out by the participants. Descriptive statistics and the chi-square test were used in the analysis of the data using SPSS version 27.0 to look for differences between groups. **Results:** A total of 1203 undergraduate students were enrolled in the study; 60.2% of the participants were men and 39.6% were women. Of these, 66.9% have previously studied medical ethics. 2.1% of the participants had poor knowledge of medical ethics, 26.8% had average knowledge, and 71.1% had good knowledge. Furthermore, 76.2% of students thought that medical ethics ought to be taught in undergraduate programs. While 41.1% of respondents said that medical ethics were merely important to avoid legal issues, 42% of respondents believed that doctors may occasionally act unethically. **Conclusions:** The study concluded that students in the public and private sectors both possess an adequate amount of knowledge regarding medical ethics. Additionally, students in both fields demonstrate a positive attitude toward the application of medical ethics in the medical field.

INTRODUCTION

Medical ethics knowledge and practice by healthcare providers is an incredibly critical topic in today's highly advanced and demanding medical care [1]. The four core concepts of medical ethics are autonomy, justice, beneficence, and non-maleficence which serve as a base for health professionals to advise and determine what therapeutic practices are ethical [2]. A healthcare professional must have immaculate ethical and moral standards. However, the medical profession is currently experiencing integrity challenges as it transitions from an ethics-based profession founded on basic principles of empathy and humanity to a more marketed and business-like structure fueled by figures and revenues [3]. An increase in ethical issues can be attributed to the commercialization of the medical profession, increased consumer awareness, and a lack of ethical understanding among doctors. [4, 5]. The noticeable loss of ethical and professional norms, combined with the worsening of the patient-physician relationship and growing public criticism of medical professionals, has increased the demand for undergraduate medical ethics curriculum. Hence, the content and delivery of medical curriculum must evolve in response to the evolving nature of medicine [6]. The literature also supports the inclusion of medical ethics in

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undergraduate curricula, shown in studies conducted in Nigeria, Malaysia, Nepal, France, India [6, 1, 7, 8, 9]. Another study showed that in 1972, only 4% of US medical schools included a course in medical ethics; by 1994, that figure had risen to 100%. This shows the increasing trend of adding medical ethics to the medical curriculum [10]. Similarly, studies conducted in Pakistan by Humayun et al., concluded inadequate medical ethics practice [11]. Empathy in doctors is greatly influenced by their comprehension of medical ethics. Enhancing patient-centered care, it cultivates a greater respect for patient autonomy. Doctors who receive ethical training are better able to compassionately navigate difficult moral decisions and make decisions that put the needs of their patients first. In the end, more compassionate and understanding medical practice results from this ethical foundation's cultivation of trust and strengthening of the patient-physician bond. Because of this, medical professionals are more equipped to meet the emotional and psychological needs of their patients, encouraging holistic healing and raising patient satisfaction levels.

In view of the present literature a need was felt to assess the knowledge and attitude of undergraduate medical students regarding medical ethics, and to compare the results between the students of public and private medical colleges of Peshawar.

The aim of this study was to assess the effect of public awareness on audiology and hearing health in Islamabad and Rawalpindi.

METHODS

The research was planned as an observational cross-sectional study that would take place over the course of six months, from July 2023 to December 2023, in a number of public and private medical colleges of Peshawar, Pakistan. Based on a population of approximately 1,000,000, a 99.9% confidence level, a 5% confidence limit, and an anticipated frequency of 50%, the sample size was calculated using the Open Epi Sample Size Calculator, yielding a total of 1082 participants. Questionnaires and Google form was circulated throughout various collages, and 1203 complete responses were received after 1100 questionnaires were distributed to account for sampling error. Using a non-probability convenient sampling technique, 303 participants came from Public medical institutions and 900 from private medical colleges were included in the study. Exclusion criteria included not being enrolled in the designated programs, refusing to participate willingly, being unable to give informed consent, and submitting incomplete questionnaires. All participants received detailed information regarding the research's purpose and objectives and were informed about their right to decline participation or withdraw at any point without consequences. Assurances were made regarding the confidentiality and anonymity of their responses, and verbal consent was obtained. Approval for the study's design was obtained from the Institutional Review Board and Ethics Committee of the Northwest School of Medicine, Peshawar (IRB&EC/2023-SM/060) (Issuance date: 27th Feb, 2023). A standardized, self-structured, pilot-tested questionnaire that was created following a thorough literature review was used to collect data. The survey was divided into three sections: demographics, medical students' knowledge and their attitudes regarding medical ethics. The SPSS version 27.0® was used to analyze the data. Frequencies, percentages, means with standard deviations, and other descriptive statistics were used. Additionally, the chi-square test was applied to examine the relationship between the responses from medical students of public and private medical colleges, with a significance level set at 0.05 to discern any significant differences. Thirteen questions regarding the participants' knowledge of medical ethics were used to record the knowledge score. Every right response received one point, every wrong response received zero, giving a minimum score of 0 and a maximum score of 13. A score of 0–5 indicated poor knowledge, a score of 6–9 indicated average knowledge, and a score of 10–13 indicated good knowledge.

RESULTS

A total of 1203 individuals, ranging in age from 18 to 25, were included in the study from various medical schools. The participants' mean age was 21.37 ± 1.596. Of the participants, 900 (74.8%) studied in private medical schools, and 303 (25.2%) attended public medical schools. There were 39.6% female participants and 60.4% male participants. 30% of the participants were in their first year, 34.7% in second year, 20.6% in third year, 11.9% in fourth year and 2.8% in final year. Among them 131 (10.9%) were married. Additionally, 66.9% of the participants had previously studied medical Ethics. The demographics are shown in (Table 1).

Table 1: Demographics of the Participants

Variables	Public N (%)	Private N (%)	Total N (%)
Gender of the Participants			
Male	163 (22.4)	564 (77.6)	727 (100)
Female	140 (29.4)	336 (70.6)	476 (100)
Year of Study of the participants			
First Year	57 (15.8)	304 (84.2)	361 (100)
Second Year	146 (35)	271 (65)	417 (100)
Third Year	58 (23.4)	190 (76.6)	248 (100)
Fourth Year	27 (18.9)	116 (81.1)	143 (100)
Final Year	15 (44.1)	19 (55.9)	34 (100)
Marital Status of the Participants			
Married	69 (52.7)	62 (47.3)	131 (100)

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Single	234 (21.8)	838 (78.2)	1072 (100)
Have You Studied Medical Ethics Before?			
No	92 (23.1)	306 (76.9)	398 (100)
Yes	211 (26.2)	594 (73.8)	805 (100)
Total	303 (25.2)	900 (74.8)	1203 (100)

It was found that 90.1% of public medical students and 92.3% of private medical students agreed that addressing emergency situations had its own medical ethics, while 95% of public medical students and 96.9% of private medical students believed that there were fundamental rules and norms that governed medical ethics. 72.7% of private medical students and 76.9% of public medical students agreed that medical ethics had changed over time. A higher percentage of the private students 83.7% thought that the doctor-patient interaction consisted of the doctor acknowledging wrongdoing. Ethical principles guarantee that patients' decisions remain uninfluenced, as perceived by 57.8% of the public-school students. Physicians cannot disregard patients' privacy, according to 51.7% of public medical students and 72% of private medical students. 27.2% of private students and 37% of public students agreed that treatment does not require consent (Table 2).

Table 2: Knowledge of the Participants Regarding Medical Ethics

Variable	False N (%)	True N (%)	Total N (%)	p-Value	X^2-Value
Medical Ethics are Governed by a set of Fundamental Concepts and rules.					
Public	15 (5)	288 (95)	303 (100)	0.136	2.225
Private	28 (3.1)	872 (96.9)	900 (100)		
The Management of Emergency Circumstances is Guided through Certain Medical Ethics Concepts.					
Public	30 (9.9)	273 (90.1)	303 (100)	0.221	1.498
Private	69 (7.7)	831 (92.3)	900 (100)		
The Obligations and Responsibilities of Doctors toward their Patients are Guided Bby an Ethical Framework.					
Public	25 (8.3)	278 (91.7)	303 (100)	0.093	2.817
Private	50 (5.6)	850 (94.4)	900 (100)		
A set of Ethical Guidelines Directs Physicians' Obligations and Responsibilities towards the Community.					
Public	40 (13.2)	263 (86.6)	303 (100)	0.582	0.303
Private	108 (12)	792 (88)	900 (100)		
With the Development of Technology, New Ethical Problems have Emerged.					
Public	62 (20.5)	241 (79.5)	303 (100)	0.629	0.233
Private	196 (21.8)	704 (78.2)	900 (100)		
Over Time, The field of Medical Ethics has Changed and Evolved.					
Public	70 (23.1)	233 (76.9)	303 (100)	0.148	2.095
Private	246 (27.3)	654 (72.7)	900 (100)		
Medical Ethics Principles are Culturally Contextual.					
Public	85 (28.1)	218 (71.9)	303 (100)	0.293	1.104
Private	225 (25)	675 (75)	900 (100)		
In the Doctor-Patient Interaction, it's important to be Honest about Mistakes.					
Public	83 (27.4)	220 (72.6)	303 (100)	0.000	17.930
Private	147 (16.3)	753 (83.7)	900 (100)		
Ethical Guidelines Guarantee that the Patient's choice is Unaffected.					
Public	128 (42.2)	175 (57.8)	303 (100)	0.157	2.000
Private	339 (37.7)	561 (62.3)	900 (100)		
Patients' Privacy can be Disregarded by a Doctor.					
Public	173 (57.1)	130 (42.9)	303 (100)	0.000	23.236
Private	648 (72)	252 (28)	900 (100)		
In Medical Ethics, Confidentiality is a basic concern.					
Public	72 (23.8)	231 (76.2)	303 (100)	0.786	0.074
Private	207 (23)	693 (77)	900 (100)		
Treatment does not require Consent.					
Public	191 (63)	112 (37)	303 (100)	0.001	10.308
Private	655 (72.8)	245 (27.2)	900 (100)		
Unless there is an emergency, Children Should never be treated without their Parents' or Guardians' Permission.					
Public	88 (29)	15 (71)	303 (100)	0.046	3.965
Private	210 (23.3)	690 (76.7)	900 (100)		

The minimum and maximum knowledge score of the participants was 1 and 13 respectively, with mean score of 10.2884 and a standard deviation of 1.90867. (Table 3)

Table 3: Knowledge of the Participants Compared with their Institutions

Variables	Poor Knowledge N (%)	Average Knowledge N (%)	Good Knowledge N (%)	Total N (%)	p-Value	X^2-Value
Public	14 (4.6)	82 (27.1)	207 (68.3)	303 (100)	0.001	13.036
Private	11 (1.2)	241 (26.8)	648 (72)	900 (100)		
Total	25 (2.1)	323 (26.8)	855 (71.1)	1203 (100)		

The majority of medical students (92.5%), both from public and private universities, held the view that medical professionals had a duty to uphold their profession's ethics. The students also conformed to the idea that treating patients (87.3%) and coworkers (82.7%) with ethics in mind has a favorable outcome. It was also unexpected to learn that a few students (42%) thought that doctors could occasionally act unethically, and that moral behavior is only necessary to stay out of legal trouble (41.1%). Additionally, 76.2% students said that teaching medical ethics as part of the undergraduate curriculum was essential (Table 4).

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Table 4: Attitude of Participants Regarding Medical Ethics

Variable	Strongly Agree N (%)	Agree N (%)	Neutral N (%)	Disagree N (%)	Strongly Disagree N (%)	Total N (%)	P-Value	X^2-Value
The medical professional is required to uphold the ethics of his field.								
Public	195 (64.4)	71 (23.4)	28 (9.2)	4 (1.3)	5 (1.7)	303 (100)	0.000	22.418
Private	552 (61.3)	295 (32.8)	47 (5.2)	3 (0.3)	3 (0.3)	900 (100)		
Patient outcomes are improved when medical professionals follow ethical guidelines.								
Public	135 (44.6)	115 (38)	44 (14.5)	5 (1.7)	4 (1.3)	303 (100)	0.044	9.806
Private	430 (47.8)	370 (41.1)	89 (9.9)	7 (0.8)	4 (0.4)	900 (100)		
Interacting morally with colleagues provides advantages.								
Public	134 (44.2)	114 (37.6)	40 (13.2)	11 (3.6)	4 (1.3)	303 (100)	0.142	6.883
Private	466 (51.8)	281 (31.2)	121 (13.4)	21 (2.3)	11 (1.2)	900 (100)		
A medical professional may occasionally act unethically.								
Public	67 (22.1)	79 (26.1)	61 (20.1)	48 (15.8)	48 (15.8)	303 (100)	0.005	14.645
Private	135 (15)	224 (24.9)	235 (26.1)	189 (21)	117 (13)	900 (100)		
Regardless of what patients think, doctors always know best.								
Public	63 (20.8)	77 (25.4)	75 (24.8)	55 (18.2)	33 (10.9)	303 (100)	0.003	16.112
Private	156 (17.3)	304 (33.8)	245 (27.2)	143 (15.9)	52 (5.8)	900 (100)		
The only reason ethical behavior matters is to prevent lawsuits.								
Public	54 (17.8)	66 (21.8)	63 (20.8)	72 (23.8)	48 (15.8)	303 (100)	0.007	14.060
Private	144 (16)	230 (25.6)	222 (24.7)	225 (25)	79 (8.8)	900 (100)		
Doctors must provide abortions if the law permits them.								
Public	64 (21.1)	94 (31)	72 (23.8)	42 (13.9)	31 (10.2)	303 (100)	0.059	9.099
Private	160 (17.8	264 (29.3)	282 (31.3)	131 (14.6)	63 (7)	900 (100)		
Laboratory studies should also be routinely conducted for clinically confirmed patients.								
Public	84 (27.7)	113 (37.3)	67 (22.1)	26 (8.6)	13 (4.3)	303 (100)	0.414	3.940
Private	238 (26.4)	370 (41.1)	205 (22.8)	64 (7.1)	23 (2.6)	900 (100)		
There should be a dedicated committee in my college to establish the moral guidelines.								
Public	107 (35.3)	122 (40.3)	51 (16.8)	16 (5.3)	7 (2.3)	303 (100)	0.031	10.601
Private	360 (40)	387 (43)	113 (12.6)	22 (2.4)	18 (2)	900 (100)		
It is imperative that doctors occasionally take in-depth training on medical ethics.								
Public	107 (35.3)	117 (38.6)	56 (18.5)	20 (6.6)	3 (1)	303 (100)	0.005	14.744
Private	391 (43.3)	345 (38.3)	127 (14.1)	26 (2.9)	11 (1.2)	900 (100)		
It is imperative that undergraduate curricula include medical ethics.								
Public	108 (35.6)	106 (35)	64 (21.1)	15 (5)	10 (3.3)	303 (100)	0.013	12.601
Private	386 (42.9)	316 (35.1)	161 (17.9)	26 (2.9)	11 (1.2)	900 (100)		
Learning about medical ethics helps doctors deal with moral dilemmas more skillfully.								
Public	116 (38.3)	121 (39.9)	44 (14.5)	15 (5)	7 (2.3)	303 (100)	0.087	8.128
Private	406 (45.1)	335 (37.2)	123 (13.7)	26 (2.9)	10 (1.1)	900 (100)		
Studying medical ethics has improved my understanding of patients' rights.								
Public	142 (46.9)	93 (30.7)	48 (15.8)	12 (4)	8 (2.6)	303 (100)	0.027	10.979
Private	503 (55.9)	261 (29)	99 (11)	22 (2.4)	15 (1.7)	900 (100)		

DISCUSSION

A total of 1203 participants from different colleges participated in our study; 60.4% of them were men, and 66.9% of them had studied medical ethics before. In comparison, just 22% of the 110 fourth-year medical students in another study conducted at the University of Pennsylvania had previously received training in medical ethics [12]. In a different study conducted in Iran, which included final-year nursing and midwifery students, 98.7% of the participants had a positive attitude toward information confidentiality, whereas in our study, 924 students 76.8% thought confidentiality was a crucial component of medical ethics; 231 of these students attended public medical schools and 693 attended private ones [13]. In a study among doctors in Sri Lanka 81.2% participants had poor knowledge score, with a mean of 49.83 ranging from a minimum value of 12 to a maximum

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vale to 88, In comparison to this our participants had a mean score of 10.2884 (ranging from 1 to 13), where only 2.1% of the participants had poor knowledge and 26.8% had average knowledge [14]. Among our participants 35.6% among the students belonging to public sector and 42.9% of the students belonging to the private sector, total 41.1% strongly agreed that medical ethics should be incorporated into medical curriculum. This was in accordance with a study in South India where 57.4% strongly agreed to include medical ethics in the curriculum [15]. In contrast to our study, where 80.9% of medical students believed that the patient-physician relationship requires the telling of the truth about wrongdoings, Pais *et al.*, found that truth telling was reported by 45% of physiotherapy students and 0% of medical and dental students [16]. Health workers who learned medical ethics were shown to be more likely to have a positive attitude toward patient confidentiality, according to a study by Tegegne MD *et al* [17]. In a study conducted in Pakistan it was concluded to emphasize the importance of including medical ethics in the curriculum of undergraduate medical students [18]. Ninety-five out of the 299 participants in a study by Tenenbaum A *et al.*, stated that they would follow the patient's decision even if it was not medically justified [19]. When asked if doctors could not refuse an abortion if the legislation permitted it, 18.6% of our participants strongly agreed, 28.6% of them were from the public sector and 71.4% were from the private sector. When asked if they agreed to obtain parental consent before treating a child, 84.5% of interns, 74% of junior residents, and 76.5% of senior residents in Pakistan answered in the affirmative [20].

