The Relationship Between the Nurse's Knowledge and Attitude with Their Skills in Preventing Hypothermia Among the Low Birth Weight Babies at the NICU of RSUD Prof. W. Z. Johannes Kupang

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Abstract
Low Birth Weight babies and neonatal mortality are indicators of the people’s health level. The babies with low birth weight are at risk of suffering from hypothermia. Therefore, nurses are required to have the proper knowledge and attitude for effective prevention of such condition. Neonatal hypothermia is mostly caused by the poor attention of health service providers including nurses. This study aims at revealing the relationship between the nurse’s knowledge and attitude with their skills in preventing hypothermia among the low birth weight babies at the NICU of RSUD Prof. Dr. W. Z. Johannes Kupang. The recent study is a quantitative research using the observational descriptive method and the design of the study is cross-sectional. Independent variables of the study are the nurse's knowledge and attitude, and dependent variables are the nurse’s skills. Total samples of the study were 35 nurses serving at the NICU of RSUD Prof. Dr. W. Z. Johannes Kupang. Data collection was carried out using questionnaires for the level of knowledge and attitude, and the skills used observational sheets. Univariate analysis demonstrated that the levels of knowledge are good (28.6%), sufficient (40.0%) and low (31.4%), respectively. Moreover, the findings also showed the attitude of the nurses are good (62.9%), sufficiently good (20.0%) and improper (17.1%). The finding on the skill of the nurses showed the following: good (60%) and poor (40%). The results of bivariate using Chi-square demonstrated the relationship between knowledge and skill (p = 0.001), attitude and skill (p = 0.013), while there is no relationship between education and skill (p=0.679), and there is a relationship between the length of service time and skill (p = 0.028). The results of the multivariate test using multiple logistic regression demonstrated that knowledge and attitude become the factors influencing the nurse’s skills and the value of Exp (B): 18.903. Based upon the findings as mentioned above, it can be concluded that the nurses need to improve their knowledge and skill to reach the appropriate level of skill in preventing hypothermia among the low birth weight babies.

Key Words: Knowledge, Attitude, Skill, Hypothermia, Low Birth Weight Babies.

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INTRODUCTION

Low-birth-weight (LBW) infants with and neonatal mortality are among the indicators of community health status. Approximately 20 million low-birth-weight infants are born annually, representing 16 percent of births worldwide. Of the figure, 19 million were born in developing countries, including Indonesia with an incidence rate of 11.31%, and the rest were born in developed countries with an incidence rate of 6.9% (Dragovich et al., 2001).

Preterm LBW constitutes a factor with a major contribution to neonatal fetal death. Around 40% of 80% of neonatal deaths of infants born with a body weight of fewer than 2500 grams is caused, among others, by hypothermia (Kramer, 1987).

At a Nepali hospital, despite the staff’s extensive training on hypothermia prevention, 80% of newborns remained suffering from hypothermia. Evaluation of newborn thermal control knowledge and professional healthcare practices in seven countries found that both hypothermia-related knowledge and practice were often inadequate (Dragovich et al., 2001).

The high infant mortality rate (IMR) remains to be the top priority health problems in Indonesia. The 1990 population census showed the LBW incidence of 63 in 1000 live births or approximately 2–5 times higher than that of other ASEAN countries. The National Health Survey (2001) estimated that the infant mortality rate was 50 in 1000 live births.

Low birth weight infants have a higher level of morbidity and mortality than that of normal babies. Results of the studies of neonatal health improvement showed that of 86 neonatal deaths recorded (of 6,515 births in 4 months), 50 percent of them occurred in LBW infants and, of 162 LBW infants, more than 25 percent died. Management of LBW will have a high leverage in decreasing neonatal mortality in particular and infant mortality in general (MOH of the Republic of Indonesia, 1996).

Neonatal hypothermia due to lack of attention by healthcare providers continues to be a major cause of neonatal death (Ferber, 2004). The incidence of
neonatal hypothermia is caused by the late management of this condition by infant-handling medical staff. Newborns often experience hypothermia due to their lack of ability to maintain body temperature, incomplete subcutaneous fats, wide body surface relative to body mass, and cold ambient temperature (Surasmi, 2009).

Nurses are health workers working independently and directly handling LBW cases in the room. They are expected to have positive knowledge and attitudes with regard to the hypothermia prevention in LBW infants, which will affect the level of nurses’ hypothermia prevention skills in LBW infants.

**STATEMENT OF THE PROBLEM**

Is there a relationship of nurses’ knowledge and attitudes with hypothermia prevention skills in LBW infants at the NICU room of RSUD Prof. Dr. W.Z. Johannes Kupang?

**PURPOSES**

**General purposes**

The purpose of the present study was to determine the relationship of nurses’ knowledge and attitudes with hypothermia prevention skills in LBW infants at the NICU room of RSUD Prof. Dr. W.Z. Johannes Kupang.

