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ORIGINAL ARTICLE

Emotional Intelligence and Empathy among Ophthalmologists

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ABSTRACT

Background: Emotional intelligence and empathy plays a key role in coping with varying situations in daily life.
Objective: The purpose of this study was to determine emotional intelligence and empathy among ophthalmologists.
Methods: This cross-sectional study was carried out at the College of Ophthalmology & Allied Vision Sciences from 1st June 2022 till 31st December 2022. After the ethical approval of the study, a Google form was developed which included Schutte's scale (Emotional Intelligence) and Davis's Interpersonal index (Empathy) questions in addition to those related to basic demographic information. A sample size of 19 was calculated and sampling was done by non-probability convenient sampling. The proforma was sent via social media application (WhatsApp) to study participants. A total of 39 ophthalmologists including residents and faculty members of either gender responded to be part of the study. A comparison of emotional intelligence scores was done by applying Independent sample t-test and one-way ANOVA.
Results: A total of 39 ophthalmologists participated in the study with a mean age of 35.31 ± 9.83 years. The "Emotional Appraisal" mean score was found to be highest in post-graduate residents (p = 0.05) and the mean scores of the sub-scale "Non-Verbal Communication" was highest in faculty (Assistant professor or above in designation) followed by Postgraduate resident (PGR), (p=0.04). Comparison of empathy scores revealed a significant difference in the sub-scales of the Davis scale "Perspective taking" (p=0.04) and "Personal distress" (p=0.03) between the male and female participants.
Conclusion: Among Ophthalmologists, postgraduate residents were better in terms of emotional intelligence than faculty who had better skills with regards to non-verbal communication.

Key Words: Emotional intelligence, Empathy, Ophthalmologist.

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INTRODUCTION

Around the world, almost every healthcare system focuses on the provision of patient-centered services.[1] Healthcare directed at patient's needs demands a multi-factorial framework with emphasis on viewing the patient as a whole person and the patient's needs for information.[2]

As every individual is different from others, so are the healthcare professionals who may differ in their understanding of the patient which may be due to individual differences in personal characteristics.[3] Identification of personal

characteristics of health professionals and their relationship with the provision of patient-centered care is an avenue that has not been explored much.

Emotional Intelligence (EI) is the ability to identify one's and other's emotions and control one's emotions in different situations of real life.[4] Emotional intelligence is a subset of different traits which include self-perception, interpersonal skills, decision making and managing stress. Various tools are available which measure emotional intelligence in individuals. Realization of one's strengths and weaknesses contribute towards perceiving and managing one's emotions.[5, 6]

Emotional intelligence is increasingly being recognized as having an impact on healthcare and nursing. Schutte's emotional intelligence scale[7] is based on Salovey & Mayers (1990) basic idea of emotional intelligence which encompasses appraisal, expression, regulation and utilization of emotions in self and others for problem solving while Davis interpersonal reactivity index[8] is an approach to study individual differences in empathy. Some literature is available on the relationship between emotional intelligence and physician's stress and burn out and its impact on provision of patient centered healthcare. However, the results are varied as some studies found different relationships between emotional intelligence and burnout/job performance. One of the main reason of the different results was studies on different specialties i.e. physicians, oncologists, surgeons and otolaryngologists.[9, 10, 11]

No local or international literature was found which studied emotional intelligence of ophthalmologists. With this background we conceived the idea of studying emotional intelligence of ophthalmologists at a teaching hospital.

METHODS

This cross-sectional survey was carried out at the College of Ophthalmology & Allied vision sciences from 1st June to 31st December 2022. WHO sample size calculator was utilized to calculate sample size which turned out to be 19 by assuming level of significance 5%, power of test 80% and EI global score 0.27.[12] Ethical considerations were discussed and approval to go ahead with study was granted by Ethical Review Committee vide letter no COAVS/1107/22. Sampling was done by non-probability convenient sampling. Doctors who were working in ophthalmology clinics across Pakistan were eligible to be enrolled in study while doctors who were not engaged in specialty of ophthalmology were excluded. Similarly, ophthalmologists who did not consent to be part of study were also excluded. A form was formulated on Google and then it was shared among ophthalmologists via social media application (WhatsApp). Out of 50 invitations, thirty-nine consented to be part of study.

