

# IJHSM

Indonesian Journal  
on Health Science  
and Medicine



**UNIVERSITAS MUHAMMADIYAH SIDOARJO**

## Table Of Contents

<b>Journal Cover</b> .....	1
<b>Author[s] Statement</b> .....	3
<b>Editorial Team</b> .....	4
<b>Article information</b> .....	5
Check this article update (crossmark) .....	5
Check this article impact .....	5
Cite this article.....	5
<b>Title page</b> .....	6
Article Title.....	6
Author information .....	6
Abstract.....	6
<b>Article content</b> .....	7

## Originality Statement

The author[s] declare that this article is their own work and to the best of their knowledge it contains no materials previously published or written by another person, or substantial proportions of material which have been accepted for the published of any other published materials, except where due acknowledgement is made in the article. Any contribution made to the research by others, with whom author[s] have work, is explicitly acknowledged in the article.

## Conflict of Interest Statement

The author[s] declare that this article was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

## Copyright Statement

Copyright © Author(s). This article is published under the Creative Commons Attribution (CC BY 4.0) licence. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this licence may be seen at <http://creativecommons.org/licenses/by/4.0/legalcode>

# Indonesian Journal on Health Science and Medicine

Vol. 3 No. 1 (2026): July  
DOI: 10.21070/ijhsm.v3i1.480

## EDITORIAL TEAM

### Editor in Chief

Evi Rinata, Universitas Muhammadiyah Sidoarjo, Indonesia ([Google Scholar](#) | [Scopus ID: 57202239543](#))

### Section Editor

Maria Istiqomah Marini, Department of Forensic Odontology, Faculty of Dentistry, Universitas Airlangga Surabaya, Indonesia ([Google Scholar](#) | [Scopus ID: 57214083489](#))

Heri Setiyo Bekti, Department of Medical Laboratory Technology, Poltekkes Kemenkes Denpasar, Indonesia ([Google Scholar](#) | [Scopus ID: 57194134610](#))

Akhmad Mubarak, Department of Medical Laboratory Technology, Universitas Al-Irsyad Al-Islamiyah Cilacap, Indonesia ([Google Scholar](#))

Tiara Mayang Pratiwi Lio, Department of Medical Laboratory Technology, Universitas Mandala Waluya Kendari, Indonesia ([Google Scholar](#))

Syahrul Ardiansyah, Department of Medical Laboratory Technology, Faculty of Health Sciences, Universitas Muhammadiyah Sidoarjo, Indonesia ([Google Scholar](#) | [Scopus ID: 55390984300](#))

Miftahul Mushlih, Department of Medical Laboratory Technology, Faculty of Health Sciences, Universitas Muhammadiyah Sidoarjo, Indonesia ([Google Scholar](#) | [Scopus ID: 57215844507](#))

Complete list of editorial team ([link](#))

Complete list of indexing services for this journal ([link](#))

How to submit to this journal ([link](#))

## Article information

**Check this article update (crossmark)**



**Check this article impact (\*)**



**Save this article to Mendeley**



(\*) Time for indexing process is various, depends on indexing database platform

## Factors Influencing the Public's Knowledge about Diabetes Mellitus

Suaad Abduljabar Abdulwahd Almudhafar, Almzfrsad@gmail.com (\*)  
Second Health Sector, Basrah Health Directorate, Ministry of Health, Basrah, Iraq

(\*) Corresponding author

### Abstract

**General Background:** Diabetes mellitus is a major global public health concern that contributes substantially to morbidity and mortality and requires adequate public awareness for effective prevention and management. **Specific Background:** Understanding the factors associated with diabetes knowledge is essential for improving health education and reducing the burden of the disease. **Knowledge Gap:** Limited evidence is available regarding demographic characteristics associated with diabetes knowledge among the public in Basrah, Iraq. **Aims:** This study aimed to identify the factors associated with the public's knowledge about diabetes mellitus. **Methods:** A descriptive cross-sectional study was conducted in Basrah using a structured questionnaire administered to 600 participants. Data were analyzed using SPSS version 26. **Results:** The findings showed significant associations between diabetes knowledge and age, sex, and educational level. Poor knowledge decreased with increasing age, while the highest proportion of good knowledge was observed among individuals aged 30–50 years. Males demonstrated slightly higher levels of good knowledge than females. Knowledge levels increased substantially with educational attainment, with the highest proportion of good knowledge observed among participants with university education and above. **Novelty:** The study provides recent evidence from Basrah regarding demographic characteristics associated with public diabetes knowledge. **Implications:** The findings suggest that health education initiatives should consider demographic differences when designing diabetes awareness and prevention programs.

