Open Access Indonesian Journal of Medical Reviews
Journal Homepage: https://hmpublisher.com/index.php/OAIJMR

Development of Pocketbooks as an Education and Compliance Module for Diabetes Mellitus Patients at the Kaliwungu Health Center, Kudus, Indonesia

Eka Fitriani[1*], Rina Herowati[1], Lucia Vita Inandha Dewi[1]

[1]Master of Pharmacy Management Study Program, Faculty of Pharmacy, Universitas Setia Budi, Surakarta, Indonesia

ARTICLE INFO

Keywords:
Diabetes mellitus
Obedience
Pocketbook

***Corresponding author:**
Eka Fitriani

E-mail address:
ekab4697@gmail.com

All authors have reviewed and approved the final version of the manuscript.

https://doi.org/10.37275/oaijmr.v3i4.351

A B S T R A C T

Diabetes mellitus (DM) is a chronic disease that requires long-term treatment. Management of DM patients is one of them by providing education. This study aimed to determine the product trial of developing a pocketbook as an educational module using the assessment parameters of experts and DM patients who meet the eligibility criteria at Kaliwungu Health Center, Kudus. This study used qualitative and quantitative analysis. Qualitative analysis in the form of suggestions and input from experts, and quantitative analysis in the form of assessment scores. The method used in this research is research and development. Product development with Borg and Gall procedures. Product trials of pocket book development as a DM patient education module at Kaliwungu Health Center, Kudus, using expert parameters including media experts at 100%, material expert I with a value of 84%, material expert II with a value of 92.3%, material expert III with a value of 100%, expert practitioners with a value of 100% and DM patients with an average value of 80.5% in the category worth using with revision.

1. Introduction

Diabetes mellitus (DM) is a chronic disease that requires long-term treatment. DM is characterized by an increase in blood glucose levels beyond normal limits. The condition of hyperglycemia is caused by abnormalities in insulin secretion, insulin action, or both.[1] According to IDF (2019) estimates that there are at least 463 million people aged 20-79 in 2019, or 9.3% of the total population of the same age in the world, who suffer from DM. It is estimated that the prevalence of DM will increase with increasing age of the population to 111.2 million people or 19.9% in the 65-79 year age group. The number is predicted to continue to increase to 578 million in 2030 and 700 million in 2045.[2]

Non-compliance is an attitude where the patient is not disciplined or is not maximum in carrying out the treatment that has been recommended by the doctor. According to WHO (2003), the low level of medication adherence in DM patients is influenced by several factors, including treatment and disease characteristics (disease duration, complexity of therapy, and care delivery), intrapersonal factors (gender, age, stress, self-confidence, depression, and alcohol use), interpersonal factors (patient relationship with health workers and social support) and environmental factors.[3,4]

One way to increase patient compliance is to provide education about DM so that patients understand their disease and change behavior, such as self-management during treatment. Conducting this education can use tools or media, both audio, visual, and audio media, so that it can reduce health care costs.[5] Various media that can be used in health

education to maximize the delivery of messages, such as pocketbooks, which are small, simple, concise print media and contain a lot of health information. This media was chosen because it can provide a lot of information and is practical in nature so that it is effective to carry anywhere and can be read at any time when needed.[6]

Research by Sukarmin (2020) showed that there were differences in patient adherence in the experimental group before and after treatment. Before treatment in the low category (95.7%) and after treatment in the medium category (91.5%) with a p-value of 0.000 (P <0.05) and there was an effect of providing pocketbook-based education on dietary adherence to DM patients at the Pati Islamic Hospital Polyclinic.[7] Research by Ahmad (2017) showed that assessments conducted by material experts and media experts show a score of 75% -100%, which is categorized as feasible and very feasible in each aspect of the assessment. Based on the results of trials 1 and 2, the resulting percentage is above 90%, so it is classified as very feasible. The results of the final product of the pocketbook "I am a healthy child free of worms" still do not show how much influence it has on increasing student knowledge, so further research is needed in this regard.[8]

Health Centers are health services and facilities that carry out first-level health efforts, such as health efforts for the community and health efforts for individuals in the work area that prioritize promotive and ministerial regulations.[9] The cost factor for cheaper check-ups and medicines, as well as their easy-to-reach locations (located in each Sub-District or District), are the main reasons why people choose Health Centers as a place for treatment.[10] DM is a disease with the second highest number after hypertension at the Kaliwungu Health Center, Kudus. Controlling this disease has become a priority for the future so that it does not cause other non-communicable diseases, including stroke, kidney failure, heart and so on.[11]

