

Association of Health Literacy and Quality of Life in Adults with Diabetes

Jimil Vadnagra¹, Anjali Jain², Megha Sheth³

¹ Intern, SBB College of Physiotherapy

² Post graduate student, SBB College of Physiotherapy

³ Lecturer, SBB College of Physiotherapy

SBB College Of Physiotherapy, Gujarat University, Ahmedabad, India

Corresponding Author: Jimil Vadnagra

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ABSTRACT

Introduction: Diabetes exerts a substantial influence on the quality of life of adults, affecting both physical and mental well-being. Lifestyle modifications, including dietary restrictions, medication management, physical activity, and regular monitoring, can be demanding. Health literacy (HL), defined as an individual's capacity to comprehend and utilize health information for informed decision making, may impact one's decision-making ability and, consequently, quality of life. The aim of the study is to find association between health literacy and quality of life in adults with diabetes using Health Literacy Instrument for Adults (HELIA) and EuroQol 5-Dimension 5-Level questionnaire (EQ 5D 5L).

Method: 60 adults aged 18-65 years diagnosed with diabetes were included. An observational analytical study was conducted in Ahmedabad. A google form was generated and shared across various social media platforms. Age, gender, and education level and other details such as duration of the disease, recent HbA1c levels, and medication status, were collected. To evaluate health literacy, HELIA was taken and for quality of life, EQ 5D 5L was taken.

Results: 60 adults participated including 55% males and 45% females. 91.7% participants were between 41-65 years of age. 88.3% of participants were on medication and 61.7% participants had other co-morbidities. Participants were diverse according to their education and duration of suffering from diabetes. There was significant moderate negative correlation ($r = -0.5515$, $p > 001$) of HELIA with EQ 5D 5L scores.

Conclusion: Decreased health literacy correlates with a lower level of quality of life in adults with diabetes.

Keywords: Health Literacy, Quality of Life, Adults, Diabetes

INTRODUCTION

World Health Organization defines diabetes as a long-term health condition marked by high blood sugar levels. This can eventually cause severe harm to vital organs like the heart, blood vessels, eyes, kidneys, and nerves.¹ It can be controlled through a

combination of lifestyle changes and, in some cases, medication. Lifetime risk of diabetes in young adults' ranges from 51% to 69.5% and older adults are at far more risk.^{3,10} The estimates in 2019 showed that 77 million individuals had diabetes in India, which is expected to rise to over 134 million

by 2045. Approximately 57% of these individuals remain undiagnosed.⁴ The quality of life for the type 2 diabetes patients is affected by numerous factors including gender, occupation, duration of the disease and the presence of other complications.¹³ It can be maintained by following a healthy lifestyle, healthy diet, managing stress level and regular physical activity.⁷

Health literacy is the ability to read, understand and use health information to make appropriate healthcare decisions and follow instructions for treatment.² It is associated with physical and mental aspects of quality of life in healthy adults.^{7,8} People with higher health literacy can better understand diabetes, its causes, complications, and management strategies and they are more likely to develop effective self-management skills such as monitoring blood glucose levels, administering insulin injections, and recognizing symptoms of hypoglycemia and hyperglycemia. Individuals with type 2 diabetes have higher diabetes self-care if they have high education level, exercised regularly, or have high health literacy.⁵ Inadequate health literacy is potentially associated with poor glycemic control, and microvascular and macrovascular complications.⁹

Health Literacy Instrument for Adults (HELIA) is a valid and reliable questionnaire for assessing health literacy in adults. It has 33 questions including major components of health literacy like reading, access to information, understanding, appraisal and decision making/ behavioral intention.¹¹ EuroQol 5-Dimension 5-Level questionnaire (EQ-5D-5L) is a valid and reliable questionnaire for assessing quality of life. It comprises five dimensions such as mobility, self-care, usual activities, pain/discomfort and anxiety/depression.¹²

By investigating the link between health literacy and quality of life in adults with diabetes, areas for improvement in healthcare education and patient empowerment can be identified. This

knowledge can help in formulating specific interventions to improve health literacy, ultimately leading to better health outcomes for people with diabetes. There are a lot of studies available finding association of health literacy with other diabetes outcomes but less studies are there for quality of life. The aim of the study is to find association of health literacy with quality of life in adults with diabetes by using HELIA and EQ 5D 5L.

MATERIALS AND METHOD

An observational analytical study was conducted in the department of SBB college of Physiotherapy and Community of Ahmedabad. The data collection was facilitated through an online survey platform, Google Forms. The survey link was distributed via multiple channels, including social media platforms and relevant online forums. 60 adults between 18-65 years of age, having diabetes and who were willing to participate were included. People with severe neurological and musculoskeletal disorders, cognitive issues were excluded. Participants received a brief introduction outlining the purpose of the study and clear instructions for completing the survey. Participant consent was obtained at the commencement of the questionnaire. Demographic information including age, gender, and education level was obtained. Details pertaining to diabetes, such as duration of the disease, recent HbA1c levels, and medication status, were collected. To evaluate health literacy, Health Literacy Assessment Instrument (HELIA) was taken in English or Hindi language. For assessing quality of life, EQ 5D 5L was taken in English or Gujarati language. The reliability of the English version of HELIA ranges from 0.72 to 0.89¹⁴ whereas the reliability of Hindi version of HELIA ranges from 0.80 to 0.90¹⁵. The validity of HELIA in English version is 0.96¹⁴, and in Hindi version is 0.92¹⁶. The reliability of the EQ 5D 5L ranges from 0.77 to 0.88¹⁷. The validity of EQ 5D 5L is 0.759¹⁸.

