

Research Article

The impact of training on the management of children with cough of the health workers' knowledge, attitude and skills in the management of children with cough and breathing difficulties

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ABSTRACT

Background: The empowerment of the community through health workers is expected to help decrease the occurrence of pneumonia in children under five years old. The health workers need to be given the training about the management of children with cough and breathing difficulties to improve their knowledge, attitude and skills. This research aims to know the impact of training on the management of children's cough toward the health workers' knowledge, attitude and skills in the management of children with cough and breathing difficulties.

Methods: It was a quasi experimental study with pre-post with control group design. The research is conducted to community health workers where the intervention group (n=40) and the control group (n=37) with purposive sampling. The intervention group has the training by the methods of lectures, simulations, case studies and demonstrations using audiovisual media and modules, whereas the control group does so by reading modules.

Results: After 14 days, there is an increase in the value of knowledge ($p < 0.05$), the value of attitude ($p > 0.05$) and a decrease in the value of skills ($p > 0.05$).

Conclusions: Training on the management of children's cough can improve the health workers' value of knowledge, but not value of attitude and skills after the training.

Keywords: Training, Management, Health workers' knowledge, Cough, Breathing difficulties

INTRODUCTION

Deaths on children under five years old is mostly caused by pneumonia, namely about 14%.¹ The rate of pneumonia in the South East Asia is considered as high, with the finding of 60.95 million new cases of pneumonia per year, whereas Indonesia is placed sixth among fifteen countries with the highest rate of pneumonia.²

The percentage of the finding and the treatment of pneumonia's sufferer for children under five years old in

Central Java in 2012 is 24.74%, a little fewer than in 2011 (25.5%). The amount of cases found is 64,242, which is still far from the targets of the Minimum Service Standards/Standar Pelayanan Minimal (SPM) of 2010 (100%).³

In 1992, the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) developed the Integrated Management of Childhood Illnesses (IMCI) to address the five leading causes of death of children, namely diarrhea, pneumonia, malaria, measles and

malnutrition. Then in 1997, IMCI was developed into Community IMCI (C-IMCI) strategy which is to develop practices in households and communities.⁴

The application of C-IMCI program in Indonesia is called as the Integrated Management of Ill Children in the Community/Manajemen Terpadu Balita Sakit di Masyarakat (MTBS-M). The government has inaugurated the said program through the Health Minister's Regulation/Permenkes RI no. 70 of 2013 about The Enforcement of Society-Based Integrated Management for Ill Children. The MTBS-M is a strategy to solve the problems of cough, fevers, and diarrhea.⁵

Management of pneumonia in community structure is an important strategy for improving access to quality care pneumonia, one of which is to train and deploy community health workers to assess and care for children with pneumonia. Some studies suggest that an educated community member can be trained to detect and manage pneumonia in the community.⁶

An effort to train non-medical personnel in this case is carried out as part of a cadre of health promotion. The effectiveness of training is influenced by several things, one of which is a training method. The purpose of this study was to determine the effect of training on the management of sick children cough knowledge, attitude and skills of cadres in the management of children's cough and difficulty breathing.

METHODS

Setting

The study was carried out in Pedan and Tulung Public Health Centre, Klaten, Central Java, Indonesia. The study was conducted from January 2015 till February 2015.

Study design and sampling

This research is categorized as quasi experiment with the pretest-post-test with control group design. The population of this research is all community health

workers (cadres) in Pedan and Tulung Public Health Centre. Sample inclusion criteria as follows: a) be able to read and write b) does not plan to move somewhere to stay within the research c) active during the last 6 months and d) are willing to join the study by signing an informed consent and no exclusion criteria. Sampling was done by purposive sampling. The number of samples in the intervention group was a control group of 40 people and as many as 37 people. The intervention group received training with lectures, simulations, case studies and demonstrations using audio visual media and the module, the control group with reading module.

Data collection

The data source of this research is the primary data. Data were collected by questionnaires knowledge and attitudes and skills of observation sheet. Pre-test done before training to measure knowledge and attitudes cadres, post test I conducted immediately after training to measure the knowledge, attitudes and skills of cadres. Post test II performed 14 days after training to measure the retention of knowledge, attitude and skills of cadres.

Data analysis

The statistical test used the Mann Whitney U-Test for knowledge and independent sample t-test for attitudes and skills with a confidence level of 95%. The data was entered into MS Excel 2010. Appropriate statistical test were applied using SPSS for windows 21.0.