2. Methods

The research was conducted using the development method with the research and development (R&D) procedure. Research data collection was carried out qualitatively and quantitatively through a validation process by experts and trials of DM patients. This research was carried out at the Kaliwungu Health Center, Kudus, in December 2022. Ethical Clearance submitted to the Medical/Health Research Bioethics Commission, Faculty of Medicine, Universitas Sultan Agung Islamic Semarang, and recommendations for research implementation issued in October 2022. The population in this study was material experts, media experts, practitioner experts, and DM patients at the Kaliwungu Health Center, Kudus. Sampling in this study was carried out by purposive sampling. This technique is a sampling technique carried out by researchers by setting special conditions according to the research objectives. The samples taken were material experts (doctors, pharmacists, and lecturers), media experts, design experts, and 40 people with DM. The development of the pocketbook in this research is by carrying out the procedure Borg and Gall. The preparation of pocket book development refers to the method R&D according to Sugiyono (2016) in a simplified order by the following researchers:

3. Results and Discussion

This research and development aims to produce a pocketbook educational module that meets the eligibility criteria. The results of this pocket book development research were carried out based on the development procedure Borg and Gall developed by Sugiyono (2016).[12] This development research is in line with the research of Ami (2012) using the R&D method, which states that the developed pocketbook is suitable for use based on a review of the aspects of content, language, and appearance.[13] The initial stage carried out was the potential and problems by distributing needs analysis questionnaires to DM patients regarding making pocketbooks.

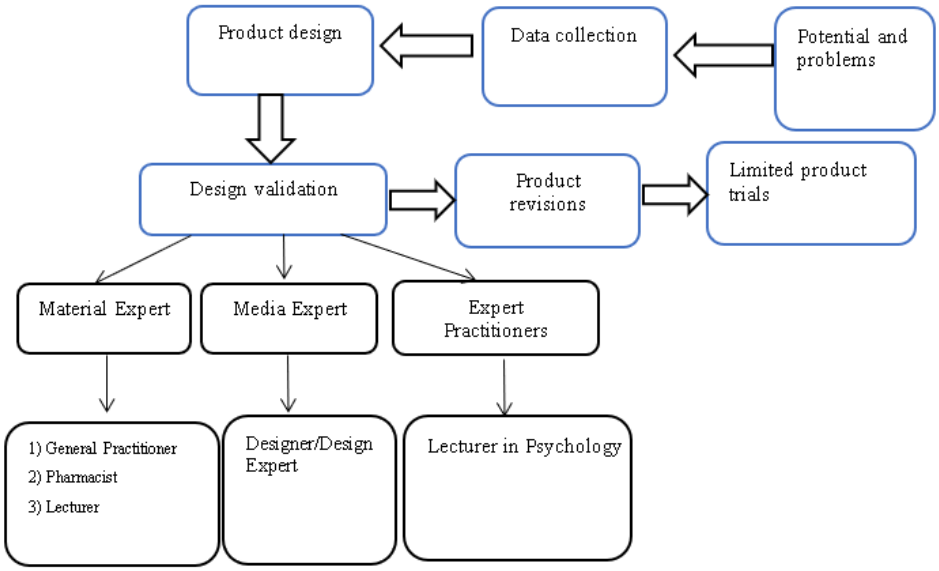

Figure 1. Modification of the development procedure Borg and Gall.

The needs analysis carried out at this stage is the pocket book observation wanted of the patient. A needs assessment is carried out to find out what are the problems or obstacles in DM patients. Based on the results of observations, it was found that there were problems experienced by DM patients regarding how to monitor blood glucose levels every day. Selection of a pocketbook is the right choice to overcome this problem.

The data collection stage is carried out by conducting a study of literature such as books, e-books, and journals. The product design stage is carried out using a wireframe application. This application was chosen because, in the wireframe application, various templates are available. If you want to make a media like a pocket book module by selecting a template that has been provided, then edit it as you wish. How to design by changing the background color and adding images to the template. If the template is not edited and the color and design are not changed, then the pocketbook that has been made will look unattractive. The design validation stage is carried out by experts with the aim of obtaining modules that have the aspects of utility feasibility and accuracy needed to ensure confidence that this module is valid and can be used to modify and improve DM patient adherence. The assessment results obtained from tests of experts and DM patients are used to revise product development.

Table 1. Material expert assessment results.

