



# Challenges of Shifting Diabetes Mellitus Care From Secondary- to Primary-Level Care in Urban and Rural Districts: A Qualitative Inquiry Among Health Providers

Likke Prawidya Putri<sup>1,2</sup> , Dian Mawarni<sup>3</sup>, and Laksono Trisnantoro<sup>1</sup>

## Abstract

**Objectives:** The study aims to understand the acceptability of Prolanis, a program that shifts the diabetes mellitus type 2 (T2DM) patient management from secondary to primary care, among Indonesian primary health care providers. **Method:** We completed face-to-face semistructured interviews with 14 health professionals from 3 urban and 4 rural government-owned primary health care clinics (*Puskesmas*) in 4 districts. We performed content analysis using the theoretical framework of acceptability (TFA) to understand which factors could facilitate or reduce acceptability. **Results:** Our study identifies that lack of health care providers' acceptability to Prolanis was attributable to the negative affective attitude, low perceived effectiveness, poor self-efficacy, and work burden. The use of Prolanis output as one of the pay-for-performance indicators was deemed unsuitable because it could demotivate health providers to capture more undetected T2DM cases. This, compounded by lacking perceived benefit for the health care providers, leading to negative attitudes. Participants believed that the program improved patients' adherence to visiting clinics routinely; however, the absence of a formal evaluation of reductions of key T2DM indicators—blood glucose level and HbA1c—causing the health providers to doubt the program effectiveness. Availability of or access to adequate blood glucose testing equipment is also of paramount importance to improve acceptability. Although the significant increase in patient load only occurred to *Puskesmas* with lacking doctors, an increased workload burden due to clerical works was experienced by the nonmedical workforce. The program appears to be more acceptable for health care providers in urban *Puskesmas* compared with their rural counterparts, attributable to better geographical accessibility and care-seeking behavior among people living in urban locations. **Conclusions:** This study highlights critical issues that should be addressed to improve the acceptability of Prolanis among health care professionals. Government or stakeholders play a critical role in improving program acceptability. More study is needed to capture wider variety of health care facilities' characteristics.

## Keywords

acceptability, diabetes mellitus, attitude of health personnel, delivery of health care, primary health care, rural health services, Indonesia

Dates received 5 March 2020; revised 20 March 2020; accepted 20 March 2020.

## Introduction

In Indonesia, one of the low-to-middle-income countries (LMIC), diabetes mellitus affects 8.9% of the population aged 15 years or older.<sup>1</sup> Due to the high complication rate and high utilization at the outpatient clinics, diabetes has become among the 5 highest hospital claims in 2016.<sup>2</sup> This situation prompted the need to reduce the cost burden due to diabetes mellitus, by introducing a program, Prolanis, that allow patients to receive routine diabetes mellitus treatment at primary-level health care clinic (PHC) instead of in hospital.<sup>3</sup>

Prolanis was initiated in 2010 under the *Askes*, social insurance covering government employees and military,

<sup>1</sup>Universitas Gadjah Mada, Yogyakarta, Indonesia

<sup>2</sup>Monash University, Bendigo, Victoria, Australia

<sup>3</sup>Universitas Negeri Malang, East Java, Indonesia

### Corresponding Author:

Likke Prawidya Putri, Department of Health Policy and Management, Faculty of Medicine Health Sciences and Nursing, Universitas Gadjah Mada, Jl. Farmako Sekip Utara, Yogyakarta, 55281, Indonesia.  
 Email: [likke.putri@ugm.ac.id](mailto:likke.putri@ugm.ac.id)



Creative Commons Non Commercial CC BY-NC: This article is distributed under the terms of the Creative Commons

Attribution-NonCommercial 4.0 License (<https://creativecommons.org/licenses/by-nc/4.0/>) which permits non-commercial use, reproduction and distribution of the work without further permission provided the original work is attributed as specified on the SAGE and Open Access pages (<https://us.sagepub.com/en-us/nam/open-access-at-sage>).

nearly 20% of the country's population.<sup>4</sup> As one of the strategies following the introduction of Indonesian National Health Insurance or *Jaminan Kesehatan Nasional* (JKN), Prolanis was scaled up to cover more than 75% of the country's population.<sup>5</sup> Prolanis, which was previously only carried out by private practitioners, is being mandated for government-owned PHC or *Puskesmas*.<sup>3</sup>