RESULTS

Characteristics of respondents

Respondent characteristics include age, education level and long into the cadre. Characteristics of respondents in two homogeneous groups. As for the distribution of respondent characteristics are described in Table 1 and Table 2.

Table 1: Distribution and homogeneity cadre according to age and long been a cadre.

| Variable | Treatment (n=40) | | | Control (n=37) | | | p value |
|-------------------|------------------|------|----------|----------------|------|----------|---------|
| | Mean | SD | Min-maks | Mean | SD | Min-maks | |
| Age | 42.7 | 7.13 | 26-64 | 41.54 | 7.37 | 30-65 | 0.49 |
| Long been a cadre | 13.25 | 8.46 | 1-42 | 9.86 | 8.19 | 1-35 | 0.08 |

The analysis of the demographic characteristic of the study group showed that the mean age of treatment group was 42.7 years (range 26-64), the mean age of control group was 41.54 years (range 30-65). The cadres in treatment group have been a cadre for 13.2 years (range 1-42) and the cadres in control group has been a cadre for

9.86 years (range 1-35). Most of cadres in both of group were from senior high school. There was no difference of demographic characteristic between treatment and control groups.

Table 2: Distribution and homogeneity kader according to education.

| Variable | Treatment (n=40) | | Control (n=37) | | Total (n=77) | | p value |
|-----------------------|------------------|------|----------------|------|--------------|------|---------|
| | f | % | f | % | f | % | |
| Education | | | | | | | 0.59 |
| 1. Elementary school | 2 | 5 | 2 | 5.4 | 4 | 5.19 | |
| 2. Junior high school | 7 | 17.5 | 8 | 21.6 | 15 | 19.5 | |
| 3. Senior high school | 27 | 67.5 | 22 | 59.5 | 49 | 63.6 | |
| 4. Diploma | 1 | 2.5 | 2 | 5.4 | 3 | 3.9 | |
| 5. Bachelor | 3 | 7.5 | 3 | 8.1 | 6 | 7.79 | |
| Total | 40 | 100 | 37 | 100 | 77 | 100 | |

Differences in knowledge, attitude and skills of cadres in the treatment group and the control group

Table 3 illustrates the two groups have knowledge equivalent before training. Knowledge of the treatment group and the control group in post test I and post test II there is a significant difference in the treatment group had a higher rank. Table 3 also shows a significant difference in the increase of knowledge between the two groups.

Table 3: Differences in knowledge value cadres management of ill children with cough and breathing difficulties.

| Measurement | Group | | p value |
|--------------------------------|------------------|----------------|---------|
| | Treatment (n=40) | Control (n=37) | |
| Pre test | | | 0.73 |
| Mean | 15.88 | 15.7 | |
| Median (min-maks) | 16 (11-21) | 16 (10-19) | |
| SD | 2.44 | 2.08 | |
| Post test I | | | < 0.001 |
| Mean | 20.15 | 17.78 | |
| Median (min-maks) | 20 (13-24) | 18 (11-22) | |
| SD | 2.46 | 2.15 | |
| Post test II | | | < 0.001 |
| Mean | 20.62 | 18.86 | |
| Median (min-maks) | 21 (15-24) | 19 (16-22) | |
| SD | 2.15 | 1.93 | |
| Delta pre test to post test II | | | 0.005 |
| Mean | 4.75 | 3.16 | |
| Median (min-maks) | 4.5 (0-11) | 3 (-1-10) | |
| SD | 2.73 | 2.33 | |

*Mann Whitney U Test

Table 4 shows that the average value of the attitude in the treatment group was higher than the control group. Differences between the mean values between treatment and control group during pre-test is 1.96 with p = 0.051. Differences between the mean values between treatment

and control group during the first post test is 2.17 with p = 0.08. Differences between the mean values between treatment and control group in post test is 1.05 with p = 0.27.

