

EFFECT OF DISCHARGE PLANNING TOWARD MEDICATION ADHERENCE AND UNDERSTANDING OF THE DANGER SIGNS OF PNEUMONIA OF TODDLERS AT INDONESIAN HOSPITAL

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ABSTRACT

Nurses can help patients with pneumonia and their family through appropriate discharge planning. This study aims to determine the effect of discharge planning toward medication adherence on toddlers' pneumonia at Karawang Local General Hospital. Quasi-experimental research post-test only control group design with 58 respondents was selected by consecutive sampling technique. The study by using Chi square test showed a significant difference between the intervention group and control group about medication adherence and understanding of the danger signs of pneumonia ($p < 0.001$). Gender, education, occupation, number of children, income, experience to care pneumonia, and social support have no effect on medication adherence and understanding of the danger signs of pneumonia.

Keywords: *Discharge Planning, Medication Adherence, Danger Signs of Pneumonia*

INTRODUCTION

Pneumonia is a serious infection and affects many children around the world. In America and Europe which are developed countries, the incidence of pneumonia is still high, it is estimated that every year there are 30-45 cases per 1000 children under the age of 5 years, 16-20 cases per 1000 children aged 5-9 years, 6-12 cases per 1000 children at age 9 and teenagers (World Health Organization, 2006).

Based on basic health research, pneumonia is the second highest cause of death for toddlers after diarrhea in Indonesia. Pneumonia mortality rate in toddlers in Indonesia is estimated to reach 21%, which is 162,000 per year. Ministry of Health Republic of Indonesia (2014) explained that West Java had the highest incidence of pneumonia in the age group of less than 1 year of around 12.4% and the age group of 1-4 years was around 22.62%.

Pneumonia is an infection or inflammation that occurs in the lung parenchyma (James, Nelson & Ashwill, 2013). Only toddlers with coughing, rapid breathing, fever and accompanied by general danger signs such as not wanting to drink, spewing all that is eaten, lethargy and experiencing a decrease in consciousness requires hospitalization (World Health Organization, 2006).

Every parent whose child is sick and hospitalized expects his child to recover quickly and recover. Nurses can help patients and families in the process of caring and healing for the children by involving families in care and in preparing them to discharge planning from the hospital and return home (Hockenberry, Willson & Mosby, 2007).

Discharge planning aims to help the healing process, maintain health, prevent recurrence until the patient is ready to return home (Bermann, Snyder & Frandsen, 2008). The results of other research found that there was a significant influence between discharge planning on the ability of parents to care for children after diarrhea. Parents who were given information on discharge planning were 7 times more likely to have knowledge, skills in caring for children after diarrhea and have attitudes that support the implementation of care compared to parents who were not provided with discharge planning information (Hasriany, 2013). The results of other studies explained that patients who were given discharge planning had better satisfaction compared to patients who only received education when they go home (Shepperd *et al.*, 2013).

Karawang Local General Hospital is one of the hospitals that has a pediatric in-patient room with the number of pediatric patients with pneumonia in January - June, 2013 was around 40.4% ($n = 94$). During the preliminary study, the head of the Rawamerta room (RSUD Karawang) explained that the Standard Operational Procedure (SOP) for the discharge planning had not yet existed. During this time the discharge planning was only in the form of providing health information that was carried out during treatment and when they go home. The health information provided during the patient's care includes the condition of the patient, treatment and care needed. Submission of information is not given to every family whose child is cared for, but only given if the family asks about their child's illness and condition. Family compliance, especially the mother, is related to aspects of treatment and child care while in hospital gets less attention.

According to data from the register book of patients treated in the Rawamerta room, from 28 patients treated with pneumonia there were about 10% (2-3 patients) who were treated again with pneumonia after three months at home. Based on the results of interviews with mothers whose children were post-hospitalized, information was obtained that children did not use antibiotics. This is allegedly the mother does not understand the purpose of treatment. In addition, it is also possible that the mother does not understand the danger of pneumonia, so the child must be hospitalized. If you understand the danger signs of pneumonia, early detection can be done immediately by going to the primary health care level, the Public Health Center. Thus hospitalization can be avoided.