The Google form contained two proforma i.e. Schutte's scale[7] and Davis's Interpersonal Reactivity index[8]. Schutte's scale evaluated the emotional intelligence, it consisted of a total of thirty-three statements or questions, against which respondents had to agree or disagree by scoring on a Likert scale. Similarly, Davis interpersonal reactivity index was used to score the empathy among ophthalmologists. Davis interpersonal reactivity index contained 28 statements or questions against which respondents had to score in same manner as in Schutte's scale. Once the responses were collected and completed, they were compiled in Microsoft Excel by researchers. Later on the data was exported to SPSS and statistical analysis was done. Biswas S and Invalli S[13] in India segregated the Schutte's scale into different domains including emotional appraisal and control. Emotional appraisal and control encompass changing the way that one thinks about events and their relationship to the self, which may then alter emotional reactions. Nine domains were made which ranged from emotional utilization to emotional regulation. Our study results have also been compared and presented according to these nine domains.

Statistical Analysis

Comparison in scores of emotional intelligence and empathy was done based upon gender by applying an Independent sample t-test while comparison based upon qualification, job description and designation were done by applying one-way ANOVA. p-value of <0.05 was considered statistically significant.

RESULTS

A total of 39 ophthalmologists participated in the study with a mean age of 35.31 ± 9.83 years. Among them, 16 (41 %) were females whereas a greater proportion was of males, 23 (59 %). The mean score of "Emotional Appraisal" which is a subset of emotional intelligence was found to be highest in post-graduate residents followed by Assistant professor (AP), Associate Professor, Professors, Medical Officers (MO) and Senior Registrars (SR), respectively (p = 0.05) (Table 1). Moreover, the mean score of "Emotional control" also a subset of emotional intelligence was observed to be greatest in the ophthalmologists with less than 5 years of experience (Table 2).

Comparison of empathy scores revealed a significant difference in the sub-scales of Davis scale "Perspective taking" and "Personal distress" (p<0.05) between the male and female participants. Perceiving a situation assessed by "Perspective taking" subscale of empathy was significantly (p=0.04) more in male subjects compared to females. Whereas emotional reaction assessed by "Personal Distress" subscale of empathy was significantly higher (p=0.03) in females compared to males (p<0.05) (Table 4).

Comparison of emotional intelligence scores based upon year of residency did not yield statistically significant results (p>0.05). However, emotional utilization and social skills scores were higher in 1st year as compared to 4th year of residency but it was statistically significant. (Table 3)

Likewise, comparison of empathy scores based upon employment type, designation and year of residency did not reveal statistically significant results (p>0.05). (Table 5 & 6)

Table 1: Gender and designation-wise comparison of Emotional Intelligence (EI) scores on Schutte's Scale

Sub Scales of EI	Gender			Designation				
	(n = 23) Male mean ± SD	(n = 16) Female mean ± SD	p-value	(n = 5) SR mean± SD	(n = 19) PGR mean ± SD	(n = 7) MO mean ± SD	(n = 8) Asst./Assoc. Prof mean± SD	p-value
Emotional Utilization	3.61 ± 0.85	3.80 ± 0.38	0.42	3.17 ± 1.24	3.82 ± 0.48	3.71 ± 0.49	3.67 ± 0.78	0.31
Emotional Appraisal	3.56 ± 0.91	3.50 ± 0.47	0.80	2.8 ± 1.04	3.75 ± 0.66	3.33 ± 0.69	3.66 ± 0.47	0.05*
Emotional Optimization	3.78 ± 1.00	3.82 ± 0.48	0.87	3.35 ± 1.32	3.92 ± 0.52	3.64 ± 0.65	3.90 ± 1.10	0.51
Emotional Control	3.57 ± 0.96	3.43 ± 0.64	0.62	2.86 ± 1.23	3.64 ± 0.67	3.28 ± 0.97	3.79 ± 0.58	0.16
Social Skills	3.70 ± 0.93	3.82 ± 0.38	0.62	3.15 ± 1.24	3.94 ± 0.49	3.78 ± 0.69	3.65 ± 0.81	0.18
Non-Verbal Communication	3.54 ± 0.92	3.43 ± 0.70	0.69	2.70 ± 1.20	3.73 ± 0.63	3.21 ± 0.99	3.75 ± 0.46	0.04*
Emotional awareness	3.45 ± 0.99	3.75 ± 0.63	0.30	3.20 ± 1.09	3.65 ± 0.72	3.78 ± 0.85	3.43 ± 1.05	0.63
Negative Outlook	3.62 ± 0.79	3.22 ± 0.66	0.11	3.73 ± 0.72	3.40 ± 0.72	3.38 ± 0.84	3.45 ± 0.85	0.85
Emotional Regulation	3.48 ± 0.65	3.40 ± 0.65	0.70	2.95 ± 0.69	3.53 ± 0.63	3.46 ± 0.63	3.53 ± 0.58	0.31

