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2. To be a supportive resource for academics, students, and instructors in health and educational institutions and organizations in Thailand and overseas.
3. To promote research and development of new body of knowledge in nursing and health sciences.
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Yours sincerely,

Assistant Professor Dr. Janjira Wongkhomthong
President of Christian University of Thailand
and Editor-in-Chief International Journal of Nursing and Health Science (IJNHS)

Content

The Influence of Home Care Toward the Decreasing of Infection Disease's Episode in Malnutrition Children Under Five Years Old in Yogyakarta Indonesia

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Abstract

Malnutrition became the most cause of death for children under five years old. The tendency of malnutrition problem in Indonesia increased in every province in Indonesia including the special district of Yogyakarta (DIY). The straight reason of appearing malnutrition is an infection disease. The aim of this research was to know about the influence of home care toward decreasing of the infection disease's episode on malnutrition children under five years old in Yogyakarta.

The taken of this research by quantitative method with the Quasi-experimental, research is an intervention study with pre-test and post-test control group design. The sampling method of the research is consecutive sampling taken into intervention group and controlling group. The number of respondent is 60 respondents, consisted by 35 childrens under five years old for intervention group and 25 in controlling group. This research was done in 3 months, from February to April 2013.

The findings of the research revealed that the influence of home care toward the decreasing of infection disease's episode in malnutrition children under five years old in Yogyakarta, it shown the finding of pre and post test infection disease's episode in intervention group was statistically significant difference ($p<0.05$).

Keywords : Home care, Malnutrition of Children Under Five Years Old, Infection Disease's Episode

INTRODUCTION

Malnutrition is the condition of the body is deprived of nutrients or nutritional status held under the average standard, either in the form of proteins, carbohydrates and calories and these problems often occur, especially in infants and is the leading cause of death in children under five years old (WHO, 2007). Every year, malnutrition accounts for approximately 40% of the 11 million deaths of children under five in developing countries so that child mortality in the world reached 115 million of children (WHO, 2010). Problem of malnutrition in Indonesia today are likely an increase in each and every province in Indonesia, including in the provinces of Yogyakarta (DIY). District of Yogyakarta city became the highest malnutrition rates in the province.

Problems and poor nutrition in infants less directly influenced by the factors of food consumption and infectious diseases. Lack of nutritious food for toddlers attention caused by several factors such as the inability of the family in the provision of nutritious food as well as infectious diseases such as diarrhea suffered by toddlers constantly, pneumonia, measles, and malaria also interfere with nutritional children status (WHO, 2010).

Infectious disease can lead to malnutrition, or vice versa malnutrition also cause infectious diseases.The reciprocal relationship between the incidence of infectious diseases and malnutrition and malnutrition. Children under five suffering from malnutrition will decrease endurance, making it vulnerable to infectious diseases.

On the other hand a toddler who suffered infections will likely suffer bad nutritional.3 Infectious diseases have the bad risks to infants, the risk that can occur is the effect on brain growth and reported that brain growth and intellectual development and can reduce productivity by 20-30% (Depkes RI, 2006).

Problem of malnutrition caused by infectious diseases can actually be solved in short time (BAPPENAS/Kementerian Perencanaan Pembangunan Nasional, 2011). Handling malnutrition can be addressed by doing home care. Several studies have shown that toddlers actually malnutrition without complications can be handled in the community without having to be taken to a health care facility and cost effective (Ashworth, 2006). This supports research that states that the Community Therapeutic Care is an approach that can be done to treat acute malnutrition in infants in community (Tanner & Collins, 2004) (Myatt, et al., 2006). Thus the researchers will conduct research on the effects of home care for infectious disease episodes in children under five malnutrition in Yogyakarta.

METHODOLOGY

This research is Quasi experimental research. Research conducted an i ntervention study to design pretest-posttest control group design, sampling technique is with consecutive sampling either the intervention group or the control group. The population in this study were all under

August 2012 based on data from the Ministry of Health Directorate of Nutrition, toddler malnutrition in Yogyakarta amounted to 72 toddlers, and 55 people Sleman regency. After the validation test found the number of malnourished children under five is 60 toddler group consisted of 35 infants in the intervention city and the control group of 25 infants under five malnutrition in Sleman regency. The intervention group was treated in the form of home care intervention for 3 months, while the control group was given a standard intervention in the form of PMT and periodic measurements of nutritional status in posyandu.

Measurement of infectious disease episodes using a questionnaire and the results of the data format for two weekly infectious disease at the stage of assessment in home care guide. This study uses data analysis with SPSS computerized beginning with normality using Kolmogorov Smirnov test. Data from this study were not normally distributed with a significance value <0.05 so the statistical test using the Wilcoxon test were used to decrease infectious disease episodes in each group.

RESULT OF RESEARCH

1. Description of the Respondents Characteristics

Table 1. Description of the Respondents Characteristics Based on Experiment group and Control Group.

No	Respondents Characteristic	Group		Control	
		n=35	%	n=25	%
1	Children Age (Months)				
	0-12	1	2.9	3	12
	13-24	9	25.7	7	28
	25-36	11	31.4	7	28
	37-48	11	31.4	3	12
	49-60	3	8.6	5	20
2	Sex				
	Male	22	62.9	14	56,0
	Female	13	37.1	11	44,0
3	Immunization				
	Complete	34	97.1	25	100
	Uncomplete	0	0	0	0
	Missing Data	1	2.9	0	0
4	Giving mother's milk				
	Exclusive	14	40	8	32
	Non- Exclusive	21	60	17	68

Source : data primer

Based on the table, the characteristics of respondents based on age, mostly at 25-36 months and 37-48 months of age are11 respondents (31.40%) in intervention group, and aged 13-24 months and 25-36 of age are 7 respondents (28.00%) in control group.Characteristics of respondents based on gender, respondents mostly are male (62.90%) in intervention group and 56% in control group. Characteristics of respondents based on immunization status, respondents mostly giving immunization complete in inter vention and control group.

Characteristics of respondents based on giving of mother's milk, respondents mostly is non-exclusive (60%) in intervention group and 68% in control group.

2. Description characteristic of family respondent

Table 2. Description characteristic of family respondent Based on experiment group and Control Group

No	Characteristic of Respondent	Experiment Group		Control Group	
		n=35	%	n=25	%
1	Mother Education Level				
	Elementary School	3	8.60	5	20.00
	Junior High School	8	22.90	8	32.00
	Senior High School	17	48.60	10	40.00
	Scholar	7	20.00	2	8.00
2	Parent Income				
	>minimum wage	18	51.40	6	24.00
	<minimum wage	17	48.60	19	76.00

Source : data Primer

Characteristics of respondents based on the level of parent's education, respondents mostly graduated from senior high school. Characteristic of respondent based onparent's income, respondents almost same.

