ORIGINAL ARTICLE

Analysis of factors influencing re-visit intention of diabetes mellitus patients at dr. Pirngadi General Hospital

Jeff Loren, Rafika Zannah, Magdalena Julianni Hutauruk, Lili Kuswani, Taufik Delfian*, Haryadi, Andrico Napolin Lumban Tobing, Erwin Sopacua, Rizki Arviandi, Anita Merry Cisca, Faskanita Maristella Nadapdap, Kriswandy Putra

ABSTRACT

Diabetes mellitus is a non-communicable disease that requires a long treatment so that patients have to take medication or visit the hospital more often, interest in repeat visits is a behavior that appears in response to objects that indicate a customer's desire to make a repeat purchase. The aim of the study was to find out whether the factors that determine interest in returning to diabetes mellitus patients at Pirngadi Hospital in Medan City in 2023. The research method uses a correlative descriptive design with a cross-sectional approach. The results showed that most of the respondents were male, namely 23 (51.1%), the education level of respondents who were high and medium had the same proportion, namely 18 (40%), the employment status of respondents was 30 (66.7%) working. Quality of service as many as 33 (73.3%) and as many as 28 (62.2%) families get high support. The results of the statistical chi-square test found that there was no significant relationship between gender and intention to revisit (p=0.155), there was no relationship between education and intention to revisit (p=0.371), there was no relationship between work and intention to revisit (p=0.828), there is a relationship between quality of service and interest in repeat visits (p=0.000). There is no relationship between family support and interest in repeat visits (p=0.000). This research is expected to be an evaluation material in improving health services related to the determinants of interest in repeat visits of patients with diabetes mellitus.

Keyword: diabetes mellitus, interest in visits, patients

Introduction

The continuously increasing economic progress leads to changes in societal behavior and lifestyle. When income is high, people tend to overconsume food and have less physical activity, leading to obesity. Such conditions can result in an unhealthy society.[1,2] Unhealthy lifestyles can lead to various dangerous diseases. A phenomenon accompanying unhealthy lifestyles is the emergence of degenerative diseases such as diabetes mellitus.[3] Diabetes mellitus is a chronic disease caused by heredity or a deficiency in insulin production in the pancreas due to the ineffectiveness of the insulin produced. This leads to an increase in blood glucose concentration (hyperglycemia), which will damage many body systems, especially blood vessels and nerves.[4,5] The global prevalence of diabetes is increasing rapidly, with significant implications for health systems worldwide. In 2013, an estimated 382 million people had diabetes, projected to rise to 592

Affiliation
Faculty of Medicine, Dentistry and Health Science, Universitas Prima Indonesia, Medan, Indonesia

*Corespondence:
taufikdelfian@unprimdn.ac.id

million by 2035.[6] More recent estimates suggest even higher numbers, with 451 million people affected in 2017, expected to reach 693 million by 2045.[7] Indonesia ranks 7th globally in diabetes incidence, with projections indicating an increase from 18.69 million cases in 2020 to 40.7 million by 2045 without intervention.[8]

Diabetes mellitus can lead to various long-term complications affecting multiple organ systems through microvascular and macrovascular changes.[9,10] Peripheral vascular disease (PVD) is a common complication, with a prevalence of 20-30% in diabetic patients.[9] Foot ulcerations affect 2-4% of diabetic patients, resulting from a combination of factors including peripheral neuropathy, vascular disease, and foot deformity.[10] Aberrant angiogenesis plays a crucial role in diabetic complications, contributing to retinopathy, nephropathy, and impaired wound healing.[11] The molecular mechanisms underlying vascular complications involve the activation of four biochemical pathways, dysregulation of growth factors and cytokines, epigenetic changes, and abnormalities in non-coding RNAs.[12]