*Independent sample t-test and one-way ANOVA were applied; *p-value of less than 0.05 was considered statistically significant*
***SR**=Senior Registrar, **PGR**=Post graduate resident, **AP**=Assistant Professor,* **Assoc. Prof** *=Associate Professor, **MO** =Medical Officers*

Table 2: Comparison of of Emotional Intelligence scores based on work experience and employment Type (Schutte Scale)

Sub Scales of EI	Work Experience			p-value	Employment type			p-value
	(n = 23)	(n = 4)	(n = 12)		(n = 15)	(n = 17)	(n = 7)	
	<5 Years mean ± SD	5-10 Years mean ± SD	>10 Years mean ± SD		Regular mean±SD	Contract mean±SD	Adhoc mean±SD	
Emotional Utilization	3.85 ± 0.45	3.50 ± 0.55	3.44 ± 0.99	0.19	3.78 ± 0.5	3.77 ± 0.4	3.30 ± 1.1	0.26
Emotional Appraisal	3.71 ± 0.63	3.00 ± 0.72	3.38 ± 0.87	0.14	3.55 ± 0.5	3.66 ± 0.5	3.19 ± 1.3	0.36
Emotional Optimization	3.84 ± 0.50	3.62 ± 0.77	3.75 ± 1.25	0.86	3.96 ± 0.8	3.85 ± 0.5	3.28 ± 1.1	0.17
Emotional control	3.66 ± 0.65	2.58 ± 0.95	3.52 ± 0.93	0.04*	3.68 ± 0.6	3.58 ± 0.6	2.95 ± 1.3	0.13
Social Skills	3.93 ± 0.45	3.56 ± 0.87	3.47 ± 1.04	0.19	3.81 ± 0.6	3.85 ± 0.5	3.39 ± 1.2	0.36
Non-Verbal communication	3.60 ± 0.79	2.87 ± 0.62	3.54 ± 0.89	0.26	3.60 ± 0.5	3.64 ± 0.7	3.00 ± 1.3	0.19
Emotional awareness	3.78 ± 0.70	3.00 ± 1.15	3.37 ± 0.95	0.14	3.76 ± 0.9	3.52 ± 0.6	3.28 ±0.9	0.46
Outlook	3.39 ± 0.72	3.66 ± 0.72	3.50 ± 0.84	0.77	3.40 ± 0.7	3.39 ± 0.6	3.71 ± 1.0	0.60
Emotional Regulation	3.52 ± 0.63	3.31 ± 0.55	3.35 ± 0.70	0.69	3.61 ± 0.5	3.42 ± 0.6	3.14 ± 0.7	0.26

*One way ANOVA was applied; *P value of less than 0.05 was considered statistically significant*

Table 3: Comparison of Emotional Intelligence scores based on year of residency (Schutte Scale)

