

Education-Oriented Control Book for Patients with Hypertension in Primary Health Care

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Abstract

Background: Based on program evaluation conducted at a hypertension primary health care, we found that the major problem of this clinic was lack of medication and control compliance of the patients. The chosen solution to solve this problem was developing an education-oriented control book for the patients.

Objective: To establish a qualified education-oriented control book for hypertensive patients in primary health care.

Method: This qualitative study lasted for nine days in a hypertension primary health care clinic in Central Jakarta, Indonesia. It consisted of six stages: the project design, development of control book, development of communicative educational messages, pretesting, revision, and evaluation by health professionals. Health staffs working at the clinic participated in filling the ten-question questionnaire of evaluation for previous control book and education-oriented control book. The mean scores were compared using t-test or Mann-Whitney U test. Discrimination was validated by the area under the curve (AUC) of receiver operating characteristic (ROC) curve analysis.

Results: The education-oriented control book has 20 pages, 20.5cm × 14.5cm in size. The second page (after the title page) until the sixth page contains communicative educational messages. The seventh-the nineteenth page consist of patient's health care records and the last page was for blood pressure chart. From the analysis, we found total mean scores for previous control book and education-oriented control book were 29.2 ± 1.64 and 34.2 ± 1.64 ($p < 0.001$). ROC curve analysis showed statistically significant power of discrimination in education-oriented control book (AUC = 0.881).

Conclusion: The education-oriented control book presented a significant discrimination in our population and has potential for clinical applications as a part of health promotion media in hypertension primary health services.

Keywords Patient education; Control book; Hypertension; Primary health care

Introduction

Hypertension has become a worldwide health problem nowadays. In 2009-2010, National Health and Nutrition Examination Survey (NHANES) found that 29,1% of Americans were diagnosed with hypertension. Besides that, the rate of controlled hypertension was only 34% [1]. Meanwhile, according to Basic Health Research in 2007, there were 31,7% of hypertensive patients among population in Indonesia. Only 7,6% had a clear understanding of hypertension and 0,4% received treatment routinely [2].

A program evaluation was conducted in a hypertension primary health care clinic in Jakarta, Indonesia. In this evaluation, we found a few problems, such as lack of patients' compliance in terms of routine control and adherence to medication, limited time to educate patient (5-7 minutes for each patient), and minimal facilities to detect complications. The selected problems' priority is low compliance to

consume the prescribed drugs and to attend the next medical appointment [3].

The major causes for this problem from patient's characteristic were low-leveled educational background of patients, old age, low leveled knowledge of hypertension, low social status. From health professionals' side, we also found some problems, such as inadequate number of resources, no promotion media, too little time allocated for each patient, no time left to educate [3].

After considering several alternative solutions, the chosen solution was developing education-oriented control book for hypertensive patient, because it has the highest efficacy and efficiency to solve the problem [3]. The previous control book was lacking of educational portion (Supplementary File 1). Therefore, the authors decided to develop and create an education-oriented control book for patients with hypertension in primary care.

Method

This observational study took place in Hypertension Clinic Rumah Sehat Masjid Agung Sunda Kelapa (RS MASK), Central Jakarta, Indonesia. There were three reasons to choose RS MASK:

- RS MASK has a special health service for patients with hypertension
- Each patient in hypertension clinic RS MASK has their own control book
- RS MASK was a clinic chosen for the authors to undergo the community medicine clinical module

The project started on 15th of May until 24th of May in 2013. The development of education-oriented control book consisted of six stages, i.e. project design, development of control book, development of communicative educational messages, pretesting, revision, and evaluation by health professionals. This study was confirmed as service evaluation by the Research Ethics Committees, Faculty of Medicine, Universitas Indonesia. Therefore, ethical approval was not needed. Before taking the questionnaires, all participants were asked for informed consent.

