EXPLORING BARRIERS OF DIABETIC PROGRAMS IN PRIMARY HEALTH CARES IN BUKITTINGGI; HEALTH WORKER'S PERSPECTIVE

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ABSTRACT

The incidence of Diabetes Mellitus in Indonesia continues to increase each year. Nearly 75% of individuals with diabetes remain undiagnosed, posing a high risk of complications, disabilities, and premature death. Diabetes programs implemented in Primary Health Cares are divided into two categories: integrated within the Non-Communicable Disease (NCD) control program and integrated within the Chronic Disease Management program (Prolanis). However, not all activities are fully realized, so it is necessary to identify the barriers to the implementation of diabetes programs in these health centers. This research aims to investigate and provide an in-depth understanding of the obstacles faced by healthcare workers involved in diabetes programs at Primary health cares. The study sample consisted of 13 individuals selected through purposive sampling techniques. Data collection employed semi-structured interviews, and data analysis utilized the Collaizi method. The research identified six themes as follows: the absence of a specific diabetes program, program interruption during the COVID pandemic, most program participants being elderly, inadequate capacity of exercise fields, a shortage of human resources, and the remote location of the health centers from the working area. Based on the findings of this research, it is expected that future primary health care will establish an integrated diabetes program and increase the number of healthcare workers involved in managing Diabetes to ensure the optimal implementation of the program.

Keywords: Barriers, Diabetes programs, Primary Health Care

INTRODUCTION

The number of cases and prevalence of diabetes have been increasing over the past few decades, with over 400 million people worldwide suffering from diabetes. The World Health Organization (WHO) has also reported an increase in diabetes-related deaths from 2000 to 2019. Approximately 1.5 million deaths occur annually directly related to diabetes, with nearly half of all deaths occurring before the age of 70 (WHO, 2023). The results of Riskesdas (2018) reported that the prevalence of diabetes in Indonesia increased from 6.3% in 2013 to 8.6% in 2018, with the number of patients exceeding 9 million. Almost 75% of diabetes patients remain undiagnosed, leading to various threats such as delayed treatment,

complications, disabilities, high treatment costs, and premature death. Currently, diabetes ranks as the third leading cause of death in Indonesia (Infodatin Kemenkes RI, 2020).

In response to this situation, the Indonesian government issued the Ministry of Health Regulation No. 71/2015 on the Prevention and Control of Non-Communicable Diseases (NCDs), which includes minimum service standards at the district and provincial levels through standardized access to diabetes cases at Primary Health Cares (Primary Health Care). The NCD program at Primary Health Care related to diabetes cases focuses on the promotion, prevention, and reduction of NCD risk factors through community empowerment, implemented through the Diabetes Screening and Education Program (Kemenkes RI, 2019). Primary Health Care also implements other diabetes programs as part of the Chronic Disease Management Program (Prolanis) initiated by the National Health Insurance (JKN).

The Prolanis program consists of medical consultations, reminder SMS gateways, home visits, club activities (exercise), medication services, and health status monitoring (Kemenkes RI, 2019). From interviews and field observations at the Primary Health Care in Bukittinggi, it was found that not all diabetes programs, particularly the Prolanis program, are functioning optimally. Therefore, it is necessary to conduct further research on the barriers to implementing the Diabetes Program at the Primary Health Care in Bukittinggi.

REVIEW OF LITERATURE

The Diabetes Program aims to enable diabetes patients to control their blood sugar levels in their daily lives. This is in line with the research conducted by Kristianto (2021), which found a relationship between patient participation in the Chronic Disease Control Program and treatment adherence, resulting in controlled blood sugar levels in patients (Kristianto et al., 2021). However, the implementation of the Diabetes Program is not always optimal. Previous studies on the implementation of the Diabetes Program at Primary Health Care showed suboptimal implementation. For example, a study conducted by Raraswati et al. (2018) on the role of the Prolanis program in reducing fasting blood sugar levels in diabetes patients at the Jatinangor Primary Health Care found incomplete data regarding fasting blood sugar levels in patients. In addition, the Home Visit and SMS Gateway programs were not implemented at all in this Primary Health Care (Raraswati et al., 2018). Other studies also found that the implementation of the Prolanis program has not been optimal and has not reached the 75% indicator (Ayu Imade Rosdiana F et al., 2017; Jannah, 2018; Pebriyani et al., 2022). Another study found that the implementation of diabetes control programs at Primary Health Care faces obstacles, especially related to funding and resources (Kurniawati et al., 2019). Some other barriers experienced in the implementation of the diabetes program include poor communication, inadequate resources such as facilities and funding, and the absence of standardized operating procedures (Ayu Imade Rosdiana F et al., 2017).