3. The Influence of Home Care Toward the Decreasing of Infection Disease's Episode in Malnutrition Children Under Five Years Old

Tabel 3. Result of Wilcoxon in Infection diseases's episode, Pre-test dan Post-test in control group

Group Control	Mean Rank		ValueZ	sig. (2-tailed)
	Pre-test	Post-Test		
Diarrhea	12.67	19.12	-1.153	0.249
Urinary TractInfection (UTI)	4.00	0.00	-2.375	0.017
Acute Respiratory Infection (ARI)	1.00	0.00	-1.000	0.317
Febris	7.00	0.00	-3.201	0.001
Infection Disease	0.00	1.00	-1.000	0.317

Source : Data Primer

Table 3 shows that the results of Wilcoxon Signed Rank Test in the control group obtained probability with p>0.05 are in diarrheal disease (0,249), ISPA (0.317), and infectious diseases (0.317). p values>0.05 so it can be concluded that in the control group there was no difference in episodes of infectious diseases significantly between pre-test and post-test, which is not a decline in infectious disease episodes in infants. Z values in the table above shows the lack of effect on infectious diseases (-1,000), diarrhea (-1.153), and ARI (-1,000) due to the Z count value is greater than the Z table (-1.65).

Tabel 4. The Result of analysis Wilcoxon Signed Rank Test Infection disease's episode Pre-test and Post-test to intervention group children under five years old

Intervention Group	Mean Rank		Value Z	sig.(2-tailed)
	Pre-test	Post-test		
Diarrhea	4.00	0.00	-2.379	0.017
UTI	1.00	0.00	-1.000	0.317
ARI	7.00	0.00	-3.201	0.001
Febris	0.00	1.00	-1.000	0.317
Infection Disease	11.00	000	-4.030	0.000

Source : Data Primer

Table 4 shows that the test results obtained by the Wilcoxon Signed Rank Test probability value Sig. (2-tailed) of 0.017 to diarrhea, 0,001 to ARI, and 0,000 in infectious diseases. The value of $p<0.05$ so that it can be concluded that the intervention group (treatment) there are differences in episodes of infectious diseases significantly between pre-test and post-test, ie a decrease in episodes of infectious disease in infants. Z values in the above table shows the influence of home care to the decline of infectious disease episodes because the value of Z count on infectious diseases (-4.030), at ARI (-3.201), and diarrhea (-2.379) is smaller than the Z table (-1, 65).

DISCUSSION

Based on the characteristics of the frequency distribution of respondents found that most toddlers age in this study was 25-36 months and 37-48 months were 11 infants (31.40%) in the intervention group and 7 infants (28.00%) at the age of 13-24 months and 25-36 months in the control group. According to the WHO that the toddler age group ranged from 0-60 months. In the age of the children found a high risk of suffering from infectious diseases, malnourished toddler who will experience a decrease in endurance so that toddlers are vulnerable to infectious diseases. On the other hand a toddler who suffered from infectious diseases are likely to suffer from malnutrition, malnutrition and infectious diseases are related, there is a causal relationship, so that the problem of malnutrition in children is a deadly threat to the world. Malnutrition is a major killer of children under five years old (WHO, 2007).

Based on Table 1 it can be concluded that of the 60 respondents from the control group and the intervention group, most respondents male sex which totaled 36 people, 22 people (62.90%) of the intervention group and 14 (56%) of the group control. Occurrence or state of malnutrition by sex that occurs in infants in Yogyakarta is not recorded specifically in the health profile of the province of DIY in 2008. Soetjiningsih (2004) suggested that infant mortality and malnutrition boys are more prone to illness than girls.

Immunization status is the most complete immunization status of 59 infants from the intervention group consisted of 34 infants (97.1%) and control kempok as many as 25 infants (100%) and the majority of infants who did not receive exclusive breastfeeding were 21 infants (60 %) and the control group were 17 infants (68.0%). According Supartini (2002) between breastfeeding and immunization cannot be separated because they are equally important for the group should provide immunity to the child's body. Exclusive breastfeeding is one of the factors that affect the direct cause of under five are malnourished.

Based on Table 2 Degree of parental education on the distribution of the data the most is the level of high school consisted of 27 mothers of the intervention group were 17 men (48.6%) and a control group of 10 people (40%) while the father amounted to 25 people, the intervention group were 22 men (62.9%) and the control group were 13 (52.0). Educational background of the parents is one of the important elements that can affect the nutritional status due to the higher levels of education are expected knowledge or information about nutrition owned for the better. Nutritional problems often arise due to ignorance or lack of adequate information about nutrition. The level of education is a process associated levels in the development of the human personality aspects that include knowedge, values, attitudes, skills, and guidance given to someone in another person something for others to understand. The higher one's education, the more easier it is to receive information and knowledge, otherwise the lack of education that will hinder one's progress against the new values (Notoatmodjo, 2010) (Nursalam, 2003).

Data on parental income is more than the minimum wage in the intervention group as much as 51.4% similar to the parental income less than minimum wage, while the majority of the control group parents income is less than the minimum wage by 19 people (76%). Economic status is one of the indirect causes of malnutrition in children under five. Poverty is the main cause or the root of the problem of malnutrition. Further explained that the data from Indonesia and other countries show an association between malnutrition and poverty. The proportion of underweight children and malnutrition is inversely

related to income. The smaller the income of the population, the higher the percentage of children who are malnourished: higher the income, the less persentase (Soekirman, 2005).

In Table 4 shows the influence of home care to the decline in infectious diseases in children under five episodes of malnutrition. In this study, there are four kinds of infectious diseases found in children under five malnutrition such as diarrhea, respiratory infections, UTI and fever. Diarrhea and ARI research results indicate that there is a decrease in episodes of infectious disease in infants malnourished. In the Dictionary of Nutrition (Barder, 2009) declared toddler diarrhea, if abnormal bowel movements or watery stools form the frequency of bowel movements more than 3 times. Diarrhea in infants causes fluid loss resulting in dehydration and even death.

The results associated with diarrhea in malnourished infants by Correiand Waitzberg (2003) which states of malnutrition and diarrhea are often associated with each other, although it is recognized that the disorder is difficult to determine which came first malnutrition, diarrhea, or vice versa. From diarrhea are the body release much fluid (dehydration) and minerals, nutritional disorders occur because less food is absorbed, while energy expenditure increased, blood sugar levels in the body decreases (below normal) or hypoglycemia and impaired blood circulation.

