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Introduction

Diabetic retinopathy (DR) is a common microvascular complication of diabetes mellitus and an important cause of preventable visual impairment. Awareness and preventive practices are important for early detection and reduction of vision loss. Despite the high burden of diabetes in Pakistan, there is a gap in knowledge and adherence to preventive practices, especially regarding retinal screening and lifestyle modifications.

Research Objectives

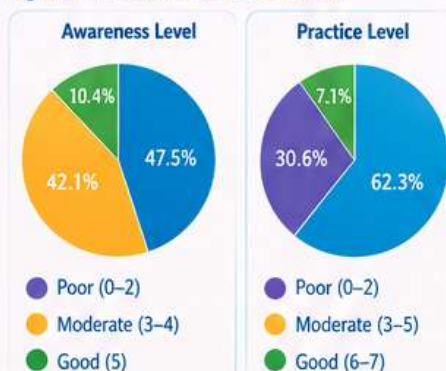
- To determine the level of awareness regarding prevention of DR among patients with type 2 diabetes mellitus.
- To determine the level of preventive practices regarding DR among patients with type 2 diabetes mellitus.
- To determine the association of awareness and practice scores with selected demographic and clinical characteristics.

Materials and Methods

Study Design: Descriptive cross-sectional study
Setting: Shaikh Zayed Hospital, Lahore
Duration: 6 months
Population: Type 2 DM patients (OPD)
Sample Size: 183 (non-probability convenience sampling)
Tool: Structured questionnaire (3 sections: demographic, awareness [5 items], practices [7 items])
Validity & Reliability: Content validity (experts); Cronbach's alpha = 0.94
Scoring: Awareness: 0–5 (poor 0–2, moderate 3–4, good 5)
Practices: 0–7 (poor 0–2, moderate 3–5, good 6–7)
Analysis: SPSS v27; t-test, ANOVA; p<0.05 significant
Ethical Considerations: Approval from Shaikh Zayed Hospital; written consent.

Results

Figure 1. Awareness and Practice Levels



Key Findings

Table 1. Sociodemographic and clinical characteristics (n=183)

Characteristic	Category	n	%
Age	<30 years	3	1.6
	30–40 years	54	29.5
	40–50 years	94	51.4
	>50 years	32	17.5
Gender	Male	87	47.5
	Female	96	52.5
Education	No formal education	28	15.3
	Primary school	51	27.9
	Secondary school	61	33.3
	Bachelor's degree	26	14.2
	Higher education	17	9.3
Duration of DM	<5 years	72	39.3
	6–10 years	81	44.3
	>10 years	30	16.4
Family history of DM	Yes	136	74.3
	No	47	25.7
Glycemic control	Good control	105	57.4
	Poor control	78	42.6
Visual acuity affected	Yes	86	47.0
	No	97	53.0

Table 2. Selected awareness and practice items (n, %)

Domain	Item	Yes n (%)	No n (%)
Awareness	Diabetes affects the eyes	165 (90.2)	18 (9.8)
	Diabetes affects the retina	108 (59.0)	75 (41.0)
	Blood glucose control can prevent DR	114 (62.3)	69 (37.7)
	DR can lead to blindness	88 (48.1)	95 (51.9)
	There is a cure to restore vision	107 (58.5)	76 (41.5)
Practice	Regular ophthalmologist follow-up	59 (32.2)	124 (67.8)
	Fundus examination	94 (51.4)	89 (48.6)
	Regular exercise	62 (33.9)	121 (66.1)
	Blood glucose monitoring	114 (62.3)	69 (37.7)
	Following diet regimen	133 (72.7)	50 (27.3)
	Medication adherence	133 (72.7)	50 (27.3)
	Weight control	82 (44.8)	101 (55.2)

Table 3. Awareness and practice scores and levels

Domain	Level/Statistic	n or Mean ± SD	Range/%
Awareness	Poor	19	10.4
	Moderate	87	47.5
	Good	77	42.1
	Mean ± SD	3.01 ± 1.09	Range 1–5
Practice	Poor	56	30.6
	Moderate	114	62.3
	Good	13	7.1
	Mean ± SD	3.44 ± 1.51	Range 0–7

Table 4. Association of demographic and clinical characteristics with awareness and practice scores

Variable	Category	Awareness Mean ± SD	p-value	Practice Mean ± SD	p-value
Age	<30	3.333 ± 0.577	0.689	3.667 ± 2.082	0.108
	30–40	3.056 ± 0.799		3.185 ± 1.518	
	40–50	2.926 ± 2.229		3.394 ± 1.540	
	>50	3.156 ± 0.884		4.000 ± 1.295	
Gender	Male	2.425 ± 1.106	<0.001*	3.046 ± 1.486	<0.001*
	Female	3.542 ± 0.794		3.802 ± 1.455	
Education	No formal	2.750 ± 1.005	<0.001*	3.214 ± 1.371	<0.001*
	Primary	3.627 ± 0.692		4.510 ± 1.229	
	Secondary	3.148 ± 1.014		2.754 ± 1.192	
	Bachelor's	1.615 ± 0.804		2.538 ± 1.363	
	Higher	3.235 ± 0.970		4.471 ± 1.375	
Duration of DM	<5 years	3.472 ± 0.839	<0.001*	4.054 ± 1.443	<0.001*
	6–10 years	2.630 ± 1.219		2.704 ± 1.391	
	>10 years	2.993 ± 0.868		3.987 ± 1.098	
Family history	Yes	3.162 ± 1.070	0.002	3.588 ± 1.537	0.002
	No	2.574 ± 1.058		3.021 ± 1.375	
Glycemic control	Good	3.486 ± 0.798	<0.001*	3.819 ± 1.473	<0.001*
	Poor	2.372 ± 1.118		2.936 ± 1.426	
Visual acuity	Yes	3.523 ± 0.793	<0.001*	4.070 ± 1.206	<0.001*
	No	2.653 ± 1.127		2.887 ± 1.547	

*Statistically significant at p<0.05.

Discussion

- Awareness was moderate; specific knowledge about the retina and blindness was limited.
- Preventive practices were moderate; ophthalmic follow-up and exercise were least common.
- Females, higher education, longer diabetes duration, family history, poor glycemic control and visual impairment were associated with higher awareness and practice scores.
- Findings are consistent with previous studies, but causality cannot be inferred due to cross-sectional design and convenience sampling.

Conclusion

Patients with type 2 diabetes demonstrated predominantly moderate awareness and preventive practices. Strengthening diabetes education, integrating retinal-screening counselling, and reinforcing preventive behaviors are needed to reduce avoidable vision loss.

Recommendations

- Integrate structured DR education into routine diabetes visits.
- Strengthen referral and follow-up for retinal examination.
- Reinforce lifestyle counseling (activity, diet, weight control, glycemic monitoring).
- Future studies: multiple settings and probability sampling for better generalizability.