The implementation of the diabetes program is an effort by the government and healthcare workers to address all the problems associated with diabetes. The NCD program aims to increase community

participation in the prevention and early detection of NCD risk factors in order to achieve a healthy Indonesia (Kemenkes RI, 2019). The Prolanis program aims to encourage participants with chronic diseases to achieve optimal quality of life (Badan Penyelenggara Jaminan Kesehatan, 2014). However, there are many obstacles in the implementation of this diabetes program, resulting in many programs not functioning optimally. Based on a brief interview with healthcare workers involved in the diabetes program, it was found that only five Prolanis programs were being implemented: medical consultations, club education and regular health examinations, reminder through SMS gateway, and medical consultations. However, each program was not regularly implemented due to a lack of healthcare personnel to manage the Prolanis program and a lack of facilities and infrastructure. Therefore, further research is needed to thoroughly examine the barriers to implementing the diabetes program at the Primary Health Care in Bukittinggi.

This study aims to explore and provide in-depth information about the barriers faced by healthcare workers involved in the diabetes program at the Primary Health Care.Research Question:" what were the barriers that were faced by healthcare workers in the diabetes program at the Primary Health Care?".

RESEARCH METHODOLOGY

This research employs a qualitative design with a phenomenological approach aimed at understanding the phenomenon from the participants' perspectives. A phenomenologist, Husserl, emphasizes that phenomenological research focuses on describing the meaning of a person's experiences (Creswell, 2014; Polit & Beck, 2017). By conducting in-depth interviews with responsible individuals in the diabetes program and asking about the barriers they face while implementing the diabetes program.

This study was conducted in West Sumatra, Indonesia, from July 2023 to January 2024. The sample for this research was selected using purposive sampling technique. The inclusion criteria was health workers who had experiences in the diabetes programs at each Primary Health Care in Bukittinggi. There is no predetermined sample size in qualitative research, but researchers use saturation to determine it. If saturation is achieved without obtaining additional information, the sample size is considered sufficient (Polit & Beck, 2017). Therefore, in this study, 13 participants were involved.

Data for this research were obtained through semi-structured interviews. The interviews began with an open-ended question, "What are the barriers you face while managing the diabetes program?" However, the researcher also prepared probing questions as follow-ups to anticipate difficulties in eliciting data during the interview. The data in this study were analyzed using the Collaizi method, which consists of 7 stages: obtaining an understanding of each transcript, extracting significant statements, formulating meanings, organizing meanings into thematic groups, describing the investigated phenomenon in-depth, depicting the fundamental structure of the phenomenon, and returning to the participants (Polit & Beck, 2017).

Ethical approval for the study was obtained from University of Ford de Kock, Indonesia (No: 230/ KEPK/VI/2023). The head of Primary

health cares were fully informed regarding the study before the participants were approached. The participants were told the details of the study and invited to sign informed consent before the data were collected. The information about the participants was kept confidential and their names were substituted by code numbers in reporting the data. The participants could stop the interview anytime when they felt uncomfortable.

RESEARCH RESULTS

In this study, a total of thirteen healthcare workers involved in the Prolanis program participated. The participants' ages ranged from 28 to 45 years. They have been engaged in the Prolanis program and NCD program since 2017 until the present. Thirteen of the participants were married. All participants were Muslims and of Minangkabau ethnicity. Throughout the research conducted in Primary Health Care across Bukittinggi. The participants chose the interview locations within the Primary Health Care area based on their preferences. The interviews were conducted in a manner that ensured the participants' comfort and desires.

