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CEMA-COMMUNITY TO IMPROVE KNOWLEDGE AND SKILLS IN EVALUATING MEDICINE ADVERTISEMENTS

CEMA-COMMUNITY UNTUK MENINGKATKAN PENGETAHUAN DAN KETERAMPILAN DALAM MENGEVALUASI IKLAN OBAT

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ABSTRACT

Backgrounds: Since objective information on medicine advertisements are often scarce, medicine advertisements may affect community's perception and health. The Critical Evaluation Medicine Advertisement by the community (CEMA-community) was a strategy that may empower community in evaluating medicine advertisements. It was developed based on the previous study targeted to medical students with modifications on the content and the inclusion of local regulation on medicine promotion.

Objectives: To evaluate effectiveness of the CEMA-community method in improving knowledge and skills of participants.

Methods: The study utilized pre and post in time series with control group design. The CEMA-community intervention method consisted of two sessions; the first was a brief lecture and the second was small group discussions using printed and audiovisual medicine advertisements in problem-oriented approach. Activity materials and methods were developed and provided to the activity. Data on knowledge was obtained by questionnaires. Data on skills was assessed by the number of inappropriate claims they could identify the advertisements. Effectiveness of approach was shown by the significance of increasing level of knowledge and skills after intervention.

Results: Participants' knowledge and skills in the CEMA-community group improved significantly (Wilcoxon test, p< 0.05). Score of knowledge in the CEMA-community group before-, right-, and 2, 4 weeks-after intervention (means: 13.9±2.52; 18.0±2.72; 19.0±3.10; 18.3±3.74, respectively) improved significantly (Mann-Whitney, p<0.05) as compared to control group (means: 14.1± 2.84; 14.8±2.94; 14.8±2.85; 15.6±2.45, respectively). At the same time points, scores of skills in the CEMA-community group (means: 7.8±6.05; 16.5±10.01; 32.6±12.89; 32.2±13.06, respectively) also improved significantly (Mann-Whitney, p<0.05) as compared to control group (5.5±6.60; 4.7±4.91; 8.7±10.07; 9.5±10.15, respectively).

Conclusion: CEMA-community was effective in increasing knowledge and skills to critically evaluate medicine advertisements.

Keywords: community empowerment**,** medicine advertisements, knowledge, skills, CEMA-community, problem-oriented approach

ABSTRAK

Latar Belakang : Iklan obat jarang memberikan informasi tentang produknya secara obyektif sehingga hal ini dapat berpengaruh yang tidak baik terhadap persepsi maupun kesehatan masyarakat. *The Critical Evaluation Medicine Advertisement by the community* (*CEMA-community*) adalah suatu strategi untuk meningkatkan pemberdayaan masyarakat dalam mengevaluasi iklan obat. Strategi ini dikembangkan berdasarkan studi sebelumnya yang ditujukan untuk mahasiswa kedokteran dengan memodifikasi isi dan kriteria iklan obat untuk masyarakat.

Tujuan: Mengevaluasi keefektifan metode *CEMA-community* dalam meningkatkan pengetahuan serta keterampilan partisipan.

Metode: Penelitian dilakukan secara *pre- and post- in time series* dengan menggunakan kelompok kontrol. Metode intervensi *CEMA-community* terdiri dari dua sesi yaitu penyuluhan singkat dan dilanjutkan dengan diskusi kelompok kecil berdasarkan pendekatan berorientasi masalah menggunakan iklan obat cetak dan audiovisual. Penelitian juga melakukan pengembangan metode dan materi untuk aktivitas. Data perubahan pengetahuan didapatkan dengan kuesioner, sedangkan data keterampilan dari temuan peserta tentang ketidaksesuaian iklan dengan aturan yang berlaku. Efektivitas dari metode dilihat dari signifikansi peningkatan pengetahuan dan keterampilan setelah diklakukan intervensi.