CONCLUSIONS

In conclusion, the study on medical students' understanding of medical ethics in Peshawar, Pakistan, indicates that both public and private sector students have an adequate level of knowledge. Regardless of their institutional affiliation, the results highlight a uniformity in the ethical knowledge base across these aspiring healthcare practitioners. Furthermore, students from both sectors exhibit a good attitude toward the application of medical ethics within the health profession, which bodes well for the future of medical practice in the area. This implies a strong basis for encouraging moral behavior in medicine, which could improve the standard of care.

Authors Contribution

Conceptualization: KK, SZ
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Formal analysis: KK, SZ, MS, AMA, MA, SRS, SA, AAK, MN, SM, KI
Writing, review and editing: KK, SZ, AAK, SM, JS

All authors have read and agreed to the published version of the manuscript.

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REFERENCES

[1] Jatana SK, Soe HH, Phyu KL, Lwin H, Than NN. A survey on knowledge and attitudes towards medical ethics among undergraduate medical students. Education. 2018; 8(3): 48-53. doi:10.5923/j.edu.20180803.03.

[2] Adhikari S, Paudel K, Aro AR, Adhikari TB, Adhikari B, Mishra SR. Knowledge, attitude and practice of healthcare ethics among resident doctors and ward nurses from a resource poor setting, Nepal. BioMed Central Medical Ethics. 2016 Dec; 17: 1-8. doi: 10.1186/s12910-016-0154-9.

[3] Ghias K, Lakho GR, Asim H, Azam IS, Saeed SA. Self-reported attitudes and behaviours of medical students in Pakistan regarding academic misconduct: a cross-sectional study. BioMed Central Medical Ethics. 2014 Dec; 15: 1-4. doi: 10.1186/1472-6939-15-43.

[4] Rajamohanan RR, Phansalkar M, Kuruvila S. Awareness about medical ethics among undergraduates after introduction of humanities in curriculum. International Journal of Research. 2021 Sep; 7(5): 636. doi: 10.18203/issn.2455-4529.IntJResDermatol20213164.

[5] Jalal S, Imran M, Mashood A, Younis M. Awareness about knowledge, attitude and practice of medical ethics pertaining to patient care, among male and female physicians working in a public sector Hospital of Karachi, Pakistan-A cross-sectional survey. European Journal of Environment and Public Health. 2018 Mar; 2(1): 04. doi: 10.20897/ejeph/86260.

[6] Okoye O, Nwachukwu D, Maduka-Okafor FC. Must we remain blind to undergraduate medical ethics education in Africa? A cross-sectional study of Nigerian medical students. BioMed Central Medical Ethics. 2017 Dec; 18: 1-8. doi: 10.1186/s12910-017-0229-2.

[7] Aacharya RP and Shakya YL. Knowledge, attitude and practice of medical ethics among medical intern students in a Medical College in Kathmandu. Bangladesh Journal of Bioethics. 2015 May; 6(3): 1-9. doi: 10.3329/bioethics.v6i3.27613.

[8] Hertrampf K, Groß D, Karsten G, Wenz HJ. The influence of clinical experience on dental students' ethical awareness. European Journal of Dental Education. 2019 May; 23(2): 101-9. doi: 10.1111/eje.12408.

DOI: https://doi.org/10.54393/pbmj.v7i05.1086

[9] Rani V. Knowledge and attitude about medical ethics among undergraduate medical students-A cross sectional comparative study. Indian Journal of Health Sciences and Biomedical Research kleu. 2022 May; 15(2): 131-6. doi: 10.4103/kleuhsj.kleuhsj_13_21.

[10] AlKabba AF, Hussein G, Kasule OH, Jarallah J, Alrukban M, Alrashid A. Teaching and evaluation methods of medical ethics in the Saudi public medical colleges: cross-sectional questionnaire study. BioMed Central Medical Education. 2013 Dec; 13(1): 1-8. doi: 10.1186/1472-6920-13-122.

[11] Humayun A, Fatima N, Naqqash S, Hussain S, Rasheed A, Imtiaz H *et al.* Patients' perception and actual practice of informed consent, privacy and confidentiality in general medical outpatient departments of two tertiary care hospitals of Lahore. BioMed Central Medical Ethics. 2008 Dec; 9: 1-8. doi: 10.1186/1472-6939-9-14.

[12] Stites SD, Rodriguez S, Dudley C, Fiester A. Medical students' exposure to ethics conflicts in clinical training: implications for timing UME bioethics education. HEC Forum. 2020 Jun; 32: 85-97. doi: 10.1007/s10730-020-09412-w.

[13] Jafari H, Khatony A, Abdi A, Jafari F. Nursing and midwifery students' attitudes towards principles of medical ethics in Kermanshah, Iran. BioMed Central Medical Ethics. 2019 Dec; 20: 1-6. doi: 10.1186/s12910-019-0364-z.

[14] Ranasinghe AW, Fernando B, Sumathipala A, Gunathunga W. Medical ethics: knowledge, attitude and practice among doctors in three teaching hospitals in Sri Lanka. BioMed Central Medical Ethics. 2020 Dec; 21: 1-0. doi: 10.1186/s12910-020-00511-4.

[15] Gupta C, Palimar V, Kalthur SG. Knowledge of medical ethics among medical undergraduate students in a medical college in South India. Gazi Medical Journal. 2019 Jan; 30(4): 358-60. doi: 10.12996/gmj.2019.92.

[16] Pais V, Vaswani V, Pais S. To evaluate the knowledge, attitude and practice of healthcare ethics among medical, dental and physiotherapy postgraduate students-a pilot study. International Journal of Ethics Education. 2021 Apr; 6(1): 97-107. doi: 10.1007/s40889-020-00106-y.

[17] Tegegne MD, Melaku MS, Shimie AW, Hunegnaw DD, Legese MG, Ejigu TA *et al.* Health professionals' knowledge and attitude towards patient confidentiality and associated factors in a resource-limited setting: a cross-sectional study. BioMed Central Medical Ethics. 2022 Mar; 23(1): 26. doi: 10.1186/s12910-022-00765-0.

[18] Javaeed A. General needs assessment of the undergraduate medical students to integrate courses on medical ethics, time management and communication skills into the bachelor of medicine, bachelor of surgery curriculum of Pakistani medical colleges. Cureus. 2019 Apr; 11(4). doi: 10.7759/cureus.4433.

[19] Tenenbaum A, Moutel G, Wolikow M, Vial-Dupuy A, Azogui-Levy S. Implementation of a medical ethics course in undergraduate dental education and assessment of knowledge and attitudes. Journal of International Society of Preventive and Community Dentistry. 2020 Sep; 10(5): 569-78. doi: 10.4103/jispcd.JISPCD_364_19.

[20] Imran N, Haider II, Jawaid M, Mazhar N. Health ethics education: knowledge, attitudes and practice of healthcare ethics among interns and residents in Pakistan. Journal of Postgraduate Medical Institute. 2014; 28(4): 383-9.

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Original Article

Audiology and Hearing Health in Islamabad and Rawalpindi: Awareness Perspective

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ABSTRACT

There exists a literature gap on public awareness of audiologists and their services in Pakistan. The educated population's awareness is of utmost concern as they are a knowledge resource for the masses especially the uneducated with low literacy. **Objective:** To assess the impact of public awareness on audiology and hearing health in Islamabad and Rawalpindi. **Methods:** This cross-sectional study was performed at Shifa International Hospital from February to June 2023. n= 377 participants were recruited using random sampling and assessed using a 15-item closed-ended questionnaire. **Results:** Regarding knowledge of the profession of audiology, (92.8%) never visited an audiologist and (58.1%) heard about an audiologist by word of mouth. (45.6%) considered important to get their hearing tested and (61.8%) thought that the hearing of adults can be tested. (34.2%) thought that ear infection causes hearing difficulties followed by noise (33.2%). Despite (97%) recognizing the importance of hearing tests, only (7.2%) consulted an audiologist. They had knowledge that ear infection and loud noise could lead to hearing loss and believed in keeping their ears clean with cotton buds. **Conclusions:** It was concluded the study reveals a lack of awareness regarding audiology as a profession, leading to a limited number of individuals seeking audiological services. While there is a general understanding of the importance of hearing testing and recognition of the causes of hearing loss, there is room for improvement in raising awareness about the specialized role of audiologists in addressing hearing-related issues.

INTRODUCTION

Audiology is a healthcare profession. It is dedicated to hearing with a distinctive clinical role of assessing hearing abilities and addressing impairments arising from hearing disorders [1]. Audiologists are healthcare providers who perform assessment, diagnosis and intervention related to hearing and balance issues [2]. Over and above the clinical aspects, the field also encompasses the crucial elements of hearing loss prevention, as well as promoting hearing health [3]. The aim is early identification of potential hearing problems, addressing existing issues, and improving overall communication abilities and quality of life for those affected by hearing-related conditions. Furthermore, audiologists assess individuals' requirements for hearing devices, and are responsible for evaluating, fitting, and dispensing hearing aids to those who require them. They play a crucial role in improving the hearing ability and overall communication capacity of individuals who experience hearing loss. A significant number of audiologists also perform assessments to measure balance function, and provide treatment for individuals experiencing balance dysfunction. This additional area of expertise allows audiologists to offer comprehensive care to individuals with hearing and balance-related conditions, and to address any issues that may impact their overall quality of life [4]. In developing regions, the prevalence of all causes of hearing loss (HL) is significantly higher compared to developed regions. Insufficient access to adequate perinatal healthcare in

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developing countries contributes increasing prevalence of infections. These include infections like syphilis and rubella, birth-related issues like low weight, asphyxia; and increased bilirubin in newborns. These factors are closely associated with an increased risk of hearing loss in infants. Moreover, in economically disadvantaged nations, congenital hearing loss is significantly influenced by the administration of ototoxic pharmaceuticals (such as aminoglycoside drugs, antimalarial like quinine, some diuretic drugs) during the perinatal period, as well as limited access to maternal vaccination and understanding. Moreover, in underdeveloped nations, the incidence of HL (>40dB) on both sides amounts to 6/1000 births per year, compared to 2-4/1000 births in developed countries [5]. The regions of Asia, South Asia, Pacific, and Sub-Sahara are the most afflicted by HL in the globe, with a prevalence rate about four times that of high-income countries (WHO, 2018). Studies on pediatric hearing loss in Pakistan have been conducted in which the results concluded that HL can affect psychosocial and academic issues because of language barriers [6]. Human communication heavily relies on the sense of hearing, making it one of the fundamental senses for effective communication. Any form of hearing loss, whether it occurs early or later in life, can hinder the ability to communicate effectively and have considerable impact on the overall well-being and life satisfaction of an individual [7]. HL is an escalating global health issue which is of universal significance with 466 million individuals worldwide suffering HL which can result in issues including cognitive, psychological etc. Hence, addressing HL is essential not only for individuals but also for society, since it is also linked to impact on economy with raised costs of health care, reduced productivity and quality of life [8]. When hearing health services are not easily accessible to the public, people may not be aware of the importance of regular hearing check-ups or the potential risk of hearing loss. This lack of awareness can lead to delays in seeking treatment for hearing problems and may result in irreversible damage to hearing abilities. It is necessary to direct attention on awareness of audiology in order to prevent ear and hearing issues. Hearing and hearing health measures have a significant impact on ensuring that people in impoverished nations do not face the risk of permanent hearing loss, which is an irreversible pattern. The level of understanding among the general population regarding hearing impairment and maintaining healthy hearing may be harmed by a lack of audiological and Hearing care services. Audiology being a new profession in Pakistan [9], there is little data on public awareness of audiologists and their services in Pakistan, particularly among educated people. The educated population's awareness is of much concern as they are the source of knowledge providers to the mass population of people who are uneducated with low literacy in Pakistan.

The aim of this study was to assess the effect of public awareness on audiology and hearing health in Islamabad and Rawalpindi.

METHODS

This cross-sectional study was conducted over 5 months from 1st Feb, 2023 to 30th June, 2023. It was conducted at Shifa International Hospital (SIH), Islamabad, Pakistan following ethical clearance of research from Institutional Review Board (IRB) and Ethics Committee, of the hospital (Reference No# 0371-22; Dated 4th Jan, 2023). The study recruited a sample of n=377 individuals from Islamabad and Rawalpindi utilizing convenient sampling, after calculating a sample of 377 utilizing Rao soft with a (95%) confidence interval and (5%) error margin. The sample included individuals of both genders, aged 20-50, encompassing professionals such as businessmen, IT professionals, lawyers, engineers, accountants, and call center employees. Notably, the sample excluded specific groups, including otorhinolaryngologists, audiologists, individuals with hearing aids/cochlear implants, attendees of hearing conservation programs or ear disease management training, and parents of hearing-impaired children. A questionnaire developed by Joubert *et al.*, to measure the knowledge and awareness regarding the field of audiology, hearing, HL, ear care and hygiene was used for data collection [10]. Tool has 05 sections including sections for demographics, knowledge and awareness regarding field of audiology, hearing, HL and ear care. Data were collected through online and in-person surveys to assess the level of awareness among individuals regarding audiology, hearing, and hearing health. All participants were provided with detailed information about the study and assured of confidentiality, and participants who furnished written consent were included. Data were entered and analyzed using SPSS version 26.0. Results were presented in terms of percentage and frequency.

RESULTS

A sample of 377 participants having mean age of 29.59 ± 8.074 revealed a predominantly female population of 231 (61.3%) with majority being undergraduates 242 (64.2%) and almost equal number of participants being students 150 (39.8%) and working in offices 149 (39.5%) (Figure 1).

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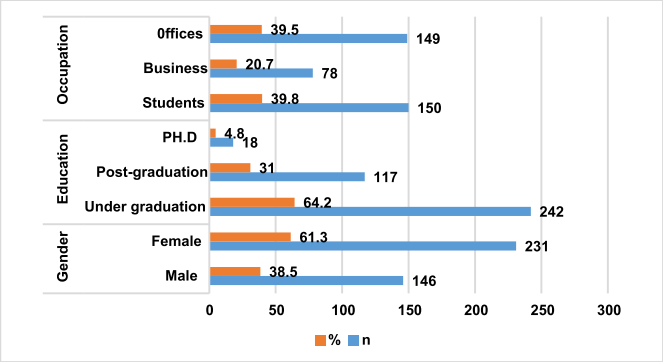

Figure 1: Demographic Characteristics of Sample Population (n=377)

Regarding knowledge of the profession of audiology, the majority 350 (92.8%) never visited an audiologist and most 219 (58.1%) heard about an audiologist by word of mouth. In connection with the knowledge of hearing and hearing loss majority 172 (45.6%) responded that it was of great importance to get hearing tested but most 233 (61.8%) were of the opinion that hearing of adults can be tested. Majority 130 (34.2%) were of the opinion that ear infection causes hearing difficulties followed by noise 125 (33.2%). When asked where would they go for help regarding hearing problem most 158 (41.9%) said they would go to an ENT doctor while 151 (40.1%) said they would go to an audiologist and most 185 (49.1%) preferred to go to hospital for hearing test. When asked if an ear infection could result in HL most 179 (47.5%) responded with yes while 151 (40.1%) were not sure. When asked about frequency of ear infection majority 217 (57.6%) responded hardly ever, majority 127 (33.7% reported that they frequently clean their ears, and most 285 (75.6%) use cotton buds for cleaning and 220 (58.4%) use cotton bud when they have an itch. Most 270 (71.6%) think music and noise could affect hearing. 318 (84.4%) opined that very loud noise could affect hearing. Most 170 (45.1%) thought that music in taxi, listening to MP3 and mobile phone could damage hearing (Table 1).