EI Sub Scales	Years of Residency				p-value
	(n = 4)	(n = 3)	(n = 6)	(n = 6)	
	1st Year mean ± SD	2nd Year mean ± SD	3rd Year mean ± SD	4th Year mean ± SD	
Emotional Utilization	4.03 ± 0.50	4.04 ± 0.41	3.71 ± 0.51	3.30 ± 1.22	0.47
Emotional Appraisal	4.08 ± 0.56	3.88 ± 0.50	3.77 ± 0.77	3.05 ± 1.21	0.30
Emotional Optimization	4.12 ± 0.32	4.33 ± 0.28	3.58 ± 0.49	3.58 ± 1.33	0.48
Emotional Control	3.91 ± 0.41	3.00 ± 0.88	3.77 ± 0.40	3.44 ± 1.31	0.52
Social Skills	4.25 ± 0.20	3.83 ± 0.38	4.00 ± 0.4	3.29 ± 1.31	0.30
Non-Verbal Communication	3.87 ± 0.47	3.33 ± 0.28	3.75 ± 0.82	3.33 ± 1.32	0.74
Emotional Awareness	3.87 ± 0.47	3.66 ± 0.28	3.41 ± 0.58	3.75 ± 1.12	0.80
Outlook	3.33 ± 0.72	3.66 ± 0.57	3.27 ± 0.87	3.83 ± 0.69	0.58
Emotional Regulation	3.50 ± 0.28	3.00 ± 1.39	3.70 ± 0.36	3.45 ± 0.91	0.64

*One way ANOVA was applied; *P value of less than 0.05 was considered statistically significant*

Table 4: Comparison of empathy scores based on gender and work experience (Davis Index)

Sub Scale Empathy	Gender		p-value	Work Experience			p-value
	(n = 23)	(n = 16)		(n = 23)	(n = 4)	(n = 12)	
	Male mean ± SD	Female mean ± SD		<5 Years mean ± SD	5-10 Years mean ± SD	> 10 Years mean ± SD	
Perspective taking	2.54 ± 0.59	2.10 ± 0.64	0.04*	2.27 ± 0.69	2.00 ± 0.26	2.69 ± 0.46	0.08
Fantasy	2.18 ± 0.58	2.46 ± 0.56	0.14	2.24 ± 0.59	2.67 ± 0.41	2.22 ± 0.58	0.36
Empathic concern	2.77 ± 0.61	3.00 ± 0.55	0.25	2.77 ± 0.60	3.07 ± 0.42	2.98 ± 0.55	0.44
Personal distress	1.88 ± 0.48	2.21 ± 0.38	0.03*	2.04 ± 0.46	2.25 ± 0.47	1.92 ± 0.48	0.49

Independent sample t-test and one-way ANOVA were applied; p-value of less than 0.05 was considered statistically significant

Table 5: Comparison of empathy scores based on designation and type of employment (Davis Index)

Sub Scale Empathy	Designation					Employment type			
	(n = 5) SR mean±SD	(n = 19) PGR mean±SD	(n = 7) MO mean±SD	(n = 8) AP/Assoc. Prof mean±SD	p-value	(n = 15) Regular mean ± SD	(n = 17) Contract mean ± SD	(n = 7) Adhoc mean± SD	p-value
Perspective taking	2.2 ± 0.2	2.3 ± 0.7	2.1 ± 0.5	2.8 ± 0.4	0.08	2.5 ± 0.50	2.2 ± 0.6	2.2 ± 0.8	0.40
Fantasy	2.1 ± 0.5	2.2 ± 0.5	2.6 ± 0.5	2.08 ± 0.6	0.29	2.4 ± 0.69	2.2 ± 0.4	2.2 ± 0.5	0.63
Empathic concern	2.6 ± 0.4	2.8 ± 0.6	2.9 ± 0.6	3.07 ± 0.5	0.57	2.93 ± 0.5	2.83 ± 0.6	2.8 ± 0.7	0.86
Personal distress	1.6 ± 0.3	2.0 ± 0.4	2.36 ± 0.4	1.94 ± 0.4	0.07	2.0 ± 0.46	2.05 ± 0.4	2.0 ± 0.5	0.94

*One way ANOVA test was applied; *P value of less than 0.05 was considered statistically significant ; **AP**= Assistant Professor*
***SR**=Senior Registrar, **PGR**=Post graduate resident, **AP**=Assistant Professor,* **Assoc. Prof** *=Associate Professor, **MO** =Medical Officers*

Table 6: Comparison of empathy scores based upon year of residency (Davis Index)