Step 1: Project design

To establish a qualified education-oriented control book for hypertensive patients, we learned about patients' background. Based on the evaluation conducted before, we found that most patients in hypertension clinic RS MASK were 40-65 years old, low educational background, and low social status.³ The next consideration for developing this book was the communicative messages. The important messages are intended to increase cognition, attitude, and behavior of the patients. According to this objective, the messages included in this book are about definition, classification, risk factors, sign and symptoms, management, complication, and alarm signs of hypertension. The book was written in Bahasa Indonesia, as native language in Indonesia. In addition, the control book has to contain section for records and monitoring for the treatment's efficacy.

Step 2: Development of control book

The word "control" describes that the control book should primarily emphasize on monitoring patient's history. The previous control book didn't fulfill it completely. Because of that, monitoring section page would have columns for number of appointment and current patient's complaint. Moreover, column for education was added in accordance with education principle.

The previous control book didn't have column for examining doctor so we added it. Lastly, to ease at evaluating the progress of every patient, a blood pressure chart was drawn in the final page of the control book. At each date of appointment, the doctor could plot the patient's blood pressure and write the prescribed drugs below the chart.

Step 3: Development of communicative educational messages

This stage include considering the suitability of the messages to targeted patients, ability to attract patients' attention and change the behavior, clear and easily understood writing, and acceptable writing [4,5]. Considering that patient has their own control book, authors placed educational messages on earlier pages of the control book. Hopefully, the chances of being read by the patients are higher. We

compiled and formatted educational texts that are attentive to patients, including these criteria: [4]

- font size; people will pay more attention on big font writing size
- intensity; putting some of important sections in bolds or italics, putting some of the titles in capitals and underlining them, adding some bullets
- variation of colour
- adding some clip arts, which were familiar, not having excessive details, accurate colour selection, undistorted, understandable, and pretested with some of targeted patients
- After paying attention to the messages, patients will try to get the meaning of the messages (perception). To create similar idea for every patient, messages are made in simple words and unconfusing. A message is not only achieved and understood, but also believed and accepted. Therefore, the authors hope by providing right hints in messages, patients are able to accept and believe with the information.

Step 4: Pretesting

After developing the education-oriented control book, we conducted pretesting. Ideally, it should be tested by the targeted patients. However, because of time limitation and the hypertension clinic was open only once a week, the authors received feedbacks only from the head of RS MASK and mentor. The inputs given were:

On the first page, words of "tidak bisa disembuhkan (red: can not be healed)" should be replaced with "bisa sembuh asal mengikuti anjuran dokter (red: can be healed if following doctor's instructions)". Patients with hypertension in RS MASK tend to be low social status and easy to feel down if they know that hypertension is a long-life disease. Therefore, in this case, authors should use more encouraging and hopeful words.

On the second page, pictures of hypertension risk factors are too packed and it needs modification.

On the third page, word of "DIHINDARI (red: AVOIDED)" should be replaced with "DIKURANGI (red: REDUCED)". On the fourth page, phrase of "SETIAP HARI, SEUMUR HIDUP (red: EVERY DAY, FOREVER)" should be replaced with "SESUAI ANJURAN DOKTER (red: ACCORDING TO DOCTOR'S INSTRUCTIONS)". The fifth page about complication should be deleted. The reason is same with input number 1.

The sixth page is already fine

Health records and blood pressure chart are already fine

Step 5: Revision

After receiving inputs, authors did a revision for the education-oriented control book.

Step 6: Evaluation by health professionals

After revising, authors conducted an evaluation of the book by health professionals to compare between previous control book and education-oriented control book. The participants were on-duty health staffs in hypertension clinic RS MASK who were willing to answer questionnaire with same questions for both the previous control book and education-oriented control book (Supplementary File 2). The absent health staffs, on the day when the evaluation was

performed, were excluded. This ten-question questionnaire composed of aspects of efficacy, applicability, education, compliance, and monitoring of disease's progressivity. Because each question has scoring from one to four, the highest total score would be 40 and the lowest total score would be 4 [3].