Under the JKN, PHC receives monthly capitation, based on the number of registered JKN members and the achievement of performance indicators on service delivery (ie, performance-based capitation). One of the 3 performance indicators is the Prolanis member participation. To assess facility performance, the Social Security Agency for Health (or *Badan Penyelenggara Jaminan Sosial Kesehatan*—BPJSK), the fund manager under JKN, used the data reported by the facility online. Failure to record patient visit data may cause underestimation of program output; hence lead to reduced capitation payment. Thus, facilities not only must run the program well but also ensure that they enter the data correctly to the system.

Shifting diabetes management from secondary to primary-level care has been widely implemented in many nations and shown positive results.<sup>6,7</sup> In Indonesia, where diabetes mellitus costs 6.5% of total hospitals' outpatient care claims, shifting treatment to the primary levels has the potential to reduce the cost. Yet, it could cause a significant increase in the number of patients visiting PHCs, adding to the workload for PHC providers.<sup>3</sup> Meanwhile, the availability of diabetes mellitus care in primary care is limited. Only 2 out of 34 provinces in Indonesia have more than 75% of its PHC capable of performing blood glucose tests.<sup>8</sup> With increasing patient burden but limited resources, these health facilities could face severe problems in implementing Prolanis.<sup>9,10</sup> Whether the program is acceptable is an important matter in ensuring long-term sustainability.

The concept of health program acceptability involves a set of dimensions that illustrate the extent to which an intervention is deemed appropriate, fit, or suitable by the implementers or recipients.<sup>11,12</sup> Acceptability of a health program for the patients and care providers may contribute to compliance and program success.<sup>13,14</sup> This study is aiming at understanding the acceptability of Prolanis program among health care providers. Furthermore, this study also seeks to understand how this acceptability vary between urban and rural health care providers.

## Methodology

### Study Population

This was a qualitative study using semistructured interviews for data collection. We selected health care professionals

working in 4 districts in Yogyakarta and Central Java province. From each district, we requested the health manager to nominate 2 *Puskesmas* with the highest and lowest Prolanis indicator in the past 3 months. We purposively select participants who were the key persons for Prolanis program in each *Puskesmas*: 1 doctor, responsible for providing individual care and group counseling, and 1 program person-in-charge (PIC), responsible for the above tasks, arranging the "Prolanis day," reporting patient visits into the BPJSK information systems and administrative works for claiming and reimbursement.

### The Program

To be eligible as program recipient, JKN members with type 2 diabetes mellitus (T2DM) must enroll to become a "Prolanis member," with the following benefits:

1. Allowed to obtain a 1-month supply of medicines for T2DM; while nonmembers only allowed to obtain the medicines for maximum 7 to 14 days
2. Receive monthly group education sessions and group exercise, and free monthly blood glucose check. These are usually delivered 1 day in each month, named "Prolanis day."
3. Receive free HbA1c testing after 6 months with routine visits in 6 consecutive months.<sup>15,16</sup>

The cost of Prolanis day, including blood glucose check, group exercise, and counseling is reimbursable by the BPJSK. If the Prolanis indicator—that was (at the time of data collection) the proportion of registered Prolanis members visiting the facility monthly—is less than 50%, the capitation is reduced by 2% to 5%.<sup>17</sup>

### Data Collection

The face-to-face interviews to 14 respondents were conducted from October to November 2017 by the first author (LP) in participants' offices. The interviews were semistructured based on topic guide (Box 1) consisting of open-ended questions covering knowledge, perspective, and recommendations on the Prolanis program, and factors supporting and hindering program implementation.

### Data Analysis

The content analysis was conducted using the theoretical framework of acceptability (TFA) of health care intervention using inductive approach to understand the acceptability of the Prolanis program among health care providers. The TFA includes 7 constructs: affective attitude, burden, ethicality, intervention coherence, opportunity cost,

**Box 1.** Interview Questions.

Knowledge and perspective:  
 How is Prolanis program being rolled out in your facility?  
 What do you think about its benefits to patients and providers?  
 How does the program work?  
 Do you think that the program has been effective in achieving its purpose?