DISCUSSION

Program Interruption During The COVID-19 Pandemic

This theme emerged when participants discussed the barriers they faced while implementing the Prolanis program. They mentioned that the program was hindered during the COVID-19 pandemic. The participants expressed the following:

> "Only two years ago, the Prolanis program couldn't proceed due to COVID. We couldn't organize any activities. It was required to implement social distancing and physical distancing. No gatherings were allowed. We only resumed the Prolanis program last February, in 2022." (36 year old female)
>
> "But since COVID, the program completely stopped. It was only last month that we restarted the program." (41 year old female)
>
> "Because of COVID, the Prolanis program couldn't continue. We only resumed the Prolanis activities last month." (28 years old female)

The COVID-19 pandemic was one of the obstacles to the diabetes program's operation at the Primary Health Care. This led to limited access to the Primary Health Care (Pillay et al., 2021). Programs that required group participation, such as exercise sessions and health education at the Primary Health Care, were halted due to regulations on maintaining social distance among the public during the pandemic. This finding aligns with research indicating that the pandemic had various impacts on Primary Health Care programs like Prolanis. Although healthcare workers continued to serve participants through health status monitoring and monthly medication administration, other activities such as exercise and health education were not conducted (Azizah et al., 2020). The pandemic also affected several aspects of Primary Health Care, including screening implementation, service flow, and a decrease in the number of visitors (Stefanny J. Pangoempia et al., 2021).

According to Pangoempia et al. (2021), there were significant changes in healthcare services at

Primary Health Care during the COVID-19 pandemic, including alterations to systems and operating hours. Patients were directed to wait outside the Primary Health Care while maintaining physical distancing before receiving treatment. Routine services within the Primary Health Care building were still provided during the pandemic, but external services like Posyandu were suspended. A decline in visitor numbers at Primary Health Care was also observed during the COVID-19 pandemic.

Most Program Participants Being Elderly

Participants mentioned that the physical condition of the elderly was a barrier preventing many of them from participating in exercise activities. Participants expressed the following:

" Only few Prolanis participants attend the exercise sessions because many of them are elderly... Sometimes, it's difficult for them to leave their homes when they're already old." (45-year-old female)

"The physical health of the elderly prevents them from coming to the Primary Health Care to join the exercise sessions. Sometimes, they're bedridden, so it's impossible for them to participate in exercise." (41-year-old female)

One of the obstacles to implementing the Prolanis program is the difficulty faced by healthcare workers in gathering participants, the majority of whom are elderly. Participants mentioned:

"The obstacle might be our lack of proactivity in gathering Prolanis participants to join the exercise program." (36-year-old female)

"It's difficult to bring all the elderly participants. It's challenging." (37-year-old female).

The theme of most participants being elderly presents a challenge for Primary Health Care in implementing diabetes programs, especially those centered around the Primary Health Care. Most of the elderly participants in this study had physical limitations that prevented them from frequently attending all diabetes programs.

Most diabetes patients in Indonesia are elderly (Infodatin Kemenkes RI, 2020). Old age is also associated with the emergence of complex health conditions commonly referred to as geriatric syndromes. These often result from various underlying factors and include weakness, urinary incontinence, falls, delirium, and pressure ulcers (WHO, 2022). As individuals age, their height decreases by an average of 3 inches throughout their lifetime due to bone loss, muscle weakness, and ligament elasticity reduction. Cartilage stiffness in the joints also occurs, limiting physical activity and mobility, which affects physical activity, strength, and stamina (Flint & Tadi, 2023).

Diabetes in the elderly is an indicator of reduced life expectancy and functional impairment among the elderly. Individuals with diabetes are more likely to experience disability at an earlier stage compared to those without diabetes, and they are at a higher risk of spending more of their remaining years in a disabled state (Meneilly et al., 2018). Physical factors are related to a person's condition and health, including age and other factors (Rusmi, 2017). A person's health condition can be measured by their level of spiritual health and physical fitness, which significantly impact their ability to engage in activities, particularly exercise.

Kusmaedi (2018) states that physical fitness is a person's ability to perform daily tasks and work without significant fatigue, allowing the body to have energy reserves to handle additional burdens. Motivation influenced by a person's physical condition originates from within the individual, driving them to act in fulfilling their physical needs, such as bodily requirements. The findings of this study align with those of other research, which report that elderly patients with diabetes face challenges in participating in diabetes programs due to comorbid conditions, mobility issues, and difficulties engaging in physical activity (Yimer et al., 2025).