Table 4: Distribution of average value attitudes in the management cadres ill children cough and breathing difficulties.

| Measurement | Treatment (n=40) | Control (n=37) | Mean difference (CI95%) | p value |
|--------------------------------|------------------|----------------|-------------------------|---------|
| Pre test | | | | 0.051 |
| Mean | 56.48 | 54.51 | 1.96 | |
| SD | 3.78 | 4.8 | (-0.01-3.94) | |
| Post test I | | | | 0.08 |
| Mean | 56.88 | 54.7 | 2.17 | |
| SD | 5.28 | 5.25 | (0.22-4.57) | |
| Post test II | | | | 0.27 |
| Mean | 58 | 56.95 | 1.05 | |
| SD | 5.17 | 2.96 | (-0.88-2.99) | |
| Delta pre test to post test II | | | | 0.45 |
| Mean | 1.53 | 2.43 | -0.91 | |
| SD | 5.37 | 4.96 | (-3.26-1.45) | |

*Independent samples t test

Table 5: Distribution of average value skills in the management cadres ill children cough and breathing difficulties.

| Measurement | Treatment (n=40) | Control (n=37) | Mean difference (CI95%) | p value |
|--------------------------------|------------------|----------------|-------------------------|---------|
| Post test I | | | | <0.001 |
| Mean | 87.5 | 65.81 | 21.69 | |
| SD | 10.25 | 12.83 | (16.38-26.99) | |
| Post test II | | | | <0.001 |
| Mean | 84.75 | 64.32 | 20.43 | |
| SD | 13.44 | 14.25 | (14.12-26.73) | |
| Delta pre test to post test II | | | | 0.76 |
| Mean | -2.75 | -1.49 | -1.26 | |
| SD | 16.94 | 18.81 | (-9.42-6.89) | |

*Independent samples t test

Table 4 also shows that there was no significant difference between the average increase in the value of the attitude of the treatment group and the control group.

Table 5 shows that the differences between the mean value of skills between treatment and control group in post test I is 21.69 with $p < 0.001$. At the time of post test II, the difference in the average number of skills between the two groups was 20.43 with a value of $p < 0.001$. On skill variables impaired. Based on test results obtained value of 0.76 statistics, this means that at alpha 5% seen no difference in average impairment of skills in the treatment group and the control group.

DISCUSSION

The impact of training toward the health workers' knowledge in the management of children with cough and breathing difficulties

According to the comparison of pre-test result of the knowledge, it shows that before the training there is no difference of knowledge between the treatment group and the control group. Both groups have a very similar value because all workers haven't had the training about children's cough or respiratory infections. The other factor is probably because the educational level of the workers in both groups is high school, namely by 63.6%. Education is a way for people to gain information so that it affects their knowledge, attitude and skill.

The result post test I and post test II between both groups showed an increase. This means that training can improve the cadre's knowledge. According to previous research⁷ which showed that training can improve knowledge of cadres who were measured immediately after neither training nor 1 month after treatment. Training is a systematic learning process to learn the knowledge, skills and attitude to work which is being or will be made.⁸

Management training of children's cough this is intended for cadres training based on the MTBS-M. This training provides the knowledge for cadres of the treatment of sick children cough and difficult breathing. Cadres obtain information about the introduction of sign of danger; how to refer sick children, recognize rapid breathing, coughing handle without danger signs, know the dose of cotrimoxazole and home care advice.

But the results of the first post test and post-test II between the two groups showed significant differences. This means there are differences increased knowledge on cadre training with lectures, discussions, role play and audiovisual media as well as modules compared to the cadres who were trained by reading the module itself. Based on previous research⁷ shows that there are differences in knowledge between the groups that received training with audiovisual compared to the group that received training with modules.

Training of with lectures, discussions, role play and use of audiovisual media can increase the value of higher knowledge. It is clear that the success of the training is influenced by many things. The key to effective training is how the learning activities are designed so that the participants got knowledge and skills.⁹

Lecture and discussion methods are used in most of the training, including training in this study. The most effective method of discourse used when participants experienced a lack of knowledge.⁹ In this training also using role play which is the application of knowledge on the theory obtained. The use of modules in the training also aims to facilitate the learning process.

The two groups have in common is using the modules in training; it is possible could lead to the control group also experienced an increase in knowledge. Modules can assure learning abilities of each participant.¹⁰

Based on the post test II, the majority of cadres are still less appropriate to answer the question how to calculate the number of breath, rapid breathing, and determining the dose of cotrimoxazole. Further training is expected to be more emphasis on these matters.