RESEARCH METHODOLOGY

This research is a quantitative research with research design experimental quasy. The approach used in this research design is posttest only control group design. The treatment will be carried out in the intervention group and after that a post test will be conducted. The control group did not get treatment before getting the post test. The post test results of the intervention group and control group were then compared.

The population in this study were all parents whose toddlers were treated with a diagnosis of pneumonia in the hospital. Sample needed for each group is 26

people, to avoid drop out, each group is added 10% so that the total respondents are 58 people.

The tools or instruments used to collect data in this study are questionnaires and observation sheets. Questionnaire A contains demographic data, characteristics of respondents, and confounding variables (age, gender, education, occupation, income, experience, number of children, social support). Questionnaire B is used to measure the level of compliance take medicine consisting of 8 questions adopted by researchers from the *Morisky Medication Adherence Scale (MMAS)*. *MMAS* which contains disciplinary variables for taking medication. Questionnaire C contains 10 questions about understanding the danger sign of pneumonia which must be filled by the respondent by giving a checklist (✓) on the answer deemed appropriate by the respondent (Morisky *et al.*, 2008).

Test the validity of the instrument using *Pearson Product Moment correlation test* by comparing the r table value with r count, where the instrument is considered valid if the r count value is greater than the r table value (Sastroasmoro & Ismael, 2011). The researcher uses a significance level of 5%, so that the r table value = 0.532. Validity test results for understanding the questionnaire danger signs of pneumonia consists of 10 item questionnaire questions and family support comprises 13 items of questions, with the result of r count > r table value, so it is declared valid. The instrument reliability test uses *Cronbach alpha* test where the instrument is considered reliable if the α r value is greater than r table. From both instruments, the α r value is greater than the r table value, the instrument is declared reliable. The α value for understanding the danger signs of pneumonia 0.5660 and for family support has an α value of 0.9359, so that all statements are considered reliable.

The research involved 4 research assistants who had previously conducted training on how to collect data and carry out the discharge planning. Discharge planning training was carried out after 2 weeks of data collection from the control group. Determination of respondents by researchers and research assistants in accordance with the inclusion criteria (parents who can read and write, are willing to become respondents, have toddlers and treated with pneumonia) that have been made. Next divided into 2 groups, namely the control

and intervention groups.

Analysis of the variables in this study was carried out in univariate and bivariate. Univariate analysis is used to describe research results from each variable examined. Data analysis results are displayed in the form of frequency distribution with percentage measurements. For example, homogeneity is carried out on control and intervention groups. Homogeneity test is carried out on the variables of age, sex, education, occupation, income, experience, number of children, and social support, with homogeneity of variance (*Levine test*).

Bivariate analysis of the research was carried out to

prove the hypothesis has been formulated namely whether there is influence discharge planning for adherence to medication and understanding the danger signs of pneumonia, and the relationship of confounding variables with adherence to taking medication and understanding the danger signs of pneumonia. Data that has been obtained statistically analyzed using a computer (World Health Organization, 2001).

When a person is chosen to participate in the research, the researcher must ensure that the rights of the respondent are protected. Ethical principles that need to be considered in research include beneficence, respect for human dignity and justice (Polit & Beck, 2008).

RESULTS

Table 1: Results Difference Analysis of Medication Adherence and Understanding the danger signs of Pneumonia on Intervention and Control Group at Karawang Local General Hospital, May – July 2014 (n = 58)

Variable	Group	N	Elementary school	SE	p value
Adherence with taking medication	Control	29	2.15	0.39	0.00
	Intervention	29	0.47	0.09	
Understanding the danger signs of pneumonia	Control	29	0.98	0.18	0.00
	Intervention	29	0.00	0.00	

Results of analysis of differences in medication adherence in the table 1 shows a significant difference between the intervention group and the control group ($p\text{-value} < 0.05$).

Table 2: The Relationship of Age with medication adherence of intervention and Control Group at Karawang Local General Hospital May-July 2014 (n = 58)

Variable	Mean	Elementary school	95% (CI)		p value
Age	3.17	2.43	2.246 (Lower)	4.099 (Upper)	0.00

Based on table 2, the results of the analysis of age relationships with medication adherence in the control and intervention groups showed a significant relationship ($p\text{ value} < 0.05$).