Factors supporting and hindering program achievement:  
 What factors could have contributed to the program's success in your facility?  
 What factors could have hindered the program's success in your facility?

**Table 1.** Characteristics of Respondents.

Position	No. of respondents		Mean age in years	Employment status		Length of work in the government in years (min, max)
	Urban	Rural		Civil employee/permanent	Temporary contract	
Doctor	4	3	47.3	6	1	18 (3, 26)
Program person-in-charge			39.4	7	0	12 (5, 27)
Nurse	2	3	40.4	5	0	14 (5, 27)
Community health officers	1	1	37.0	2	0	9 (8, 10)

perceived effectiveness, and self-efficacy.<sup>11</sup> The interviews were audio-recorded and transcribed verbatim. No transcripts were returned to participants. LP—has a master degree in public health—coded the manifest data from the transcriptions based on the TFA.<sup>11</sup> Facilities were grouped into urban and rural according to Indonesian bureau of statistics' classification based on scoring on population density, type of household, and living amenities.<sup>18</sup> A facility is classified as rural if it is located in a subdistrict with at least 50% rural villages. For describing quotes, we also classified facilities as well-performing if they had always met the Prolanis target in the last 1 year or poor-performing if otherwise.

**Ethical Approval**

Written informed consent was obtained from each participant. Ethical clearance was granted by Medical and Health Research Ethic Committee (MHREC) Faculty of Medicine Gadjah Mada University number KE/FK/0836/EC/2017.

**Results****Study Participants**

We interviewed a total of 14 participants from the 7 facilities selected. Two doctors in rural *Puskesmas*, who were not available for interview, were replaced by heads of *Puskesmas*, who are also doctors. The characteristics of the respondents are presented in Table 1.

**Key Themes**

We identified 4 out of 7 constructs of acceptability that are most important for participants: perceived effectiveness, affective attitude, and burden are constructs that are similar among urban and rural providers, while self-efficacy differs.

**Perceived Effectiveness.** All respondents agreed that Prolanis members visit the facility (to take the medicine) more routinely compared with nonmembers. None of the facilities had formally evaluated T2DM outcomes before-and-after enrolling in the program or between Prolanis members and nonmembers; thus, respondents were unsure whether the program has been effective. Some respondents stated that some patients had fluctuating blood sugar test results or controlled blood glucose level but poor HbA1c, implying poor consistency in practicing healthy habit (see Table 2).

**Burden.** All doctors interviewed mentioned no significant additional patient load due to the new program, except for one respondent who acts as the only doctor in the facility. On the contrary, most Prolanis PICs felt that they are facing a considerable increase of workload due to preparing the group sessions on the Prolanis day and the administrative work (claim and reimbursement for Prolanis day). The burden was even higher when the *Puskesmas* without a dedicated staff for entering data into the JKN information systems.

**Affective Attitude.** All participants agreed that the Prolanis program had benefited T2DM patients by encouraging them