Hasil: Pengetahuan dan keterampilan partisipan pada kelompok intervensi meningkat secara signifikan (*Wilcoxon test*, p< 0.05). Nilai pengetahuan kelompok intervensi sebelum, sesaat dan setelah 2, 4 minggu intervensi (*means* secara berturutan adalah: 13.9±2.52; 18.0±2.72; 19.0±3.10; 18.3±3.74) meningkat secara signifikan (*Mann-Whitney,* p<0.05) dibandingkan dengan kelompok kontrol (*means* secara berturutan adalah: 14.1± 2.84; 14.8±2.94; 14.8±2.85; 15.6±2.45). Nilai keterampilan kelompok intervensi sebelum, sesaat dan setelah 2, 4 minggu intervensi (*means* secara berturutan adalah: 7.8±6.05; 16.5±10.01; 32.6±12.89; 32.2±13.06) juga meningkat secara signifikan (*Mann-Whitney,* p<0.05) dibandingkan dengan kelompok kontrol (*means* secara berturutan adalah: 5.5±6.60; 4.7±4.91; 8.7±10.07; 9.5±10.15).

Kesimpulan: *CEMA-community* efektif untuk meningkatkan pengetahuan dan keterampilan dalam mengevaluasi secara kritis terhadap iklan obat.

Kata kunci: pemberdayaan masyarakat iklan obat, pengetahuan, keterampilan, CEMA-*community,* pendekatan berorientasi masalah

INTRODUCTION

Non-prescriptions medicines are available widely in supermarkets, pharmacies and neighborhood local shops. Many of these medicines are advertised both in printed and audiovisual media.

In Indonesia, medicines are widely advertised to community. Since 1998, there has been a major change in the social politics in Indonesia, caused increasing number of mass media, in which stimulating printed and audiovisual advertisements.[1] Medicine advertisements attempt to influence consumers' choices about medicines.[2] Almost none of the medicine advertisements published in many media provide the basic information.[3,4,5] Since in many developing countries objective information on drugs is scarce[6], advertisements may affect community's perception and have potentially harmful affect for individual and public health.

Medicine advertisements to the community should help people to make rational decisions on the use of medicines, and legally available without prescription.[7] Although health education aimed at children is highly desirable, advertisements should not be directed at children.[7] Advertisements may claim that a drug can cure, prevent, or relieve an ailment only if this can be substantiated.[7] Language which brings about fear or distress should not be used.[7]

Studies have been done to evaluate medicine advertisements.[1,8] Suryawati and Santoso[9], also have designed a teaching module to improve medical students' ability to assess information and advertisements critically. However, less research and data available on how to improve knowledge and skills to critically evaluate the medicine advertisements at community level.

Improving drug use has important financial and public health benefits. Many efforts have been undertaken to improve drug use. Santoso *et al*[10] have investigated the impacts of two different methods of educational intervention, i.e. small group face to face intervention and a formal seminar. Participatory training approach was noted to be an important condition for the success of intervention. Le Grand *et al*[6] also have evaluated some intervention studies to improve drug use either to prescribers or community in developing countries. For effective interventions to the community, insight is needed in the social-culture context in which misleading information may take place as well as underlying factors in selecting medicines.[6] Therefore, a problem-oriented approach with participatory involvement was used in the current study, in order to improve community's knowledge and skills in evaluating critically medicine advertisements.

MATERIALS AND METHODS

Setting

Study was conducted in Yogyakarta municipality, which is the most heavily populated district in Yogyakarta Province. Urban area was selected due to more advertisements are disseminated, widespread problems and high population compare to villages.

Target population and participants' recruitment

The target population was all of women live in Yogyakarta, and the agent of change was executive boards of Yogyakarta family welfare movement (PKK) organization. All of PKK executive boards who volunteered to participate in the activities were grouped into two groups (intervention and control groups) based on their geographically area of sub districts, i.e. north and south area. The intervention group covered participants who domicile in the north area, whereas the control group covered participants who domicile in the south area.

Study Design

The study design utilized pre and post intervention with controlled group design (Figure 1).