ARI stands for acute respiratory tract infections. One of the causes of infant and child mortality due to respiratory diseases caused by pneumonia (severe lung infection). Moehji (2003) states the nutritional maintenance of the child must be considered as the prevention of infectious diseases. Immunization, hygiene and environmental sanitation maintenance is very important as infection prevention.

Results of other studies related to ARI conducted by Wati (2005) which states ARI episode has the strongest relationship to the growth of infants 3 to 6 months and infants often suffer from ARI has a growth rate of 0.155 SD. Malnutrition and infectious diseases in children under five interrelated. In the case of prolonged malnutrition will cause a person's immune system will further decline and vulnerable or susceptible to infection. Similarly, in infants who experience prolonged infection will cause a systemic disorder resulting in reduced appetite or decreased, so that the intake of food both in quantity and quality is also reduced which ultimately lead to malnutrition. If this is not immediately in the tackle, then the infection will get worse. Malnutrition will cause disturbances in various organs such as the gastrointestinal tract, pancreas, liver, renal, hematologic system, cardiovascular system and the respiratory system pernapasan (Arisman, 2004)

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of this study concluded that the activities of home care can reduce episodes of infectious disease in infants malnutrition in Yogyakarta.

For parents who have children under five malnutrition is expected to soon take his son went to the nearest health facility if known her son was sick and could run a treatment program as recommended by healthcare workers.

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The Confessions of a Wimpy Granny : The Lived Experience of a Neglected Elderly

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Abstract

With the increasing number of elderly neglect, this paper sought to provide information about its oc currence in the context of Filipino families. In this phenomenological qualitative study, the researchers utilized a semi-structured questionnaire to view the respondents' personal histories, perspectives and experiences. Their responses were recorded, transcribed and carefully analyzed. From the results, these themes emerged: (1) Growing old alone, wherein having no partner and children becomes a factor for neglect; (2) When family becomes stranger, that having problems with some family member become a reason for them to be neglected; (3) Increase in age, decrease in love, shows that the lack of time they spent together affects the quality of their relationship with each other; (4) Growing old and poor, presents that lack of financial income plays a major factor on why elders were neglected; (5) I am old and weak, that the limitations in the elder person's activities and continuous assistance due to an illness made them feel they were burden to their own families. In general, this research study can give an idea as to how elders are being treated nowadays and what are the factors that could actually contribute to such mistreatment. Elder neglect, may it be active (intentional) or passive (unintentional), is as grave as any other forms of abuse and therefore must be given equal importance and necessary actions must be made to prevent it. It is important that each family realize that it is their responsibility to take care of their elder members and must understand how elders should be treated and cared for. As part of the healthcare team, nurses are in the unique position to assist in the recognition of the signs of neglect and as well as help prevent it from happening.

Keywords : Elder Neglect, Elderly, Abandonment, Geriatric Nursing

1. Introduction

Several nursing books are introducing the concept of aging of the aged. According to World Health Organization (WHO, 2014), it is expected that by the year 2025, the global population of people aged 60 years and older will reach its 1.2 billion mark. Along with the increase in aging population come the problems arising from the issue, one of which is elder neglect or abuse. This problem is not just a problem concerning third-world countries, like the Philippines, but this also concerns developing and developed country. WHO has called for action regarding the problem as this is an ongoing worldwide phenomenon.

In this paper, the researchers would like to determine the factors, from the point of view of the neglected elderly, which has caused them to be neglected by their own family members and/or caretakers and to be able to provide a broader understanding of elder neglect in the context of Philippine domestic setting. In application to nursing practice, this may serve as a basis for the provision of nursing care among these clients and determination of solutions that will halt the increase in number of elderly experiencing abuse and neglect.

2. Review of Related Literature

2.1 Theoretical Framework

In this study, the researchers have particularly identified several significant theories that would best supportthe researchers' assumptions as to what factors or reasons might cause elderlyneglect. These theories include care giver stress theory, social learning theory and social exchange theory.

Care Giver Stress Theory states that neglect occurs when a caregiver fails to perform his or her caregiving responsibilities to the impaired elderly (Wolf, 2010). The elderly victim is viewed as dependent on the caregiver who becomes overwhelmed, frustrated, and abusive because of the continuous caretaking needs on the elderly.

Social Learning Theory states that acts of maltreatment are learned behavioral pattern (Payne, 2011). A child perceives abuse as an acceptable behavior in reaction to stress and in the case of elder neglect, the child who has experienced neglect from the parents will also act in the same manner towards his or her parents later in life.

Social Exchange Theory posits that interactions between people as a process of negotiated exchange (Burnight, 2011). The person that is perceived as contributing more into the relationship is given power and control. In the context of elder neglect, the person with the power advantage is able to manipulate the behavior of the dependent person and often use this notion to justify being unjust to the elder person under their care.

2.2 Literature Review

In the Philippines, senior citizens or individual ages 60 years old and above account for 6.8% of the 92,334,113 population and is expected to rise to 7.8% by the end of 2016 (NSO, 2014). One of the most critical issues in old age is the occurrence of abuse and it may take several forms including neglect. As adults grow older they may become frail, may not be able to help themselves and depend on others to meet their basic needs which makes them more vulnerable to be neglected by family members and caretakers. The National Center on Elder Abuse (2014) has defined elder neglect as the failure or refusal of a caregiver or other responsible person to provide for an elder's basic physical, emotional or social needs, or failure to protect them from harm. Although it may not be an entirely new issue, it is certainly one of the most hidden and least accessible kinds of elder mistreatment.

Research Question 1 : Does an elder individual who has impaired capability of doing his/her activities of daily living will more likely to experience neglect?

Assumption: An elder person that is highly dependent on the caregiver will have more chances of being neglected.

Research Question 2 : Does a child who has experienced neglect from his/her parents will also be doing the same neglect towards the parents later in life?

Assumption : An elder person who has neglected his or her responsibility and role as a parent will also have greater chances of being neglected by his or her own children later in life.

Research Question 3 : Does an elder person who is completely dependent of all his/her physiologic needs, such as food, water, shelter and healthcare, to the family and/or caretaker will have greater chances of being neglected?

Assumption : The greater the degree of dependency of the elder person towards the care giver, the higher the chances that he or she may experience neglect since in this case the caregiver has greater control over the relationship.

3. Research Methodology

3.1 Research Design

The researchers utilized the phenomenological qualitative study through the use of an in-dept interview. This design allows the exploration of the experiences by the neglected elderly and the identification of events that may have led to neglect.

3.2 Research Locale

The study was conducted in a small facility for poor and abandoned elderly people aged 60 years old and above. Aside from the residential care services, the institution also provides health and medical services by taking care of the health needs of each elderly through voluntary services shared by physicians and medical staffs.