**Table 2. Key Constructs of Acceptability Identified From the Interviews.**

Constructs of Acceptability				
Construct	Definition			
Perceived effectiveness	The extent to which the intervention is perceived as likely to achieve its purpose	Patients enrolled in the Prolanis program tend to have better adherence to treatment; however, the frequency of attending Prolanis session do not necessarily lead to better laboratory results—it depends on patients' behavior, diet, and lifestyle	10 respondents in 6 facilities (4 urban and 2 rural facilities)	<p>"It depends on one's healthy habit. I know there are patients who consistently show normal blood glucose, but then their HbA1c was not good. You see, sometimes patients may 'cheat' the blood glucose result by dieting several days before the test, and go back to bad eating habit afterward" (F301, doctor, well-performing, urban area)</p> <p>"It's more difficult for DM patients compared to those with hypertension. (DM patients) relies on individual daily habit, while the group exercise (in the Prolanis program) is only once a month" (M201, doctor, poor-performing facility, rural area)</p> <p>"In usual day we finished patients around 12. In Prolanis day we finish at 1 or 2 pm. It depends. . . . no it does not interfere my time for private practice" (F301, doctor, well-performing facility, urban area)</p> <p>"There are only 2 doctors here, me and the head of Puskesmas, who is not always available because of high amount of activities. That left me as the only doctor. I have to go back and forth (between general clinic and Prolanis clinic) during Prolanis day. Very busy" (F102, doctor, well-performing facility, urban area)</p> <p>"Obviously it is an additional burden for us. We are now forced to do something that we don't usually do before. But well it may help us to improve diabetes treatment" (M201, doctor, poor-performing, rural area)</p> <p>"What we need (to input the data of Prolanis visit to BPJSK information system) is IT staff who is familiar with the computer thingy. So we can enter the data faster, so we will never be late in submitting the information to the SSAH. I was quite overwhelmed that time." (F101, program PIC, well-performing facility, urban area)</p> <p>"BPJSK often changed the regulation for claiming and reimbursement in the last minute. And they only notified us through WhatsApp group [laugh bitterly]. It is Puskesmas, we are a government official, should've been an official notification, not only through WhatsApp. And (because of the change) I needed to re-do documents for the claiming." (M701, program PIC, poor-performing facility, rural area)</p> <p>"Yes sometimes I paid it (the money for Prolanis day activity) upfront, but then reimbursed by Puskesmas money. It is no problem, we used to it." (program PIC, well-performing, urban area)</p> <p>"The program PIC needed to use their money to cover the Prolanis day expenses. It's 2.4 million already for the cost of activities in 4 consecutive months, which is as much as our monthly salary." (doctor, well-performing, urban area)</p>
Burden	Perceived amount of effort that is required to participate in intervention	For doctors	6 doctors perceived that the additional burden to run the program is significant but manageable	
		For program person-in-charge (PIC):	7 program PICs bear significant burden for Prolanis, especially for administrative tasks for Prolanis day (ie, sending reminder to patients; preparing meals and exercise videos or trainers, managing paperwork for claiming the cost), entering Prolanis visit data to the information system, billing out money for the cost of Prolanis activities.	
		For program PIC:	4 program PICs had contributed to pay the cost of Prolanis day upfront	

(continued)

**Table 2. (continued)**

Constructs of Acceptability				
Construct	Definition		<b>Number of respondents/facility (14 respondents, 7 facilities)</b>	<b>Examples of quotes</b>
Affective attitude	How an individual feels about intervention	<b>Types of attitude</b>		
		<i>Positive attitude</i>	14 respondents in 7 facilities	<p>"Improve patients' adherence to take their medicine routinely." (M201, doctor, poor-performing facility, rural area)</p> <p>"It's good now that patients don't need to go to hospital, queuing from 5 AM only for getting the diabetes prescription." (F101, program PIC, well-performing, urban area)</p> <p>"It is easier for the patients to get the prescribed medicines now. If they are not a Prolanis member, they can only get the medicines for 5 days, then have to return here again just to get the prescription." (M701, program PIC, poor-performing, rural area)</p> <p>"The facility can get full capitation payment if we meet the Prolanis targeted indicator." (F702, doctor, poor-performing facility, rural area)</p> <p>"It is easier for the doctors to monitor patients' treatment progress." (F301, doctor, well-performing facility, urban area)</p>
		Benefit for patient: improve treatment adherence		<p>"We have the same program before the Prolanis, I don't think that Prolanis has changed anything in terms of patients' adherence." (F501, doctor, poor-performing facility, urban area)</p> <p>"We feel oppressed to do this program otherwise our capitation payment will be cut." (F102, doctor, well-performing facility, urban area)</p> <p>"If it's not compulsory, no way we will do this. (If we don't do this) our capitation money will be reduced." (F101, program PIC, well-performing facility, urban area)</p> <p>"The Prolanis indicator assessed how many percent of enrolled Prolanis member who routinely visit us monthly. It does not consider on how many more diabetic patients out there who need routine care but not yet enrolled to the program. Even the BPJSK staff suggest 'no need to recruit more people, just focus to what is already enrolled'." (M701, program PIC, poor-performing facility, rural areas).</p> <p>"The BPJSK pointed out 'you don't need lots of Prolanis members, the important thing is that all members are actively participated (in Prolanis day)'." (M601, doctor, well-performing, rural area)</p>
		Benefit for facility: meet the pay-for-performance indicator	8 respondents in 7 facilities	
		Benefit for providers: help doctors to treat the diabetic patients better	2 respondents in 2 facilities (1 urban and 1 rural)	
		<i>Negative attitude</i>	1 respondent in 1 facility in urban area	
		No benefit for patients because the facility had existing similar program to the new program	5 respondents 4 facilities (2 rural and 2 urban facilities)	
		No benefit for providers or facilities except for avoiding penalty from NHIS		
		The Prolanis indicator makes facilities tend to recruit Prolanis member as little as possible so easier to achieve the target, thus could leave many potential patients untreated	3 respondents in 3 facilities (1 urban and 2 rural facilities)	