Hospital service quality and patient satisfaction are crucial factors in healthcare delivery. Studies have identified key dimensions of service quality, including responsiveness, assurance, professionalism, reliability, empathy, and tangibles.[13,14] These factors significantly influence patient satisfaction and hospital choice. Research has shown that gaps exist between patient expectations and perceived service quality, with responsiveness often having the largest gap.[14] To address these issues, hospitals need to focus on improving staff competence, clarity of procedures, and effectiveness of services.[13] Additionally, enhancing tangible aspects, reliability, and empathy can boost patient satisfaction.[13,15] Challenges in improving service quality include limited medical personnel, inadequate infrastructure, and poor public perception of hospital services.[13] Implementing IT support and automation can help hospitals enhance their responsiveness and overall service quality.[14] Patient satisfaction is a measure of the quality of services provided by the hospital. The higher the level of patient satisfaction, the better the quality of services provided by the hospital. If patients are satisfied with the services provided by the hospital, then the patient's interest in revisiting will be higher, which will certainly benefit the hospital.[16]

Revisit intention is a behavior that emerges as a response to an object showing the customer's desire to make repeat purchases. Revisit can also be interpreted as part of the stages of consumer loyalty; several factors influence patient loyalty, namely customer satisfaction, service quality, image, and barriers to switching.[17,18] The results of the initial survey conducted by the researcher at Dr. Pirngadi General Hospital, Medan City, showed that the number of diabetes mellitus patients until April 2023 was 213 sufferers. The results of interviews on May 3, 2023, with 10 diabetes mellitus patients, showed that 60% of patients stated they were new patients, and the remaining 40% were patients who were revisiting for disease control. The main aim of this study is to analyze the factors that influence the revisit intention of diabetes mellitus patients at Dr. Pirngadi General Hospital in Medan City. Specifically, the research seeks to identify which factors have the most significant impact on a patient's decision to return for future care. By understanding these determinants, the study hopes to provide valuable insights that could help improve patient retention and healthcare services.

Method

This quantitative research employs a descriptive correlative design with a cross-sectional approach, aiming to analyze factors determining the revisit intention of Diabetes Mellitus patients at Dr. Pirngadi General Hospital in Medan City in 2023. The study was planned to be conducted from March to August 2023 at the specified hospital due to a majority of new diabetes mellitus patients rather than revisiting ones. The population consists of Diabetes Mellitus patients visiting the hospital during June-July 2023, averaging 45 patients per month. Accidental sampling was utilized, with a minimum sample size of 45 respondents. Data collection involved primary data through direct interviews using questionnaires adapted from Rahmadona (2019), covering respondent characteristics (gender, education, occupation), health service quality, family support, and revisit intention , and secondary data obtained from the hospital's medical records. Questionnaires for service quality, family support, and revisit intention used a Guttman scale with specific scoring for categorization. Data analysis involved univariate analysis for frequency distribution and bivariate analysis using the Chi-square test with a significance level of $\alpha < 0.05$ to examine relationships between independent variables (patient characteristics, service quality, family support) and the dependent variable.

Results

Table 1 presents the demographic characteristics distribution of 45 diabetes mellitus patients, indicating a nearly balanced distribution of gender, with male patients slightly outnumbering females at 51.1% (n=23) compared to 48.9% (n=22). In terms of education, both high and medium education levels each account for an equal proportion of respondents at 40% (n=18 for each category), while patients with low education constitute 20% (n=9). Regarding occupation, the majority of respondents are employed, making up 66.7% (n=30) of the patient population, with the remaining 33.3% (n=15) being unemployed. This profile provides a foundational understanding of the patient demographics in the study.

Table 1. Characteristics of respondents

Characteristics	f	%
Gender		
Male	23	51.1
Female	22	48.9
Education		
High	18	40
Medium	18	40
Low	9	20
Occupation		
Employed	30	66.7
Unemployed	15	33.3
Total	45	100

Table 2 presents the frequency distribution of respondent characteristics concerning the quality of service, family support, and revisit intention among a total of 45 patients. The majority of respondents (73.3%, n=33) perceived the Quality of Service they received as High, while only 26.7% (n=12) rated it as Low, indicating a predominantly positive perception of service quality at the hospital. Regarding Family's Support, over half of the respondents (62.2%, n=28) reported receiving High family support, whereas 37.8% (n=17) reported Low support, suggesting that most patients feel supported by their families. Furthermore, for Revisit Intention, the majority of respondents (62.2%, n=28) indicated they were Interested in revisiting the hospital, with 37.8% (n=17) stating they were Not Interested. Overall, this univariate analysis reveals that most patients at Dr. Pirngadi General Hospital hold a positive perception of service quality, receive high family support, and exhibit a strong inclination to revisit.