Table 1: Knowledge and Awareness of Population (n=377)

Knowledge Area	Query	Response	Frequency (%)
Audiology Profession	Have you ever visited an audiologist?	No	350 (92.8)
		Yes	27 (7.2)
	From which source did you find out about an audiologist?	Word Of Mouth	219 (58.1)
		Health Workers	85 (22.5)
		Radio	28 (7.4)
		TV	45 (11.9)
Knowledge Regarding Hearing and Hearing Loss	How important is it to have your hearing tested?	Greatly Important	172 (45.6)
		Considerably Important	81 (21.5)
		Important	93 (24.7)
		Somewhat Important	20 (5.3)
		Not Important At All	11 (2.9)
	Whose Hearing can be tested?	Babies	27 (7.2)
		Children	21 (5.6)
		Teenagers	15 (4)
		Young Adults	15 (4)
		Adults	66 (17.5)
		Everyone	233 (61.8)
Hearing/ Hearing Loss	What do you think is the cause of Hearing difficulties?	Ear Infection	130 (34.2)
		Noise	125 (33.2)
		Some Medications	33 (8.8)
		Family Members Having A Hearing Loss	55 (14.6)
		Wax	19 (5)
		None Of The Above	15 (4)
	Where do you go for help when you have hearing problem?	Audiologist	151 (40.1)
		Traditional Healer	26 (6.9)
		Ent Doctor	158 (41.9)
		No One	36 (9.5)
		Others	6 (1.6)
	Where can your hearing be tested?	Clinic	93 (24.7)
		Hospital	185 (49.1)
		Private Doctor	48 (12.7)
		I Don't Know	42 (11.1)
		Others	9 (2.4)
Ear Infections	Can an ear infection cause hearing loss?	Yes	179 (47.5)
		No	29 (7.7)
		Maybe	151 (40.1)
		I Don't Know	18 (4.8)
Ear Hygiene/ Care	How often do you have ear infection?	Hardly Ever	217 (57.6)
		Occasionally	39 (10.3)
		Some Time	84 (22.3)
		Frequently	31 (8.2)
		Almost Always	6 (1.6)
	How often you clean your ears?	Hardly Ever	52 (13.8)
		Occasionally	41 (10.9)
		Sometimes	85 (22.5)
		Frequently	127 (33.7)
		Almost Always	72 (19.1)
	What do you use to clean your ears?	Cotton Buds	285 (75.6)
		Match Sticks	16 (4.2)
		Pen Or Pencils	18 (4.8)
		Wet Cloth	45 (11.9)
		Nothing	13 (3.4)
	What do you use when your ears are itchy?	Cotton Buds	220 (58.4)
		Match Sticks	16 (4.2)
		Pen Or Pencil	11 (2.9)
		Finger	106 (28.1)
		Nothing	24 (6.4)
	Do you think excessive music or noise can damage your hearing?	Yes	270 (71.6)
		No	11 (2.9)
		Maybe	81 (21.5)
		I Don't Know	15 (4)

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	Do you think excessive loud noise can damage your hearing?	Yes	318 (84.4)
		No	8 (2.1)
		Maybe	42 (11.1)
		I Don't Know	9 (2.4)
	Which of the following do you think can damage your hearing?	Music In Taxi	7 (1.9)
		Listening to Mp3 Player	111 (29.4)
		Listening to Cell Phone	48 (12.7)
		All of the Above	170 (45.1)
		None of the Above	37 (9.8)

DISCUSSION

In this study, 377 participants from Rawalpindi and Islamabad were assessed for their knowledge of the audiology profession. Only (7.2%) know audiologists, while the majority of them were unaware of this field. Only (40.1%) demonstrated awareness, indicating a significant lack of awareness among the local population. Among those aware, (58.1%) learned through word-of-mouth, while (22.5%) were informed by other healthcare workers. In two different studies conducted by Joubert *et al.*, the level of awareness regarding the role of audiologists in conducting hearing tests and assisting with ear problems was investigated among participants. The findings indicated that only a minority, specifically (14%) of the participants, revealed knowledge about the involvement of audiologists in these areas of healthcare. They recommended that hearing healthcare professionals and associations to raise awareness of the public [10, 11]. In contrast in current study, among the participants who demonstrated awareness of audiologists, it was found that (58.1%) attributed their knowledge to word-of-mouth. Furthermore, (22.5%) of the participants mentioned that their knowledge about audiologists came from other healthcare workers. This indicates that interactions with healthcare professionals from different fields provided them with information about the role of audiologists in conducting hearing tests and managing ear-related issues. While a study by Govender and Khan involving mothers involved in post-natal caregiving of off springs revealed that only (45%) of participants revealed awareness that audiologists are responsible for screening, assessing, diagnosing, and managing hearing loss. Some participants mistakenly believed nurses and doctors provide these services. Moreover, over (70%) were unaware that audiologists can prescribe hearing aids and offer aural rehabilitation services [12]. A study conducted by Al Rjoob *et al.*, involving mostly general public and (32.8%) healthcare employees in 2022, examined the frequency of personal visits to audiologists among participants. The findings revealed that a significant majority, specifically (87.9%) of the participants, reported that neither they nor any of their family members had sought the services of an audiologist. In contrast, a small percentage of the participants, specifically (7.6%), reported having visited an audiologist themselves. This implies that only a minority of the participants had personally sought out the expertise and services of audiologists [13]. This is in compliance to current study in which majority 350 (92.8%) of the participants never visited an audiologist. In a study by Emanuel *et al.*, involving students revealed (70%) had knowledge of what audiologists do and the profession and (30%) learned about this profession from friends or family. This suggests that a significant portion of the participants had at least a basic understanding or awareness of the profession [14]. In current study 219 (58.1%) learned about an audiologist by word of mouth. In current study, the awareness regarding hearing assessments and caring for our ears revealed that people in Pakistan had minimal knowledge. This knowledge and awareness gap can be justified by the fact that the field of Audiology came to Pakistan much later than in other countries and therefore it took more time for work to be done in this domain and for more people to become knowledgeable about it. Hence systematic training of professionals to enhance the knowledge and awareness is required [15]. In spite of the fact that self-cleaning of ears was dangerous requiring awareness of masses [16], in the present study, the knowledge of ear hygiene revealed that (33.7%) of participants reported cleaning their ears frequently. When it came to the preferred cleaning tool for their ears, most participants (75.6%) mentioned using cotton buds. Other tools mentioned included wet cloths (11.9%), pen or pencils (4.8%), and matchsticks (4.2%). Similarly, in another study by Khan *et al.*, reported that 98% participants were involved in self-cleaning and (75%) of those maintained that it was of benefit and the commonly (79.6%) used tool being cotton buds with (2.5%) suffering injuries [16]. In a Saudi study conducted by Alkishi *et al.*, study revealed (27.3%) participants reported cleaning their ears once a week, (18.7%) performed daily cleaning, and (14.7%) cleaned their ears more than once a week. The primary reasons cited for self-ear cleaning were earwax (65.8%), dirt (45.8%), and itchiness (39.6%). When it came to the methods used for self-ear cleaning, the most common ones mentioned were cotton buds (65.2%), towels (45.3%), and using their fingers (28.9%) [17]. Similarly, in a Nigerian study by Gadanya *et al.*, (76.3%) participants reported using cotton bud. Moreover, for many individuals, the frequency of cotton bud use was once daily, indicating a regular practice of cleaning their ears. It was observed that both ears were frequently cleaned by the participants who used cotton buds [18]. However, ear should best be cleaned by trained personnel, hence training to improve education of healthcare personnel is essential [18]. In current study an overwhelming majority (84.4%) agreed that very high-intensity

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noise can affect hearing. When asked to indicate the type of noise in their area which can affect hearing. The majority of participants (45.1%) responded with "all of the above," followed by "listening an mp3" (29.4%) and "listening a mobile phone" (12.7%) or "music in a taxi"(1.9%). Similarly, in a Swiss study by Diviani *et al.*, respondents on average answered correctly to more than two out of three knowledge question. A significant majority of participants (95.4%) were aware that listening using earphones at high intensity can affect their hearing. Approximately three of four participants had knowledge that long duration exposure to sounds >85 dB can permanently affect ear (75.8%) and that the duration of sound exposure affects the extent of damage it can cause (72.2%) [19]. Also Joubert *et al.*, also investigated excessive noise exposure. In their study, (89%) of participants agreed that excessively loud noise could cause hearing damage. However, regarding the type of noise participants reported that to listen loud music in taxi or MP3 was the main source of damage [11]. Crandell *et al.*, in their study reported that significant majority of respondents (63%) accurately identified the inner ear as the most vulnerable to excessive noise. Furthermore, a high percentage of young adults (85%) were aware that there is no cure for hearing loss, this indicates that a substantial portion of the participants had a good understanding of the anatomical impact of loud sounds on the auditory system. Additionally, the study observed that nearly all participants (95%) recognized that excessive noise can cause damage to hearing at any age. This indicates a widespread understanding among the participants that exposure to loud sounds can have detrimental effects on hearing, regardless of one's age [20].

CONCLUSIONS

Lack of awareness regarding audiology as a profession, leading to a limited number of individuals seeking audiological services. While there is a general understanding of the importance of hearing testing and recognition of the causes of hearing loss, there is room for improvement in raising awareness about the specialized role of audiologists in addressing hearing-related issues. Additionally, efforts should be made to educate individuals, particularly teenagers and students, about the risks of excessive noise exposure and encourage safer listening practices to prevent hearing damage.

Authors Contribution

Conceptualization: MAS
Methodology: GS, MAS, KZ
Formal analysis: LQ
Writing-review and editing: AP

All authors have read and agreed to the published version of the manuscript

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REFERENCES

[1] Stach BA and Ramachandran V. Clinical Audiology: An introduction. 3rd ed. San Diego: Plural Publishing; 2022.
[2] Martin FN and Clark JG. Introduction to Audiology: 12th ed. Pearson Education; 2015. doi:
[3] Anderson NB and Shames GH. Human Communication Disorders: An Introduction. 8th ed. Pearson Education; 2013.
[4] Neal K, McMahon CM, Hughes SE, Boisvert I. Listening-Based Communication Ability in Adults With Hearing Loss: A Scoping Review of Existing Measures. Frontiers in Psychology. 2022; 13. doi: 10.3389/fpsyg.2022.786347.
[5] Harris MS and Dodson EE. Hearing health access in developing countries. Current opinion in otolaryngology & Head and Neck Surgery. 2017 Oct; 25(5): 353-8. doi: 10.1097/MOO.0000000000000392.
[6] Farid N, Fatima G, Jahanzaib M. Identification of Problems faced by Children with Hearing Impairment in Acquisition of basic Skills: Exploration of Possible Solutions. Pakistan Languages and Humanities Review. 2023 Jun; 7(2): 790-805. doi: 10.47205/plhr.2023(7-II)70.
[7] Dobie RA and Van Hemel S. Hearing Loss: Determining Eligibility for Social Security Benefits. Washington (DC): National Academies Press (US); 2004.
[8] Chadha S, Cieza A, Krug E. Global hearing health: future directions. Bulletin of the World Health Organization. 2018 Mar; 96(3): 146. doi: 10.2471/BLT.18.209767.
[9] Intezar F, Khan SG, Noreen H, Iftikhar N. Awareness and Knowledge of Audiologists Regarding Benefits of Speech-Language Therapy for Hearing Impaired Individuals: Journal Riphah College of Rehabilitation Sciences. 2019 Nov; 7(2): 47-53. doi: 10.5455/JRCRS.2019070203.
[10] Joubert K, Sebothoma B, Kgare KS. Public awareness of audiology, hearing and hearing health in the Limpopo Province, South Africa. South African Journal of Communication Disorders. 2017 Jan; 64(1): 1-9. doi: 10.4102/sajcd.v64i1.557.

DOI: https://doi.org/10.54393/pbmj.v7i05.1087

[11] Joubert K, and Botha D. Contributing factors to high prevalence of hearing impairment in the Elias Motsoaledi Local Municipal area, South Africa: A rural perspective. South African Journal of Communication Disorders. 2019 Jan; 66(1): 1-7. doi: 10.4102/sajcd.v66i1.611.

[12] Govender SM and Khan NB. Knowledge and cultural beliefs of mothers regarding the risk factors of infant hearing loss and awareness of audiology services. Journal of Public Health in Africa. 2017 Jun; 8(1). doi: 10.4081/jphia.2017.557.

[13] Al Rjoob MA, Al Rjoob K, Kharraz BA. Public awareness of speech-language pathology and audiology: A pilot study in Jordan. La Tunisie medicale. 2022 May; 100(5): 384. doi:

[14] Emanuel DC, Donai JJ, Araj CF. The awareness of the profession of audiology among entering college students.

[15] McKee M, James TG, Helm KV, Marzolf B, Chung DH, Williams J *et al.* Reframing our health care system for patients with hearing loss. Journal of Speech, Language, and Hearing Research. 2022 Oct; 65(10): 3633-45. doi: 10.1044/2022_JSLHR-22-00052.

[16] Khan NB, Thaver S, Govender SM. Self-ear cleaning practices and the associated risk of ear injuries and ear-related symptoms in a group of university students. Journal of Public Health in Africa. 2017 Dec; 8(2). doi: 10.4081/jphia.2017.555.

[17] Alkishi S. Self-Ear Cleaning Practice and The Associated Risk of Ear Injuries and Ear-Related Symptoms in Saudi Arabia. Journal of Pharmaceutical Negative Results. 2022 Dec: 6873-83.

[18] Gadanya M, Abubakar S, Ahmed A, Maje AZ. Prevalence and attitude of self-ear cleaning with cotton bud among doctors at aminu Kano teaching hospital, Northwestern Nigeria. Nigerian Journal of Surgical Research. 2016 Jul; 17(2): 43. doi: 10.4103/1595-1103.194215.

[19] Diviani N, Zanini C, Amann J, Chadha S, Cieza A, Rubinelli S. Awareness, attitudes, and beliefs about music-induced hearing loss: Towards the development of a health communication strategy to promote safe listening. Patient Education and Counseling. 2019 Aug; 102(8): 1506-12. doi: 10.1016/j.pec.2019.03.013.

[20] Crandell C, Mills TL, Gauthier R. Knowledge, behaviors, and attitudes about hearing loss and hearing protection among racial/ethnically diverse young adults. Journal of the National Medical Association. 2004 Feb; 96(2): 176.

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Original Article

Predictive Association between Perceived Social Support and Infertility-Related Stress in Married Couples in Pakistan

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ABSTRACT

Infertility is indeed a global issue and has a profound impact on married couples, affecting various aspects of their relationship, emotional well-being, and quality of life. The WHO estimates that 10-15% of couples globally experience infertility, with rates varying across regions. **Objective:** To examine the predictive association between perceived social support (PSS) and infertility-related stress among married couples experiencing infertility. **Methods:** For this research, 50 married couples selected through purposive sampling from the Gynecology and Obstetrics departments of several hospitals and infertility clinics in Karachi, Pakistan with the age ranged between 20-40 years (X=32.3; SD= 3.12). Brief interviews of the participants were conducted, and Urdu versions of the Multidimensional Scale of Perceived Social Support and Infertility-Related Stress Scale were administered. Data was analyzed through SPSS (V-25.0) using descriptive statistics, and regression analysis. **Results:** The findings showed a significant predictive association between perceived social support and infertility stress (R2=.540, β=-.73, P< 0.00). **Conclusions:** This highlights a significant predictive association between the stress associated with infertility and the level of perceived social support, which significantly impacts individuals coping with fertility difficulties. These findings have implications for offering compassionate and efficient care, devising customized interventions and support programs for couples encountering fertility issues, and offering guidance to hospitals.