**Keywords:** Diabetes Mellitus, Public Knowledge, Health Education, Demographic Factors, Basrah

### Key Findings Highlights

Knowledge levels improved across older age categories.

Male participants demonstrated slightly better awareness than female participants.

Higher educational attainment corresponded to greater understanding of the disease.

Published date: 2026-06-08

## Introduction

An estimated 1.1 million people worldwide lost their lives to diabetes in 2005. Nearly 80% of deaths take place in low- and middle-income nations, with individuals under 70 accounting for half of these deaths. According to WHO projections, diabetes-related mortality will rise by almost 50% over the next ten years if proper prevention and control measures aren't taken. Most significantly, between 2006 and 2015, diabetes-related fatalities are expected to rise by more than 80% in upper-middle-income nations [1]. The prevalence of type 2 diabetes in the general population is rising, in part because of the aging population and in part because of lifestyle changes and the ensuing obesity pandemic [2]. This global epidemic, which affects both industrialized and developing nations, has been dubbed a "new world syndrome" symptom of globalization and its social, cultural, political, and economic implications. Type 2 diabetes mellitus, which accounts for approximately 85% of all occurrences of diabetes mellitus, is primarily affected by the pandemic [3]. Diabetes mellitus can be detected early, its complications can be prevented, and the condition can be controlled with the use of knowledge and risk perception [4].

Diabetes is a multifactorial metabolic disease characterized by anomalies in the metabolism of proteins, lipids, and carbohydrates, as well as persistent hyperglycemia brought on by a lack of insulin activity, synthesis, or both. This raises the risk of both macrovascular problems (ischemic heart disease, stroke, and peripheral vascular disease) and microvascular damage (retinopathy, nephropathy, and neuropathy) [5]. The American Diabetes Association defines diabetes as having a post-glucose load of at least 200 mg/dl (11.1 mmol/l) or a fasting plasma glucose measurement of at least 126 g/dl (7 mmol/l) [6].

Considering current developments in the field of diabetes, the classification of diabetes mellitus has changed significantly over time. Nowadays, the classification is mostly determined by the disease's etiology, or causes, rather than how it is treated. Defects, illnesses, or processes that frequently lead to diabetes mellitus are referred to as etiological types [7]. Absolute insulin insufficiency is the hallmark of idiopathic beta cell loss [8].

Insulin resistance and relative insulin insufficiency are the hallmarks of the diverse collection of conditions known as type 2 diabetes mellitus [9]. Disorders in insulin action and secretion are the hallmarks of type 2 diabetes, which is the most common type. When this type of diabetes first appears clinically, both are usually present, and the obesity that frequently coexists with the disease helps to explain the insulin resistance that occurs in this type [10]. The risk of type 2 diabetes rises with age, obesity, and inactivity. It varies by racial/ethnic grouping and is more prevalent in women who have a history of dyslipidemia, hypertension, or gestational diabetes mellitus [10]. Therefore, this study aims to identify the factors influencing the public's knowledge about diabetes mellitus.

## Methods

This is a descriptive (cross-sectional) study that was conducted at Basrah city. The study used a structured questionnaire to identify the factors influencing the public's knowledge about diabetes mellitus. The study period extends from 2<sup>nd</sup> September 2025 to 11<sup>th</sup> April 2026. The data was analyzed by using SPSS version 26. Data collected through the self-reported questionnaire from 3<sup>rd</sup> October 2025 to 9<sup>th</sup> December 2026. Non-probability (purposive) sampling was conducted on 600 diabetic and 600 non-diabetic samples.

Endorsement of the study was obtained from the Basrah General Health Directorate. A sample of the subjects who attended the mentioned primary health care centers was chosen. Every participant gave their informed verbal consent. Participants may have type 1 or type 2 diabetes, or they may not. A two-part questionnaire was filled out based on an extensive literature review, adapting questions from published studies and adding questions that were considered of value [11-13].

Part 1 covered the participant's sociodemographic state (age, sex, and educational status), while Part 2 was basic knowledge questions on diabetes mellitus. A total of 23 questions were used, covering key areas of knowledge about diabetes mellitus.

## Results

### Level of diabetes knowledge according to age

Table 1 shows that the percentage of poor knowledge decreased with increasing age; the highest percentage of good knowledge was in the age group between 30-50 years (61.3%), with a significant association between level of knowledge and age.