3.3 Key Informant Selection

This study focused on elderly or those considered as senior citizen, with age 60 years old and above, admitted to a residential facility. Sampling criteria includes (1) Absence of cognitive problems, (2) Ability to speak and converse and (3) willingness to participate and share life experience and, (4) abandoned to the facility by a family member. Subjects selected regardless of gender.

The researcher used purposive sampling where in participants was determined by preselected criteria which the researchers deemed relevant to the purpose of the research (Gravlee and Bernard, 2014). Only subjects who met the sample criteria were considered as participants. According to Yousefi (2011) a number of 2-10 participants are sufficient enough to reach saturation of information. A total of 6 participants were interviewed.

3.4 Research Ethics

In the conduct of the research, the researchers ensured ethical soundness of the study. Consent forms were distributed prior to interview and the key informants are not forced to participate nor to answer questions they deemed too personal to disclose. During transcription, the informants were assigned numbers instead of their names to maintain confidentiality and anonymity. The interview was conducted in the function room of the facilty in the absence of other unwanted listeners.

3.5 Research Instrument

The researchers made use of a semi-structured interview guide. The interview guide comprises open-ended questions that seeks to identify the reasons for neglect at the same time it promotes exploration of feelings and behavior of the geriatric client towards neglect. To ensure reliability and validity of gathered data, the said interview guide undergone vigorous validation by several professionals such as psychologists, nurses and doctors.

3.6 Data Collection

Data are collected after proper communication with the institution was made. The institution gave the researchers the opportunity to identify prospective informants for the study. Consent was obtained from the informants after discussing the purpose of the study, including the use of recorder. Interview was conducted inside an empty hall to ensure cooperation and confidentiality. The researchers recorded the interview while noting the non-verbal behavior of the elderly on certain questions. The recorded interview was transcribed in a verbatim matter to assure reliability and validity.

3.7 Data Analysis

The goal of qualitative data analysis is to uncover emerging themes, patterns, concepts, insights, and understandings (Bazeley, 2013). The researchers used interpretive phenomenological analysis

(IPA), which is inductive in nature. Each interview was transcribed and the researchers read and re-read the transcripts to become as familiar as possible with the account. IPA analysis revolves around the close reading and re-reading of the text (Smith et al., 2009). The emerging themes were reviewed by a qualitative research analyst from the research center of the university.

The researchers looked for emerging themes that captured the essential quality of what was found in the text and connections between them. Then the researchers related identified themes into clusters or concepts and developed a list of these themes.

These themes were presented with evidence from the interview,using quotations, which the researchers deemed best captures the essence of the participants' thoughts and emotions about the experience of phenomenon being explored. This scheme was applied to each of the accounts to generate list of themes. The researchers translated these themes into a narrative account with careful explanation and illustration and formulate a final statement outlining the meanings inherent to the participants' experience.

4. Results and Discussion

After empirically looking at the phenomenon of elderly neglect, the researchers formulated themes that reflect the reasons behind elderly neglect. These themes were anchored on the statements provided by the informants during the interview.

4.1 Growing old alone

Theme 1 showed that being unmarried and having no children becomes a factor for neglect. Among the participants, 3 out of 6 answered that they don't have spouses and children so they're living with their siblings, distant kin or friends and rely on them to support their needs. However, the elderly person often felt neglected since they are not a priority for these people because they also have their own families to be concerned about. The other 3 participants shared that they are married and they have children living with them before they were brought into the institution.

The increasing number of elderly persons who are unmarried and childless raises important concerns about their future well-being, as they lack the two most important sources of support: spouses and children (Aldewin and Gilmer, 2013). Based on the principle of substitution Gilmer, 2013). Based on the principle of substitution (Gillen, Mills and Jump, 2012), people turn first to their spouses, and then to their children. If these sources are unavailable, then more distant kin, neighbors, and friends substitute for immediate family members.

4.2 When family become stranger

Theme 2 presented that having conflict with a family member can become

a reason for neglect where in 4 out of the 6 participants answered that since they have problems with some members of the family, it becomes easy for them to neglect of their elder parents or family member without even thinking how the elder ones will live on his or her own. The other two participants said they don't have conflicts with their families and that they were able to foster good relationships.

Family conflict is defined as any conflict that occur within among family members. (Burgess, 2013). The conflicts and changes that occur in human life are important indicators of normal development and growth of family members. However, if conflict is not managed it may lead to lifetime scar that affects family dynamics.

4.3 Increase in age, decrease in love

Theme 3 showed that lack of time they spent together affects the quality of their relationship with each other. 3 out of 6 that were interviewed revealed that since they've become busy with work they weren't able to spend enough time with their children. Even though their needs were well provided, participants felt that the lack of constant interaction influenced the way how their children treated them especially that they are the ones who needed their support. Attachment is a deep and enduring emotional bond that connects one person to another across time and space (McLeod, 2009).

Attachment theory by Bwolby and Ainsworth (Holmes, 2014) provided an explanation of how the parent-child relationship emerges and influences subsequent development. It states that the mother-child bond is the primary force in infant development and it is responsible for shaping their future relationship.

4.4 Growing old and poor

Theme 4 presented that the lack of enough financial income of the family that is left to take care of the elder person plays a major factor on why they were neglected. Wherein 4 out of 6 participants acknowledge that the reasons why their families didn't even care to foster them is because they themselves don't have the financial capacity to support the needs of the elderly.

Social exchange theory states that the interaction between people is a process of negotiated exchange (Burnight, 2011). The person that is perceived to be contributing more into the relationship is given the power and control. This would often lead to the neglect of the needs of the elderly since the needs of immediate family members are more prioritized. Furthermore, as resources become scarce and limited, elders were forced to live independently and support their own needs.

4.5 I'm old and weak

There were two participants who shared that the limitation to their activities and continuous need for assistance due

to an illness made them feel they were a burden to their own families. Just like what one of the participant shared, she said that there were times when she was left at home without food and getting hit or slap after accidentally breaking things.

As a person age, it is normal that the physical and mental abilities may inevitably start to decline. Although many people are able to maintain high levels of physical functioning and mental acuity to very old ages, for many others the aging process results in a reduced ability to live independently. Taking care of this type of family member can be very challenging because of the continuous care and support needed by the elderly person. The mounting internal and external pressure that comes with providing care for the elderly may erupt in mistreatment and neglect.

As described by Wolf (2010), elder neglect occurs when the caregiver for an impaired adult fails to manage the caregiving responsibility that is needed by the elderly. They may get tired and frustrated with the amount of obligations that they have to assume and may respond or cope to the stress experience by neglecting the elderly.