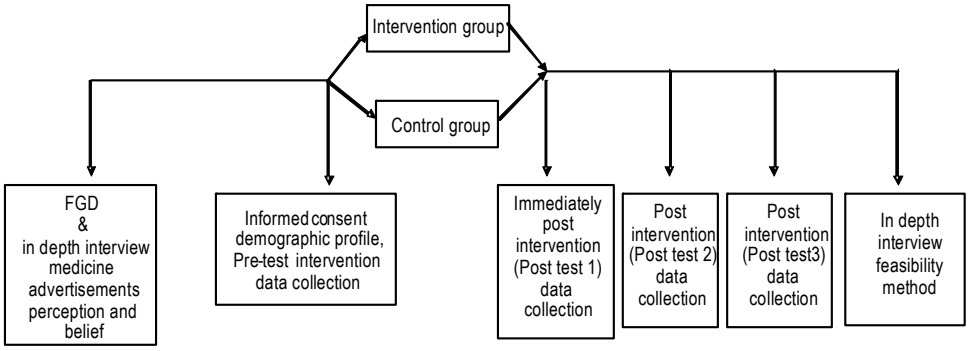

Figure 1. Data collection time line

Focus Group Discussion and in depth interviews

At the beginning of the study, a focus group discussion was conducted with representatives from the participating PKK organizations to identify their understanding and perception about non-prescription medicine and medicine advertisements. The focus group discussion was also expected to reveal important issues on non-prescription medicine advertisements. The duration of Focus Group Discussion (FGD) was conducted around 2 hours, which 20 minutes was allocated for introduction, 90 minutes for discussion (4 topics) and 10 minutes for conclusion.

The four topics discussion was: understanding of non-prescription medicines; understanding and perception of medicine advertisement for community; how medicine advertisement affected community decisions; participants' opinions about selected non-prescription medicine advertisements. Few days later, in depth interviews with selected participants in FGD were held in order to support FGD report.

Designing material and technical guidelines, questionnaires, skills' worksheet and collecting advertisement materials for intervention activity and tests

The CEMA-community was developed based on the previous study targeted to medical students[9] with modifications on the content and the inclusion of local regulation on medicine promotion. Before conducting and evaluating intervention activity, guidelines and research instruments were prepared as follows:

a. Guideline on evaluation of medicine advertisement

The guideline was prepared to assist participants in studying and evaluating non-prescription medicine advertisements. The guideline provided general messages and medicine advertisement problems in community; a brief description of non-prescription medicine and medicine classification; general and specific guidance related to medicine advertisements' regulation in a lay language. WHO's Ethical Criteria for Medicinal Drug Promotion[7] and Health Ministerial Decree in medicine advertisement[11] were used as part of the guideline references.

b. Guideline for improving participants' knowledge and skills in medicine advertisement evaluation based on problem-oriented approach

The guideline which was called CEMA - community, was designed to assist facilitators in setting up, organizing, and evaluating intervention activity. The guideline consisted of purpose, intervention method, steps taken, target populations, and activity evaluation.

c. Knowledge questionnaires

Questionnaire to assess participant's knowledge consisted of 25 close-ended questions from which participant must choose one of three alternative choices: yes, no and uncertain/do not know.

d. Worksheets to measure skills to critically assess advertisements

Worksheets were used by participants to write their findings of misleading, incomplete or incorrect information, and were not in accordance with the regulation. Worksheets in the form of papers that had 3 columns, in which the first column was used to write advertisements code, second column for media code (television, radio station or printed material), and the third column was used to write the mistakes that participants found in the advertisements materials.

e. Medicine advertisement materials for intervention and skills evaluation activity

Selected medicine advertisements running within the period of study were collected and recorded. Media sources included radio stations; television channels; newspapers, magazines, as well as printed materials distributed in pharmacies and neighborhood local shops. All sources were located in Yogyakarta municipality and its surrounding area. The materials collected were classified as printed, audio recordings of radio and television advertisements. All of the guidelines and research instruments prepared above included the correct answers of knowledge as defined by investigator team; and the skills' score number of incorrect information in the advertisements materials were reviewed and validated in Delphi technique. Pilot test these guidelines and questionnaires were done by asking to five people from the relevant population to read guidelines and answer the questions whether they have any difficulty reading and answering them. Reliability test was conducted in Cronbach alpha method.