Table 3: Relationship of Age with Understanding Danger Signs of Pneumonia on Interventions and Control group at Karawang Local General Hospital, May-July 2014 (n = 58)

Variable	Mean	Elementary school	95% (CI)		p value
Age	1.103	0.976	1.475 (Lower)	0.732 (Upper)	0.00

Based on table 3, the results of the analysis of age relationships with understanding the danger signs of pneumonia in the intervention and control group showed a significant relationship ($p\text{ value} < 0.05$).

Table 4: Relationship between Confounding Variables with Medication Adherence of Intervention group and Control Group at Karawang Local General Hospital, May-July 2014 (n = 58)

Variable	Intervention		Control		p value
	Medication Adherence Drug		Medication Adherence		
	Low	High	Low	High	
Gender					0.189
Woman	-	29	16	2	
Man	-	-	8	3	
Education					0.414
Basic	-	3	13	2	
Middle	-	21	6	3	
High	-	5	5	-	
Work					0.934
Does not work	-	12	14	4	
Work	-	17	10	1	
Number of children					0.126
1 children	-	3	7	1	
2 children	-	12	8	2	
3 children	-	14	9	2	
Income					0.276
<Rp 2,475,000	-	2	12	3	
>Rp 2,475,000	-	27	12	2	
Experience treating pneumonia					0.276
There is	-	11	8	1	
There is no	-	18	16	4	
Social support					0.376
Get	-	17	9	4	
Don't get	-	12	15	1	

Based on Table 4, indicate that there is no significant relationship between confounding variables (Gender, Education, Occupation, Income, Number of children, Experience in caring for pneumonia, and Social support) with medication adherence to the group of intervention and control ($p\text{ value} > 0.05$).

Table 5. The Relation of Confounding Variable with Understanding of Danger Signs of Pneumonia on Intervention Group and Control Groups at Karawang Local General Hospital Karawang, May-July 2014 (n = 58)

Variable	Intervention		Control		P value
	Understanding danger Signs of Pneumonia		Understanding dangers signs of Pneumonia		
	Low	High	Low	High	
Gender					0.107
Woman	-	29	3	15	
Man	-	-	3	8	
Education					0.335
Basic	-	3	3	12	
Middle	-	21	2	7	
High	-	5	1	4	
Work					0.745
does not work	-	12	4	14	
Work	-	17	2	9	
Number of children					0.432
1 children	-	3	2	6	
2 children	-	12	1	9	
3 children	-	14	3	9	
Income					0.432
<Rp 2,475,000	-	2	1	14	
>Rp 2,475,000	-	27	5	9	
Experience treating pneumonia					0.724
There is	-	11	2	7	
there is not	-	18	4	16	
Social support					0.190
Get	-	17	3	10	
don't get	-	12	3	13	

Based on Table 5, showed that no significant relationship between confounding variables (Gender, Education, Occupation, Income, Number of children, Experience in caring for pneumonia, and Social support) with an understanding of danger signs of pneumonia in intervention and control groups ($p\text{ value} > 0.05$).

DISCUSSION

The results of the analysis of this study indicate that the average age of parents in both groups is 35 years. The age picture of respondents shows that most respondents are in the adult age group (Suzanne *et al.*, 2002). According to Erikson the main task of adult age is to achieve generativity. Generativity is the desire to care of and guide others like their children or friends' children or through guidance in social interaction with

the next generation. Parents with an adult age group will give more care to sick family members (Potter & Perry, 2005). The results of this study are in accordance with previous studies conducted by Purnamasari (2012) on health education in parents where the average age of the control group of 28 years and the intervention group of 35 years.

The majority of respondents in the study were mothers, because they are as primary caregivers for toddlers. So

if the child is cared for, the child will feel more comfortable if accompanied by the mother. A mother has the motivation to find information about the care needed by her child to recover quickly.

Respondents of this study were parents who had toddler with pneumonia were hospitalized. The education level of parents in the control group was mostly elementary school while the intervention group was mostly high school educated. When viewed from the level education, high school education is not included in the category of very low education, but it is medium education. Parents with secondary education and above will be more responsive and choose to search help to a more complete health facility (Niven, 2002).