Effect of the training of cadres in the management attitude sick children cough and difficult breathing

Based on the analysis that has been done, the average value of pre-test attitudes between the two groups did not have significant differences. This is possible because the average long been a cadre in the control group with similar treatment group. Experience cadre can influence the formation of cadres attitude. Personal experience can be a factor in the formation of attitudes.¹¹ Results of a previous study explained that nurses with work experience longer have a value greater than the attitude of nurses who have little work experience.¹²

Comparison of the results of post test I and post test II the attitude of the two groups was not found significant differences. This means that the attitude of cadres between the two groups showed no difference in the measured immediately after training and 14 days after training. Results of this study are not in accordance with the results of previous research that there are significant differences in attitudes cadres in both groups. Cadres were trained by audiovisual media have an attitude that is higher than the cadres who were trained by the conventional media.¹³

The absence of significant differences in attitudes between the two groups showed that both methods of training have the same effectiveness. Cadre training with more interactive methods or cadres who were trained by reading the module itself equally effectively improves the attitude of cadres. Lecture and discussion methods can provide information so effective for participants who shows a lack of good.⁹ Module method has the advantage

that a variety of forms and ways of learning can help improve motivation and independent learning.¹⁴

Cadre attitude about when cadres refer sick children and whether or cough medication still needs to be improved. Most cadres still do not agree that the cadres always refer to the health center when finding child cough. The majority of cadres also agreed to recommend that mothers of children with coughs to directly given cough medicine.

Effect on skill training of cadres in the management of sick children cough and difficult breathing

The results showed that there were significant differences post test values I and post test II between treatment and control groups. This means that the skills of cadres in the treatment group after training cadres higher than in the control group. These results are due through lectures, discussions, role play, cadre gets more opportunities to get information. Cadres also gave the opportunity to practice directly with toddlers. Demonstration methods can improve skill higher than another methods.⁹ In both groups also get a module that is able to improve the perception, understanding and memory.¹⁸

Cadres in the treatment group than to see the demonstration also directly own practice, this provides an opportunity to learn by concrete experience.⁹ Cadres in the control group learned from reading module itself. The dynamic media more suitable for developing procedural knowledge and skills.⁸

Results of research explained that training with simulation scenarios based communication competence and self-efficacy is higher than the training with case-based communication. Educational interventions are only done one time is not enough to change the behavior of the subjects significantly.¹⁹

The same is obtained from the study by the Nilson *et al.*,²⁰ skills that get results that dental students was higher in the group that received training with simulators compared to the group that received training with conventional methods. Training provided gives new skills for cadres. Such skills include asking questions and listening to their parents, checking alarm, counting the number of breaths and decisive action. The skills that are taught is expected to assist cadres in finding a toddler with cough or difficult breathing problems.

The results showed that a decline in value is not meaningful skills that occur from the post test I to post test II in both groups, indicating reduced retention of learning outcomes owned cadres. It is the same with other research which shows that a decline in the value of the skills in the two groups.²²

Comparison impairment of skills between the two groups there was no significant difference. Impairment of skills

is possible because during the 14 days after receiving the training of cadres not to apply the skills that have been taught. In addition, the decline is also possible absence of inner motive cadres to learn, because the evaluation is not a test.

Impairment of skill in the treatment group greater than the control group. Impairment is influenced by several things, including most of the children who were involved at the time of assessment of skills in the treatment group more finicky. This causes difficulties cadre examination, so it needs the addition of training materials on the approach to the toddler. In addition to that, the cadres in the treatment group was also much work, whereas ideally a cadre of community members who are not working. The existence of other activities which are owned by the cadres can cause memory loss.

A limitation of this study is the sampling technique used is a non-probability random sampling making it less able to represent the population. Respondents said that too many questions in the questionnaire, the questionnaire consists of 26 questions of knowledge and attitude questionnaire consisted of 17 questions. This makes respondents feel of saturated, as well as evaluating the attitude is considered difficult for respondents to distinguish between strongly agree and agree to disagree to disagree.

CONCLUSION

Training using methods of lectures, simulations, case studies and demonstrations using audiovisual media and modules is more effective to improve the workers' knowledge, attitude and skills. The increase of value happens on the variable of knowledge and attitude, meanwhile the variable of skills has its decrease.

Suggestion

It is suggested to the Public Health Centre and the Public Health Office of Klaten regency to be able to develop the training on the management of children's cough with these training methods for the promotional health workers so that it can be applied in the regular training for the community health workers, as well as monitored and reevaluated after the training is done. Besides, the next training shall emphasize on how to count breath, determine rapid breathing, the dose of cotrimoxazole, when to refer an ill children, as well as the handling of children's cough without rapid breathing.

It is also expected to the community health workers to be able to apply the knowledge gained during the training in the management of children's cough. For further research is expected to examine the probability sampling techniques, sustainable interventions as well as examining other factors that occur in an interval of cadres during the first test post to post test II.