(continued)

Table 2. (continued)

Constructs of Acceptability	
Construct	Definition
Self-efficacy	<p>The participants' confidence that they can perform the behavior required to participate in the intervention</p> <p><i>Factors related to self-efficacy</i></p> <p>Availability of equipment in own facility or under collaboration with third party</p> <p>4 urban facility either have the equipment or collaborated with third parties to perform blood glucose test, while only 1 rural facility do.</p> <p>"The district health office had arranged the collaboration with district laboratory for the blood glucose test, so they will fetch the specimen from this facility on the Prolanis day." (F401, program PIC, well-performing, urban area)</p> <p>"The private laboratory refuses to collect blood specimen here for the glucose test, because we have fewer than 30 patients each month." (M201, doctor, poor-performing, rural area)</p> <p>"The program PIC can visit the Prolanis members one-by-one if they miss the Prolanis day. All of them (Prolanis members) live nearby." (F301, doctor, well-performing, urban area)</p> <p>"They (Prolanis members) live far away in the villages. If no family member able to take them here, they could not come because there is no public transportation." (M701, program PIC, poor-performing, rural area)</p> <p>"Most JKN members here are subsidized, they may be not aware that they are covered by JKN. They may still think that they need to pay to get the service here, therefore they don't come here." (M201, doctor, poor-performing facility, rural area)</p> <p>"It is the Prolanis manager (who have most significant role in achieving program success). Doesn't matter we are in urban or rural, if the health workers are pessimistic and not well-motivated to run the program, it is impossible to succeed in the program." (M701, doctor, well-performing facility, rural area)</p> <p>"I think what is important is that the program PIC need to really understand and encouraged to do this program, thus can share it to the rest of Puskesmas staff." (F501, doctor, poor-performing facility, urban area)</p>
	<p>4 urban facility either have the equipment or collaborated with third parties to perform blood glucose test, while only 1 rural facility do.</p> <p>4 Respondents in 3 urban facilities believed that being located in urban area is a privilege, 3 respondents in 2 rural facilities believed that being located in rural areas results in a bigger challenge compared with urban.</p> <p>3 respondents in 2 facilities (both are rural facilities)</p> <p>4 respondents in 4 facilities (2 urban and 2 rural facilities)</p>
	<p>Puskesmas staff: ability to reach out to patients or vice-versa: urban Puskesmas are more likely to have smaller catchment area, thus easier for the program PIC to go around and promote the Prolanis program</p> <p>Patients' status of JKN memberships: proportion of non-subsidized JKN members is higher in urban areas thus they have better care-seeking behavior and high health care utilization.</p> <p>Human resource factors: the presence of motivated and committed staff</p>

to have more routine visits. However, only 2 out of 14 participants recognized the program benefit for themselves as care providers, which is helping them provide standardized T2DM care, including blood glucose test, counseling, and pharmacological therapy. The respondents were concerned about the Prolanis indicator that determines the amount of capitation money that will be received by PHCs. Such an indicator could encourage providers to recruit as few T2DM patients as possible to become Prolanis members. This could neglect the high number of undetected T2DM cases in the community. Also, they also concerned that such indicator contradicts ministry of health's indicator of preventive health care for diabetes mellitus that requires as many T2DM patients as possible to receive care in the *Puskesmas*, regardless of the enrollment status in Prolanis.

**Self-Efficacy.** Overall, 3 (out of 4) urban facilities and 1 (out of 3) rural facilities were confident that they had good self-efficacy, that is can perform the behavior required to succeed in the Prolanis program. This is attributable to adequate facility equipment, being located in urban areas with dense population, collaboration with community health workers, and human resource factors.