**Special purposes**

1. To identify the characteristics of nurses in the NICU room of RSUD Prof. Dr. W.Z. Johannes Kupang.
2. To determine the relationship between nurses’ knowledge and hypothermia prevention skills in LBW infants at the NICU room of RSUD Prof. Dr. W.Z. Johannes Kupang.
3. To determine the relationship between nurses’ attitude and hypothermia prevention skills in LBW infants at the NICU room of RSUD Prof. Dr. W.Z. Johannes Kupang.

**LITERATURE REVIEW**

**Low Birth Weight Infants**

Low birth weight infants are those with a birth weight of fewer than 2,500 grams (Surasmi, A., 2000). LBW infants have the following characteristics: 1) a weight of fewer than 2,500 grams; 2) a red skin due to a high level of hemoglobin; 3) thin, shiny, and folded skin due to lack of
subcutaneous fats; 4) presence of lanugo; 5) presence of possibly oedematous slight creases in the soles of the feet; 6) a soft skull dome, large fontanel and wide suture; 7) little and simple ear cartilage; 8) no breast tissue and small nipples; 9) easily palpated the liver, spleen, and kidneys; 10) transparent peristaltic waves through the abdominal wall and a possible umbilical hernia; 11) female infants with a prominent labia minor and male infants with undescended testis in the inguinal canal; 12) in a frog-like supine position the infants being hypotonic and showing slight spontaneous limb movements; 13) usually weak rooting and sucking reflexes (DG PKM RI, 2010).

Hypothermia

Hypothermia is a condition in which a body temperature of below 36°C (98°F), as measured at the armpit, can occur quickly in newborns, even at moderate ambient temperatures. This can occur due to the infant’s large ratio of the body surface area to the body mass and a severe lack of thermal insulation. Hypothermia potentially severe effects and contributes to sickness and death, especially in preterm babies. The standard treatment guidelines suggest drying and temperature protection of newborns from the start, warm delivery rooms, and other efforts to provide a warm floor. Hypothermia can be classified as follows: 1) cold stress, which is the temperature of 36−36.5°C (no change in metabolism represents a danger sign); 2) cold injury, which is the temperature of 32−35°C; and 3) severe hypothermia, which is the temperature of less than 32°C (Lubis, 2007).

KNOWLEDGE, ATTITUDE AND SKILLS

Knowledge

Knowledge is the result of knowing and this happens after an individual has sensed a particular object. Cognitive domain knowledge has six levels: 1) knowing, defined as recalling previously learned materials; 2) comprehension, defined as the ability to explain known objects correctly and to interpret the materials correctly; 3) application, defined as the ability to use learned materials in real situations or conditions; 4) analysis, defined as the
ability to describe materials into components; 5) synthesis, referring to the ability to place or connect the parts into an overall new form; 6) evaluation, related to the ability to justify or evaluate a material or object.

**Attitude**

According to Notoatmodjo (2007), an attitude has 3 main components: 1) a belief, idea, and concept of an object; 2) emotional evaluation of an object, and 3) the trend to behave. The three components collectively form a whole attitude. Knowledge, thoughts, beliefs, and emotions play an important role in determining the whole attitude. As with knowledge, this attitude consists of various levels: 1) receiving, defined as willing and paying attention to the stimulus given; 2) answering when asked, working on and completing the assignments given; 3) valuing, inviting others to work on or discuss an issue; 4) being responsible, for everything chosen with all of its risks, which is the highest attitude.

**Skills**

Skills are the outcome of repetitive training, which can be called an increased or progressive change by an individual who learns the skills as an outcome of certain activities. An attitude is not automatically realized in an action or skill.

**TYPE AND DESIGN OF THE STUDY**

The present study was an observational descriptive survey with the cross-sectional design. The population was all nurses serving in the NICU room of RSUD Prof. Dr. W.Z. Johannes Kupang amounting to 35 people taken by means of the purposive sampling technique. The instruments used were questionnaire, knowledge and attitude test list and a checklist to observe the nurses’ hypothermia prevention skills in LBW infants. Processing data using computer software, while the statistical analysis used is as follows: Univariate analysis, namely the analysis of each variable of research results, presentation in the form of frequency distribution and percentage of each variable. Data is presented in the
form of tables and narratives. Bivariate analysis was carried out on two variables that were allegedly related, namely one independent variable with one dependent variable. The statistical test used is a correlation. Multivariate analysis is to see the relationship with several independent variables on the dependent variable. Statistical tests used multiple logistic regression.

RESULTS

Overview of Study Location

The present study was carried out in the NICU room of RSUD Prof. W.Z. Johannes Kupang.