Respondents whose education is higher will certainly have better knowledge than lower levels education. According to Redman someone with a higher education will provide greater knowledge so that it produces a habit of maintaining better health. When realizing health problem, those who are knowledgeable will tend to seek help as soon as possible to overcome the problem (Potter & Perry 2005).

The job status of respondents in this study did not work in the control group, and the majority worked in the intervention group. Basically, one of family functions is a means of preparing physical needs, health and care when sick (James, Nelson & Ashwill, 2013). Family, especially parents, are the people closest to children, so parents need to be empowered to get optimal health status in a child (Hockenberry, Wilson & Mosby, 2007).

The results of this study are in accordance with previous studies on health education in parents where most parents/respondents did not work in the intervention group of 62.5% and the control group of 68.75% (Purnamasari, 2012).

The number of children in the two groups has 3 children at most. The number of family members can influence someone to behave in maintaining the health of their family members (Hockenberry, Wilson & Mosby, 2007). The greater the number of family members, the more attention and effort is divided in improving optimal health (James, Nelson & Ashwill, 2013). The large number of children will add pressure on the control and prevention of pneumonia, especially on the financing aspect (Said, 2010).

The amount of income in the control group is more on income less than Rp. 2. 475,000/month while the intervention group is more on income of more than Rp. 2. 475,000/month. Income is an important factor that influence fulfilling the daily needs of the family. Besides, income is powerful factor that influences behavior change of someone's health. Inability in financial terms will affect the need for food, drink and conditions of a clean and healthy environment (Ministry of Health Republic of Indonesia, 2014). Low income will cause socio-ecological status which is not well marked by poor environment (lack of ventilation inside the house, inadequate number of rooms), indoor pollution due to the use of biomass (household fuel from wood, use of mosquito coils). Several things above are risk factors for pneumonia (Said, 2010).

The results of the study of the experience of treating pneumonia in both groups showed more respondents who did not have experience treating toddlers with pneumonia. The results of this study are in line with the research of Purnamasari (2012) which states that most maternal respondents do not have the experience of treating toddlers with pneumonia.

Based on the *Health Belief Theory Model*, experience is a psychological variable that makes a person feel the threat of a disease and will carry out the action according to the recommendations. Inexperience in most respondents allows them to act inappropriately in caring for sick family members such as adherence in giving medicine (Winnick *et al.*, 2012). Experience makes a person to have the knowledge and ability to care for sick family members (Hasriany, 2013).

Supono's (2008) study supports the above statement, where it was found that there was a significant relationship between contact experience (toddlers who had suffered from diarrhea) and mothers' perceptions of diarrhea in infants. Mothers of toddlers who have never experience contact have a 5 times greater risk of perception of diarrhea as an ordinary disease than mothers who have ever experienced contact.

The results showed that the two groups received more social support, which was around 56.89%. According to Potter & Perry (2005), healthy families will usually look for ways to help all their family members by providing support in achieving their greatest potential. Family support factors can be a very influential factor

in determining which treatment programs they can receive. Families also support and make decisions about caring for sick families (Niven, 2002). The results of this study are in line with the research which explains that there is a significant relationship between family support with adherence to taking anti-tuberculosis drugs at Dr. Saiful Anwar Malang Hospital (p -value $0.001 < 0.05$) (Hutapea, 2009).

Based on the results of the study, the level of medication adherence in the intervention group was 100% high and the control group were 82.7% low. Whereas for understanding the danger signs of pneumonia in the intervention group 100% high and the control group 79.9% high. The difference in the level of medication adherence and understanding of the danger signs of pneumonia showed significant results between the intervention and control groups with a value of $p < 0.05$. The level of education, and work can affect the level of compliance (Winnick *et al.*, 2012). The level of education of middle to upper parents can make understanding in receiving health information better (Said, 2010). Most respondents in the intervention group had secondary education where individuals with secondary education and above would try to obtain more health information from various sources. Working can gain a lot of experience and from that experience will gain new and growing knowledge that can be used in caring for sick family members.

The results of the study showed that age had a significant effect on medication adherence ($p > 0.05$). Based on Green's behavior model, age is one of the factors that can influence behavior that is included in the category of *predisposing factors*. One behavior that can be influenced is compliance (Notoatmodjo, 2007).