Inadequate Capacity of the Exercise Field

Participants mentioned that the small size of the exercise field was a barrier to conducting exercise activities. Participants expressed the following:

> "This Primary Health Care is small, so the exercise space is limited." (1.7) "The limited space for exercise is a challenge. Look at our courtyard; the participants even extend beyond the fence. Exercise requires a larger area." (36-year-old female)
>
> "The narrow front yard of the Primary Health Care is a constraint. We can't accommodate many participants for exercise." (37-year-old female)

This study found that the exercise field's capacity in the Primary Health Care was insufficient. Therefore, during exercise sessions, there were an overwhelming number of participants, even extending beyond the Primary Health Care fence. Consequently, exercise activities were only conducted to the extent permitted by the field's capacity. In other words, the exercise program was still implemented, but its effectiveness was hindered due to a lack of adequate infrastructure facilities.

Primary Health Care plays a role in improving healthcare delivery. Healthcare facilities provide community and individual healthcare services at the primary level, with an emphasis on promotive and preventive efforts to achieve the highest possible level of community health in their respective service areas (Shubhan et al., 2020). Infrastructure development is an essential component of a well-functioning healthcare system, including physical facilities, information systems for medical equipment, and the construction of new infrastructure. Providing quality healthcare services is necessary to achieve universal health, and healthcare facilities must be designed according to the needs, such as building or renovating primary healthcare facilities (Kapologwe et al., 2020). Therefore, the success of a program is also dependent on adequate facilities (Afrizal et al., 2019). This finding is also backed by other research indicating that insufficient facilities pose a barrier to engaging in physical activity in Saudi Arabia (Abdelhay et al., 2025).

Lack Of Human Resources

Participants mentioned the lack of a dedicated team to implement the Prolanis program. They expressed the following:

> "However, the problem is that there is no team handling the reminder program through SMS gateway due to a lack of personnel to manage it." (45-year-old female)
>
> "The obstacle might be when we want to visit patients at their

homes, but we have other activities at the Primary Health Care, so we don't have time to visit patients' homes." (41-year-old female)

"The challenge with medical consultations is that sometimes we only have one doctor available, and usually the person responsible for education is also ready for exercise. It's difficult because sometimes there's a clash, as we want to provide services, but there's only one doctor, and there are many patients." (37-year-old female)

"I, myself, am overwhelmed with this Diabetes program. There are many programs that are not being covered." (39-year-old female)

The theme of the lack of human resources presents a barrier for the Primary Health Care in implementing the Diabetes program. Currently, the diabetes program is only handled by 1-2 individuals. This condition hinders the optimal implementation of the program. Activities such as managing exercise sessions, home visits, SMS gateways, and education during check-ups are handled by a single person, causing difficulties in dividing time for program implementation. Human resources are a crucial component in implementing a program (Afrizal et al., 2019). It is in line with the research which indicates that diabetes care involving a multidisciplinary approach, including diabetes program coordinators, nutritionists, doctors, and other professionals, significantly improved patients' self-confidence in diabetes management and quality of life over a period of 12 months (Wang et al., 2019). Another research suggests that the success of diabetes programs at Primary Health Care has been associated with the involvement of specialists in a multidisciplinary team (Simmons, 2022). Limited human resources proved to be a major obstacle in Palangkaraya, consistent with the findings of Krisnadewi et al (2025), The shortage of staff made it challenging to meet the strong interest shown by participants. Participats also facing human resource challenges struggled to manage their time effectively because they were handling multiple roles within the community at primary health cares (Krisnadewi et al., 2025)

Absence of Dedicated Diabetes Program

Participants expressed that the diabetes program is integrated within the NCD (Non-Communicable Disease) program and included in the Prolanis program. They stated:

"We face difficulties in organizing it because it is combined within two programs: NCD and Prolanis." (39-year-old female)

"We experience challenges in integrating the implementation of the diabetes program because it is combined within NCD and Prolanis, which have different program coordinators." (40-year-old female)

"Sometimes, we entrust the home visits to the NCD program coordinator who happens to have a home visit schedule, resulting in fragmented information about the Diabetes program." (44-year-old female)

"Since diabetes is included in two different programs with different rules, the implementation is not specifically focused on Diabetes alone." (38-year-old female)

This study found the theme that there is no dedicated diabetes program. The data indicated that diabetes management is integrated within two different programs: the NCD program and the Prolanis program. As a result, the

implementation of the diabetes program lacks focus, including in terms of documentation, reporting, and program coordination. Therefore, a comprehensive guideline with on-the-job training is needed to enhance capacity and establish multidisciplinary teams at Primary Health Care to adopt a more holistic approach to diabetes treatment and provide optimal care (Hadman, 2021). This is supported by research that implemented an integrated diabetes program at the Primary Health Care level, resulting in holistic improvements in diabetes patients (Simmons, 2022).