INTRODUCTION

Infertility, as defined by the World Health Organization (WHO) as the failure to conceive after a year or more of unprotected intercourse, poses a significant health challenge [1]. It is categorized into primary and secondary forms among which primary infertility means the failure to conceive after a year of unguarded sexual activity without prior successful conception, while secondary infertility occurs when couples who have previously conceived children find themselves unable to conceive again [2]. Infertility, as a global challenge has impacted around 48.5 million couples in 2010 [3]. According to the Centers for Disease Control and Prevention (CDC), in 2015 till 2017, approximately 8.8% of married females of ages 15-49 in the US, experienced infertility. Data also suggest that developing countries face a higher incidence of infertility due to limited information regarding its causes, and available treatments. In Pakistan, for instance, the prevalence of infertility found about 22%, with primary infertility affecting 4% of those affected [4]. Infertility disorders cause significant challenges for married couples yearning to have children. In societies, who prioritize child bearing, childless couples may face societal censure, and the absence of children in such contexts can lead to adverse social, emotional, and health consequences. Recent studies have revealed that individuals with infertility issues consistently report high levels of psychological distress and more symptoms of anxiety and depression than fertile individuals [5]. Additionally, infertility is a complex stressor that demands numerous emotional adjustments, and is linked to dysfunction in sexual relationship, anxiety, depression, and identity crises [6]. The impact of infertility may withstand long after the

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initial phase of childlessness [7]. As noted by one of the study's findings, both spouses may grapple with feelings such as unhappiness, sorrow, anger, frustration, guilt, and even shame [8]. There may be a sense of meagerness or loss, particularly if they had planned to have biological children. Couples navigating infertility may feel isolated from other couples and have feelings of embarrassment and humiliation about their inability to conceive [9]. This sense of seclusion can compound feelings of despair or depression. Infertility-Related Stress (IRS) in married couples impacts the emotional, interpersonal, economic, and corporeal dimensions of their lives. According to the research findings, perceived social support is a subjective estimation of individual's existing resources that act as a shield during difficult circumstances in life [10]. In the difficult voyage of infertility, social support emerges as a fundamental source of empathetic understanding. Many researches indicated that social support is a vital source of reducing infertility related stress because infertile couples found satisfactory solutions by sharing their problems with others. A Social support network comprising of family, friends, and workmates has a beneficial effect on complexities fertility stress as these networks become a vital source of bouncing back from the distressful impacts [11]. These networks provide strength, and lessening the sense of isolation associated with fertility challenges. Furthermore, social support plays a substantial role in uplifting an individual and minimizing the impact of stressors in the adverse consequences [12]. Numerous studies have indicated that increased social support from both partners and broader social networks is associated with reduced levels of IRS [13]. Keeping in view the existing literature and the dire need to explore the factors that may play a role in reducing the level of distress in the population having infertility, current study has been designed with the objective to explore the predictive association between PSS and infertility related stress among married couples experiencing infertility. Exploring the factors that impact stress levels can inform tailored interventions aimed at enhancing the psychological health of affected individuals. Examining this stress within a specific cultural contexts i.e., Pakistan, offers the understanding of the influence of cultural norms and societal pressures on the experience of stress related to infertility [14]. As a result, this study offers the valued acumens to the broader conversation on this subject, especially in the milieu of Pakistani society. The outcomes provide a basis for designing interventions that address infertility-related stress effectively, thereby reducing its psychological burden. Various studies in Pakistan acknowledge the psychological troubles faced by individuals with infertility, research highlighting the impact of PSS on infertile couples is still an aspect to explore. In continuation of the above-mentioned argument, this study investigates into examining infertility stress and its connection with PSS among married couples experiencing infertility in Pakistan.

This study was aimed to examine the predictive association between perceived social support (PSS) and infertility related stress among married couples experiencing infertility.

METHODS

This cross-sectional study spanned from September to November 2023, and involved a sample of 50 infertile couples aged between 20-40 years (X=32.3; SD= 3.12). The sample size was estimated through G*power software. Data were gathered from the departments of Obstetrics & Gynecology across various public and private hospitals, as well as infertility clinics in Karachi, Pakistan by using a non-probability purposive sampling technique after getting approval from Ethical Review Board [Letter No: ICP-1(101) 6143] of the Institute of Clinical Psychology, University of Karachi. Inclusion criteria stipulated that participants must be Pakistani nationals, aged between 20 to 40 years, and married for at least one year. Additionally, participants were required to have a diagnosis of primary infertility and not have initiated IVF treatment. The study excluded those participants who were not Pakistani nationals or their age was below 20 or above 40 years, and if they have started IVF treatment. Before participation, written consent was obtained from each participating individual. Participants provided their consent willingly after being briefed on the study's details and assured confidentiality. The current study incorporated the use of the demographic information form, the Multidimensional scale of Perceived Social Support (MPSS), and the Infertility related Stress Scale (IRSS) [10,15]. For all the scales, their translated versions (in Urdu language) were used. Completion of the questionnaires took 15 to 20 minutes. The Statistical Packages Social Sciences (SPSS) version-25.0 was used to analyze the data. Frequencies and percentages were used for categorical data whereas, Regression analysis served as the chosen method for analyzing the predictive association between the study variables.

RESULTS

Table 1 provides an overview of the frequencies and percentages of socio-demographic variables of the sample. The data includes an equal distribution of both genders in the form of couples (i.e., 50 wives and 50 husbands). Regarding education, 10.0% of the participants had done matriculation, 30.0% had completed intermediate education, 28.0% had graduated, 25.0% held master's degrees, and 7.0% had postgraduate qualifications. In terms of occupation, 19.0% were employed in government positions, 43.0% worked in the

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private sector, 33.0% were homemakers, and 5.0% belonged to other occupational categories. Concerning the duration of marriage, 42.0% had been married for 1-5 years, 52.0% for 6-10 years, and 6.0% for 11-15 years.

Table 1: Socio-Demographic Characteristics of Sample (n=100)

Demographics	Category	n (%)
Gender	Male	50 (50.0)
	Female	50 (50.0)
Education	Matriculation	10 (10.0)
	Intermediate	30 (30.0)
	Graduation	28 (28.0)
	Masters	25 (25.0)
	Postmasters	07 (7.0)
Profession	Public Sector	19 (19.0)
	Private Sector	43 (43.0)
	Home-maker	33 (33.0)
	Other	05 (5.0)
Matrimonial Period	1-5 years	42 (42.0)
	6-10 years	52 (52.0)
	11-15 years	06 (6.0)

Table 2 showed the descriptive of perceived social support with the data that indicates the mean score of the sample of study and good internal consistency of the scale

Table 2: Descriptive Statistics and Internal Consistency of the Scale (N= 100)

Variable	Minimum	Maximum	M ± SD	Cronbach's Alpha
PSS	3.00	7.00	5.59 ± 1.14	0.97

Table 3 showed that infertility-related stress the descriptive of IRS with the data that indicates the mean score of the sample of study and good internal consistency of the scale

Table 3: Descriptive Statistics and Internal Consistency of the Scale (N= 100)

Variable	Minimum	Maximum	M ± SD	Cronbach's Alpha
PSS	1.30	6.3	3.03 ± 1.23	0.93

Table 4 showed that perceived social support significantly predicts infertility-related stress. Perceived social support accounts for 54% of the variance in the outcome variable i.e., infertility-related stress, and the model demonstrates significance as (R2=.5450, β= -.74, P< 0.001).

Table 4: Linear Regression Analysis with Perceived Social Support as a Predictor of Infertility-related Stress in Couples with Infertility (n=100)

Predictor Variable	*B*	*β*	*SE*	*t*	*p*
Constant	90.00	-	5.11	18.00	.000
Perceived Social Support	-.79	-.74	.07	-10.73	.000

Note: R^2=.54, p<0.001.

DISCUSSION

The study's findings have yielded several significant conclusions and have been analyzed in light of previous research to study the predictive association of PSS and infertility stress in infertile couples for which 50 married couples were studied in this study. Infertility poses a significant problem within our society and culture, mostly for those couples, who are deprived of their parental role and face challenges from society. Mental health issues may arise among infertile men and women as a result of inadequate social support and the experience of infertility [16]. Seeking social support may serve as an effective coping mechanism in reducing stress due to infertility. Apart from personality features, social support, stressor-related evaluations, and coping strategies, may also be supposed to play a crucial role in determining vulnerability to stress. Many studies have been done to inspect the influence of social support from friends, family members, and one's partner on infertility-related stress [17]. Current study also investigated the predictive association between PSS and stress due to infertility in wedded couples. Findings revealed that PSS explained 54% of the variance in IRS scores for those couples participated in current study, as depicted in Table 2. These findings echo previous research emphasizing PSS as a crucial factor in mitigating stress associated with infertility. Couples who have infertility issues often find comfort and resolutions by sharing their difficulties with others [18, 6]. Furthermore, research findings also indicated significant inverse relationship in PSS and mental health challenges among women facing sterility [19, 20]. The association between PSS and fertility-related stress has the strongest relation which was found both in men and women. This finding is consistent with existing literature demonstrated a negative correlation between satisfaction with social support networks and infertility-related stress [21]. Similarly, it was found that social support exhibited a negative association not only with infertility stress but also with anxiety and depression [22]. Numerous studies have further indicated that social support can enhance effective coping strategies and cognitive adjustment amidst infertility challenges [19, 23]. Further researches also demonstrated a negative correlation between satisfaction with support networks and IRS [21]. Similar findings have demonstrated that social support exhibited a negative association not only with infertility stress but also with anxiety and depression [22]. Furthermore, the results of the current study support the idea that getting social support from family and friends assists in reducing stress levels in both men and women. Previous evidence demonstrated that social support from relatives, friends, and colleagues has a positive impact on infertility stress [17]. Moreover, dissatisfaction with social support was positively linked with health complaints, stress, anxiety, and complicated grief among childless individuals [23]. Overall, the results of the study determined that certain

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social, psychological, and cultural factors social support from family friends and coworkers within Pakistani society is a significant contributor to the heightened vulnerability of psychological distress in married couples and social support plays an important role in managing these stressors. This also underscores the importance of creating awareness in society regarding increasing social support and social acceptance for men and women grappling with infertility. This further helps to develop structured programs that encompass education and counseling of couples and immediate family members. Furthermore, source of mass communication channels can be utilized to educate society and confront the intolerance and negative attitudes exhibited by society toward infertile couples.

CONCLUSIONS

This study sheds light on the significant interrelationships among infertility-related stress and PSS, which deeply impact individuals as well as couples as they navigate challenges related to fertility. PSS has a crucial part in mitigating stress related to infertility. Getting involved with supportive systems, be it through family, friends, religious communities, or support groups, offer affected individuals a feeling of validation, belongingness, required assistance, and affection nourishment. Through the sharing of their experiences, pursuing guidance, and getting empathy from others, people may become able to improve their feelings of seclusion, increase their coping mechanisms, and foster a sense of community and empathy.

Authors Contribution

Conceptualization: RM
Methodology: AAG, RM
Formal analysis: AAG, RM
Writing, review and editing: AAG, RM

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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REFERENCES

[1] Hazlina NH, Norhayati MN, Bahari IS, Arif NA. Worldwide prevalence, risk factors and psychological impact of infertility among women: a systematic review and meta-analysis. BMJ open. 2022 Mar; 12(3): e057132. doi: 10.1136/bmjopen-2021-057132.

[2] Tabong PT, Adongo PB. Infertility and childlessness: a qualitative study of the experiences of infertile couples in North Ghana. BMC Pregnancy Childbirth. 2013; 13:72–72.

[3] Obeagu EI, Njar VE, Obeagu GU. Infertility: Prevalence and consequences. International Journal of Current Research in Chemistry and Pharmaceutical Sciences. 2023; 10(7): 30-38. doi: 10.22192/ijcrcps.

[4] Ahmed HM, Khan M, Yasmin F, Jawaid H, Khalid H, Shigri A, Nawaz F, Hasan CA, Khan MO, Hasan CA. Awareness regarding causes of infertility among out-patients at a tertiary care hospital in Karachi, Pakistan. Cureus. 2020 Apr; 12(4). doi: 10.7759/cureus.7685.

[5] Lakatos E, Szigeti JF, Ujma PP, Sexty R, Balog P. Anxiety and depression among infertile women: a cross-sectional survey from Hungary. BMC women's health. 2017. 17, 1-9.

[6] Qadir F, Khalid A, Medhin G. Social Support, Marital Adjustment, and Psychological Distress Among Women With Primary Infertility in Pakistan. Women Health. 2015 May; 55(4). doi: 10.1080/03630242.2015.1022687.

[7] Klemetti R, Raitanen J, Sihvo S, Saarni S, Koponen P. Infertility, mental disorders and well-being - A nationwide survey. Acta Obstetricia et Gynecologica Scandinavica. 2010 May; 89(5): 677-82. doi: 10.3109/00016341003623746.

[8] Gana K and Jakubowska S. Relationship between infertility-related stress and emotional distress and marital satisfaction. Journal of Health Psychology. 2016 Jun; 21(6): 1043-54. doi: 10.1177/1359105314544990.

[9] Cousineau TM., Domar, AD. Psychological impact of infertility. Best practice & research Clinical obstetrics & gynaecology. 2007; 21(2), 293-308.

[10] Zimet GD, Powell SS, Farley GK, Werkman S, Berkoff KA. Psychometric Characteristics of the Multidimensional Scale of Perceived Social Support. Journal of Personality Assessment. 1990 Dec; 55(3–4): 610-7. doi: 10.1080/00223891.1990.9674095.

[11] Martins MV, Peterson BD, Almeida V, Mesquita-Guimarães J, Costa ME. Dyadic dynamics of perceived social support in couples facing infertility. Human Reproduction. 2014. 29(1), 83-89.

[12] Tabassum A. Impact of Infertility-Related Stress and Family and Social Support on Marital Satisfaction of Infertile Individuals. International Journal of Psychological and Behavioural Research. 2023; 3(1), 50-73.

[13] Gourounti K, Anagnostopoulos F, Vaslamatzis G. Psychosocial Predictors of Infertility Related Stress: A Review. Current Women`s Health Reviews. 2010 Nov; 6(4): 318-31. doi: 10.2174/157340410793362159.

DOI: https://doi.org/10.54393/pbmj.v7i05.1079

[14] Yusuf L. Depression, anxiety and stress among female patients of infertility; A case control study. Pakistan Journal of Medical Sciences. 2016 Nov; 32(6): 1340. doi: 10.12669/pjms.326.10828.
[15] Casu G, Gremigni P. Screening for infertility-related stress at the time of initial infertility consultation: Psychometric properties of a brief measure. Journal of Advanced Nursing. 2016 Mar; 72(3): 693-706. doi.org/10.1111/jan.12830.
[16] Baghianimoghadam MH, Aminian AH, Baghianimoghadam B, Ghasemi N, Abdoli AM, Seighal AN *et al.* Mental health status of infertile couples based on treatment outcome. Iranian Journal of Reproductive Medicine. 2013 Jun; 11(6): 503–510.
[17] Tabassum A, Sadia R. Khan S. Impact of Infertility-related Stress and Family and Social Support on Marital Satisfaction of Infertile Individuals. International Journal of Psychological and Behavioural Research. 2023 Jun; 3(1): 50-73. doi: 10.37605/ijpbr.v3i1.32.
[18] Khalid A and Dawood S. Social support, self-efficacy, cognitive coping and psychological distress in infertile women. Archives of Gynecology and Obstetrics. 2020 Aug; 302(2): 423-30. doi: 10.1007/s00404-020-05614-2.
[19] Martins MV, Peterson BD, Costa P, Costa ME, Lund R, Schmidt L. Interactive effects of social support and disclosure on fertility-related stress. Journal of Social and Personal Relationships. 2013 Jun; 30(4): 371-83. doi: 10.1177/0265407512456672.
[20] Saleem S, Qureshi NS, Mahmood Z. Attachment, perceived social support and mental health problems in women with primary infertility. International Journal of Reproduction, Contraception, Obstetrics and Gynecology. 2019 Jun; 8(6): 2533-41. doi: 10.18203/2320-1770.ijrcog20192463.
[21] Abbey A, Andrews FM, Halman LJ. Provision and Receipt of Social Support and Disregard: What Is Their Impact on the Marital Life Quality of Infertile and Fertile Couples? Journal of Social and Personal Relationships. 1995 Mar; 68(3): 455. doi: 10.1037//0022-3514.68.3.455.
[22] Slade P, O'Neill C, Simpson AJ, Lashen H. The relationship between perceived stigma, disclosure patterns, support and distress in new attendees at an infertility clinic. Human Reproduction. 2007 Aug; 22(8): 2309-17. doi: 10.1093/humrep/dem115.
[23] Lechner L, Bolman C, van Dalen A. Definite involuntary childlessness: associations between coping, social support and psychological distress. Human Reproduction. 2007 Jan; 22(1): 288-294. doi:10.1093/humrep/del327.