Intervention strategy

Intervention activity was performed immediately after baseline data collection. In order to do parallel activity to the intervention group, control group undertook formal seminar in a different topic to intervention group. The activity sequence of both intervention and control groups as follows.

a. Intervention group

The CEMA-community, which was developed based on previous study targeted to medical students[9] was performed. The activity consisted of two sessions, the first lasting around 45 minutes and the second, 60 minutes. The first session of CEMA-community involved a brief lecture about non-prescription medicine; types and forms of non-prescription medicine advertisements, and how to select and the main elements required to critically assess medicine advertisements. Participants involved in the intervention group received the guideline for medicine advertisements evaluation. The second session was discussion activity in CEMA-community. The discussion activity was performed by dividing participants into 5 groups of discussion. The number of participants in each group ranged from 5 to 7. Each group discussed about selected record of audiovisual advertisements through portable computer, which was operated by facilitator. Selected printed materials were discussed and presented in such the original materials. During discussion, participants were asked to critically evaluate selected medicine advertisements, included assessing advertisements content according to legal requirements of medicine advertisements[11] and assessing misleading information in community's perception. Besides operating computer, facilitators showed the way to find the incomplete, incorrect or misleading information, and cross-checked the participants' objective evaluation of the advertisements.

b. Control group

The activity in control group was a formal seminar which consisted of two sessions, the first lasting around 60 minutes and the second, was 45 minutes. The first session involved a lecture about health care. The second session was a discussion activity in formal seminar method. After post test 3 data collection, participants in control group had a brief lecture as the intervention group, about the medicine advertisements.

Data collections and measurements

Data was collected pre and post intervention. Post intervention data was collected in three periods of time, i.e. post test 1 (immediately after intervention); post test 2 (two-week) and post test 3 (four-week) after intervention. Post test intervention data were collected in three times in order to measure in term of immediately impact and long-term sustainability of the training. Informed consent was obtained prior to the study activities, following by demographic profile, included the participants' age, education level, employment status and total family income. Pre and post interventions data covers level of knowledge and skills. Participants' demographic and knowledge data was collected from close-ended questions in a questionnaire form distributed.

Knowledge questionnaire consisted of 25 questions, in which each of questions had three alternative answer choices: yes, no and uncertain / do not know. Results of the knowledge questionnaire were calculated by giving score of 1 for each correct answer, and 0 for incorrect answer (no penalty for answering a question wrong). Participants' skills data were collected through worksheets distributed, which participants had to identify a number of misleading, incomplete, incorrect information, or were not in accordance with the regulation. The participants' skills to assess medicine advertisements were assumed to be reflected by the correct number as defined by investigator team in percentage.

The technique for skills test was performed by showing the selected copy of audiovisual and printed advertisements materials through LCD projector. An especially for printed materials, participants also had opportunity to see the printed materials distributed. Data collection for skills test consisted of three types of advertisements media, i.e. television, radio and printed advertisements. Participant had 15 minutes to evaluate 5 kinds of television advertisements materials (in 3 repeated shows), 10 minutes to evaluate 3 kinds of radio advertisements materials (in 2 repeated shows), and 15 minutes to evaluate 5 kinds of printed advertisements materials (distributed to participant). The entire skills test duration was 40 minutes, in which participants worked on their own in a few minutes to list fault advertisements found on their worksheets.

In order to minimize participants drop out, baseline data collection, intervention activity, and post test 1 data collection were held at the same time of day. The activity sequence of data collection covered skills test (40 minutes), followed by knowledge test (20 minutes). Therefore, the entire test duration for data collection was 60 minutes.

Feasibility CEMA-community used in this study was obtained by in depth interview to the selected PKK executive boards, covered impression, utility, efficiency and interested to do such activity.

Data analysis

Data were analyzed using the SPSS version 16 for Microsoft Windows, determined and displayed in tabular and graphic formats. The change in knowledge and skills found before and after the

intervention between groups were tested using Mann-Withney test, whereas in analysis of within each group used Wilcoxon test. The effectiveness of CEMA-community was showed by the significance of increasing the level of knowledge, attitude and skills of the post intervention. The feasibility of CEMA-community was analyzed by evaluating in depth interview results.

Results

The results of FGD and in depth interviews identified that participants found medicine information and advertisements through either mass media (newspapers, televisions and radio stations) or public facilities (hospitals, pharmacy, bus stations, etc). Among the mass media sources, radio stations were less listened compare to the others, and the most sources of medicine information were found through television stations. In general, they identified some non-prescription medicines, however they more identified trade names of medicine than the generic names or active ingredients content in the medicines. Participants also did not know indications of majority non-prescription medicines in generic names, except such as paracetamol and chlorpheniramin maleat. They knew what information should available on the wrapping of medicine, but they did not know the difference to the advertisement. Participants did not always believe to the medicine advertisements, but they believed if the advertisements showed such activities of physicians, famous people, laboratory or health care. The FGD and in depth interviews results were used as reference in designing material and technical guidelines, constructing questionnaires, and conducting intervention activity.