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REFERENCES

1. WHO. Ending Preventable Child Deaths from Pneumonia and Diarrhoea by 2025: The Integrated Global Action Plan for Pneumonia and Diarrhoea (GAPPD), 2013.
2. Rudan I, Boschi-Pinto C, Biloglav Z, Mulholland K, Campbell H. Epidemiology and etiology of childhood pneumonia. *Bulletin of the World Health Organization*. 2008;86:408-16.
3. Dinas Kesehatan Provinsi Jawa Tengah. Profil Kesehatan Provinsi Jawa Tengah tahun, 2012.
4. CORE Group. Community-based Integrated Management of Childhood Illness Policy Guidance, 2009.
5. Kementerian Kesehatan RI. Peraturan Menteri Kesehatan RI Nomor 70 Tahun 2013 tentang Penyelenggaraan Manajemen Terpadu Balita Sakit Berbasis Masyarakat, 2013.
6. WHO. Revised WHO classification and treatment of pneumonia in children at health facilities: evidence summaries, 2014.
7. Halimudin M. Pelatihan Kader Posyandu dalam Penemuan Kasus Pneumonia Balita di Puskesmas Marabahan Kabupaten Barito Kuala Provinsi Kalimantan Selatan Tahun 2008. Tesis Program Pascasarjana, Universitas Gadjah Mada, Tidak diterbitkan, Yogyakarta, 2009.
8. Blanchard PN, Thacker JW. *Effective Training: Systems, Strategies, and Practices*. Second Edition. New Jersey: Pearson Prentice Hall, 2004.
9. Silberman, Melvin L. *Active Training: A Handbook of Techniques, Designs, Case Examples, and Tips*. 3rd ed. San Fransisco: John Wiley & Sons, 2006.
10. Mahfoedz I, Suryani E. *Pendidikan Kesehatan Bagian Dalam Promosi Kesehatan*. Yogyakarta: Fitramaya. 2006.
11. Azwar S. *Sikap Manusia: Teori dan Pengukurannya*. Edisi kedua. Yogyakarta: Pustaka Pelajar. 2010.
12. Chan MF. Investigating nurses' knowledge, attitudes, and skills patterns towards clinical management system: Results of a cluster analysis. *Medical Informatics and the Internet in Medicine*. 2006;31(3):161-74.
13. Sulistyanto A. Pengaruh Pelatihan kader dengan Media Audiovisual terhadap Pengetahuan, Sikap serta Perilaku Kader Posyandu di Kecamatan Sintang Propinsi Kalimantan Barat. Tesis Program Pascasarjana, Universitas Gadjah Mada, tidak diterbitkan, Yogyakarta, 2006.
14. Utomo T. Peningkatan dan Pengembangan Pendidikan Manajemen Perkuliahan, Metode Perbaikan Pendidikan. Yogyakarta: Gramedia, 1989.
15. Lestari W. Pengaruh Pelatihan Deteksi Dini Tumbuh Kembang Terhadap Peningkatan Pengetahuan, Sikap dan Keterampilan Bidan di Kabupaten Banjar. Tesis Program Pascasarjana, Universitas Gadjah Mada, tidak diterbitkan, Yogyakarta, 2010.
16. Winkel WS. *Psikologi Pengajaran*. Yogyakarta: Media Abadi, 2004.
17. Notoatmodjo S. *Promosi Kesehatan: Teori dan Aplikasinya*. Jakarta: Rineka Cipta, 2010.
18. Djamarah S, Zain A. *Strategi Belajar Mengajar*. Jakarta: Rineka Cipta, 2002.
19. Hsu LL, Huang YH, Hsieh SI. The effects of scenario-based communication training on nurses' communication competence and self-efficacy and myocardial infarction knowledge. *Patient Education and Counseling*. 2014;95:356-64.
20. Nilsson TA, Hedman LR, Ahlqvist JB. Dental Student Skill Retention Eight Months After Simulator-Supported Training in Oral Radiology. *Journal of Dental Education*. 2011;5:679-84.
21. Sutton RM, Niles D, Meaney PA, Aplenc R., French B, Abella BS. Low-Dose, High-Frequency CPR Training Improves Skill Retention of In-Hospital Pediatric Providers. *Pediatrics*. 2011;128:e145-e51.
22. Wulansari A. Pengaruh Pelatihan dengan Metode Collaborative Learning terhadap Pengetahuan dan Keterampilan Kader Posyandu Mengenai Kesehatan Gigi dan Mulut pada Balita. Tesis Program Pascasarjana, Universitas Gadjah Mada, tidak diterbitkan, Yogyakarta, 2013.

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