Table 2. Univariate Analyis

Variable	n	%
Quality of Service		
High Quality	33	73.3
Low Quality	12	26.7
Family's Support		
High	28	62.2
Low	17	37.8
Revisit Intention		
Interested	28	62.2
Not Interested	17	37.8
Total	45	100

Table 3 presents the bivariate analysis examining the relationship between various maternal characteristics and their participation in Posyandu activities. The results indicate no statistically significant relationship between gender (p=0.155), mother's education (p=0.371), or mother's occupation (p=0.828) and participation in Posyandu activities. While females showed higher active participation (72.7%) compared to males (52.2%), and those with middle education (72.2%) or who were employed (63.3%) also showed higher active rates within their groups, these differences were not statistically significant. However, a highly

significant relationship was found between revisit intention and participation in Posyandu activities (p=0.000). Specifically, all mothers who reported not being interested in revisiting (100%, n=12) were categorized as "Not Active" in Posyandu, whereas 84.8% (n=28) of those interested in revisiting were "Active." This suggests that a mother's intention to revisit is a strong predictor of her active engagement in Posyandu activities.

Table 3. Bivariate analysis

Variables	Participation of mothers with toddlers in posyandu activities				Total		p-value
	Active		Not Active				
	f	%	f	%	f	%	
Gender							
Male	12	52.2	11	47,8	23	100	0.155
Female	16	72.7	6	27.3	22	100	
Education of mother							
High	11	61.1	7	38.9	18	100	0.371
Middle	13	72.2	5	55.6	18	100	
Low	4	44.4	5	27.8	9	100	
Occupation of Mother							
Employed	19	63.3	11	36.7	30	100	0.828
Unemployed	9	60.0	6	40.0	15	100	
Revisit Intention							
Interested	28	84.8	5	15.2	33	100	0.000
Not Interested	0	0	12	100	12	100	

Discussion

This study investigated factors influencing revisit intention among diabetes mellitus patients at Dr. Pirngadi General Hospital in Medan City. The findings provide insights into the demographic characteristics of the patient population and the impact of service quality and family support on their willingness to return for care. The demographic profile of the respondents revealed a slight male predominance (51.1%), with equal proportions of high and medium education levels (40% each), and a majority being employed (66.7%). These characteristics offer a foundational understanding of the study's patient base.

Univariate analysis indicated that most respondents (73.3%) perceived the hospital's service quality as high, and over half (62.2%) reported receiving high family support. Furthermore, a significant portion of patients (62.2%) expressed an interest in revisiting the hospital. These results suggest generally positive patient experiences regarding service quality and familial backing, which are crucial for patient satisfaction and adherence to long-term treatment regimens, especially for chronic conditions like diabetes mellitus. The bivariate analysis using the chi-square test revealed no statistically significant relationship between demographic factors such as gender (p=0.155), education (p=0.371), or occupation (p=0.828) and the intention to revisit. This suggests that, for this patient group, demographic characteristics alone do not significantly predict their likelihood of returning to the hospital for diabetes care. This finding aligns with some previous research that indicates other factors beyond demographics often play a more dominant role in patient loyalty and revisit intention in healthcare settings.