**Table 1: The level of Diabetes Knowledge according to Age**

Age	Level of Knowledge							
	Poor		Acceptable		Good		Total	
	No.	%	No.	%	No.	%	No.	%
< 30	22	12	79	43.2	82	44.8	183	100
30-50	26	8.3	96	30.4	193	61.3	315	100
> 50	8	7.8	36	35.3	58	56.9	102	100
Total	56	9.3	211	35.2	333	55.5	600	100

$X^2= 13.05, df=4, p < 0.05$

### Level of diabetes knowledge according to sex

As shown in the table, the percentages of good knowledge (58%) and acceptable knowledge (36%) among males were higher than those among females (53.6% and (34.5%) respectively, with a significant association between the sex of the respondents and the level of knowledge.

**Table 2: The level of Diabetes Knowledge according to Sex**

Sex	Level of Knowledge							
	Poor		Acceptable		Good		Total	
	No.	%	No.	%	No.	%	No.	%
Male	16	6	95	36	153	58	264	100
Female	40	11.9	116	34.5	180	53.6	336	100
Total	56	9.3	211	35.2	333	55.5	600	100

$X^2= 6.012, df=2, p < 0.05$

### Level of diabetes knowledge according to educational status

Table 3 shows that the level of knowledge increased with increasing level of education, 88.4% of subjects who were with basic university and above had good knowledge, as compared to 29.5% of those who were illiterate, with a highly significant association.

**Table 3: The level of Diabetes Knowledge according to Educational Status**

Sex	Level of Knowledge							
	Poor		Acceptable		Good		Total	
	No.	%	No.	%	No.	%	No.	%
Male	16	6	95	36	153	58	264	100
Female	40	11.9	116	34.5	180	53.6	336	100
Total	56	9.3	211	35.2	333	55.5	600	100

$X^2= 6.012, df=2, p < 0.05$

## Discussion

### Level of diabetes knowledge according to age

This study showed a positive correlation between diabetic knowledge and age, which was an important characteristic; the percentage of poor knowledge decreased with increasing age. The highest percentage of good knowledge was in the age group between 30 and 50 years. The study showed that younger subjects had poorer disease knowledge; this observation could suggest that younger subjects were less interested in diabetes. A similar finding was reported in a study conducted in Saudi Arabia [14]. Also in Oman, it had been found that age was an important predictor of diabetic knowledge [15].

### Level of diabetes knowledge according to sex

This study showed that the overall male diabetes knowledge was more than that of females; the possible explanation could be the low female literacy rate. This finding was consistent with other studies [16, 17].

Males were often found to be better knowledgeable about diabetes mellitus, according to a study done on primary care facility attendants in Gadap town, Karachi, Pakistan [16].

Men are better informed than women on the signs, symptoms, and complications of diabetes, according to a study on population knowledge of the disease in rural Northwest Pakistan [17].

### Level of diabetes knowledge according to educational status

The educational status was found to be favorably correlated with diabetes knowledge in this study, suggesting that individuals' degree of education directly affects their understanding of diabetes mellitus. Due to potential issues with reading, writing, and comprehension, low levels of education can undoubtedly restrict access to information.

An investigation into diabetes risk factors and preventative strategies carried out in Saudi Arabia revealed that diabetes knowledge increased with a higher level of education [14, 18]. This finding was also congruent with other studies [15, 19].

## Conclusion

Significant associations were found between certain characteristics such as age, sex, and educational level) and the level of diabetes knowledge. Further studies must be conducted with a larger sample size.

## References

1. World Health Organization, The Asia-Pacific Perspective Redefining Obesity and Its Treatment. Geneva, Switzerland: World Health

Organization, 2000.