No	Assessment indicators	Qualification (%)	Information
1	Title	100%	Very decent
2	Content	100%	Very decent
3	Attractiveness	100%	Very decent
4	Information substance	66%	Proper
5	Utilization	66%	Proper
6	Compliance with the values of the norms	100%	Very decent

According to the material expert, each statement item in the feasibility validity instrument obtains a score of 100%, as seen from the title aspect, and has a percentage value of 100%, included in the very decent category. Aspects of the content have a percentage. The value of 100% is included in the very decent category. The aspect of attractiveness has a percentage value of 100% and is included in the very decent category. Aspects of the substance of the information have a percentage value of 66% and are included in the proper category. Aspects of utilization have a percentage value of 66%, which is included in the proper category. Aspects of conformity with the values of the norm have a percentage. The value of 100% is included in the very decent category. In addition to providing an assessment, material experts also provide suggestions and input for revision, as can be seen in Table 2. Suggestions and feedback from experts are very important because the more suggestions and input from experts, the better the quality of the pocketbook will be developed.

Table 2. Suggestions and feedback material expert validators.

No	Suggestion	Revision
1	The language in the pocketbook is not standard, and the writing is not in accordance with KBBI	The accuracy of the sentence has been corrected and is in accordance with the KBBI spelling
2	The writing and material presented are not regular, and the value of DM blood sugar levels has not been added	The writing of the material is in order, and the addition of DM blood sugar levels has been included

Table 3. Results of media expert assessment.

No	Assessment indicators	Qualification (%)	Information
1	Title	100%	Very decent
2	Content	100%	Very decent
3	Attractiveness	100%	Very decent
4	Rejection	100%	Very decent

According to media experts, each statement item in the feasibility validity instrument gets a score of 100%, seen from the title aspect, has a percentage value of 100%, included in the very decent category. The content aspect, which has a percentage value of 100%, is included in the very decent category. The attractiveness aspect, which has a percentage value of 100%, is included in the very decent category. Aspects of skills, having a percentage value of 100%, are included in the very decent category. Media experts provide suggestions and input to improve the quality of pocketbooks as educational modules. The more advice and feedback given from experts, the better.

Table 4. Suggestions for improvement from media experts.

No	Suggestion	Revision
1	Use a consistent color tone	The color has been corrected using orange and blue
2	Use rounded image shapes to give a friendly impression	The image has been replaced according to the content
3	Use only 1-2 font styles	The text has changed the font

Table 5. Expert practitioner assessment results.

No	Assessment indicators	Qualification (%)	Information
1	Material aspect	80%	Proper
2	Aspects of linguistic eligibility	100%	Very decent

According to expert practitioners, each statement item in the feasibility validity instrument obtains a score of between 80-100% in terms of material aspects and has a percentage value of 80% included in the proper category. The language feasibility aspect, which has a percentage value of 100%, is included in the very decent category.

Table 6. Improvement suggestions from expert practitioners.

No	Suggestion	Revision
1	The title of the book is short and easy to understand	The title of the book has been kept short and easy to understand
2	DM control measures are made systematic	DM control measures have been improved to be systematic and easy to understand
3	The education is short and easy to understand	Education is made short and easy to understand for DM patients

Suggestions and feedback from experts are needed because the more suggestions and feedback from experts, the quality of the developed pocketbook will be better than the initial design that has been made. Because it is made in accordance with the desired specification requirements as well as the graphic design and content presented, this pocketbook is very suitable for the patient's condition. According to Suiraoka[14], pocketbooks are made based on the needs of DM patients, so this development is not subjective. Making health promotion media to increase target awareness is the main goal of this pocketbook. This pocketbook has important information about the increasing problem of DM in society.

The next stage is the limited trial stage to obtain the results of the patient's response to the development of the pocketbook to find out the patient's response can be seen from the four aspects of the assessment, namely the components of content, information, attractiveness, and material utilization

.

Table 7. Patient assessment results.

No	**Assessment indicators**	**Percentage (%)**	**Information**
1	Content	77%	Proper
2	Information	79%	Proper
3	Attractiveness	80%	Proper
4	Material utilization	86%	Very decent