General data

Figure 1. Characteristics of respondents by age (n = 35)

<table>
<thead>
<tr>
<th>Respondents' Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Umur Responden</td>
</tr>
<tr>
<td>&lt;25 tahun</td>
</tr>
<tr>
<td>&gt; 25 tahun</td>
</tr>
</tbody>
</table>

Results showed that all nurses (35, 100%) working at the NICU of RSUD Prof. Dr. WZ Johannes were > 25 years.
The results of the study showed that most of the respondents’ education levels were graduated from Nursing Diploma with a total of 30 people (86%), and Nursing S1 5 people (14%).

Figure 3 showed that the majority of respondents (27, or 77%) had the length of service of > 5 years.
Specific Data

Table 1. Analysis of the relationship between nurses' knowledge and the skill of preventing hypothermia in LBW in the NICU room at Prof. RSUD W. Z. Johannes Kupang.

<table>
<thead>
<tr>
<th>Variable</th>
<th></th>
<th></th>
<th>Total</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>Good</td>
<td>Adequate</td>
<td>10</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>2</td>
<td>10</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>Adequate</td>
<td>12</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>10</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td>14</td>
<td>35</td>
<td>0.001</td>
</tr>
</tbody>
</table>

The results of the study obtained nurses' knowledge with the skills to prevent hypothermia in LBW in the NICU room included in the adequate category, but statistically using Chi-square there was a relationship between knowledge and skills (p = 0.001). Complete data can be seen in table 1.

Table 2. Analysis of the relationship between nurses' attitudes and the skills of preventing hypothermia in LBW in the NICU room at the RSUD Prof. W. Z. Johannes Kupang.

<table>
<thead>
<tr>
<th>Variable</th>
<th></th>
<th></th>
<th>Total</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude</td>
<td>Good</td>
<td>Adequate</td>
<td>21</td>
<td>0.013</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>5</td>
<td>21</td>
<td>0.013</td>
</tr>
<tr>
<td></td>
<td>Adequate</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>4</td>
<td>4</td>
<td>0.013</td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td>14</td>
<td>35</td>
<td>0.013</td>
</tr>
</tbody>
</table>

The results obtained by nurses' attitudes with hypothermia prevention skills in LBW in the NICU room included in the good category, and statistically using the Chi-square test there was a relationship between attitude and skills (p = 0.013). Full data can be seen in table 2.

Table 3. The final multivariate final modeling results of the independent variable multiple logistic regression and confounding variables with the skills
Based on table 3, the final results included in multivariate modeling are knowledge and attitude variables. Knowledge is the most dominant factor affecting the skills of preventing hypothermia in LBW after being controlled by attitude factors. The analysis in table 3 also illustrates that nurses with good knowledge have the opportunity to be skilled in preventing hypothermia at a low birth weight 18 times compared to nurses who have less knowledge after being controlled by attitude variables.

**DISCUSSION**

Correlation tests of knowledge and skills showed a statistically significant relationship between knowledge and skills. Thus, the more increasing the nurses’ knowledge of LBW infants the more skilled they would be to prevent hypothermia in LBW infants. This result supports that of Glauz et al. (1990), stating that knowledge constitutes a highly important domain for the formation of one’s actions. Experience and research indicate that knowledge-based skills will be more lasting than skills not based on knowledge. Studies of the relationship among knowledge, intentional attitudes and (behavioral) skills have been vastly carried out by social scientists. This issue can be discussed in the context of one’s participation in a particular activity (Ancok, 1997).

Correlation tests of nurses’ hypothermia prevention attitude and skills showed a statistically significant relationship between attitude and skills. This indicates the more positive the nurses’ attitude to LBW infants the more skilled they would be to prevent hypothermia in LBW infants.

The positive relationship between attitudes and behavior is based on the consistency postulate stating that verbal
attitudes are an adequately accurate indication to predict what a person will do when he is faced with an object of attitude (Azwar, 2000). Prevention by nurses of hypothermia is an act of nursing. An individual acts when there is an intention. The formation of an intention is determined by the attitude towards the behavior and the normative belief in the consequences of the behavior. Positive and negative attitudes are formed by the components of knowledge. The more positive aspects of attitude are formed, in relation to the nurses’ actions to prevent hypothermia in LBW infants, the more aware of hypothermia prevention in LBW infants the more the nurses would be expected to be more positive towards hypothermia prevention. Subsequently, an intention arises to make efforts to prevent hypothermia, which manifests in an action (skill). This is evidenced by Wicker’s study, indicating a strong relationship between attitudes and skills (Baron & Byrne, 1991).

CONCLUSION
1. There is a relationship between knowledge and hypothermia prevention skills in LBW infants at the NICU room of RSUD Prof. Dr. W.Z. Johannes Kupang.
2. There is a relationship between attitude and hypothermia prevention skills in LBW infants at the NICU room of RSUD Prof. Dr. W.Z. Johannes Kupang.

REFERENCES