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Original Article

Prevalence of Depression in Physical Therapists Versus Nurses in Karachi Pakistan

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ABSTRACT

Depression is one of the major mental disorders that affect the population of Pakistan with a prevalence rate of 40.6% in females and 32% in males. It affects the population of all ages. It also affects the mental health of Healthcare workers which impacts the quality of life of patients whom they care for in the working environment. **Objective:** To determine the prevalence and severity of depression among the physical therapists and nurses of Karachi. **Methods:** It was a cross-sectional study, conducted between Dec 2023 to May 2024 with a sample size of 661 calculated through Raosoftware. The Non-probability convenient sampling technique was used for sample selection. Data were collected through the Beck inventory questionnaire. The analysis of data were done through SPSS version 23.0. **Results:** The sample size of 661 research participants from which 310 were physical therapists and 351 were nurses recruited from 7 districts of Karachi. The level of depression was measured throgh Beck inventory questionnaire. The results found that the prevalence of depression is 64.67% in nurses and 36.12% in physical therapist. In addition, 63.83% physical therapists were more satisfied with their lifes while the level of satisfaction of nurses was 33.33%. **Conclusions:** It is concluded that depression is present in both professions but nurses are more depressed as compared to physical therapists.

INTRODUCTION

Depression is a major health problem for an individual. It is a common problem that is related to the mental health issues. It includes mood swings, lack of participation, loss of pleasure, or a person is always in the same depressed mood called depression [1]. According to the World Health Organization, depression is the 2nd reason for disability after ischemic heart disease around the world in 2020 [2]. The prevalence rate of depression is 35 to 41 percent in the USA [3]. The ratio of depression around the world is about 280 million people have suffered from depression which is about 5 percent including the adult population in the world, and around 5.7 percent of adults are above the age of 60 [4]. When we are discussing the rate of depression only in Pakistan showed that 40.6 percent of females and 32 percent of males suffered from this mental health issue [5]. A study reported that 28.8 percent of physicians face depression, 18 percent are faced by nurses, and around 8 to 10 percent in physical therapists [6]. The major symptoms of depression include depressed mood, feeling helpless, unable to make decisions, irritable behavior, lack of interest or participation in any activity, low self-esteem, thinking about attempting suicide, changes in sleep

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patterns, loss of appetite, feeling lethargic, and they are not tolerating other people [7]. A person who suffers from depression also affects the body features and changes in the thinking process which affects the functional capacity of the person and sometimes leads to suicidal attempts [8]. The American Psychiatric Association Diagnostic Statistical Manual of Mental Disorder classifies depression into mood disorder, major, and persistent depression, and depression which is caused by any other medical condition [9]. Various studies reported that physical therapists faced depression related to their work because they faced many problems in their daily activities of job like lack of equipment, time management issues, shortage of staff, job stress, and excessive workload pressure these all are the reasons for depression and stress in a physical therapist [10]. The workload of physical therapists lies in both types of work like physical work and also they perform administrative tasks which is why they suffer from the symptoms of depression [11]. In the clinical setting, Nurses are an essential part of the hospital system and their role is to provide care and improve the quality of life of patients. But the field of nursing requires more effort and their job description is more complicated than any other medical profession [12]. According to the study, the job demand description of nurses causes more depression than any other medical profession [13]. Exposure to emergency cases, prolonged working hours, carrying patients heavyweight, and lack of rest between job timings all affect the quality of life of nurses and for prolonged periods cause depression and illness to the nurses related to the workplace environment issues are the root cause of the human error that affect the quality and care of patients [14]. Nurses are a vital part of any healthcare organization they help provide care to the patients as well and they are also proven to be supportive in the rehabilitation process of the patients, and their family members, and also give training to the caregivers concerning the health status of patients. Nurses can play a key role in the improvement of the health of patients [15]. There is a variety of work-related musculoskeletal disorders that are common in the nursing profession due to their long working hours, heavy workload, lack of training, and lack of support from the seniors [16]. With the demand of heavy workload jobs the health of the nurses may be seriously affected and can impact the physical and mental health of the nurses [17]. Our study aims to determine the prevalence of depression in physical therapists as well as nurses in Karachi.

METHODS

A cross-sectional study was conducted among physical therapists and nurses from Dec 2023 to May 2024 from seven districts of Karachi (Central, East, Kemari, Orangi, Malir, South, West). Data were collected through online Google survey forms. The sample size of the study was 661 was calculated through Raosoft.com concerning the number of physical therapists and nurses available in Karachi according to the confidence interval of 95%. In this study the total number of participants was divided into two groups of nurses: 351 and Physical therapists: 310. The non-probability purposive sampling technique was used. The participants of both genders, age group between 20 years to >50 years, who have at least 1 year to >30 years of experience in the relevant field, whose working hours are >6 hours to >12 hours per day were included in this study while the physical therapy/nursing students, technicians or diploma holders were excluded from the study. For data collection we used a validated questionnaire named; Beck's Depression Inventory to rule out the level of depression among the research participants of the study [18]. Data were analyzed by SPSS version 23.0 software. The frequencies and percentages of participants were calculated.

RESULTS

A total number of 661 research participants was present in this study, from which 310 were physical therapists and 351 were nurses from Karachi. The demographic variables of both physiotherapy and nursing participants consisted of age, gender, marital status, economic status, working hours, and working experience as shown in table 1.

Table 1: Demographic Variables of Research Participants

Demographics	Physical Therapists N (%)	Nurses N (%)
Age		
20-29	95 (30.64%)	102 (29.05%)
30-39	83 (26.77%)	101 (28.77%)
40-49	52 (16.77%)	79 (22.50%)
50-59	36 (11.61%)	61 (17.37%)
>59Year	44 (14.19%)	8 (2.27%)
Gender		
Male	105 (33. 87%)	152 (43.30%)
Female	205 (66.12%)	199 (56.69%)
Marital Status		
Single	200 (64.51%)	236 (67.23%)
Married	110 (35.48%)	115 (32.76%)
Economic Status		
Upper Class	72 (23.22%)	67 (19.08%)
Middle Class	139 (44.83%)	203 (57.83%)
Lower Class	99 (31.93%)	81 (23.07%)
Working Hours		
6-8 Hours	122 (39.35%)	214 (60.96%)
8- 10 Hours	107 (34.51%)	91 (25.92%)
10-12 Hours	56 (18.06%)	21 (5.98%)
>12 Hours	25 (8.06%)	25 (7.12%)
Working Experience		
1-10	105 (33.87%)	186 (52.99%)
11-20	55 (17.74%)	58 (16.52%)

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21-30	77 (24.83%)	91 (25.92%)
>30	73 (23.54%)	16 (4.55%)

When the question asked from the research participants related to the presence of depression the results founded: In Physical therapists 112 (36.12%) said Yes and 198 (63.87%) said No. While In nurses 227 (64.67%) said Yes and 124 (35.32%) said No as shown in figure 1.

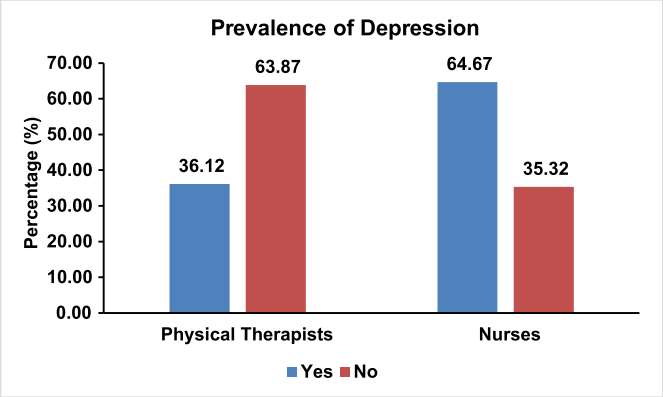

Figure 1: Prevalence of Depression in Physical Therapists vs Nurses

Healthcare workers working in seven districts of Karachi are: Central 117, East 101, Kemari 81, Korangi 106, Malir 121, South 64, and West 71.

When we asked questions related to the level of pleasure from the research participants 162 PT and 97 nurses responded that they used to enjoy things as much as they could, 63 PT and 105 nurses responded about the inability to enjoy pleasure, 49 PT and 87 nurses responded that they felt a lack of pleasure in anything while 36 PT and 62 nurses responded that they felt bored every time. When we asked the questions related to the level of sadness among the research participants 193 PT and 110 nurses answered that they were not sad, 51 PT and 106 nurses answered that they were feeling sad, 36 PT and 71 nurses answered that they were always sad, while 30 PT and 64 nurses answered that they were very sad. When we were asked the question related to the level of hope of the research participants they replied: 198 PT and 97 nurses that they were not hopeless, 51 PT and 135 nurses replied they were hopeless regarding the future, 24 PT and 87 nurses replied they do not expect their future while 37 PT and 32 nurses reply they were feeling useless. When the question related to work was asked from the research participants 187 PT and 76 nurses responded that they can perform all tasks like they were performed in the past, 51 PT and 123 nurses responded that they need more energy to initiate any tasks, 42 PT and 87 nurses have lack of interest in any tasks while 30 PT and 65 nurses responded that they cannot do any task. When the question related to the level of satisfaction was asked from the research participants they answered: 198 PT and 117 nurses responded that they were satisfied with their lives, 46 PT and 143 nurses responded that they were unhappy with their lives, 37 PT and 63 nurses responded that they were angry with their lives while 29 PT and 48 nurses responded that they were unsatisfied with their lives as shown in table 2.

Table 2: Beck Depression Inventory

Questions	Physical Therapists (n=310)	Nurses (n=351)
Level of Pleasure N (%)		
I Used To Enjoy As Many Things As Possible	162 (52.25%)	97 (27.63%)
I Am Unable To Enjoy Things	63 (20.32%)	105 (29.91%)
Lack of Pleasure In Anything	49 (15.80%)	87 (24.78%)
Feeling Bored Every Time	36 (11.61%)	62 (17.66%)
Level of Sadness N (%)		
I am Not Sad	193 (62.25%)	110 (31.33%)
I am Feeling Sad	51 (16.45%)	106 (30.19%)
Always Sad	36 (11.61%)	71 (20.22%)
Very Sad	30 (9.67%)	64 (18.23%)
Level Of Hope N (%)		
I Am Not Hopeless	198 (63.87%)	97 (27.63%)
I Am Hopeless Regarding The Future	51 (16.45%)	135 (38.46%)
No Expectations Regarding The Future	24 (7.74%)	87 (24.7%)
I Feel Useless	37 (11.93%)	32 (9.11%)
Level of Work N (%)		
I Can Perform My Tasks Like In The Past	187 (60.32%)	76 (21.65%)
Require More Effort To Start Any Task	51 (16.45%)	123 (35.04%)
Require More Effort To Start Any Task	42 (13.54%)	87 (24.78%)
I Cannot Do Any Task	30 (9.67%)	65 (18.51%)
Level of Satisfaction N (%)		
Satisfied With Own Life	198 (63.87%)	117 (33.33%)
Unhappy With Own Self	46 (14.83%)	123 (35.0%)
Angry With Own Self	37 (11.93%)	63 (17.94%)
Unsatisfied	29 (9.35%)	48 (13.67%)

According to the answers of the questions obtained from the research participants about the depression who have depression: 35 (31.25%) physical therapist lies in mild depression, 21 (18.75%) lie in borderline depression, 43 (38.39%) lies in moderate depression, 13 (11.60%) lies in severe depression and no one lies in extreme depression category. While in nurses: 61 (26.87%)lies in mild depression, 72 (31.71%) lies in borderline depression, 51 (22.46%) lies in moderate depression, 37 (16.29%) lies in severe depression and only 6 (2.64%) lies in extreme depression category as shown in figure 2.

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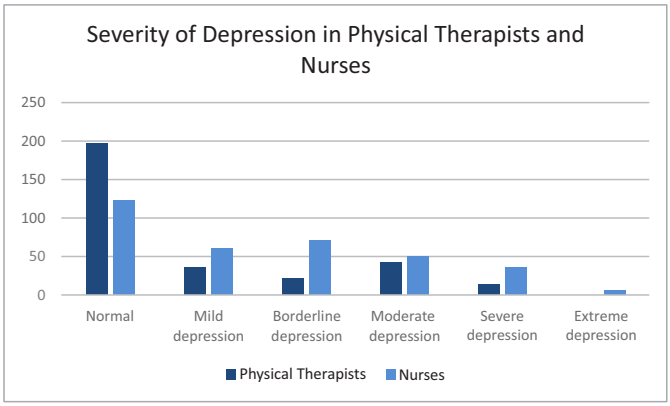

Figure 2: Severity of Depression In Research Participants

DISCUSSION

Around the world, depression is a common mental disorder. It is different from the mood swings and daily feelings [19]. According to the pathological features of depression, it depends upon the genetics and environment as well. Approximately, 35 % of Karachi's population is affected by emotional issues, while from Quetta 43% and Lahore 53% are influenced by depression [20]. There is a huge effect of depression on the lives of people. Our study was conducted to determine the prevalence of depression among physical therapists and nurses in Karachi. There are many studies conducted around the world to observe the mental status of the workers of various occupations but none of the research compares the level of depression among the two healthcare professions: physical therapists and nurses. In the present study, our data showed 112 (36.12%) of physical therapists have depression while in nurses 227 (64.67) depression is common. As compared to this a study conducted on the Physical therapist population showed,48.7 percent had mild depression, 23.5 percent had moderate and 2.9 percent of physical therapists had severe symptoms of depression [21]. The reason behind the high prevalence of depression in Karachi was associated with factors like the financial, social, marital, and occupational status of healthcare workers. Financial issues of healthcare workers can be an important cause of depression due to the market value of their salaries which is not according to their qualifications and need [22]. In our study, 162 (52.25%) physical therapist was used to enjoying things at their jobs, and 105 (29.91%) nurses were unable to enjoy things as compared to what this study reported, Physical therapists were used to reflecting their profession, and taught exercises among the population because their type of profession gives insight to the importance of physical activity and exercise, therefore, most of the physical therapists from our study were active and they enjoy things [23]. According to the level of sadness observed in physical therapists, 193 (62.25%) are feeling sad and 110 (31.33%) said they were not sad compared to this a study reported, that mild to moderate levels of stress, anxiety, and depression was found in nurses which can be reduced by implementing the mindfulness based training [24]. A study conducted in Taiwan concluded, that there is a positive association between hopelessness with depression and a negative association between the meaning of life with depression in comparison to our study, physical therapists were 198 (63.87%) hopeful regarding their future and 135 (38.46%) of nurses were hopeless regarding their future [25]. A study conducted in China reported, that there was a high prevalence of depression among nurses due to this they were unable to complete their tasks without much effort [25]. Similarly in our study, 187 (60.32%) physical therapists were able to perform tasks like their past but 123 (35.04%) nurses required more effort to initiate any task. According to the research conducted in Iran, most of their nurses had a moderate level of depression which they reported may be due to high physical and psychological demands at the job another study reported, that physical therapists undergoing high levels of stress during their job and the associated factors were difficult to evaluate and maybe evaluate through proper discussion and interviews [26, 27]. From our research participants 198 (63.87%) physical therapists were satisfied with their life while only 117 (33.33%) nurses were satisfied with their life. In addition to this, there is a strong association of job satisfaction with salary at the workplace.

CONCLUSIONS

According to the observation of our study, it is revealed that nurses are more depressed as compared to physical therapists which may be vary due to the dependent and independent variables, especially with the type of profession and level of satisfaction with their occupations. Additionally, Physical therapist who have depression were mostly found in moderate depression while nursese who have depression were mostly found in borderline depression category.