Based on the analysis of research results showed that there was no significant effect of gender, education, employment, income, number of children, experience of treating pneumonia and social support for medication adherence (p value > 0.05). In other words, medication adherence is not affected by the confounding factors mentioned above but it is influenced by the intervention given.

The results of this study are in line with Jones *et al.*, (1998) study on the effect of education on adherence to *oral iron supplements* in hemodialysis patients with 39 people of the sample, it was concluded that there was no

relationship between gender and adherence. The opinion of Robbins (Niven, 2002) states that problem-solving skills, analytical skills, competitive drive, motivation, sociability and learning ability are the same between men and women. This opinion reinforces the results of research conducted by researchers so that there is no significant difference between male gender and female behavior in compliance.

Other studies conducted by Winnick *et al.* (2012) are in line with the results of this study. The study found that barriers to adherence to health workers were influenced by a number of things including limited interaction time between parents and health workers, especially for further explanation, characteristics of family and children, characteristics of health workers and drug factors such as length of medication taken, the complexity of giving drugs, the tight schedule, the form of the drug and the high cost needed to buy the drug.

The results of the study showed that age had a significant influence on understanding the danger signs of pneumonia ($p > 0.05$). This is in line with Hurlock's theory which states that age affects a person's level of knowledge, the older the person, the more experience and knowledge he/she gain. With the ability and knowledge of parents about the existence of health problems in the family, it will be better known the symptoms of a disease that requires the handling of health workers. Early detection can be done immediately by parents so that family members will not get and worse and experience recurrence (Said, 2010).

Based on the analysis of the results of the study, it showed that there was no significant effect of gender, education, employment, income, number of children, experience of treating pneumonia and social support for understanding the danger signs of pneumonia (p value > 0.05). In other words, understanding the danger sign of pneumonia is not affected by the confounding factors mentioned above but it is influenced by the intervention provided.

The results of other studies show that the number of children owned by mothers has no effect on the level of maternal knowledge and compliance with re-visits of toddlers with pneumonia (Purnamasari, 2012). This is supported by research which shows that the number of children has nothing to do with increasing respondents'

knowledge in preventing the occurrence of hyperbilirubinemia in newborns baby with a p value > 0.05 (Riyantini, 2010).

The majority jobs of respondents are housewives so that mothers have sufficient time to care for their children. Instinctively, the desire of a mother to care for a toddler is very high. Curiosity about how to care for toddlers who are sick is a parent process to find out through information media. Parental curiosity can increase knowledge and make parents more understand about the disease and its care. This requires a lot of money. According to Potter & Perry (2005), parental work and income support the broad information obtained to optimally improve the health of family members.

CONCLUSION

Characteristics of respondents in the intervention group and the control group showed that the average age of respondents in both groups was 35 years, female sex, with most high school education, the most income of the job above Rp. 2,450,000, had no experience in caring for toddlers with pneumonia, had no more than three children and the respondents get the most social support as long as the patient is treated. Adherence to taking medication in the intervention group was high and the control group was low, while for understanding the danger signs of pneumonia in both groups the majority were high. There were significant differences between the intervention group and the control group in adherence to taking medication and understanding the danger signs of pneumonia. There was only one variable that was the age that affected the adherence to taking medicine and understanding of the danger signs of pneumonia.

SUGGESTION

Nursing services: Nurses must have the same knowledge, abilities and understanding for the importance of comprehensive home planning that begins from the beginning the patient was treated until he/she returned home. This can be achieved by holding training for nurses about planning of. Returning home, it needs to make a *Standard Operating Procedure (SOP)* and its flow about returning home plan. Re-discuss with the health team about the length of days of treatment of patients with pneumonia for all patients or

patients with certain conditions such as pneumonia with malnutrition.

Nursing Research: This research can be used as the reference material for the next research about the influence of external factors from nurses on planning of returning home.