Distant Location Of Primary Health Care From The Center Of The Working Area.

The location of the Primary Health Care being far from the central area poses difficulties in gathering patients who reside in distant parts of the working area. Participants expressed the following: "Sometimes, it's difficult for patients living far from the Primary Health Care to come frequently for diabetes programs." (40-year-old female)
"It could be because the Primary Health Care is not located in the central area of the working region, making it challenging to reach patients who live far away due to financial considerations as well." (38-year-old female)
"Patients feel burdened to come to the Primary Health Care every week to participate in the diabetes program because it's far away, even though they still live within the Primary Health Care' working area." (39-year-old female, 38-year-old female).

This study found the theme of the Primary Health Care location being far from the central area of its working region, resulting in low visitation rates among patients residing in the furthest distance within the Primary Health Care working area. Various factors, such as transportation, distance, and financial considerations, influence patients' ability to consistently participate in diabetes programs at the Primary Health Care. These findings are consistent with other studies that highlight limited access—particularly in remote regions—as a hindrance to the implementation of the Prolanis program (Krisnadewi et al., 2025).

CONCLUSIONS

This study shows the barriers of Diabetic Programs in Primary Health cares in Bukittinggi, Indonesia Based on Health workers Perspective. There are six themes in this research that act as barriers to the implementation of the diabetes program in Primary Health Cares. The first is the absence of dedicated diabetes program, which hinders the focus on diabetes management in terms of implementation and reporting.

Therefore, there is a need for an integrated diabetes program itself to achieve optimal treatment outcomes. Other themes identified in this research include the program interruption during the COVID pandemic, most program participants being elderly, inadequate capacity of the exercise field, lack of human resources, and the distant location of Primary Health Care the working area. Further research is recommended to quantitatively assess the effectiveness of the ongoing diabetes program at the community health center

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REFERENCES

Abdelhay, O., Altamimi, M., Abdelhay, Q., Manajrah, M., Tourkmani, A. M., Altamimi, M., & Altamimi, T. (2025). Perceived Barriers To Physical Activity And Their Predictors Among Adults In The Central Region In Saudi Arabia: Gender Differences And Cultural Aspects. Plos One, 20(2 February), 1–24. Https://Doi.Org/10.1371/Journal.Pone.0318798

Afrizal, S. H., Handayani, P. W., Hidayanto, A. N., Eryando, T., Budiharsana, M., & Martha, E. (2019). Barriers And Challenges To Primary Health Care Information System (Phcis) Adoption From Health Management Perspective: A Qualitative Study. Informatics In Medicine Unlocked, 17(April). Https://Doi.Org/10.1016/J.Imu.2019.100198

Ayu Imade Rosdiana F, Raharjo, B. B., & Indarjo, S. (2017). Implementasi Program Pengelolaan Penyakit Kronis (Prolanis). 1(3), 140–150.

Azizah, A. N., Raodhah, S., & Alam, S. (2020). Utilization Of The Chronic Disease Management Program During The Covid-19 Pandemic. Disease Preventive Of Research Integraty Volume, 1(1), 21–29.

Badan Penyelenggara Jaminan Kesehatan. (2014). Panduan Praktis Prolanis.

Creswell, J. W. (2014). Research Design : Qualitative, Quantitative, And Mixed Methods Approaches (4th Ed.). Sage Publications, Inc.

Flint, B., & Tadi, P. (2023). Physiology, Aging. Statpearls Publishing. Https://Www.Ncbi.Nlm.Nih.Gov/Books/Nbk556106/

Hadman, S. (2021). Impact Of A Diabetes Management Intervention In Primary Healthcare Providers. 11(9), 2021.

Infodatin Kemenkes Ri. (2020). Infodatin Tetap Produktif, Cegah, Dan Atasi Diabetes Melitus 2020. In Pusat Data Dan Informasi Kementrian Kesehatan Ri (Pp. 1–10).

Jannah, U. (2018). Gambaran Pelaksanaan Program Pengelolaan Penyakit Kronis Di Puskesmas Kota Makassar [Universitas Hasanudin]. Http://Repository.Unhas.Ac.Id/6778/2/C051171518_Skripsi 1-2.Pdf

Kemenkes Ri. (2019). Buku Pedoman Manajemen Penyakit Tidak Menular.