Authors Contribution

Conceptualization: SAA
Methodology: VK, OA
Formal analysis: NI
Writing, review and editing: KJ, PL, OA, MFH, SAA, LI

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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REFERENCES

[1] Fond G, Fernandes S, Lucas G, Greenberg N, Boyer L. Depression in healthcare workers: results from the nationwide AMADEUS survey. International Journal of Nursing Studies. 2022 Nov; 135: 104328. doi: 10.1016/j.ijnurstu.2022.104328.

[2] Alsolais A, Alquwez N, Alotaibi KA, Alqarni AS, Almalki M, Alsolami F *et al.* Risk perceptions, fear, depression, anxiety, stress and coping among Saudi nursing students during the COVID-19 pandemic. Journal of Mental Health. 2021 Mar; 30(2): 194-201. doi: 10.1080/09638237.2021.1922636.

[3] Khubchandani J, Sharma S, Webb FJ, Wiblishauser MJ, Bowman SL. Post-lockdown depression and anxiety in the USA during the COVID-19 pandemic. Journal of Public Health. 2021 Jun; 43(2): 246-53. doi: 10.1093/pubmed/fdaa250.

[4] Cuijpers P, Stringaris A, Wolpert M. Treatment outcomes for depression: challenges and opportunities. The Lancet Psychiatry. 2020 Nov; 7(11): 925-7. doi: 10.1016/S2215-0366(20)30036-5.

[5] Jamil K, Baqir SR. Prevalence of depression in geriatric population of pakistan. Xi'an Shiyou Daxue Xuebao (Ziran Kexue Ban) / Journal of Xi'an Shiyou University, Natural Sciences Edition. 2024 Jan; 67(1): 199-204.

[6] Currie JM and MacLeod WB. Understanding doctor decision making: The case of depression treatment. Econometrica. 2020 May; 88(3): 847-78. doi: 10.3982/ECTA16591.

[7] Wu Y, Levis B, Sun Y, He C, Krishnan A, Neupane D *et al.* Accuracy of the Hospital Anxiety and Depression Scale Depression subscale (HADS-D) to screen for major depression: systematic review and individual participant data meta-analysis. British Medical Journal. 2021 May; 10: 373. doi: 10.1136/bmj.n972.

[8] Almarhapi SA and Khalil TA. Depression among healthcare workers in north West armed forces hospital-Tabuk, Saudi Arabia: Prevalence and associated factors. Annals of Medicine and Surgery. 2021 Aug; 68: 102681. doi: 10.1016/j.amsu.2021.102681.

[9] Jiang LC, Yan YJ, Jin ZS, Hu ML, Wang L, Song Y *et al.* The depression anxiety stress Scale-21 in Chinese hospital workers: reliability, latent structure, and measurement invariance across genders. Frontiers in Psychology. 2020 Mar; 11: 247. doi: 10.3389/fpsyg.2020.00247.

[10] Al-Hakeim HK, Al-Naqeeb TH, Almulla AF, Maes M. The physio-affective phenome of major depression is strongly associated with biomarkers of astroglial and neuronal projection toxicity which in turn are associated with peripheral inflammation, insulin resistance and lowered calcium. Journal of Affective Disorders. 2023 Jun; 331: 300-12. doi: 10.1016/j.jad.2023.03.072.

[11] Ghauri MW, Saeed A, Mahmood T, Tariq K. The frequency of work related-stress among physical therapists of Pakistan-an online survey. Journal of University Medical and Dental College. 2023 Jun; 14(3): 674-8.

[12] Baraka AA, Ramadan FH, Hassan EA. Predictors of critical care nurses' stress, anxiety, and depression in response to COVID-19 pandemic. Nursing in Critical Care. 2023 Mar; 28(2): 177-83. doi: 10.1111/nicc.12708.

[13] Tamrakar P, Pant SB, Acharya SP. Anxiety and depression among nurses in COVID and non-COVID intensive care units. Nursing in Critical Care. 2023 Mar; 28(2): 272-80. doi: 10.1111/nicc.12685.

[14] Alahiane L, Zaam Y, Abouqal R, Belayachi J. Factors associated with recognition at work among nurses and the impact of recognition at work on health-related quality of life, job satisfaction and psychological health: a single-centre, cross-sectional study in Morocco. British Medical Journal Open. 2023 May; 13(5): e051933. doi: 10.1136/bmjopen-2021-051933.

[15] Chen C and Meier ST. Burnout and depression in nurses: A systematic review and meta-analysis. International Journal of Nursing Studies. 2021 Dec; 124: 104099. doi: 10.1016/j.ijnurstu.2021.104099.

[16] Xie J, Liu M, Zhong Z, Zhang Q, Zhou J, Wang L *et al.* Relationships among character strengths, self-efficacy, social support, depression, and psychological well-being of hospital nurses. Asian Nursing Research. 2020 Aug; 14(3): 150-7. doi: 10.1016/j.anr.2020.06.002.

[17] Yuan Z, Wang J, Feng F, Jin M, Xie W, He H *et al.* The levels and related factors of mental workload among nurses: A systematic review and meta-analysis. International Journal of Nursing Practice. 2023 Oct; 29(5): e13148. doi: 10.1111/ijn.13148.

[18] Gebrie MH. An analysis of beck depression inventory 2nd edition (BDI-II). Global Journal of Endocrinological Metabolism. 2018; 2(3): 1-5. doi: 10.31031/GJEM.2018.02.000540.

[19] Mirza AA, Baig M, Beyari GM, Halawani MA, Mirza AA. Depression and anxiety among medical students: a brief overview. Advances in Medical Education and Practice. 2021 Apr; 12: 393-8. doi: 10.2147/AMEP.S302897.

[20] Hassan S and Husain W. The different levels of depression and anxiety among Pakistani professionals. Insights Depress Anxiety. 2020 Mar; 4: 012-8. doi: 10.29328/journal.ida.1001014.

DOI: https://doi.org/10.54393/pbmj.v7i05.1093

[21] Fischer R, Mattos P, Teixeira C, Ganzerla DS, Rosa RG, Bozza FA. Association of burnout with depression and anxiety in critical care clinicians in Brazil. Journal of the American Medical Association Network Open. 2020 Dec; 3(12): e2030898-. doi: 10.1001/jamanetworkopen.2020.30898.

[22] Ribeiro C, Tsang L, Lin B, Kemp-Smith K, Phillips J, Furness J. Physiotherapists' perceptions of their role in treating and managing people with depression and anxiety disorders: A systematic review. Physiotherapy Theory and Practice. 2024 Mar; 40(3): 431-55. doi: 10.1080/09593985.2022.2122915.

[23] Ghawadra SF, Lim Abdullah K, Choo WY, Danaee M, Phang CK. The effect of mindfulness-based training on stress, anxiety, depression and job satisfaction among ward nurses: A randomized control trial. Journal of Nursing Management. 2020 Jul; 28(5): 1088-97. doi: 10.1111/jonm.13049.

[24] Sun FK, Wu MK, Yao Y, Chiang CY, Lu CY. Meaning in life as a mediator of the associations among depression, hopelessness and suicidal ideation: A path analysis. Journal of Psychiatric and Mental Health Nursing. 2022 Feb; 29(1): 57-66. doi: 10.1111/jpm.12739.

[25] Xie N, Qin Y, Wang T, Zeng Y, Deng X, Guan L. Prevalence of depressive symptoms among nurses in China: a systematic review and meta-analysis. PLOS One. 2020 Jul; 15(7): e0235448. doi: 10.1371/journal.pone.0235448.

[26] Zakeri MA, Rahiminezhad E, Salehi F, Ganjeh H, Dehghan M. Burnout, anxiety, stress, and depression among Iranian nurses: Before and during the first wave of the COVID-19 pandemic. Frontiers in Psychology. 2021 Nov; 12: 789737. doi: 10.3389/fpsyg.2021.789737.

[27] Yang S, Kwak SG, Ko EJ, Chang MC. The mental health burden of the COVID-19 pandemic on physical therapists. International Journal of Environmental Research and Public Health. 2020 May; 17(10): 3723. doi: 10.3390/ijerph17103723.

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Original Article

Exploring the Connection Between Myopia and Personality Traits

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ABSTRACT

Traditionally recognized as the direct result of a distinct physical difference between people, myopia is related to human psychology. **Objectives:** To investigate the relationship between myopia and specific personality features and to ascertain whether the degree of myopia is associated with a higher incidence of personality disorders. **Methods:** A multicenter, cross sectional research was conducted. Non-probability purposive sampling technique used to include 60 participants of aged 15-30 years. All study participants had a thorough evaluation that included obtaining data on each participant's age, gender, academic standing, NEO Personality Inventory-Revised (PI-R) personality test findings, autorefractometry measurements, subjective refraction. A thorough slit-lamp examination was performed to assess the anterior and posterior segments. Data were analyzed by using SPSS software. **Results:** Out of 60 myopes, 38 (63.3%) were female and 22 (36.6%) were male. 18 (30%) had mild myopia, 25 (41.6%) had moderate myopia, and 17 (28.33%) had high myopia. 10 (16.66%) of the mild myopia group displayed affability qualities and 8 (13.33%) had extroverted personalities. Subjects with moderate myopia, 8 (13.33%) showed affability, 16 (26.66%) showed extroversion, and 1 (1.66%) showed neuroticism. 8 (13.33%) of the high myopia group revealed neuroticism, 5 (8.33%) showed an openness to new experiences, and 4 (6.66%) had extroverted dispositions. In contrast to cases with mild and moderate myopia, a substantial connection between high myopia and neuroticism was found. **Conclusions:** A relationship between personality traits and myopia has been identified. Higher neuroticism scores were typically found in those with more severe visual impairment and high myopia.

INTRODUCTION

About 20-25% of people in the West are affected by myopia; in certain regions of Southeast Asia, this condition is more prevalent [1]. High myopia is defined as axial globe length larger than 26 mm or a spherical refractive error greater than 6 diopters (D) [2]. High myopia is a disease known as multifactorial inheritance, which can be caused by a combination of hereditary and environmental factors [3]. Analyses reveal connections between environmental factors, like exposure to the outdoors, educational attainment and genetic risk variants [4, 5]. Furthermore, it seems that iris color is related to the onset of myopia [6]. Myopia is often associated with other eye disorders such as glaucoma, retinal detachment, and cataracts [7, 8]. Research indicates that people who spend more time outside are less likely to develop myopia than people who spend more time indoors which has led to debate about the possible influence of vitamin D [9, 10]. According to contemporary psychology, personality is a complex system of fundamental psychological characteristics that are mainly preserved in the subconscious. These characteristics often exhibit resistance to alteration and emerge naturally in a variety of aspects of people's lives [11]. Many academics have claimed throughout the years that people who are myopic often exhibit particular personality qualities like dissatisfaction and introversion [12, 13]. Nonetheless, the psychological consequences in myopic subjects are still up for controversy and lack strong evidence [14]. Certain psychological characteristics have

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been linked to myopic individuals, indicating that they are more likely to be reserved, suspicious, too preoccupied on their subject matter, and apprehensive of transition [15, 16]. Others have even gone so far as to suggest that myopic people might be brighter than people with normal vision or farsightedness, claiming that their years of education and intellectual ability are equally important in relation to myopia [17, 18]. Other research papers, in contrast to the aforementioned studies, have indicated that there are no appreciable differences in personality traits between people who have myopia and people who do not [19]. Some of these studies even went so far as to suggest that the idea of a "myopic personality" might not be valid. However, it is still possible that personality has a role in the development of myopia. On the other hand, myopia might have an effect on a person's conduct and personality [20].

The aims of this study was to assess the correlation between certain personality traits or aspects and myopic refractive errors in myopic participants. And to determine whether a correlation exists between the degree of myopia or increasing refractive error and the frequency or severity of personality disorders.

METHODS

A multicenter, cross sectional study was conducted from August 2023 to January 2024. The University of Faisalabad ethical institutional review board (IRB) granted approval (Reference No # TUF/IRB/249; Dated 11th Aug, 2023) for performing out the study. Non-probability purposive sampling was used in the recruitment procedure. Using Raosoft, the sample size was calculated to be 60. Participants in this study, who were diagnosed with myopia (mild, moderate and high degree), ranged in age from 15 to 30 years. Every recruited subject gave their informed consent voluntarily, indicating that they were willing to take part in the research. The exclusion criteria included those having a history of recognized psychiatric illnesses, significant anisoametropia, high cylinder defect, systemic association like (diabetes and hypertension), syndrome subjects like (down syndrome, marfan syndrome) and documented ophthalmological diseases, particularly those pertaining to the retina. All assessments were completed in a single visit. The examination involved auto-refractometry, which evaluated the spherical refractive error (in diopters), power (in diopters), and axis (in degrees) of the cylinder refractive error in both eyes. Intellectual characteristics like education level were obtained, along with personal and familial information like age and gender. Additionally, clinical information about ophthalmological disorders connected to myopia were gathered. A personality test was also used to evaluate each person's unique behaviors, emotions in particular circumstances, basic values, and interests. For this, the Neo PI-R personality inventory was utilized. This is a widely recognized standardized questionnaire for assessing personality in everyday circumstances. The Neo PI-R is a widely accepted and used framework that includes five main personality qualities. Five essential factors can be assessed using its 240 items, each of which can be responded on a 5-option Likert scale: neuroticism, extroversion, openness, kindness, and responsibility. Statistical analysis was performed on the data using SPSS (version 19.0). Descriptive statistics were performed.

RESULTS

The mean age of 60 myopic participants were determined to be 22.57 years, with a standard deviation of 2.98 years. The age distribution of the myopic participants varied according to the range of ages; the youngest age was 17 and the maximum age was 27 (Table 1).

Table 1: Age Distribution

Age of Participants	Mean ± SD	Maximum	Minimum
	22.57 ± 2.98	18	27

Demographic data showed that 22 participants (36.6%) were categorized as male and the majority 38 participants (63.3%), were classified as female. The demographics of the myopic sample were revealed by this gender distribution (Figure 1).

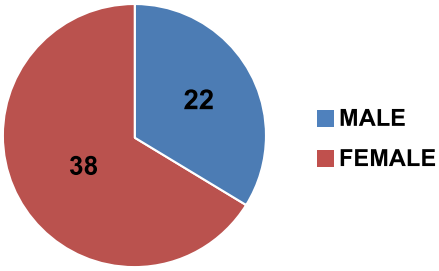

Figure 1: Frequency Distribution of Gender in the Participants (n=60)

18 participants (30%) had mild myopia with refractive errors up to three diopters and 25 participants (41.6%) had moderate myopia, defined as 3 to 6 diopters. This is a slightly higher proportion. In addition, 17 participants (28.33%) of the sample, had high myopia, which is defined as refractive errors more than 6 diopters. This classification offers a thorough analysis of the distribution and prevalence of myopia severity across the study participants (Figure 2).

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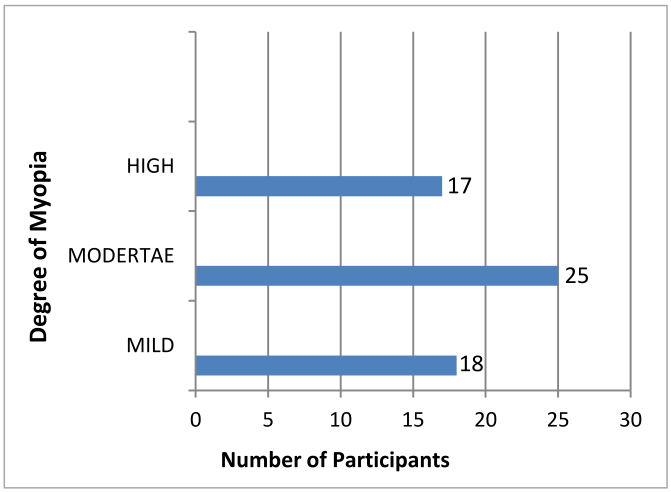

Figure 2: Degree of Myopia in Participants (n=60)

Descriptive statistics were used in a comprehensive study including 60 respondents to evaluate the level of education attained by myopic. The results showed a varied distribution among various educational levels. 27 participants (45%) had intermediate qualifications. This intermediate level of education indicates that the myopic population has a diverse range of academic backgrounds. Moreover, 21 participants (35%), had completed a degree, suggesting a sizeable percentage of people with a higher level of education. On the other hand, 12 participants (20%) of the sample, had postgraduate degrees, indicating a portion of the myopic group with greater educational attainment (Figure 3).