5. Conclusions

The study aimed to determine the factors or reason from the point of view of the elderly which has caused them to be neglected. After all the data has been gathered and analyzed, it showed that Filipino domestic setting present different causes as to why elders were neglected by their family members.

The research identified problems related to elderly abuse such as: the lack of immediate family, conflict within the family, the lack of financial resources, and presence of age-related degenerative conditions. These problems are unfortunately expected to be felt by all elderly individuals. The identified reasons are beyond the control of the elderly and are irreversible, thus, it requires understanding and patience of the people that surrounds them.

6. Recommendations

In general, this research study can give an idea as to how elders are being treated nowadays and what are the factors that could actually contribute to such mistreatment. Elder neglect, may it be active (intentional) or passive (unintentional), is as grave as any other forms of abuse and therefore must be given equal importance and necessary actions must be made to prevent it.

To address the issues at hand, it is recommended that everyone in the community play an active role in preventing elder neglect. As with the study, most of the culprits were the elder's own family members, therefore it is important that each family realize that it is their responsibility to take care of their elder members and must understand how elders should be treated and cared for.Fostering an elder person could be a huge responsibility.

At a certain point, family members may feel tired of taking care of the elderly. It is advised that caregiver should maintain an open mind in accepting the changes brought about by aging.

Healthcare instructors are responsible for honing nursing students as future nurses therefore they are in the position to educate and equip the students with all the necessary information and training on how to recognize and address elder neglect. Researchers recommend that issues such as elder neglect be given importance and emphasis during discussions to help students recognize the seriousness of the problem and also discuss ways to address and prevent it.

As part of the healthcare team, nurses are in the unique position to assist in the recognition of the signs of neglect and as well as help prevent it from happening. Therefore, researchers suggest that nurses should receive effective training to be able to conduct more thorough physical examinations that look for the signs of neglect and communicate effectively with the victim and the family. Elder neglect is such a critical issue in old age that should be appropriately address and not taken for granted.

At present there were already several laws which give assistance to senior citizens such as the "Senior Citizen' s Acts" (R.A. 7432) which provided special privileges for the elders. The DSWD programs for the elderly included home for the aged which provided homes to those who were abandoned, free medical and dental services in government establishments, discounts and privileges, elderly volunteer program where elders are tapped as resources for various socio-economic undertakings, and livelihood training to help them become more self reliant. But this act fails to address the issue of elder abuse and neglect. Thus, the researchers suggest crafting of legislation that provided long term care and support to neglected elderlies and make sure that it is being properly implemented.

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Effectiveness of Implementing Clinical Practice Guidelines for Pain Management among Normal Parturients at Chaibadan Hospital, Lop Buri Province, Thailand[1]

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Abstract

Labour pain is a complicated condition that occurs during the delivery of a baby, and causes suffering. This can impact the physiological and psychological aspects of both parturients and fetus.Caring for parturients to cope well with labour pain is important in the labour unit. This comparative, prospective, uncontrolled before and after intervention design was conducted to determine the effectiveness of implementing clinical practice guidelines (CPGs) for pain management among normal parturients at Chaibadan hospital, Lop Buri province, Thailand. The samples were selected by purposive sampling and consisted of two groups, data were collected from February to March 2009 and from April to May 2009. The subjects were divided into two groups, one group consisted of 34 normal parturients who received usual nursing care and another group consisted of 33 normal parturients who received care using the CPGs.The intervention was the CPGs for pain management among normal parturients at Suratthani hospital, which was developed by Juthamas Buppasuwan, 2008. A guide to the implementation and evaluation of the CPGs of Registered Nurse Association of Ontario (RNAO, 2002) was applied as a framework for this study. Data collection tools consisted of the demographic form, the pain score form, and the questionnaire of satisfaction of parturients for the use of CPGs. Data were analyzed by using descriptive statistics and the independence t-test.

The results of this study revealed that the normal parturients in CPGs implementing group had significantly more decreased pain score, and more increased satisfied than the non-CPGs implementation group ($p<.05$). This result confirms that implementation of CPGs for pain management among normal parturients lead to improve quality outcome.

Keywords : Implementing Clinical Practice Guidelines, Pain Management, Labour Pain, Normal Parturients

INTRODUCTION

Although childbirth is a natural phenomenon, it can be a crisis that causes physical and mental sufferings. It is so because labour mechanism produces complicated state of pain, discomfort, and unwanted agonizing conditions. These feelings vary from person to person (Lowdermilk & Perry, 2006). That is, 97% of parturients informed that the delivery was the most painful experience in life (Reeder & Matin, 1987), whereas 90% of them needed pain management from the labour (Srisomboon, 1997). Nevertheless, management of such pain can be prepared beforehand and it will terminate once the baby has been born (Murray & Mckinney, 2006). Pain acknowledgement of each individual is different, depending on 3 factors: physical, psychosocial, and environmental.

Physical factors result from violence of uterine contraction, cervical and upper vaginal expansion, and pressure of fetal presentation around the cervix, vagina, urethra, urinary bladder, and rectum; all of which can cause such pain (Gupta, Kumar, & Singhal, 2006). Psychosocial factors result from fear, anxiety, and stress. Excessive fear and anxiety stimulate the sympathetic nervous systemtosecrete more catecholamines; while muscles are tenser, which cause more pain. These conditions link to one another and form a cycle called fear-tension-pain syndrome (Dick-Read, 1984). Environmental factorsgreatly influence the pain. The good environment encourages the parturients to be more adjustable and more tolerant to the pain. The labour pain affects both the parturients and the fetus.

The parturients' extreme pain and fear of labour pain influence the increase of epinephrine and cortisol, which causeless uterine contraction and possibly irregular uterine contraction. Thus, the delivery may take more time than usual and operative obstetrics may be needed to assist in such childbirth (Bryant & Yerby, 2004). This will be a bad experience of the parturients, affects the relationship between mother and child and the sexual relationship with her spouse, and poses the fear of the next conception (Lowe, 2002). Furthermore, the pain from increasingly severe uterine contraction will decrease the amount of blood circulation to the womb, leading to less amount of oxygen transmitted to the fetus, fetal acidosis, and abnormal fetal heartbeat. Accordingly, the fetus may suffer from anoxia. If the condition is not treated in time, the fetus may be harmed or miscarried (Bryant &Yerby, 2004). On the contrary, if the parturients are well-tended to have appropriate and efficient pain management, they should feel less pain, experience a favorable delivery, and be satisfied with the care of the healthcare staff.