Availability of spectrophotometer enabled *Puskesmas* to run the program properly because—although the official regulation did not mention type of blood glucose test that is reimbursable by BPJSK—the BPJSK will only repay the cost for blood glucose level when tested using spectrophotometer. Facilities without own spectrophotometer are allowed to hire third parties for blood glucose tests. There were 4 facilities: 2 in urban and 2 in rural areas, without a spectrophotometer. We found that both urban facilities managed to collaborate with local laboratories while rural ones failed to collaborate with third parties because of the distance and the number of T2DM patients not meeting the minimum required by the laboratories.

Providers in the urban *Puskesmas*, surrounded by densely populated areas, felt there were no significant obstacle to reach out the Prolanis members for giving reminders of monthly visit or follow up purposes. Also, the *Puskesmas* is located within short distance to patients' homes and with plenty public transportation, thus it is accessible by the patients.

Some providers in rural *Puskesmas* perceived that people living in rural areas tend to have poorer care-seeking behavior compared with their urban counterparts. This, compounded by lack of public transportation, have resulted in low interest to become Prolanis member and low facility utilization. However, one respondent in rural facility disagreed with the above statement because the respondent believed that it depends on how the providers encourage the community and engage community health workers to succeed the program.

## Discussion

Our study revealed the lack acceptability of Prolanis among the doctors, nurses and public health officers responsible to run the program. Despite positive attitude that Prolanis improve patients' adherences to T2DM treatment, there are some concerns that it does not guarantee patients' improved outcomes as it has weak influence to support patients' self-management. There are also negative perceptions that Prolanis was a mere compulsory program utilized by BPJSK as a facility performance indicator to determine the amount of capitation, which somewhat contradicts MoH direction to widen efforts to detect undiagnosed T2DM cases in the population. The Prolanis is less acceptable for rural facilities due to limited geographic accessibility and health equipment as well as poorer people's health-seeking behavior compared with the urban ones.

This study cannot conclude that Prolanis is effective in improving T2DM patient outcomes—as widely documented from past studies<sup>19-22</sup>—since we assessed the perceived instead of actual effectiveness. However, there are patients demonstrated favorable monthly blood glucose results but poor HbA1C, which made some providers perceived that Prolanis was not sufficient to encourage patients practicing healthy habit consistently. Strategies to improve T2DM patient self-management emphasize the importance of a tailor-made treatment that acknowledges the needs of patients with varied social, cultural, and educational background, which was achieved by establishing care managers or having one-on-one coaching.<sup>7,14,23</sup> Care manager is a trained health providers that responsible in ensuring that T2DM patients receive an appropriate management according to each patients situations, including medicinal and non-medicinal such as diet and exercise.<sup>7</sup> Other studies suggest that better self-management can be achieved by establishing reminders systems such as short message service (SMS), mobile apps, or other e-health-based tools, telephone support, and peer support group.<sup>24,25</sup> These additions could improve the Prolanis in the future.

Although not specifically emphasized in the articles, previous studies demonstrating program success has involved facilities that earlier expressed interest to develop chronic care disease management, hence contributed to better attitude, knowledge, and commitment.<sup>21,23</sup> In our study context, the Prolanis implementation is obligatory and the facility will be “punished” should they fail in meeting certain indicator and this could be a risk for reduced facility income. This may send the message of “obligation” rather than “the important of improving chronic disease management.” It is critical for the stakeholders to devote time and resource to improve commitment among the health care providers prior to and along the program implementation.

In this study, rural facilities faced a bigger challenge to run the program due to wider catchment areas, limited equipment availability, and limited public transportation. This study shows that lack of equipment might have resulted in poor facility capacity to monitor patients properly. This is similar to what happened in other developing nations where patients experience substandard diabetes management at primary care due to the limited availability of equipment and medicines.<sup>26,27</sup> In terms of geographical location, previous studies suggest that diabetes care in rural location is more inadequate compared with its urban counterpart due to the limited number of staff, challenging accessibility, and poorer care-seeking behavior.<sup>28,29</sup>

### Limitations

The study includes participants that works in 4 districts located in Central Java and Yogyakarta, which have more developed infrastructures compared with other regions in Indonesia; thus, the findings should be interpreted carefully when applied in different contexts. In addition, the study has relatively small number of participants, 14 health care professionals, due to short duration of the study. However, the 14 participants selected were from health facilities with various characteristics (ie, rural and urban settings, well-performing and poor-performing facilities, and 4 different districts, thus cover various local government-related factors). This has allowed the authors to capture maximum diversity of Prolanis implementation in different settings. Also, drawing on the information from respondents and considering the variety of the *Puskesmas* in the study districts, the researchers decided that data saturation had been achieved. No further data collection was made to confirm providers' information on patients' visit record, blood glucose, and HbA1c; hence, all the results presented are solely based on providers' statement.