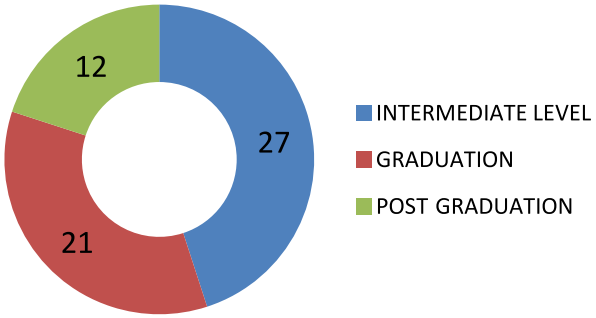

Figure 3: Frequency Distribution of Education Level in the Participants (n=60)

Personality traits within the cohort of participants with mild myopia showed a pattern. Of the 10 participants, or 16.66% of this subgroup, an impressive 13.33% had affability traits, indicating a tendency toward agreeableness and friendliness. In addition, 8 participants, or 13.33% of the group with mild myopia, had extroverted traits, which are suggestive of an outgoing and social nature. Focusing on the group with moderate myopia, a complex range of personality characteristics emerged. 8 participants, or 13% exhibited affability, indicating a tendency toward friendliness comparable to those in the mild myopia group. Nonetheless, a higher percentage, 26.66%, demonstrated extroverted traits, indicating a higher degree of sociability among those with moderate myopia. Interestingly, 1 participant or (1.66%) in this group showed signs of neuroticism, indicating a higher susceptibility to emotional distress. The group with high myopia displayed a unique set of personality features. Of the 8 participants, or 13.33% of this subgroup, a notable 8.33% showed signs of curiosity and receptivity to new ideas, suggesting an openness to new experiences. In addition, 4 participants or (6.66%) demonstrated outgoing extroverted personalities characteristics. A more noteworthy discovery, was that 8 or (13.33%) of the participants had neuroticism, indicating a strong correlation between high myopia and this specific personality characteristic. The association between the several scales and the degree of myopia was investigated using chi-square analysis. A statistically significant p-value of 0.03 indicated a higher correlation between psychological traits and the degree of myopia (Table 2).

Table 2: Myopia and Personality Traits

Level	Affability	Extroverted Personalities	Neuroticism	Openness	p-value
Mild	10	8	-	-	0.03
Moderate	8	16	1	-	
High	-	4	8	5	

DISCUSSION

Myopia, influenced by genetic and environmental factors, is characterized by an axial length over 26 mm or a refractive error greater than 6 diopters. It's linked to eye disorders like glaucoma and cataracts. Outdoor exposure may reduce myopia risk, potentially due to vitamin D. Psychological studies suggest that myopic individuals might exhibit traits like introversion and intellectual focus, but evidence is mixed, with some research finding no significant personality differences. Our study examined the correlation between personality traits and myopic refractive errors, and the relationship between myopia severity and personality disorders. In our study, the Neo PI-R personality inventory was utilized. This questionnaire used framework that included five main personality qualities. Berg *et al.*, included Australian twins answering an international personality item pool (IPIP) questionnaire, also looked at the same five core personality traits [21]. In our study, there was a significant correlation found between friendliness and myopia ($r = 0.08$; $p < 0.05$). Among the five personality qualities previously mentioned, as well as age, sex, and educational attainment. The comprehensive analysis revealed that openness was the only feature that substantially linked to myopia in the groups of study. This is consistent with other research findings, which suggests that the commonly held belief that myopic people are introverted and stereotyped as being more like associations between intellect and myopia

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than reality. These observations highlight the significance of rigorously reassessing assumptions regarding the personality traits of myopic people. In contrast to the reviews and studies mentioned above, additional articles have shown that there are no personality attribute variations between people who are myopic and those who are not [20]. There were no statistically significant differences found between the groups when the scores for different personality traits were examined separately. When patients were divided into subgroups of high and low value, extroversion became apparent as a major factor. Upon doing a thorough individual investigation to identify certain scenarios, the only psychological characteristic that demonstrated statistically significant values was neuroticism. Bullimore *et al.*, identified no appreciable personality differences across groups with different refractive problems [22]. Even in research using greater effectiveness methods, such as a prospective research of 57 university students in Italy (of which 39 were myopic and the remaining 18 ametropic/farsighted). It was discovered that psychophysical stress and personality traits were not the main pathogenic factors for myopia [23]. Nevertheless, it's crucial that you keep in mind that misunderstanding may be influenced by intelligence quotient (IQ) level. It is a common misconception that people who are intelligent are more reserved, introverted, and disciplined. However, myopic subjects scored fairly highly on both the intellectual quotient and educational development scales. These characteristics may be present in myopic people because they are typically thought of being intellectual. One of the future study's research might be conducted to improve the knowledge we have even more. Using this method, patients are chosen from a group of individuals who have been diagnosed with personality disorders or known psychological problems, and they are then examined by an eye care practitioner to determine whether they have myopia. Increasing the sample size or applying multivariate analysis could help to improve the study's statistical power and provide a more thorough and reliable examination of the links being studied.

CONCLUSIONS

When the results are compared over the range of myopia severity, it is clear that although extroversion and affability are linked to mild and moderate myopia, neuroticism is the only association that stands out with high myopia. This new information on the relationship between different personality factors and the severity of myopia adds a layer of complexity to our knowledge of the interaction between psychological traits and vision impairment in the group under study.

Authors Contribution

Conceptualization: FR
Methodology: MJ, SA, RNI, KJ
Formal analysis: FR
Writing-review and editing: SS, FR, HMUA

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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REFERENCES

[1] Spillmann L. Stopping the rise of myopia in Asia. Graefe's Archive for Clinical and Experimental Ophthalmology. 2020 May; 258(5): 943-59. doi: 10.1007/s00417-019-04555-0.

[2] Jonas JB, Jonas RA, Bikbov MM, Wang YX, Panda-Jonas S. Myopia: Histology, clinical features, and potential implications for the etiology of axial elongation. Progress in Retinal and Eye Research. 2023 Sep; 96: 10156. doi: 10.1016/j.preteyeres.2022.101156.

[3] Baird PN, Saw SM, Lanca C, Guggenheim JA, Smith III EL, Zhou X *et al.* Myopia. Nature Reviews Disease Primers. 2020 Dec; 6(1): 99. doi: 10.1038/s41572-020-00231-4.

[4] Plotnikov D, Williams C, Atan D, Davies NM, Mojarrad NG, Guggenheim JA. Effect of education on myopia: evidence from the United Kingdom ROSLA 1972 reform. Investigative Ophthalmology and Visual Science. 2020 Sep; 61(11): 7. doi: 10.1167/iovs.61.11.7.

[5] DeVille NV, Tomasso LP, Stoddard OP, Wilt GE, Horton TH, Wolf KL *et al.* Time spent in nature is associated with increased pro-environmental attitudes and behaviors. International Journal of Environmental Research and Public Health. 2021 Jul; 18(14): 7498. doi: 10.3390/ijerph18147498.

[6] Rashid F, Jabbar M, Fatima N, Siddique M, Hussain A, Waheed K. Effect of change in iris color on myopia. Pakistan Journal of Medical and Health Sciences. 2022 May; 16(04): 289. doi: 10.53350/pjmhs22164289.

[7] Jabbar M, Fatima N, Siddique M, Rashid F, Qureshi F, Bodla AM. Association between Myopia and Glaucoma; A Cross-sectional Study: Association between Myopia and Glaucoma. Pakistan Journal of Health Sciences. 2023 Apr: 133-7. doi: 10.54393/pjhs.v4i04.667.

[8] Haarman AE, Enthoven CA, Tideman JW, Tedja MS, Verhoeven VJ, Klaver CC. The complications of

DOI: https://doi.org/10.54393/pbmj.v7i05.1090

myopia: a review and meta-analysis. Investigative Ophthalmology and Visual Science. 2020 Apr; 61(4): 49. doi: 10.1167/iovs.61.4.49.

[9] Pärssinen O, Lassila E, Kauppinen M. Associations of children's close reading distance and time spent indoors with myopia, based on parental questionnaire. Children. 2022 Apr; 9(5): 632. doi: 10.3390/children9050632.

[10] Jabbar M, Kiran A, Fatima N, Bodla AM, Qureshi F, Perveen S. Effect of Vitamin D Supplement on Axial Length of Myopes: Effect of Vitamin D Supplement. Pakistan Journal of Health Sciences. 2023 May: 171-6. doi: 10.54393/pjhs.v4i05.778.

[11] DeRobertis EM. Profiles of personality: Integration, paradox, and the process of becoming. 2nd ed. Colorado Spring: University Professors Press; 2021.

[12] Wang YY. Research status of personality factors in myopia. International Eye Science. 2019: 1150-3.

[13] Fiedler K, Ermark F, Salmen K. Metacognitive Myopia: An Obstacle to Intelligent Behavior and Lapse of the Evolution. 1st edition. Germany: Springer Cham; 2022. doi: 10.1007/978-3-031-04198-3_10.

[14] Landy JF and Royzman EB. The moral myopia model: Why and how reasoning matters in moral judgment.1st edition. Routledge; 2018.

[15] Ravetz JR. Scientific knowledge and its social problems. 2nd ed. Routledge; 2020. doi: 10.4324/9781003075158.

[16] Belkin M and White C. Intersectionality and Relational Psychoanalysis. 1st edition. London: Routledge; 2020. doi: 10.4324/9780429344312-1.

[17] Durand RB, Fung L, Limkriangkrai M. Myopic loss aversion, personality, and gender. Journal of Behavioral Finance. 2019 Jul; 20(3): 339-53. doi: 10.1080/15427560.2018.1511562.

[18] Megreli J, Barak A, Bez M, Bez D, Levine H. Association of Myopia with cognitive function among one million adolescents. BMC Public Health. 2020 Dec; 20: 1-9. doi: 10.1186/s12889-020-08765-8.

[19] DEMİR N, OĞUZTÜRK Ö, OĞUREL T, OĞUREL R. A study comparing intelligence scores of patients of hypermetropia and myopia in children. Journal of Experimental and Clinical Medicine. 2022 Aug; 39(3): 633-6. doi: 10.52142/omujecm.39.3.7.

[20] Ali I, Anwar S, Zuliqar B. Behavioral differences between myopes and emmetropes. Ophthalmology Pakistan. 2022; 12(1): 12-5.

[21] Van De Berg R, Dirani M, Chen CY, Haslam N, Baird PN. Myopia and personality: the genes in myopia (GEM) personality study. Investigative Ophthalmology and Visual Science. 2008 Mar 1;49(3):882-6. doi: 10.1167/iovs.07-0930.

[22] Bullimore MA, Conway R, Nakash A. Myopia in optometry students: family history, age of onset and personality. Ophthalmic and Physiological Optics. 1989 Jul; 9(3): 284-8. doi: 10.1111/j.1475-1313.1989.tb00907.x.

[23] Angi M, Rupolo G, De Bertolini C, Bisantis C. Personality, psychophysical stress and myopia progression: a prospective study on 57 university students. Graefe's Archive for Clinical and Experimental Ophthalmology. 1993 Mar; 23: 136-40. doi: 10.1007/BF00920935.

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Original Article

Anxiety, Perceived Risk, Psychological Satisfaction as Correlates of Consumer Acceptance of E-banking in Pakistan

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ABSTRACT

Consumer behavior is shaped by several psychological processes including anxiety, satisfaction and perception of risks involved in service utilization. Advancements in technology have significantly affected the consumer decisions. Financial security has always been one of the main concerns of many individuals which is also linked with their quality of life and emotional wellbeing. **Objective:** To identify the personal and social factors correlated with e-banking adoption, perceived risks linked to e-banking and psychological satisfaction related to e-banking adoption. **Methods:** A descriptive cross sectional study comprising 440 adults belonging to different areas of Pakistan were included in the study. The data were collected through a detailed demographic form and questionnaire specifically designed for this study between February 2023 and April 2023. Data were processed and analyzed using standard statistical software. **Results:** Age, education, gender turned out to be significant personal correlates of adoption of nonconventional modes. Income and residential setup were identified as significant social correlates of nonconventional mode adoption. Issues related to trust, ease of use, safety and usefulness were the main factors perceived as risks. Men and women showed different levels of psychological satisfaction attached with adoption of nonconventional modes of transaction. **Conclusions:** Several personal and social factors are pivotal to adoption of nonconventional modes of financial transactions and lead to different pattern of perceived risks and satisfaction.

INTRODUCTION

Anxiety, high perception of various risks and lower levels of psychological satisfaction are considered detrimental to one's wellbeing [1]. Wellbeing gets influenced by a wide range of factors including the consumer decision making as it results in consequences contributing directly to stress. Consumer satisfaction is a focus of research for many years as it is considered a key factor leading to competitive advantage and also contributes to stress among many. There are four dimensions of consumer satisfaction namely quality, performance, disconfirmation and expectation [2]. Another factor which influences the consumer decision making process is the perception of risks involved in behavior adoption, risk perception among consumers is mediated by developmental level of the country, service channels and geographical region [3]. Financial security is one of the main concerns of many which is associated directly with psychological wellbeing of not only an individual but of the family in specific and society in general. The financial decisions of the consumers are affected by not only the temperament of an individual but also from service provision and technological advances. Past few decades are marked with high dependence on technology leaving significant impact on our lives. The rapid expansion of technology has altered lives and has led to notable changes in lifestyle, physical and emotional health of people around the globe. The use of technology has become essential for meeting the needs of highly demanding consumers, making traditional modes of managing consumer services inefficient. A relevant example is of E-banking services that have emerged as the

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fastest growing trend as it provides customers with an electronic platform to make banking transactions, such as bill payments and fund transfers, and is beneficial for both consumers and banks [4, 5]. E-banking has gained widespread acceptance globally, and Pakistan is no exception with a high ratio of technology acceptance to achieve cost advantages. This has been done to provide consumers to enhance the consumer satisfaction banks have created complex web-based solutions for their retail customers, which has improved customer service and retention while simultaneously lowering bank operating costs [6]. The adoption of e-banking as a nonconventional mode of financial transaction is found to be associated with several psychological risks and barriers [7]. The literature indicated the amount of information available, trust on the service provider, ease of use, past relationship with the service provider, privacy and security and usefulness as significant psychological factors influencing adoption of e-banking [8]. Perceived risk has been the point of interest in academic research for very long, it is perception that individuals actively have when they fail to understand the product details [1]. Zhang 2020 E-banking contributed significantly in enhancing the satisfaction among consumers as the service is generally perceived as cost effective, efficient, secure and convenient to handle even heavy transactions which otherwise get hard to manage and even insecure [9, 10]. By examining the relationship between anxiety, risk perception, psychological satisfaction and consumer acceptance of e-banking, the study intends to gain insights into the extent to which consumers in Pakistan perceive e-banking as a useful tool in improving their satisfaction associated with overall banking experience [11]. Identifying perceived risks can be helpful in addressing the insecurities of the consumers [12]. Understanding these key areas can contribute to the development of strategies to enhance the perceived satisfaction specific to use of e-banking services and promote their acceptance among consumers across the country [13].

Present study therefore, aimed to identify the key psychological correlates pertinent to acceptance of e-banking and also to assess the nature of association of perceived risks and level of psychological satisfaction with e-banking adoption.

METHODS

Present study used descriptive cross sectional survey design to study 440 adult consumers using e-banking services and recruited using purposive sampling technique. The sample size was determined using g-power analysis with medium effect size and only those participants were selected who were at least 18 years of age, have at least one active bank account and using one of the online transactional mode. Sample belonged to different cities of Pakistan approached through different social networking sites. A detailed self-administered questionnaire was designed specifically to collect data for this. The questionnaire had three sections including questions related to detailed personal information and questions about various dimensions of online banking services utilization and satisfaction related to these services. The acceptance of e-banking use was specifically recorded through 7 questions recording frequency, latency, purpose of use and other related dimensions. The questions in section two assessed various aspects of e-banking experience such as ease of use, security concerns, convenience, perceived benefits, and barriers to adoption of e-banking. The third section consisted of questions taken from literature to assess perceived risk and questions from anxiety subscale of DASS-21 [14]. The perceived risk questions were based on the structured questions taken from questionnaire employed in several previous studies, these questions aimed to assess 4 key dimensions of risk namely performance risk, financial risk, time risk and privacy risk. Scoring proposed by the original author was used to calculate the risk perception score and higher score indicated stronger perception of psychological risk. Psychological satisfaction was measured through 5 questions which recorded responses on 5 point Likert scale. The questions were carefully designed to gain information regarding research objectives. The questionnaire was in English language and noted have reliability ranging from 0.81 to 0.92. The procedure of the present study was reviewed and approved by the concerned ethical and research review committee of school of management FCCU, Lahore through letter number ERC-SOM-020-022 dated 23 November, 2022. A pilot study was conducted before the actual study to identify potential issues related to the presentation, comprehension, and clarity of the questions. Overall, the questionnaire was well-received by the respondents, who reported the content as easy to comprehend. Carefully structured questionnaire was then converted into an online survey; a link was generated and shared with around 800 adults through email and popular social media platforms. Only 440 individuals completed the questionnaire in the span of almost three months between February and April 2023. Data were analyzed using Statistical Package for Social Sciences (SPSS version 25.0) and employed a combination of descriptive and inferential statistical procedures.