According to the limited trial, each of the statement items in the feasibility validity instrument obtained a score between 77% -86% in terms of the content aspect, with a percentage value of 77% included in the proper category. The information aspect, which has a percentage value of 79%, is included in the proper category. The attractiveness aspect, which has a percentage value of 80%, is included in the proper category. Aspects of utilization have a percentage value of 86%, included in the very decent category. In addition, there are several suggestions/inputs from DM patients, namely, the size of the writing is enlarged. A table is made on the value of DM blood sugar levels to make it easier to understand and regard

the contents in more detail/complete. Assessment of DM patients with category level is "appropriate" to use but needs minor revision. Research in different fields conducted by Ahmad (2017) stated that the pocketbook is able to provide messages and appeals that are expected to change students' behavior toward preventing worms in a better direction. Assessment by material experts related to the material in this pocketbook also shows very good results with very decent categories on each assessment indicator.[8] This statement is also reinforced by Andini's research (2015). It is suggested to provide health promotion media in the form of posters. Because posters only cover a small amount of material and cannot be carried anywhere, while the facilities and infrastructure are inadequate for other media, it is necessary to develop other media, namely pocketbooks.[15]

Furthermore, research by Zukmadini (2018) showed that the developed pocketbook received an assessment of 98.86%, so it is suitable for use as biology teaching material.[16] Research from Cahyono (2018) showed that an eligibility percentage of 70.80%, meaning that the pocketbook is valid and suitable for use as supporting teaching material.[17] Pocketbooks are one of the conventional sources, but they can still make patients interested in reading because they are designed in an attractive way so that those who read don't get bored. The type of updating of the pocketbook module is not a problem because it is in accordance with the conditions of the target. The main objective of developing a pocketbook is to produce a medium for health promotion to increase the knowledge and adherence of DM patients. Therefore, this pocketbook contains material related to DM problems.

4. Conclusion

Trials of pocketbook development products as education modules for DM patients at the Kaliwungu Health Center, Kudus, using the parameters of experts include media experts at 100%, material experts I with a value of 84%, material experts II with a value of 92.3%, experts material III with a score of 100%, expert practitioners with a score of 100% and DM patients with an average score of 80.5% in the category suitable for use with revision.

5. References

1. Perkeni. Guidelines for the management and prevention of type 2 diabetes mellitus for adults in 2021. Globe Initiate Asthma. 2021.
2. IDF. IDF Diabetes Atlas - 2019. International Diabetes Federation. 2019.
3. World Health Organisation. Adherence to long-term therapies World Health Organization 2003. Who (World Heal Organ). 2003.
4. Jaam M, Hadi MA, Kheir N. A qualitative exploration of barriers to medication adherence among patients with uncontrolled diabetes in Qatar: Integrating perspectives of patients and health care providers. Patient Prefer Adherence. 2018; 12: 2205-16.
5. Merlin. Evaluation of the application of pharmacist booklets and education in type 2 diabetes mellitus patients at Mayapada Hospital, Tangerang. Pharm Sci Res. 2017.
6. Hadisuyitno. The effect of using a nutrition pocketbook on increasing knowledge of toddler mothers and toddler energy and protein consumption. J Ilm Vidya. 2017; 26(2): 60-6.
7. Sukarmin, Mardiana S, Jalaludin M. Provision of pocket book-based education for diet compliance in type 2 diabetes mellitus patients at the Policlinic of Pati Islam Hospital. Univ Res Colloquium. 2020; 5(2): 1-17.
8. Ahmad A, Adi S, Gayatri RW. Development of pocket books as media transmitted through soil in Malang Regency. Prev Indones J Public Heal. 2017; 2(1): 25-36.
9. PERMENKES. Regulation of the Minister of Health of the Republic of Indonesia,, Number 43 of 2019, concerning Public Health Centers (PHC). PMK No. 43 of 2019 concerning Community Health Centers. Published online

2019.
10. Radito T. Analysis of the influence of service quality and health facilities on health center patient satisfaction. J Ilmu Manajemen. 2014.
11. Central Java Health Office. Central Java Province Health Profile 2017. 2017; 3511351(24): 1-112.
12. Sugiono. Qualitative quantitative research methods and R&D. Alfabeta. 2016.
13. Ami MS, Susantini E, Raharjo R. Development of a material pocket book on the human excretory system in class XI SMA/MA. BioEdu. 2012; 1(2): 10-3.
14. Suiraoka I, Supariasa ID. Health education media. J Bumi Lestari. 2012.
15. Andini A, Suarsini E, Rahayu SE. Prevalence of worms soil-transmitted helminths (STH) for students of SDN 1 Kromengan, Malang Regency. Jurnal Universitas Negeri Malang. 2015; 1(2): 1-13
16. Zukmadini AY, Jumiarni D, Kasrina K. Developing antimicrobial medicinal plants pocketbook based on local wisdom of Muko-Muko and Serawai ethnics. JPBI (Jurnal Pendidik Biol Indones. 2018.
17. Cahyono B. Development of a character-based mathematical pocket book on trigonometry material. J Phenom. 2018; 08(2): 185-99.