### Conclusion

This study suggests that the lack acceptability of Prolanis is attributable to (a) the absence of formal evaluation of intervention's success in improving patients' outcomes leading to poor perceived effectiveness, (b) increased workload due to clerical works, (c) the enactment of Prolanis' output as one of pay-for-performance indicator that limits program's ability in capturing cases of undetected T2DM, and (d) inadequate equipment in the PHC. Facilities in rural locations were having more significant challenges due to poorer geographic accessibility and people's health-seeking behavior. Improving accessibility needs a considerable contribution by the government in ensuring that PHCs have adequate equipment and establish a system that incentivizes health providers to get them more motivated and committed to the program.

Further studies should include more participants from more variety of PHC facilities such as private clinics, health facilities located in the less developed regions compared with Java, and facilities located in islands and remote areas. More study is also needed to investigate whether this intervention effective in reducing blood glucose and HbA1c levels in T2DM patients.

### Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

### Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: The research received funding from the Faculty of Medicine, Public Health and Nursing Universitas Gadjah Mada research grant for young lecturer.

### ORCID iD

Likke Prawidya Putri  <https://orcid.org/0000-0002-3467-4615>

### References

1. National Institute of Health Research and Development. *Riset kesehatan dasar*. Kementerian Kesehatan RI; 2013.
2. Moeloeck NDF. Pembangunan Kesehatan: Kerja Nyata Sehatkan Indonesia. Keynote speech presented at: National Congress of the Indonesian Public Health Association; November 3, 2016; Makassar, Indonesia.
3. Idris F. Pengintegrasian Program Preventif Penyakit Diabetes Melitus Tipe 2 PT Askes (Persero) ke Badan Penyelenggara Jaminan Sosial Kesehatan (BPJS Kesehatan). *J Indonesia Med Assoc*. 2014;64.
4. Soewondo P, Ferrario A, Tahapary DL. Challenges in diabetes management in Indonesia: a literature review. *Global Health*. 2013;9:63.
5. Agustina R, Dartanto T, Sitompul R, et al. Universal health coverage in Indonesia: concept, progress, and challenges. *Lancet*. 2019;393:75-102.
6. Khunti K, Ganguli S. Who looks after people with diabetes: primary or secondary care? *J R Soc Med*. 2000;93:183-186.
7. Ciccone MM, Aquilino A, Cortese F, et al. Feasibility and effectiveness of a disease and care management model in the primary health care system for patients with heart failure and diabetes (Project Leonardo). *Vasc Health Risk Manage*. 2010;6:297-305.
8. Kosen S, Tarigan I, Usman Y, et al. *Supply-Side Readiness for Universal Health Coverage: Assessing the Depth of Coverage for Non-Communicable Diseases in Indonesia*. Washington, DC: World Bank Group; 2014.
9. Fadhillah S. Pemenuhan Indikator Kapitasi Berbasis Komitmen Pelayanan Di Puskesmas Kabupaten Wajo Provinsi Sulawesi Selatan. Published 2018. Accessed April 20, 2020. [http://etd.repository.ugm.ac.id/home/detail\\_pencarian/162736](http://etd.repository.ugm.ac.id/home/detail_pencarian/162736)