However, the study identified a significant positive relationship between the quality of service (p=0.000) and revisit intention. This strongly supports the notion that patients who perceive higher quality care are more likely to return. This finding is consistent with existing literature emphasizing patient satisfaction as a primary determinant of repeat visits and loyalty. High-quality service contributes to positive patient experiences, fostering trust and a desire to continue receiving care from the same provider. Hospitals that prioritize and continuously improve their service quality are more likely to retain patients and enhance their overall health outcomes. Similarly, a significant relationship was found between family support and revisit intention (p=0.000). This highlights the crucial role of family in influencing a patient's decision to continue their treatment and revisit the hospital. For chronic diseases like diabetes mellitus, ongoing family support can provide encouragement, facilitate adherence to medical advice, and assist with logistical aspects

of healthcare, ultimately contributing to better patient engagement and revisit intention. This finding is particularly relevant given that diabetes mellitus often requires long-term management and frequent hospital visits. The initial survey results indicating a majority of new diabetes mellitus patients (60%) compared to revisiting ones (40%) at Dr. Pirngadi General Hospital until April 2023 underscore the importance of understanding factors that encourage repeat visits. While the present study did not directly investigate the reasons for initial visits versus repeat visits, the strong correlation between service quality, family support, and revisit intention provides actionable insights. Improving service quality and promoting family involvement can potentially increase the proportion of returning patients, leading to more consistent disease management and improved health outcomes for individuals with diabetes mellitus.

This research aligns with broader health development goals aimed at increasing awareness, willingness, and ability to live healthily, ultimately achieving a high degree of public health. By understanding and addressing the factors that drive revisit intention, healthcare providers, particularly hospitals, can refine their strategies to enhance patient loyalty and ensure continuous care for chronic conditions. It is important to acknowledge certain limitations. The study utilized accidental sampling with a relatively small sample size (45 respondents), which may limit the generalizability of the findings to a larger population of diabetes mellitus patients. Future research with larger and more diverse samples, perhaps employing different sampling methods, could provide a more comprehensive understanding. Additionally, while the study identified significant relationships, it did not delve into the specific mechanisms or aspects of service quality and family support that most strongly influence revisit intention. Qualitative research could explore these nuances in greater depth.

Conclusion

Based on the research findings from 45 respondents, it was observed that 23 (51.1%) patients were male. Respondents with high and medium education levels had equal proportions, both at 18 (40%). A majority of respondents, 30 (66.7%), were employed. Furthermore, 33 (73.3%) patients stated that the hospital's service quality was good, while 28 (62.2%) patients received high family support. Additionally, 28 (62.2%) patients indicated an interest in revisiting the hospital. It was found that there was no significant relationship between gender, education, or occupation and the revisit intention among Diabetes Mellitus patients at Dr. Pirngadi General Hospital in Medan. However, a significant relationship was identified between the quality of service and family support with the revisit intention of Diabetes Mellitus patients at Dr. Pirngadi General Hospital in Medan.