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RESULTS

Table 1 presents demographic information of the study participants. The participants included both men (49%) and women (51 %). The mean age of the sample was 31 (SD= 10.03) years and most of the participants (41.6%) falling between 26 and 35 years of age. Educational level of majority (54 %) of the participants was graduation, 3 % had received education till intermediate, 39% till masters and 3% and o.5 % had doctorate and post doctorate degrees respectively. Women outnumbered men, whereas, age of the sample was from 18 to 76 years. The average monthly income was 23015 rupees with minimum income of 20000 and maximum income being 9000000 rupees. Majority of the participants were single (50%) and had education till graduation.

Table 1: Descriptive of Characteristics of Respondents (N=440)

Variables	N (%)
Gender	
Men	215 (49 %)
Women	224 (51 %)
Age	
18-25 Years	139 (32 %)
26-35 Years	183 (41 %)
36-45 Years	75 (17 %)
46-55 Years	30 (7 %)
>55 Years	13 (3 %)
Education	
Intermediate	13 (3 %)
Bachelors	239 (54 %)
Masters	172 (39 %)
PhD	14 (3 %)
Post Doc	2 (0.5 %)
Marital Status	
Single	222 (50 %)
Married	210 (48 %)
Divorced	5 (1 %)
Widowed	3 (0.7 %)

Majority of consumers used e-banking sources for multiple reasons. However, majority of single reason users used e-banking services for transferring funds. The average rate of using e-banking services was 3 times a week (Table 2).

Table 2: Reasons Attributed to E-Banking Adoption (N=440)

Reasons Of Use	N (%)
Checking Account Balanceen	35 (8 %)
Transferring Funds	109 (25%)
Paying Utility Bills	49 (11%)
Shopping	27 (6%)
All of these	220 (50%)

In general, majority of the sample was satisfied with the quality of e-banking services. Interestingly, more female consumers were satisfied with e-banking services, whereas, male participants comprised majority of dissatisfied consumers. Psychological dissatisfaction was noted to be related with low use of e-banking, whereas, high psychological satisfaction was observed to be linked with higher use of e-banking (Table 3).

Table 3: Psychological Satisfaction Associated with E-Banking Services

Variables	Total Sample (n=440)	Men (n= 178)	Women (n= 262)	Use of E-Banking
	N (%)	N (%)	N (%)	Correlation
Not at all Satisfied	58 (13%)	40 (23%)	18 (7%)	-0.38**
Somewhat satisfied	200 (46%)	80 (44%)	120 (46%)	0.07
Satisfied	119 (27%)	39 (22%)	80 (30%)	0.40**
Very much Satisfied	63 (14%)	19 (11%)	44 (17%)	0.22**

From the results it is evident that high anxiety score was related to low frequency of e-banking use. Similarly all types of risk scores were found to be related with significantly low use of e-banking services (Table 4).

Table 4: Association of Anxiety and Perceived Risk with Use of E-Banking

Variables	E-banking Use	Mean ± SD
Anxiety	-.51**	6 ± 4.04
Financial risk	-.47**	11 ± 3.01
Performance risk	-.20**	15 ± 9.29
Time risk	-.19**	8 ± 5.60
Privacy risk	-.22**	9 ± 4.72

**p<0.001

The mean anxiety score of participants in current sample falls in clinically normal range which is typical for nonclinical populations. From the results it is evident that high anxiety score was related to low frequency of e-banking use. Similarly all types of risk scores were found to be related with significantly low use of e-banking services.

Table 5: Correlation of Usage of E-Banking with other Study Variables (N=440)

Variables	PRT	PEOU	PU	Safety	Access	Usage	Mean ± SD
PRT	1	-	-	-	-	-	41.50 ± 5.66
PEOU	0.646**	1	-	-	-	-	44.90 ± 5.4
PU	0.789**	0.657**	1	-	-	-	39.86 ± 5.85
Safety	0.433**	0.455**	0.392**	1	-	-	25.14 ± 3.70
Access	0.648**	0.696**	0.706**	0.411**	1	-	39.86 ± 5.85
Usage	0.25**	0.23**	0.31**	0.17*	0.28**	1	4.9 ± 2.28

Note: PRT= Perceived Reliability/Trust; PEOU= Perceived ease of use; PU=Perceived usefulness, Access= Accessibility.
*p <0.05, **p<0.01

The Findings revealed that utility of e-banking shared significant positive association with all dimensions of e-banking including reliability, ease of use, safety and ease of use. The strongest association was observed between perceived usefulness and e-banking adoption. When adoption of e-banking was related with access it revealed significant positive association (Table 5).

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DISCUSSION

The use of technology has significantly changed the face of conventional lifestyle; one of the pronounced changes is the introduction of electronic service utilization including e-banking service which undoubtedly has transformed the consumer experience. The consumer's adoption of specific services is effected by a number of behavioral intentions including perceived risk involved in adoption, psychological satisfaction, perceived ease of use, reliability, usefulness, safety [9, 15, 10, 16]. Present study identified anxiety as a common expression of psychological discomfort which is generally linked with behavioral intentions related to adoption of new behaviors including e-banking, these intentions are affected by both environmental and personal factors [11]. High levels of anxiety may become instrumental to develop uncertainty which usually results in behavioral decline this is also evident in findings of the present study that revealed low frequency of e-banking use in participants with higher anxiety levels [17]. This is aligned to studies reporting that negative emotional states may result in poor behavioral intentions to adopt e-banking [18]. Anxiety can easily heightened the perception of risk by making an individual feel more vulnerable to make safe financial decisions and consumers prefer modes of financial management that are secure and involve less risk [6, 16]. Present study also considered the perceived risks significantly associated with adoption of e-banking services as this has been described in several studies as significant correlate and predictor of e-banking adoptions [19]. When it comes to adoption of new behaviors and options, psychologically the decision depends on risk benefit ratio involved in the adoption of novel practices. Our participants considered financial risks or insecurity most significant and it was associated with lower frequency of e service use. This is understandable in the economic context of the country which is struggling with poor economic growth adversely affecting the lifestyle of majority. Threats to privacy and security of the personal and account information was another main concern which surfaced as a psychological barrier and weakening the behavioral intentions to e-banking adoption. These perceived risks are conceptually linked with trust that the consumer may develop on services and service providers. Trust acts as a catalyst, mitigating concerns related to potential risks and uncertainties associated with financial transactions carried out through conventional and non-conventional banking services. In case of novel situations that involve strong perceived risks, both anxiety and dissatisfaction are likely to be high resulting in psychological distress which makes the new options threatening and works as significant barrier in adoption to these practices [19, 20, 21, 22]. Present findings provided robust evidence that individuals who perceived e-banking services more helpful or easy to use were more inclined to utilize e-banking services, this was supported by previous studies reporting similar pattern of findings [23, 17]. Aligned to previous studies a strong positive association between perceived reliability and e-banking acceptance was observed in our study as use of e-banking was higher in participants who trusted the services and perceived them as reliable modes of financial transactions. Individuals usually consider a service platform use worthy when it fulfills their needs adequately and timely which is evident through the use of e-banking services as it has made the service provision available around the clock and without any significant delay as is mentioned in other studies [24]. Consumers can assert good control over options according to their individual needs and achieve their goals without a hurdle or delay. Usefulness and ease of use are not the only factors encouraging adoption of e-banking services. For many consumers safety of the operations carried out using these platforms is more pertinent according to many researchers conducted in Pakistan and other countries. As trust plays a fundamental role in the adoption and acceptance of e-banking services. This is observed in present study that when consumers have confidence in the security measures, privacy protection, and overall integrity of the e-banking system, they are more likely to embrace it as a viable option for their financial needs, these observations are supported by findings reported in other studies previously [23]. E-banking platforms allow consumers more freedom to manage and assert more control over their finances, which has made financial operations far more accessible and convenient contributing to consumer satisfaction [25]. If the e-banking interface is perceived as secure, user friendly and effectively meets the needs of the consumers, it inculcates satisfaction among consumers [26, 27]. This is evident in findings of the present study as the consumers who were not satisfied with the quality and performance of e-banking services had lower frequency of using these services compared to those who showed significantly higher satisfaction. This might be because of the fact that high satisfaction enhances engagement in behaviors and eliminates perceived barriers as is explained in Technology acceptance model [28].

CONCLUSIONS

Present study points that high anxiety and high perception of risk is linked with lower frequency of E-banking use, whereas high psychological satisfaction was associated with better adoption of e-banking services in Pakistan.

Authors Contribution

Conceptualization: RS, AN
Methodology: UC, RS
Formal analysis: SSN, RS, AN
Writing, review and editing: AN, UC

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Conflicts of Interest

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REFERENCES

[1] Zhang X and Yu X. The impact of perceived risk on consumers' cross-platform buying behavior. Frontiers in Psychology. 2020 Oct; 11: 592246. doi: 10.3389/fpsyg.2020.592246.

[2] Wahyuningsih W, Dubelaar C. Consumer behavior and satisfaction. Marketing Science. 2004 Jul: 1-7.

[3] Li Z, Sha Y, Song X, Yang K, ZHao K, Jiang Z *et al.* Impact of risk perception on customer purchase behavior: a meta-analysis. Journal of Business and Industrial Marketing. 2020 Jan; 35(1): 76-96. doi: 10.1108/JBIM-12-2018-0381.

[4] Szlenk-Czyczerska E and Włodarczyk M. Evaluation of anxiety, depression, aggression, and life satisfaction of nurses working with severe acute respiratory syndrome coronavirus 2-infected patients. Medical Science Pulse. 2023 Jan; 17(1): 13-23. doi: 10.5604/01.3001.0016.2348.

[5] Carranza R, Díaz E, Sánchez-Camacho C, Martín-Consuegra D. e-Banking adoption: an opportunity for customer value co-creation. Frontiers in Psychology. 2021 Jan; 11: 621248. doi: 10.3389/fpsyg.2020.621248.

[6] Reddy AK. Impact of E-Banking on Customer Satisfaction. PalArch's Journal of Archaeology of Egypt/Egyptology. 2021 Jul; 18(08): 4220-31.

[7] Wu HY, Lin CC, Li O, Lin HH. A study of bank customers' perceived usefulness of adopting online banking. Global Journal of Business Research. 2010; 4(3): 101-8.

[8] Acosta-Vargas P, Salvador-Acosta B, Salvador-Ullauri L, Jadán-Guerrero J. Accessibility challenges of e-commerce websites. PeerJ Computer Science. 2022 Feb; 8: e891. doi: 10.7717/peerj-cs.891.

[9] Ilyas A, Danish RQ, Hammad Nasir FH, Malik MR, Munir S. Factors affecting the customer acceptance of e-banking in Pakistan. Journal of Basic and Applied Scientific Research. 2013 May; 3(6): 474-80.

[10] Hussain A, Hussain MS, Marri MY, Zafar MA. Acceptance of electronic banking among university students in Pakistan: An application of technology acceptance model (TAM). Pakistan Journal of Humanities and Social Sciences. 2021 Sep; 9(2): 101-13. doi: 10.52131/pjhss.2021.0902.0117.

[11] Reepu RA and Arora R. The Effect of Perceived Risk on Intention to Use Online Banking. Universal Journal of Accounting and Finance. 2022; 10(1): 62-71. doi: 10.13189/ujaf.2022.100107.

[12] Martins C, Oliveira T, Popovič A. Understanding the Internet banking adoption: A unified theory of acceptance and use of technology and perceived risk application. International Journal of Information Management. 2014 Feb; 34(1): 1-3. doi: 10.1016/j.ijinfomgt.2013.06.002.

[13] Şanlı B and Hobikoğlu E. Development of Internet banking as the innovative distribution channel and Turkey example. Procedia-Social and Behavioral Sciences. 2015 Jul; 195: 343-52. doi: 10.1016/j.sbspro.2015.06.362.

[14] Abikari M. Emotions, perceived risk and intentions to adopt emerging e-banking technology amongst educated young consumers. International Journal of Bank Marketing. 2024 Jan. doi: 10.1108/IJBM-01-2023-0004.

[15] Vejacka M, Štofa T. Influence of security and trust on electronic banking adoption in Slovakia. 2017 Dec; 20(4): 135-150. doi: 10.15240/tul/001/2017-4-010.

[16] Shaikh S, Saeed S, Waqas M, Memon FA. The Consequences of Mobile Banking Services on Customer E-Satisfaction in Pakistan. Journal of Business Studies. 2017 June; 1(1): 39-51. doi: 10.46745/ilma.jbs.2018.14.01.04.

[17] Cheung CM and Lee MK. Understanding consumer trust in Internet shopping: A multidisciplinary approach. Journal of the American society for Information Science and Technology. 2006 Feb; 57(4): 479-92. doi: 10.1002/asi.20312.

[18] Sani Abdullahi M, Mikail Usman B, Binta Salisu F, Suleiman Muhammad Y. Investigating the effect of convenience, accessibility and reliability on customer satisfaction in the Nigeria banking industry. Pakistan Journal of Humanities and Social Sciences. 2018 Jul; 6(3): 296-314. doi: 10.52131/pjhss.2018.0603.0048.

[19] Kaur S and Arora S. Role of perceived risk in online banking and its impact on behavioral intention: trust as a moderator. Journal of Asia Business Studies. 2020 Jun; 15(1): 1-30. doi: 10.1108/JABS-08-2019-0252.

[20] Liébana Cabanillas F, Muñoz Leiva F, Rejón Guardia F. The determinants of satisfaction with e banking. Industrial Management and Data Systems. 2013 May; 113(5): 750-67. doi: 10.1108/02635571311324188.

[21] San Ong T, Hong YH, Teh BH, Soh PC, Tan CP. Factors that affect the adoption of internet banking in Malaysia. International Business Management. 2014 Jan; 8(2): 55-63. doi: 10.5539/ijbm.v8n19p24.

DOI: https://doi.org/10.54393/pbmj.v7i05.1089

[22] Agha S and Saeed M. Factor's influencing customer acceptance of online banking in Pakistan and the moderating effect of technophobia. Technology. 2015; 12(1): 55-66.
[23] Malhotra NK, Kim SS, Agarwal J. Internet users' information privacy concerns (IUIPC): The construct, the scale, and a causal model. Information Systems Research. 2004 Dec; 15(4): 336-55. doi: 10.1287/isre.1040.0032.
[24] Akhlaq MA. Internet banking in Pakistan: finding complexities. Journal of internet banking and commerce. 2011 Apr; 16(1): 1-14.
[25] Ayinaddis SG, Taye BA, Yirsaw BG. Examining the effect of electronic banking service quality on customer satisfaction and loyalty: an implication for technological innovation. Journal of Innovation and Entrepreneurship. 2023 Apr; 12(1): 22. doi: 10.1186/s13731-023-00287-y.
[26] Al-Emadi KA, Kassim ZA, Razzaque A. User Friendly and User Satisfaction Model Aligned With FinTech. InInnovative Strategies for Implementing FinTech in Banking IGI Global. 2021; 291-301. doi: 10.4018/978-1-7998-3257-7.ch017.
[27] Noreen A. Awareness of Electronic Banking and the Customer'S Level of Satisfaction in Pakistan. Arabian Journal of Business and Management Review. 2015; 3(11): 37-47.
[28] Shaikh AA and Karjaluoto H. Mobile banking adoption: A literature review. Telematics and Informatics. 2015 Feb; 32(1): 129-42. doi: 10.1016/j.tele.2014.05.003.