Sub Scale Empathy	Year of Residency mean ± SD				p-value
	1st Year	2nd Year	3rd Year	4th Year	
Perspective taking	2.46 ± 0.31	2.19 ± 0.95	2.47 ± 0.75	2.26 ± 0.83	0.92
Fantasy	2.28 ± 0.20	2.19 ± 0.95	2.30 ± 0.51	2.23 ± 0.69	0.99
Empathic concern	2.82 ± 0.55	3.14 ± 0.65	2.47 ± 0.64	2.64 ± 0.54	0.46
Personal distress	2.07 ± 0.29	1.95 ± 0.21	2.02 ± 0.56	1.76 ± 0.39	0.65

*One way ANOVA was applied; *P value of less than 0.05 was considered statistically significant*

DISCUSSION

A total of 39 ophthalmologists participated in our study with the mean age of 35.31±9.83 years. Among them, 16 (41 %) were females whereas a greater proportion was of males with 23 (59 %) of total. Out of 39, 15 (38.5%) were regular employees, 17 (43.6 %) were on contract basis and 7 (17.9%) were on adhoc.

Comparison of empathy scores revealed a significant difference in the sub-scales of Davis scale "Perspective taking" (p=0.04) and "Personal distress" (p = 0.03) between the male and female participants. Zeb S et al[14] have studied the emotional intelligence and self-efficacy among physicians during COVID-19 pandemic. They concluded that physicians with more work-family conflict tend to have less emotional intelligence and self-efficacy. Their study emphasized the need for medical students to have more emotional intelligence in order to deal with work-family conflicts in a healthy manner. Petrides KV and colleagues15 studied the trait emotional intelligence in surgeons.
They compared the trait emotional intelligence between different surgical specialties and other professions. It was found that trait emotional intelligence did not differ significantly in surgical specialties. However the score was significantly higher when compared to other professions i.e. lawyers and engineers. Shoji MK and associates[16] have studied impact of covid-19 pandemic on the ophthalmology residents' perceptions on training and personal life. More than half of the participants increased time spent away from family and one-third considered their relationships with co-residents as worsened.
Sa B and colleagues[17] have studied the relationship between self-esteem, emotional intelligence and empathy among medical students. A cross-sectional survey was conducted and evaluated. It was found that self-esteem and emotional intelligence was significantly low in students during first year of medical school. Our study did a comparison of scores among trainees in four years of ophthalmic residency. Contrary to above study findings, our study did not find any significant differences in scores in all sub scales of

emotional intelligence among post graduate residents.

Sundararajan S[18] and associates carried out a mixed method study to check emotional intelligence among medical students in India. Students took a self-checking examination with the inclusion of some hypothetical emotional scenarios. It was found that medical students who went to government schools had a higher emotional intelligence as compared to those who attended private schools. With regards to hypothetical emotional scenarios, women scored higher than men. Contrary to above study findings, Altwijri S et al[19] found consistent emotional intelligence scores among male and female students of a medical university in Saudi Arabia when measured on Schutte's scale.

Marembo M et al[20] conducted a survey in South Africa among early career academics by using Schutte's emotional intelligence scale. It was concluded that emotional intelligence scores did not differ among participants based upon age, gender and experience of work, nevertheless, significant differences among emotional intelligence scores were noted based upon participant's ethnicity.

Sohail M and associates[21] studied the emotional intelligence among medical and dental doctors at a hospital in Lahore. It was found that Global emotional intelligence scores were positively correlated with an increase in work experience i.e. the consultants scoring higher except for the ''managing emotions'' sub scale in which junior doctors scored high. These results are somewhat consistent with our study results in which ''emotional control'' and ''emotional appraisal'' questions were better scored by ophthalmologists with least experience. Based upon literature review authors are of the view that this is the first study on emotional intelligence among ophthalmologists. The limitation of this study was being a survey-based study. It is recommended to conduct a qualitative study on this domain to have a better understanding of the matter.

CONCLUSION

Among Ophthalmologists, the ability to recognize and adequately respond to different emotional situations is better with increasing experience. Residency programs that incorporate teaching emotional intelligence are need of the hour to improve work performance and conflict management in healthcare facilities.

Recommendation:

A qualitative study is recommended to identify themes relating to different domains of emotional intelligence**.**

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CONTRIBUTORS:

MS: Conception, Design, Data collection

AR: Data collection, Literature review, Article draft

ZKS: Statistical analysis, Critical Review

All authors approved the final version and signed the agreement to be accountable for all aspects of the work.

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