The scores of questionnaire were analyzed using the Statistical Package for the Social Sciences (SPSS) version 14. Afterwards, authors conducted test comparing means of each statement and as a whole. Data with normality test >0.05 was analyzed with t-test, whereas normality test ≤ 0.05 is analyzed with Mann-Whitney U test. The discrimination of mean scores was validated by the area under the curve (AUC) of receiver operating characteristic (ROC) curve analysis.

Result

This education-oriented control book consists of twenty pages and 20.5 cmx14.5 cm in size (Supplementary File 3). The communicative

educational messages were located on the second page (after the title page) until the sixth page. Next, the seventh until the nineteenth page are filled with medical records. The last page contains patient's blood pressure chart.

Five health care staffs participated in the evaluation. Three of them were males, four of them were in the age of 20-35 years old, and all of them have been working in the clinic for more than three years. The results for comparison of mean scores between previous control book and education-oriented control book are shown on the Table 1. We found significant difference of total mean scores ($p < 0.001$) and question number 8 ($p = 0.042$) related to applicability and appropriateness the control book for patients' background and characteristics in hypertension clinic RS MASK. In the validation of discrimination power, the AUC of mean scores for education-oriented control book was 0.881 (95% CI, 0.843-0.918; $p < 0.001$) (Figure 1).

Question	Previous Control Book	Education-oriented Control Book	p value
Compensation for limited consultation time	3.0 ± 0.00	4.0 ± 0.00	0.053
Content about hypertension	2.6 ± 0.55	3.4 ± 0.55	0.058
Increasing patient's compliance of routine control	2.8 ± 0.45	3.4 ± 0.55	0.093
Increasing patient's compliance of adherence to medication	2.8 ± 0.45	3.2 ± 0.45	0.180
Tracking patient's medical history	2.8 ± 1.10	3.6 ± 0.55	0.166
Practicability for patient	3.4 ± 0.89	3.2 ± 0.45	0.488
Practicability for clinic	3.4 ± 0.55	3.4 ± 0.55	1.00
Appropriateness with patients' characteristics	2.8 ± 0.45	3.6 ± 0.55	0.042
Impact in prevention of hypertension's complications	2.6 ± 0.55	3.4 ± 0.55	0.058
Needing for improvements	3.0 ± 0.00	3.0 ± 0.00	1.000
Total	29.2 ± 1.64	34.2 ± 1.64	<0.001

Table 1: Comparisons of questionnaires mean scores between previous control book and education-oriented control book

Discussion

Complete awareness and knowledge of hypertension are the most important factors in improving patients' adherence [6]. As a result, the patients need a comprehensive health education. Patient education is proved to have beneficial effects for health-related quality of life [7]. Nowadays, there are many ways to implement health promotion, from conventional to tablet/computer-based education [8]. The choice depends on characteristics of the community and the available resources. Characteristics of patients in hypertension clinic in RS MASK were old age, had low educational status as well as low social class [3]. Meanwhile, education media provided for them only appeared in the limited consultation time (5-7 minutes per patient) and one page of education on their control book.

According to the characteristics of situation and modalities available, authors picked out the most appropriate health promotion strategy. In general, there are direct and indirect health promotion strategies. Direct health promotion includes personal communication during appointment or group communication in mass education [9].

Regarding the limited consultation time, this type of health promotion seems inappropriate. Besides, limited human resources make it difficult for mass education. Therefore, the most suitable health promotion in this case would be the indirect type.

The selected indirect health promotion to resolve the problem of patients' compliance is the printed media. It was chosen as part of taking advantage of previous control book. This health promotion media aims at improved knowledge, attitude, and behavior of patients with hypertension. Included messages in the book are definition, classification, risk factors, sign and symptoms, management, complication, and alarm signs of hypertension.