References

1. Grecu AM, Rotthoff KW. Economic growth and obesity: findings of an Obesity Kuznets curve. Appl Econ Lett [Internet]. 2015 May 3;22(7):539–43. Available from: http://www.tandfonline.com/doi/abs/10.1080/13504851.2014.955251
2. Prabhandhari NPD. "Globesity" An Outbreak: Asia. Glob Policy J Int Relations [Internet]. 2020 Feb 19;7(2). Available from: http://ejournal.upnjatim.ac.id/index.php/jgp/article/view/1827
3. Agarwal SK. Obesity and Non-Communicable Diseases: Part II Cancer, Diabetes Mellitus, Kidney Diseases, Alzheimer's Disease, Arthritis. Clin Med Insights. 2021;2(1):80–97.
4. Antar SA, Ashour NA, Sharaky M, Khattab M, Ashour NA, Zaid RT, et al. Diabetes mellitus: Classification, mediators, and complications; A gate to identify potential targets for the development of new effective treatments. Biomed Pharmacother [Internet]. 2023 Dec;168:115734. Available from: https://linkinghub.elsevier.com/retrieve/pii/S0753332223015329
5. Schuster DP, Duvuuri V. Diabetes mellitus. Clin Podiatr Med Surg [Internet]. 2002 Jan;19(1):79–107. Available from: https://linkinghub.elsevier.com/retrieve/pii/S089184220300082X
6. Guariguata L, Whiting DR, Hambleton I, Beagley J, Linnenkamp U, Shaw JE. Global estimates of diabetes prevalence for 2013 and projections for 2035. Diabetes Res Clin Pract [Internet]. 2014 Feb;103(2):137–49. Available from: https://linkinghub.elsevier.com/retrieve/pii/S0168822713003859
7. Cho NH, Shaw JE, Karuranga S, Huang Y, da Rocha Fernandes JD, Ohlrogge AW, et al. IDF Diabetes Atlas: Global estimates of diabetes prevalence for 2017 and projections for 2045. Diabetes Res Clin Pract [Internet]. 2018 Apr;138:271–81. Available from: https://linkinghub.elsevier.com/retrieve/pii/S0168822718302031
8. Wahidin M, Achadi A, Besral B, Kosen S, Nadjib M, Nurwahyuni A, et al. Projection of diabetes morbidity and mortality till 2045 in Indonesia based on risk factors and NCD prevention and control programs. Sci Rep [Internet]. 2024 Mar 5;14(1):5424. Available from: https://www.nature.com/articles/s41598-024-54563-2
9. Radha PD, P.S A, Annamalai S. Diabetes Mellitus and Peripheral Vascular Disease. Int J Contemp Med Res [Internet]. 2020 Jul;7(7). Available from: https://www.ijcmr.com/uploads/7/7/4/6/77464738/ijcmr_3147.pdf
10. Bowling FL, Rashid ST, Boulton AJM. Preventing and treating foot complications associated with diabetes mellitus. Nat Rev Endocrinol [Internet]. 2015 Oct 18;11(10):606–16. Available from: https://www.nature.com/articles/nrendo.2015.130
11. Kota S, Meher L, Jammula S, Kota S, Krishna SVS, Modi K. Aberrant angiogenesis: The gateway to diabetic complications. Indian J Endocrinol Metab. 2012;16(6):918.

12. Paul S, Ali A, Katare R. Molecular complexities underlying the vascular complications of diabetes mellitus – A comprehensive review. J Diabetes Complications [Internet]. 2020 Aug;34(8):107613. Available from: https://linkinghub.elsevier.com/retrieve/pii/S105687272030369X

13. Utari W, Hidayat H, Iswoyo A. Analysis factors of hospital services quality and user satisfaction. Int J Bus Manag Invent. 2016;5(2):55–61.

14. Sandhyaduhita P, Fajrina HR, Pinem AA, Hidayanto AN, Handayani P, Junus K. Hospital Service Quality from Patients Perspective. Int J E-Health Med Commun [Internet]. 2016 Oct 1;7(4):48–61. Available from: https://services.igi-global.com/resolvedoi/resolve.aspx?doi=10.4018/IJEHMC.2016100103

15. Pratiwi A, Channgakham S, Thinzar Lin M. Improving Service Quality Through Customer Satisfaction of Type D Hospital : A Phenomenological Approach. Ilomata Int J Soc Sci [Internet]. 2023 Feb 5;4(1):89–104. Available from: https://ilomata.org/index.php/ijss/article/view/650

16. Sahar M, Zouheir M, Idrissi N, Mahir S, El Mahdi EM, Hijab Z. Optimizing Quality Management in the Public Health Sector: Measuring Patient Satisfaction. J Posthumanism [Internet]. 2025 Apr 5;5(1). Available from: https://posthumanism.co.uk/jp/article/view/560

17. Lee HJ. A Study on the Effect of Customer Habits on Revisit Intention Focusing on Franchise Coffee Shops. Information [Internet]. 2022 Feb 13;13(2):86. Available from: https://www.mdpi.com/2078-2489/13/2/86

18. Shoukat MH, Ramkissoon H. Customer delight, engagement, experience, value co-creation, place identity, and revisit intention: a new conceptual framework. J Hosp Mark Manag [Internet]. 2022 Aug 18;31(6):757–75. Available from: https://www.tandfonline.com/doi/full/10.1080/19368623.2022.2062692