10. Nofriyenti N, Syah NA, Akbar A. Analisis Faktor-Faktor yang Mempengaruhi Pemenuhan Indikator Angka Kontak Komunikasi dan Rasio Peserta Prolanis di Puskesmas Kabupaten Padang Pariaman. *J Kesehatan Andalas*. 2019; 8:315-324.
11. Sekhon M, Cartwright M, Francis JJ. Acceptability of healthcare interventions: an overview of reviews and development of a theoretical framework. *BMC Health Serv Res*. 2017;17:88.
12. Diepeveen S, Ling T, Suhrcke M, Roland M, Marteau TM. Public acceptability of government intervention to change health-related behaviours: a systematic review and narrative synthesis. *BMC Public Health*. 2013;13:756.
13. Reimers TM, Wacker DP. Parents' ratings of the acceptability of behavioral treatment recommendations made in an outpatient clinic: a preliminary analysis of the influence of treatment effectiveness. *Behav Disord*. 1988;14:7-15.
14. Davy C, Bleasel J, Liu H, Tchan M, Ponniah S, Brown A. Factors influencing the implementation of chronic care models: a systematic literature review. *BMC Fam Pract*. 2015;16:102.
15. BPJS Kesehatan PLI. Panduan Praktis Program Rujuk Balik Bagi Peserta JKN. Accessed April 20, 2020. <https://bpjs-kesehatan.go.id/bpjs/dmdocuments/4238e7d5f66ccef4ccd89883c46fcebc.pdf>
16. BPJS Kesehatan PLI. *Panduan Praktis Prolanis (Program Pengelolaan Penyakit Kronis)*. Badan Penyelenggara Jaminan Sosial Kesehatan; 2015.
17. Ministry of Health Republic of Indonesia, Social Security Agency for Health. *Joint Regulation of Ministry of Health Republic of Indonesia Number HK.01.08/III/980/2017 and Social Security Agency for Health Number 2 / 2017 on Technical Guidance on Capitation Based on Service Commitment for Primary-level Healthcare Facilities*. Ministry of Health Republic of Indonesia, BPJS Kesehatan; 2017.
18. Badan Pusat Statistik. *Peraturan Kepala Badan Pusat Statistik Indonesia Nomor 37 Tahun 2010 Klasifikasi Perkotaan dan Pedesaan di Indonesia, Buku 3: Bali Nusa Tenggara, Kalimantan, Maluku dan Papua*. BPS; 2010.
19. Chin MH, Drum ML, Guillen M, et al. Improving and sustaining diabetes care in community health centers with the health disparities collaboratives. *Med Care*. 2007;45:1135-1143.
20. Bastiaens H, Sunaert P, Wens J, et al. Supporting diabetes self-management in primary care: pilot-study of a group-based programme focusing on diet and exercise. *Prim Care Diabetes*. 2009;3:103-109.
21. Davy C, Bleasel J, Liu H, Tchan M, Ponniah S, Brown A. Effectiveness of chronic care models: opportunities for improving healthcare practice and health outcomes: a systematic review. *BMC Health Serv Res*. 2015;15:194.
22. Norris SL, Nichols PJ, Caspersen CJ, et al. The effectiveness of disease and case management for people with diabetes: a systematic review. *Am J Prev Med*. 2002;22(4 suppl):15-38.
23. Liddy C, Johnston S, Nash K, Ward N, Irving H. Health coaching in primary care: a feasibility model for diabetes care. *BMC Fam Pract*. 2014;15:60.
24. Stellefson M, Dipnarine K, Stopka C. The chronic care model and diabetes management in US primary care settings: a systematic review. *Prev Chronic Dis*. 2013;10:E26.
25. Gee PM, Greenwood DA, Paterniti DA, Ward D, Miller LM. The eHealth enhanced chronic care model: a theory derivation approach. *J Med Internet Res*. 2015;17:e86.
26. Alberti H, Boudriga N, Nabli M. Primary care management of diabetes in a low/middle income country: a multi-method, qualitative study of barriers and facilitators to care. *BMC Fam Pract*. 2007;8:63.
27. Men C, Meessen B, Van Pelt M, Van Damme W, Lucas H. "I wish I had AIDS": a qualitative study on access to health care services for HIV/AIDS and diabetic patients in Cambodia. *Health Culture Soc*. 2012;2:23-39. doi:10.5195/hcs.2012.67. <https://hcs.pitt.edu/ojs/index.php/hcs/article/view/67/100>
28. Siminerio LM, Piatt G, Zgibor JC. Implementing the chronic care model for improvements in diabetes care and education in a rural primary care practice. *Diabetes Educ*. 2005;31:225-234.
29. Zgibor JC, Songer TJ. External barriers to diabetes care: addressing personal and health systems issues. *Diabetes Spect*. 2001;14:23-28.