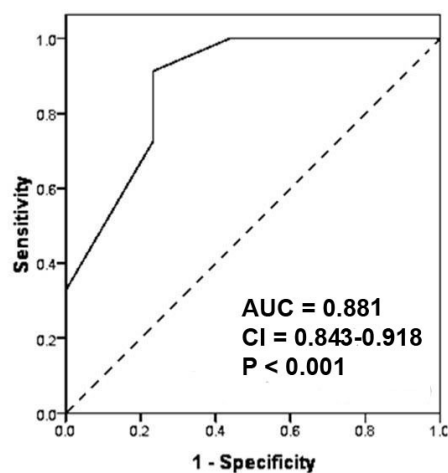


Figure 1: Receiver operating characteristic curve showing relation between sensitivity and 1-specificity for mean scores of education-oriented control book

In patients with chronic disease, positive affect and self-affirmation is effective to motivate behavior change [10]. Education expressed on private control book is considered right for the targeted patients since they bring the book home and at each appointment. In addition, doctors can use the educational messages to explain and show the patients which one they should pay attention to. For example, type of foods that needs to be reduced, healthy lifestyles (stop smoking, enhance exercises, et cetera), as well as warning signs of hypertension. This way, patients can learn about self-reported hypertension which reflect their knowledge and according to previous study, self-reported patients had better blood pressure-related knowledge because they are assumed to have blood pressure measured more frequently and to have more frequent contact with health care services [11].

Mean scores in questionnaire showed significant difference of applicability and appropriateness between previous control book and education-oriented control book. By conducting education with practical and uncomplicated manner was believed to be in line with patients' characteristics. Educational materials should also include bulleted, short and clear statements of information. To anticipate for impaired vision's patients, materials should be printed in larger fonts. Besides, it is critical to provide materials in patients' native language, which in this case is Bahasa Indonesia [12]. The previous control book only contains one packed education page with font size of 10. It is viewed as improper for old-aging patients and keeps the knowledge of patients at the same stage. Meanwhile, in education-oriented control book, a mixture of pictures and occasional writings convey the messages comfortably to patients.

The other questions showed no significant difference between previous control book and education-oriented control book. Nevertheless, scores of education-oriented control book were always higher than the previous one. That's why, despite insignificant difference in efficacy, compliance, and monitoring, the education-oriented control book as a whole is significantly more advanced. As we could observe after applying a similar methodology, the ROC curve has shown a highly significant AUC that represents good discrimination for education-oriented control book.

Information about hypertension in previous control book is adequate for introducing hypertension in general. However, the conveyance of information appears not to be communicative especially for monitoring of progressivity. This perhaps turned up because of inadequate awareness in health professionals or patients as well as shortage of facilities in management of progressivity and complication of hypertension. This component on the education-oriented control book is tried to be included in spite of the lack of significance.

This study can help describing an indirect health promotion method as patient education-oriented control book. Authors explained clear steps applied to develop one health promotion media. Nevertheless, there are some limitations of this study. Because of the limited time, pretesting that was supposedly including patients, was including only by the head of RS MASK and our mentor in the end. The sample of health staffs is not representative of the whole population as well as the patients. Furthermore, the study endpoint reflects the superiority of education-oriented control book, and not the long term effect for controlled hypertension.

Finally, we want to emphasize the potential role of primary health care in clinical evaluation and quality control of disease prevention and management. Many of them have the most extensive clinical exposure with patients and possibly trigger exploration and research for health services' improvement and making it functional for daily clinical practice. Hence, we believe that primary health cares could play a big role in developing clinical evaluation and quality control of various medical problems.

In conclusions, we have shown that the education-oriented control book is statistically more applicable and more appropriate for increasing understanding of hypertensive patients, compared with the previous one. It also has potential for being used as part of health promotion. Further investigation may be needed to observe the benefit to patients' compliance of routine control and adherence to medication and controlled hypertension.

Conflict of Interest

The authors declare that this study has no conflict of interest.

Acknowledgement

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