Krisnadewi, K. I., Kristina, S. A., Andayani, T. M., & Endarti, D. (2025). Implementation Preventive Program For Diabetic Mellitus (Prolanis) At Community Health Center In Indonesia: A Qualitative Study. Journal Of Applied Pharmaceutical Science, 15(1), 153–161. Https://Doi.Org/10.7324/Japs.2024.194416

Kristianto, F. C., Sari, D. L., & Kirtishanti, A. (2021). Pengaruh Program Penanggulangan Penyakit Kronis (Prolanis) Terhadap Kadar Gula Darah Pasien Diabetes Melitus Tipe 2. 2(2).

Kurniawati, N., Suryawati, C., & Arso, S. P. (2019). Evaluasi Program Pengendalian Diabetes Melitus Pada Usia Produktif Di Puskesmas Sapuran Tahun 2019. 7, 633–646.

Meneilly, G. S., Rn, A. K., Miller, D.

B., Rn, D. S., Tessier, D., & Basc, A. Z. (2018). Diabetes In Older People Diabetes Canada Clinical Practice Guidelines Expert Committee. 42, 283–295. Https://Doi.Org/Doi.Org/10.1016/J.Jcjd.2017.10.021

Pebriyani, U., Utami, D., Agustina, R., & Mariyam, S. (2022). Analisis Program Pengelolaan Penyakit Kronis (Prolanis) Bpjs Kesehatan Pada Pasien Diabetes Melitus. 3, 301–311.

Pillay, Y., Pienaar, S., Barron, P., & Zondi, T. (2021). Impact Of Covid-19 On Routine Primary Healthcare Services In South Africa. South African Medical Journal, 111(8), 714–719. Https://Doi.Org/10.7196/Samj.2021.V111i8.15786

Polit, D. F., & Beck, C. T. (2017). Download More At Learnclax.Com (10th Ed.). Wolters Kluwer.

Raraswati, A., Heryaman, H., & Soetedjo, N. N. M. (2018). Peran Program Prolanis Dalam Penurunan Kadar Gula Darah Puasa Pada Pasien Diabetes Melitus Tipe 2 Di Puskesmas Kecamatan Jatinangor Diabetic Patient In Puskesmas Kecamatan Jatinangor. 4, 65–70.

Shubhan, M. H., Aisyah, R. H. S., & ... (2020). Optimization Of Primary Health Care To Improve Health Services For Participants Of Social Insurance Administering Agency Of Health In Indonesia. Journal Of Critical …, 7(13), 4498–4505. Http://Repository.Unair.Ac.Id/108003/

Simmons, D. (2022). Effectiveness Of Integrated Diabetes Care Interventions Involving Diabetes Specialists Working In Primary And Community Care Settings : A Systematic Review And Meta-Analysis. 22(2), 1–16. Https://Doi.Org/10.5334/Ijic.6025

Stefanny J. Pangoempia, Korompis, G. E. C., & Rumayar, A. A. (2021). Analisis Pengaruh Pandemi Covid-19 Terhadap Pelayanan Kesehatan Di Puskesmas Ranotana Weru Dan Puskesmas Teling Atas Kota Manado. 10(1), 40–49.

Wang, G. X., Gauthier, R., Gunter, K. E., Johnson, L., Zhu, M., Wan, W., Tanumihardjo, J. P., & Chin, M. H. (2019). Improving Diabetes Care Through Population Health Innovations And Payments : Lessons From Western Maryland. 48–55. Https://Doi.Org/10.1007/S11606-022-07918-2

Who. (2022). Ageing And Health. Https://Www.Who.Int/News-Room/Fact-Sheets/Detail/Ageing-And-Health

Who. (2023). Diabetes. Https://Www.Who.Int/News-Room/Fact-Sheets/Detail/Diabetes

Yimer, Y. S., Ahmed, A. A., Addissie, A., Kidane, E. G., Reja, A., & Abdela, A. A. (2025). Patients And Healthcare Providers Needs And Challenges In Diabetes Self-Management And Support In Ethiopian Primary Healthcare Context. Bmc Health Services Research, 25(1). Https://Doi.Org/10.1186/S12913-025-12953-W