To enable the parturients to get the right, efficient and effective care and pain management, the evidence based practice

[EBP] is currently employed because it is a practice under the approach instituted from evidence already proven or experimented through research processes, clinical experiences, service providers' specialized proficiencies as well asclient' s need and satisfaction. The implementation of clinical practice according to EBP principle in any unit must take into consideration the usage appropriateness, ethical correctness, situational suitability, religious conformity,and its meaning to the parturients in terms of values, opinions, experiences, beliefs, and good results (Pearson, Field, & Jordan, 2007). The important tool that connects EBP with the practice is clinical practice guidelines [CPGs] (Thongchai, 2005). Chaibadan Hospital, Lopburi Province, Thailand is a 90-bed community hospital under the supervision of the Ministry of Public Health. It has a labour room unit providing obstetric care for parturients in the province and from neighboring provinces for many years. From 2006-2008 statistics of Chaibadan Hospital Lopburi, the number of its parturients was 1,328, 1,302, and 1,251, respectively (Labour Room at Chaibadan Hospital, Lop Buri Province, 2008). During December 22-26, 2008, the researchers made a survey on pain management problems with 16 normal parturients in the labour room unit at Chaibadan Hospital Lopburi. It was found that most parturients could not with stand the labour pain and exhibited such behaviours as groaning, crying with pain, lying restlessly, and wriggling impatiently. Furthermore, 5 parturients had requested to have the baby delivered by caesarean section in order to terminate the pain, while 3 parturients were not cooperative in the labour process. They cried painfully and requested to have their mother or husband with her in the labour room during the pre-delivery. From the results, it could be concluded that, if the pain assessment and management for the parturients were conducted suitably, systematically, continuously and efficiently by the healthcare staff ; this precise implementation of the CPGs could reduce the parturients' pain and make them satisfied with the performance of healthcare staff. Accordingly, the implementation of the CPGs to the labour room practice is one of the approaches to help the parturients beless painful and more satisfied with the healthcare staff's pain management practice. The implementation of CPGs in the labour room is another way to make parturients less painful and more satisfied with pain management by the healthcare staff. The CPGs become an important tool that links the evidence with the practice. It is also a result of systematic development aiming to help practitioners or healthcare staff to make a decision appropriate for any condition. The implementation according to the CPGs is therefore a practice or work done by the interdisciplinary team, with the emphasis

on client-centered practice to achieve best results for the clients (National Health and Medical Research Council, 1999)

From electronics database searches and manual searches, clinical practice guidelines for parturient pain management that the researchers foundwere a set of CPGs, developed by Juthamas Buppasuwan (2008) (Buppasuwan, 2008), for pain management among normal parturients at Suratthani Hospital in Thailand, and other 2 sets of CPGs in foreign countries. Upon preliminary evaluation of each set of CPGs for pain management by means of the appraisal of guidelines of research & evaluation [AGREE] instrument (AGREE Collaboration, 2001) which was translated into Thai by Chaweewan Thongchai (2004) (Thongchai, 2004), it was found that the CPGs for pain management among normal parturients at Suratthani Hospital were qualified for use in pain management of the normal parturients. In this respect, the guidelines set got more than 50% of score in the category concerning significant content, with scope, purposes, and clear CPGs. Also, the development team was independent in developing the CPGs. In order to allow the parturients to have appropriate and efficient pain management, the researchers and CPGs implementation team in this study thus implemented the CPGs for pain management among normal parturients at Suratthani Hospital, developed by Juthamas Buppasuwan (2008) according to the framework of Registered Nurse Association of Ontario [RNAO], 2002 (Registered Nurse Association of Ontario, 2002). This implementation aimed to achieve further change toward continuous and effectiveuse of these CPGs in the labour room unit of Chaibadan Hospital Lopburi.

Objectives of the Study

To study effectiveness of the CPGs for pain management among normal parturients at Chaibadan Hospital by:

1. Comparing the parturient pain between the CPGs implementation group and the non-CPGs implementation group.

2. Comparing the parturient satisfaction between the CPGs implementation group and the non-CPGs implementation group.

Hypotheses of the Study

1. The parturients of CPGs implementation group have lower level of pain than those of the non-CPGs implementation group.

2. The parturient of CPGs implementation group are more satisfied with the received care than those of the non-CPGs implementation group.

Framework of the Study

This study aimed to study effectiveness of implementing CPGs for pain management among normal parturients at Chaibadan Hospital, Lopburi Province. The guidelines to be studied were the CPGs for pain management among normal parturients at Suratthani Hospital, developed by Juthamas

Buppasuwan (2008). Thee valuation of effectiveness of these CPGs implementation was based on the framework of the Registered Nurse Association of Ontario (Registered Nurse Association of Ontario, 2002) ; the steps of which comprising 1) selecting CPGs as to find the best CPGs to implement 2) identifying, analyzing and engaging stakeholders: examines the role of stakeholders (e.g. individuals, groups and/or organizations) 3) assessing environmental readiness to ensure smooth implementation of the CPGs recommendations according to the facts-finding 4) deciding on implementation strategies : implementation strategies should be based on assessment of the practice setting and on evident about what works 5) evaluating success to describe strategies for evaluating the CPGs implementation and outcomes and 6) resources to prepare a budget for the implementation and evaluation of your CPGs recommendations. The steps of the Registered Nurse Association of Ontario framework were clear and easy to implement. After the implementation of these CPGs, the researchers and the CPGs implementation team had followed up the effectiveness of the CPGs implementation. The results were evaluated from 1) parturients' pain and 2) parturients' satisfaction with the care received according to the CPGs.

Method of the Study

The purpose of this comparative and prospective uncontrolled before and after intervention study was to examine effectiveness of the implementation of CPGs for pain management among normal parturients at Chaibadan Hospital, Lopburi Province. The samples were primiparious parturients with full-term pregnancy and no gravidic complications who came to have her delivery at Chaibadan Hospital, Lopburi province, and whose cervix opened at least 4 centimeters. The samples were divided into groups of 1) 34 normal parturients who received care without using CPGsduring February-March 2009, and 2) 33 normal parturients who received care using CPGs during April-May 2009. These samples were selected by the criteria requiring the ability to speak, listen and understand Thai excellently, and the willingness to cooperate with this study.

Tools used in this study consisted of:

1. Study conducting tools: CPGs for pain management among normal parturients at Suratthani Hospital, which was developed by Juthamas Buppasuwan (2008) and consisted of 1) parturients' right protection and ethics 2) pain assessment 3) pain management 4) provision of pain management knowledge 5) continuous careand 6) development of service quality.

2. Data collection tools: consisted of 3 parts: 1) the demographic form

2) the pain score form and 3) the questionnaire on parturients'satisfaction concerning the use of CPGs.