STATISTICAL ANALYSIS

Descriptive analysis was done. Spearman’s correlation between HELIA and EQ 5D 5L was applied using SPSS version 20. Level of significance was kept at 5%.

RESULT

60 adults participated in the study including 55% (33) males and 45% (27) females. Majority of participants (91.7%) were between 41-65 years of age. 6.7% participants were between 26-40 years and 1.7% participants were between 18-25 years of age. Amongst them 88.3% (53)

participants were on medication for diabetes. 51.6% (33) participants had recent HbA1c reports. 61.7% (37) participants had other co-morbidities such as hypertension, hypothyroidism etc. Participants were diverse according to their education and duration of suffering from diabetes. Figure 1 and 2 shows participants’ distribution according to education level and duration of diabetes. Table 1 shows the HELIA scoring among the participants. There was moderate negative correlation ($r = -0.55, p > .001$) of HELIA with EQ 5D 5L scores.

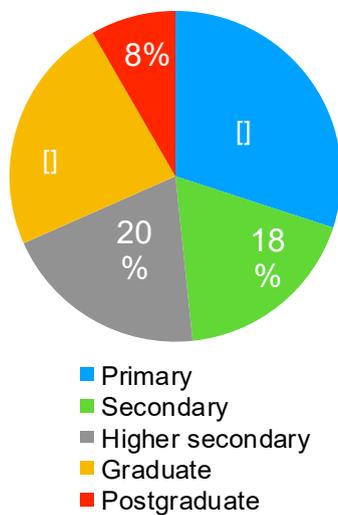


Fig 1: Education level

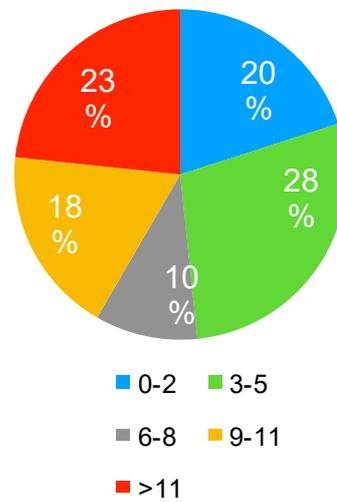


Fig 2: Duration of diabetes (in years)

Fig 1: Education level

Ranks of HELIA	Levels of HELIA	Number of Participants	Percentage
Inadequate	Limited	28	46.6%
Problematic		20	33.3%
Sufficient	Adequate	10	16.6%
Excellent		2	3.3%

DISCUSSION

Present study found that health literacy is limited among the diabetic people of Ahmedabad. As health literacy improves, quality of life also improves in adults with diabetes ($r = -0.5515, p > .000$).

These findings are supported by previous studies. ALSharit BA et al. found that health literacy positively affects self-care management, glycemic control (HbA1c), and quality of life directly indirectly.⁶ While, Couture ÉM et al. found no

association between health literacy and mental components of quality of life among frequent users of health care services. This is because adherence to treatment, self-management and intentions improve with increasing health literacy.

According to a study conducted on the topic of association of Health Literacy with diabetes outcomes by Schillinger Dean et al. it was seen that patients with inadequate health literacy were less likely than patients with adequate health literacy to achieve

tight glycemic control, were more likely to have poor glycemic control and to report having complications like retinopathy.

Another study based on association of health literacy and diabetes self-management conducted by Dalal Padam K et al. showed that HL was instrumental in improving diabetes knowledge, physical activity, self-efficacy and quality of life. However, its associations with glycemic control, self-monitoring of blood glucose, foot care and medication adherence was inconclusive. Customized and community-based HL interventions were more efficient compared to patient-focused HL interventions. This review concluded that HL is key for T2DM self-management, but customized, structured, and community-based interventions are more likely to yield better outcomes.

People with higher health literacy are more likely to be able to understand their diabetes diagnosis, treatment plan, and the importance of self-management behaviors such as regular blood sugar monitoring, medication adherence, and healthy eating. This can lead to better blood sugar control and a reduced risk of diabetes-related complications.

CONCLUSION

Decreased health literacy correlates with a diminished quality of life in adults with diabetes. Strategies should be incorporated to improve health literacy among diabetic adults, which can ultimately lead to better quality of life.

Declaration by Authors

Ethical Approval: Study was done according to Principles of Declaration of Helsinki

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