2. J. Dekker, M. Kraan, G. Nijpels, F. de Vegt, P. Kostense, C. D. A. Stehouwer, et al., "Estimate of the Number of New Patients With Type 2 Diabetes Mellitus in the Netherlands: At Least 65,000 Per Year in the Age Group of 50 Years and Above," *Nederlands Tijdschrift Voor Geneeskunde*, vol. 147, no. 30, pp. 1419–1423, 2003.
3. K. Hjelm, E. Mufunda, G. Nambozi, and J. Kemp, "Preparing Nurses to Face the Pandemic of Diabetes Mellitus: A Literature Review," *Journal of Advanced Nursing*, vol. 41, no. 5, pp. 424–434, 2003.
4. H. L. Wee, H. K. Ho, and S. C. Li, "Public Awareness of Diabetes Mellitus in Singapore," *Singapore Medical Journal*, vol. 43, no. 3, pp. 128–134, 2002.
5. S. Wild, G. Roglic, A. Green, R. Sicree, and H. King, "Global Prevalence of Diabetes: Estimates for the Year 2000 and Projections for 2030," *Diabetes Care*, vol. 27, no. 5, pp. 1047–1053, 2004.
6. I. M. Stratton, A. I. Adler, H. A. W. Neil, D. R. Matthews, S. E. Manley, C. A. Cull, et al., "Association of Glycaemia With Macrovascular and Microvascular Complications of Type 2 Diabetes (UKPDS 35): Prospective Observational Study," *BMJ*, vol. 321, no. 7258, pp. 405–412, 2000.
7. World Health Organization Consultation, *Definition, Diagnosis and Classification of Diabetes Mellitus and Its Complications*. Geneva, Switzerland: World Health Organization, 1999.
8. World Health Organization, *Guidelines for the Prevention, Management and Care of Diabetes Mellitus*. Geneva, Switzerland: World Health Organization, 2006.
9. K. F. Petersen and G. I. Shulman, "Etiology of Insulin Resistance," *The American Journal of Medicine*, vol. 119, no. 5, Suppl. 1, pp. S10–S16, 2006.
10. P. Aranaz, D. Navarro-Herrera, M. Zabala, I. Migueliz, A. Romo-Hualde, and M. Lopez-Yoldi, "American Diabetes Association 2010: Diagnosis and Classification of Diabetes Mellitus," *Diabetes Care*, vol. 33, Suppl. 1, pp. S62–S69, 2010.
11. G. Rafique, S. Azam, and F. White, "Diabetes Knowledge, Beliefs and Practices Among People With Diabetes Attending a University Hospital in Karachi, Pakistan," *Eastern Mediterranean Health Journal*, vol. 12, no. 5, pp. 590–598, 2006.
12. A. A. Mansour, H. L. Wanoose, I. Hani, A. Abed-Alzahrea, and H. L. Wanoose, "Diabetes Screening in Basrah, Iraq: A Population-Based Cross-Sectional Study," *Diabetes Research and Clinical Practice*, vol. 79, no. 1, pp. 147–150, 2008.
13. Y. Sun, Y. T. Cai, J. Chen, Y. Gao, J. Xi, L. Ge, et al., "An Evidence Map of Clinical Practice Guideline Recommendations and Quality on Diabetic Retinopathy," *Eye*, vol. 34, no. 11, pp. 1989–2000, 2020.
14. A. S. Aljoudi and A. Z. Taha, "Knowledge of Diabetes Risk Factors and Preventive Measures Among Attendees of a Primary Care Center in Eastern Saudi Arabia," *Annals of Saudi Medicine*, vol. 29, no. 1, pp. 15–19, 2009.
15. M. A. Al Shafae, S. Al-Shukaili, S. G. A. Rizvi, Y. Al Farsi, M. A. Khan, S. S. Ganguly, et al., "Knowledge and Perceptions of Diabetes in a Semi-Urban Omani Population," *BMC Public Health*, vol. 8, Art. no. 249, 2008.
16. N. Nisar, I. A. Khan, M. H. Qadri, and S. A. Sher, "Knowledge and Risk Assessment of Diabetes Mellitus at Primary Care Level: A Preventive Approach Required for Combating the Disease in a Developing Country," *Pakistan Journal of Medical Sciences*, vol. 24,

no. 5, pp. 667–672, 2008.

17. Z. Hasan, S. Zia, and M. Maracy, “Baseline Disease Knowledge Assessment in Patients With Type 2 Diabetes in a Rural Area of Northwest Pakistan,” *Journal of the Pakistan Medical Association*, vol. 54, no. 2, pp. 67–73, 2004.
18. N. Abate and M. Chandalia, “Ethnicity and Type 2 Diabetes: Focus on Asian Indians,” *Journal of Diabetes and Its Complications*, vol. 15, no. 6, pp. 320–327, 2001.
19. S. E. Choi, M. Liu, L. P. Palaniappan, E. J. Wang, and N. D. Wong, “Gender and Ethnic Differences in the Prevalence of Type 2 Diabetes Among Asian Subgroups in California,” *Journal of Diabetes and Its Complications*, vol. 27, no. 5, pp. 429–435, 2013.