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REFERENCES

- Berman, A. T., Snyder & Frandsen. (2008). *Kozier & Erb's fundamental of nursing: Concepts Process and Practice*, Pearson, USA
- Hasriany. (2013). Effect of Discharge Planning the Ability of Parents in Treating Children after Diarrhea. *Journal of Poltekkes Makassar*, 2 (3), pp 144-148.
- Hockenberry, M. J., Wilson, D. & Mosby. (2007). *Wong's nursing care of infants and children*, 8th Edition, Elsevier, Netherland
- Hutapea, T.P. (2009). Factors Affecting Compliance to Medication in Lung Tuberculosis Patients. *Folia Medica Indonesia*, 45(1), pp 45-49.
- James, S.R., Nelson, K & Ashwill, J. (2013). *Nursing care of children: Principles and practice*, 4th Edition, Saunders, USA
- Jones, C.H., Richardson, D., Ayers, S., Newstead, C.G., Will, E.J. & Davison, A.M. (1998). Percentage Hypochromic Red Cells and The Response to Intravenous Iron Therapy in Anaemic Haemodialysis Patients. *Nephrology Dialysis Transplantation*. 13(11), pp 2873-2876

- Ministry of Health Republic of Indonesia. (2014). Indonesia Health Profile 2013. Ministry of Health RI. Retrieved from: <http://www.depkes.go.id/resources/download/pusdatin/profilekesehatanindonesia20Profile%202013%20%20v2%20untuk%20web.pdf>.
- Morisky, D.E., Ang, A., Krousel-Wood, M. & Ward, H.J. (2008). Predictive Validity of a Medication Adherence Measure in An Outpatient Setting. *Journal of Clinical Hypertension* (Greenwich), 10(5), pp 348–354.
- Niven, N. (2002). *Health psychology: An Introduction for Nurses and Other Health Care professional's health*, 2nd Edition, Churchill Livingstone, UK
- Notoatmodjo, S. (2007). *Promosi Kesehatan dan Ilmu Perilaku*. Jakarta: Rineka Cipta
- Polit, D. F. & Beck, C. T. (2008). *Nursing research: Generating and assessing evidence for nursing practice*, Lippincott Williams & Wilkins, USA
- Potter, P. A. & Perry A. G. (2005). *Fundamental of Nursing*. Mosby, USA.
- Purnamasari, E. R. W. (2012). Pengaruh pendidikan kesehatan pada orang tua terhadap pengetahuan dan kepatuhan kunjungan ulang balita dengan pneumonia di Puskesmas Kecamatan Pasar Minggu. Universitas Indonesia. Tesis. Diakses dilink <http://lib.ui.ac.id/file?file=digital/20304365T30882Eka%20Rokhmiawati%20Wahyu%20Purnamasari.pdf> pada tanggal 5 November 2016 13:06 WIB
- Riyantini, Y. (2010). Pengaruh Pendidikan Kesehatan Terhadap pengetahuan, Sikap Dan Keterampilan Ibu Sertakejadian Hiperbilirubinemia Pada Bayi Baru Lahir Di Rsab Harapan Kita Jakarta. Retrieved from: <https://www.scribd.com/document/3547202033/digital-137200-T-Yanti-Riyantini-pdf>
- Said, M. (2010). *Pneumonia pada Balita*. Buletin Jendela Epidemiologi, Jakarta: Kemenkes RI
- Sastroasmoro, S. & Ismael S. (2011). *The basics of clinical research methodology*. Jakarta: Sagung Seto.
- Shepperd, S., Lannin N. A, Clemson L. M, McCluskey A, Cameron I. D, Barras S.L. (2013) Discharge planning from Hospital to Home. *The Cochrane Database of Systematic Reviews*, 31(1)
- Supono, J. (2008). Faktor Prediksi Persepsi Ibu Tentang Diare Pada Balita. *KESMAS, Jurnal Kesehatan Masyarakat Nasional*, 2 (4)
- Suzanne, C., Smeltzer, F., Brenda, G. & Bare, M. (2002). *Brunner and Suddarth's Textbook of medical surgical nursing*, 9th Edition, Lippincott Williams & Wilkins, USA.
- Winnick, S., Lucas, D. O., Hartman, A. L. & Toll, D. (2012). How do You Improve Compliance? *Pediatrics*, 115 (6), pp e718-e724.
- World Health Organization. (2006). *Pneumonia: The forgotten killer of children*. Retrieved from: http://www.who.int/maternal_child_adolescent/documents/9280640489/en/
- World Health Organization. (2001). *Health Research Methodology: A Guide for Training in Research Methods*. Retrieved from: http://www.wpro.who.int/publications/docs/health_research_edited.pdf