Demographic data

A total of 60 participants (30 participants in intervention and 30 participants in control groups) completed all of the studies in relation time of pre-test (baseline), post-test 1 (immediately after activity), post-test 2 (two-week follow-up), and post-test 3 (four-week follow-up). Demographics of participants including age, level of education, employment status and monthly total family income are presented in Table 1.

Table 1. Demographic profile of participants
Demographic profile of participants

Demographic profile of participants		
Category	**Intervention group (%)**	**Control Group (%)**
Age (years)		
30 – 40	5 (16.7)	3 (10)
41 – 50	15 (50)	11 (36.7)
51 – 60	9 (30)	11 (36.7)
> 60	1 (3.3)	5 (16.6)
Education level		
Junior high school	2 (6.7)	2 (6.7)
Senior high school	11 (36.7)	16 (53.3)
Under graduate	15 (50)	12 (40)
Post graduate	1 (3.3)	0 (0)
Unknown	1 (3.3)	0 (0)
Employment status		
Government employee	7 (23.3)	5 (16.7)
Private employee	3 (10)	4 (13.3)
Employer	8 (26.7)	7 (23.4)
Retired	2 (6.7)	4 (13.3)
Unemployed	10 (33.3)	10 (33.3)
Monthly total family income		
< 1,000,000	4 (13.3)	8 (26.7)
1,000,000 – 5,000,000	20 (66.7)	17 (56.7)
5,000,000 – 10,000,000	5 (16.7)	1 (3.3)
> 10,000,000	0 (0)	0 (0)
Un known	1 (3.3)	4 (13.3)

Among participants, category range of age 41-50 years was the majority participants in intervention group (50%) followed by age 51-60 years (30%); and the minority was range of age > 60 years (3.3%). The majority of participants in control group had both in the range of age 41- 50 and 51-60 (had equal percentage of 36.7); and the minority had category range of age 30-40 years (10%). Statistical analysis showed that no statistical significant difference (Mann Withney, $p< 0.05$) was documented between the intervention and control groups. The majority participants in intervention group was undergraduate (50%) followed by senior high school. The majority of participants in control group were senior high school graduates (53.3%) and under graduates (40%). No statistical significant difference in education levels was documented between the intervention and control groups (Mann Withney, $p < 0.05$). Category of unemployed was the majority participants in both intervention group (33.3%) and control group (33.3%), followed by employer 26.7% and 23.4% for intervention and control group, respectively. Among participants, category monthly total family income of Rp 1,000,000 – Rp 5,000,000 was the majority participants in both intervention group (66.7%) and control group (56.7%).

The effect of CEMA-community on level of knowledge

A detailed analyses of the significant interaction revealed that the knowledge levels of the intervention group and the control group did not differ at baseline (Mann-Whitney test, $p<0.05$). Participants in intervention group made a significant improvement on knowledge related to achieve high scores on the post tests because there were 25 question items, the possible range was 0- 25. At post test 1, 2 and 3 participants in the intervention group had significantly higher knowledge than participants in the control group. The means scores within the intervention and control groups at the four measurements are presented in Table 2. Analyses of the differences between mean scores within the intervention group showed that the knowledge significantly increased at post test 1 as compared with baseline (Wilcoxon test, $p<0.05$), and was maintained at the following tests (post test 2 and post test 3). Within the control group there was no significant difference between the pre test and post test 1; pre test and post test 2. However, in control group, a significant different was noted between pre test and post 3.

Table 2. The change in mean score of knowledge before and after the intervention between groups

Intervention group				
	Pre	**Post 1**	**Post 2**	**Post 3**
Mean	13.87	17.97	19.03	18.33
SD	2.52	2.72	3.10	3.74
Control group				
	Pre	**Post 1**	**Post 2**	**Post 3**
Mean	14.07	14.77	14.80	15.57
SD	2.84	2.94	2.85	2.45

The effect of CEMA-community on level of skills

A detailed analyses of the significant interaction revealed that the skills levels of the intervention group and the control group did not differ at baseline (Mann-Whitney test, $p<0.05$). Participants made significant improvement on skills related to achieve high scores on the post tests, in which the highest scores was 100. At post test 1, 2 and 3 participants in the intervention group had more skills significantly (Mann Whitney test, $p<0.05$) than participants in the control group (Table 3).