Results of the Study

1. Parturients in CPGs implementation group had statistically significantly more decreased pain score than those in non-CPGs implementation group ($p<.01$).

2. Parturients in CPGs implementation group were statistically significantly more satisfied than those in non-CPGs implementation group ($p < .01$).

Discussion of Results

Samples of this study were divided into 2 groups, which were 34 parturients who received care without using CPGs, and 33 parturients who received care using CPGs. Regarding the demographic data, the study found that ages of parturients in both CPGs implementation and non-CPGs implementation groups were mostly equal to or under 20 years old, equivalent to 55.89% and 66.67% respectively. As for level of education, parturients in both groups completed high school education, equivalent to 61.76% and 69.70% respectively. Data on occupation showed that parturients in both non-CPGs implementation and CPGs implementation groups were mostly housewives, equivalent to 64.70% and 51.51% respectively.

Results of Implementing Clinical Practice Guidelines for Pain Management among Normal Parturients

Results of implementing clinical practice guidelines for pain management among normal parturients was the evaluation of results arisen from the implementation of CPGs. from the study,it was found that the non-CPGs implementation group of 34 parturients had average pain score that was divided into 2 stages, namely the active stage and the transition stage which equaled to 8.38 and 9.74 respectively. After implementation of CPGs, it was found that the average pain scores decreased to 4.91 and 7.67 respectively. As for the average score of satisfaction with the care given by the healthcare staff, it was found that the non-CPGs implementation group exhibited average satisf action score of 2.02, while that of CPGs implementation group was 2.66. Therefore, it could be concluded that the implementation of CPGs made the parturients to have less pain and more satisfaction with the care given by the healthcare staff. In this regard, it could be explained that this CPGs for pain management among normal parturients had been developed according to the concepts of the National Health and Medical Research Council, Australia (National Health and Medical Research Council, 1999). The CPGs Development Team, consisting of personnel from interdisciplinary areas, had

systematically searched for research evidences, identified clear criteria for selection of research evidences. It also considered the benefits, impacts, and risks when making recommendations, which were supported with clear evidences. Before actual implementation, the guidelines had been examined by experts, determined for reliability, and put on trial. Upon evaluating these CPGs with AGREE instrument, it was found that all evaluated categories achieved the score of more than 50%, which showed that these CPGs had a high level of quality development and was ready for use In this implementation of CPGs, the researchers applied the steps of Registered Nurse Association of Ontario, Canada. The CPGs Implementation Team consisting of obstetricians and nurse-midwives had participated in all steps of CPGs implementation, by attending meetings to acknowledge explanation about CPGs activities before actual trial. The CPGs Implementation Team asked questions about unclear matters and gained a better understanding of CPGs, as well as participated in sharing opinions and suggestions for the improvement of activities to be more appropriate, practical, and fast.Such participations made the CPGs Implementation Team members feel that they were a part of the scheme and important to the parturient care. The researchers had composed a diagram showing steps of pain management among normal parturients, and put the diagram on a noticeable spot in the labour room in order to stimulate CPGs implementation. Incorporated with the aforementioned actions were follow-up, monitoring and supervision toward continuous implementation of CPGs, by observing individual practice and giving relevant feedbacks as well as suggestions and advices to each individual. Furthermore, group meetings and briefings of shift change enabled users to be aware of problems and to jointly work for solutions thereof. The implementation of CPGs for pain management among normal parturients at Suratthani Hospital, which was developed by Juthamas Buppasuwan (2008), engaged in various activities, starting from the CPGs Implementation Team gave the parturients nursing care with respect for parturients' dignities and rights,while the staff must receive due consent prior to any care given to the parturients. The objectives and goals of care and treatment must be stated, so that the parturients understood and cooperate with the care. Pain assessment was conducted since the initial admission to the pre-labour room, and continued on a regular basis to allow detection of change of pain and fast response to parturients' need. The continuous pain assessment enabled the CPGs Implementation Team to take a close care of parturients, to pay attention to them, and to keep them

company so that these parturients would not feel alone or get through the delivery by themselves. This made the parturients to feel safe and less anxious. In addition, knowledge was provided onpharmacological and non-pharmacological pain management, as well as teaching about non-pharmacological pain managing skills, such as breathing technique, abdominal rubbing, etc. As the parturients had options for self-applied pain management, they felt more involved in the delivery and more self-controlled, thus leading to increased self-esteem.Leaflets on labour pain management were also distributed to parturientsfor use as a reminder. Consequently, the parturients gained more knowledge on pain management and could cope with the pain by themselves more appropriately and effectively, thereby making them satisfied with the care received from the healthcare staff. In conclusion, the implementation of CPGs for pain management among normal parturients of Juthamas Buppasuwan (2008), which was previously used at SuratthaniHospital, at Chaibadan Hospital, Lopburi Province, could make parturients have less pain and more satisfaction with the use of CPGs. This result confirmed the effectiveness of implementing CPGs, and also showed that nursing practice using evidence-based CPGs for pain management among normal parturients could increase the efficiency of parturient care and lead to improvement of service quality.

Recommendations for Use of the Study Results

1. After using CPGs, the implementation should be followed up, supervised, and evaluated for effectiveness continuously on a regular basis; so that the CPGs are suitable for the unit and can produce good results for the normal parturients' service.

2. New evidences relating to labour pain management should be studied and reviewed regularly; in order to develop CPGs for pain management among normal parturientsthat are up-to-date, appropriate to current situations, and can attain the highest efficiency for both the parturients and the fetuses; including to disseminate the body of knowledge, and to constantly transfer the derived experiences to other units and interested persons.

3.The results of this study should be presented to the management unit, in order to get continuous supporting in every way, including budgets for implementing CPGs for maximum benefit.

Recommendations for Further Studies

Quality of CPGs should be developed continuously, this includes the longer-term duration of implementation of CPGs, so that effectiveness of CPGs implementations can be compared more clearly.