Table 3. The change in means score of skills before and after the intervention between groups

Intervention group				
	Pre	**Post 1**	**Post 2**	**Post 3**
Mean	7.75	16.49	32.64	32.22
SD	6.05	10.01	12.89	13.06
Control group				
	Pre	**Post 1**	**Post 2**	**Post 3**
Mean	5.50	4.74	8.74	9.49
SD	6.60	4.91	10.07	10.15

The feasibility of CEMA-community implementation

By the end of the study, in depth interviews were conducted with three selected executive boards of Yogyakarta PKK organization to identify their impression, utility, efficiency and interest in the activities. In general, they were very happy with the activity and expected the CEMA-community to be implemented down to the sub district and village levels. Furthermore, participants expressed their impression of being involved in the study and enjoyed all activities, especially the discussion session.

Women, as executive board members of PKK, are being recognized as key roles in promotion of family's health, therefore, the study were very useful to them. However, they suggested performing the activity repeatedly or giving such training to some executive boards of sub district or village of PKK to be as facilitator. Cost is a major issue in addressing the country's growing crisis in long-term care. Therefore, they noted possibly problems in taking such training. The activity duration was too short to evaluate the three kinds of media, even they noted that advertisements in radio media was not very clear. They preferred to evaluate advertisements in television media since watching televisions were more frequently accessed than other media. They also suggested that the medicine advertisements in television media should be shown in slow motions, not as original advertisements. However, computer may not available if the activities are performed in sub district or villages. Therefore, the printed advertisements materials may be more valuable in village levels.

Discussion

This study reported the effects of CEMA-community on medicine advertisements knowledge and critically evaluated medicine advertisements skills**.** The study showed that CEMA community improved knowledge and skills significantly.

Analyses of the significant interaction revealed that the knowledge levels of the intervention group and the control group did not differ at baseline. After intervention, the knowledge level in intervention group showed a significantly higher compared to control. Although baseline knowledge about medicine advertisements was not poor, the intervention method increased knowledge significantly about 20%. At post 3, control group showed improvement the knowledge, however only about 6%. This gained at post 3 may be due to a process of continued maturation in which participants' coping ability gradually improves over time or their interests in the medicine advertisements after they had such tests.

Baseline skills to critically evaluated non prescription medicine was poor, and can be increased through the CEMA-community (refer to Table 7 and Figure 4). The skills level in intervention group showed a significantly higher compared to control. The control group also showed a little improvement on skills at post 2 and 3 data collections. This gained in control may also be due to a process of continued maturation or their interested in study the medicine advertisements after they had such tests.

There are many variables that influence outcome of intervention.[12] Activity programs in long duration effect meaningful change in participants' outcomes. Short lectures may only serve to introduce topics that learners can pursue in the future. Other variable is the active participation. Long lectures with little opportunity to interact have little or no impact on outcome. On the other hand, small group discussion, interactive, longitudinal programs can improve and increase outcomes. Printed materials alone only have little impact compared to the intervention with supervision[13], and audiovisual materials.

Evaluation is essential as a source of data for assessing program feasibility. The recent study used an in-depth interview in order to identify participants' impression, study utilization, efficiency, and interested in doing the CEMA-community. The CEMA-community was accepted by participants as interactive and enjoyable strategic method. Furthermore, they expected the CEMA-community could be implemented down to the sub district and village levels. Factors that may limit implementation were fund for training facilitator. The activity duration was too short to evaluate the three kinds of media, therefore if the activity only in limited duration, they preferred to evaluate television medicine advertisements. However, if computer was not available, printed materials was also valuable to be used as the medicine advertisements materials.

Conclusion

In conclusion, the CEMA-community is a promising training model which was proven effective to improve knowledge and skills of participants. The CEMA-community is also feasible to be implemented among grass-root women organization, and other organizations or person who needs to conduct it. In order to implement the program, objectives should be created for each of the domains of knowledge and skills. The intervention materials depended on the availability instruments / tools, such as computer.

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