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A Prototype of Portable Falling Alert System for Elderly via Mobile Signal Network

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Abstract

In each year, 1 of 3 elderlies face with slipping, and half of them slip more than once. Moreover, slip or fall often leads to hip fractures, and the injury sometimes leads to death. Therefore, we need to help them immediately in order to reduce their damages. This paper proposes a prototype of alerting device to help elderlies when they suddenly slip or fall with high impact. In this study, the mercury switches were used as fall sensor to detect slipping or falling condition. Then, the ET-BASE GSM SIM900 microcontroller module will collect the data from mercury switches and make a call within 5 seconds to the number programed in ET-BASE GSM SIM900. Moreover, the ET-BASE GSM SIM900 itself can alarm with warning siren when slip or fall is detected. This proposed system was designed as a portable system that can connect with belt near the center of gravity or centroid of human body which is the suitable location to detect slipping or falling condition. A 6-volt battery was used to supply ET-BASE GSM SIM900. The research result showed that the portable slipping or falling alert system can detect with 8 slipping or falling conditions. The mobile calling function worked completely with 5.50 second averagely. The alert sound had at least its loudness for 5 meters. Therefore, this system will be helpful for elderlies who live alone and cannot help themselves. This research suggests that there will be many other new systems that can be further developed as a prototype such as size reduction, using rechargeable battery, wifi connecting, adding accelerator sensor, etc. If this prototype of Portable Falling Alert tool is widely used for the elderlies, it will prevent them from injury and will prolong their health and improve the quality of elderly's life.

Keywords : Elderly, ET-BASE GSM SIM900, Fall, Mercury Sensor, Slip

1. INTRODUCTION

Since the medical technologies advance exponentially, people have healthiness and long life. It causes the increase of world populationrapidly. The number of elderlies in every country is increasing in each year. The data of world elderlies surveyed by United Nations (UN) and World Health Organization (WHO) is shown in the following Figure (The World Health Report, 2008).

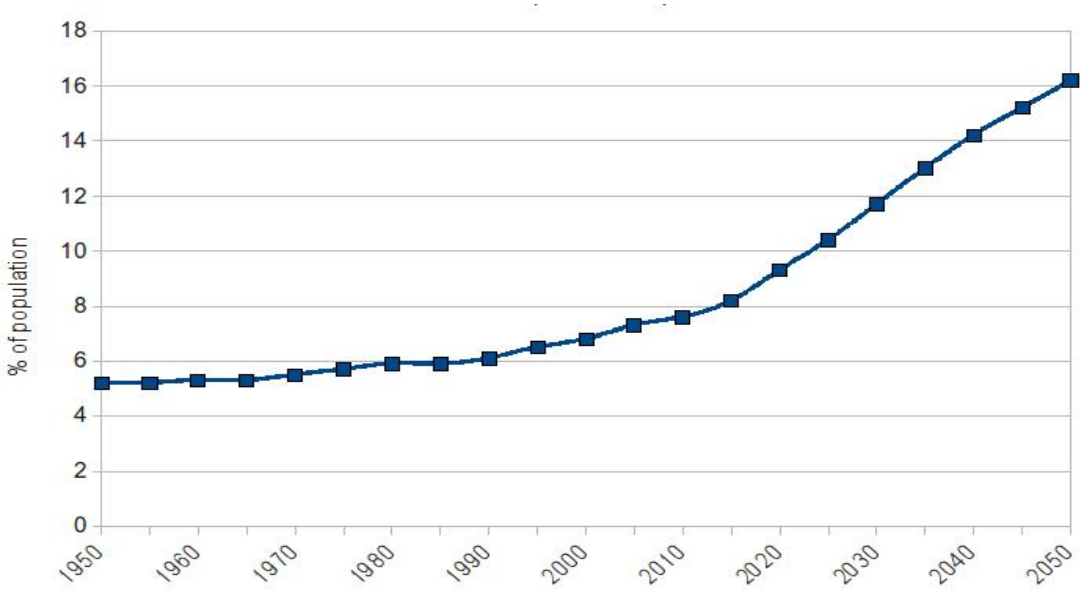

Figure1. Percentage of world population over 65, 1950–2050. (Source: UN world population prospect, 2008)

According to Figure 1, the United Nations (UN) prospects that the percentage of elderlies will be 16% of world population in 2050. In order to prepare the increasing of elderly population in the upcoming years, the medical technology needs to develop system that support for elderlies, and make them lived by themselves.

One of the important problems of elderly is slipping and falling, because slip or fall with high impact can often leads to hip fractures, and injury sometimes relates to death. In the society people go to work, elderly sometimes stays alone. If they have the accident such as slip or fall, they cannot help themselves or cannot call for help which is very dangerous.

Statistics show that falling accidents (fall to lower/same level) are the second leading cause of accidental death. The National Safety Council reported in 1994, 13,300 Americans met their death by falling (The National Safety Council, 1995). and more than 19% of all disabling work injuries involved falls.

In European countries, slip and fall accidents also contribute significantly to serious injuries causing hospitalization and days away from work (Manning, Ayers, Jones, Bruce and Cohen, 1988 ; Salminen, Saari, Saarela and Rasanen,1991)

Slip and fall make up the largest percentage of accidents in the elderly population. While young children may fall more frequently than elderly individuals, the injury rate, particularly for serious injuries, is higher among the elderly. The National Safety Council reported that in 1994, 9,923 Americans over 65 years of age met their death by falling (The National Safety Council, 1995). These deaths constitute 75% of total fatalities caused by falling.

To detect the slipping or falling condition, the center of gravity (COG) of human body need to be analyzed. The body's center of gravity is a key factor in the human gait analysis as it reflects the motion of the whole body (Son, 1990). Many investigators have shown that the body's center of gravity is in close proximity with the hip joint in standing posture (Morton and Fuller, 1952; Cooper and Glassow, 1968; Broer and Zemicke, 1979). The transfer of body weight (COG) on the supporting leg is retarded by flexion of the knee, which lowers the body center so that its path crosses the structural arc of support (Cooper and Glassow, 1968 ; Broer and Zerincke, 1979).

Now, there are many fall detection services used in some developed countries used commercially, but there are some limitations such as detected range, service center and monthly fee that make high price for some people. In developing countries and underdeveloped countries, people cannot access well medical services. In commercial fall detection, it has almost similar features in each brand. Most of the fall detection system consists of mobile device and base station. The mobile device sends signal to base station connected always to electrical supply in order to call to medical center when fall condition is detected. Although base station has wide operating range (1,300 fts approximately depending on brand and service), it still has limitation to use outdoors. Moreover, each brand has service fee monthly ($34.00/month-$45.99/month approximately in cellular base). Since most countries in the world has no mobile medical service, a standalone device is necessary in order to call for help automatically to reduce damage and death from fall. The device cost should be reducedin order to make any people can prevent from falling damage (Medical Guardian, 2013; LifeCall, 2013; LifeWatch USA, 2013; ATS, 2013).

This paper proposes a prototype of portable slipping or falling alert system. This prototype suits for elderly who lives alone and cannot help themselves when they slip or fall specifically. The proposed

prototype uses two mercury switches as sensors to detect slipping or falling condition. When the slipping or falling condition is detected, it will send signal to microcontroller module called ET-BASE GSM SIM900. This module processes the received signal from mercury switches and makes a call to memorized number in order to tell carer. Moreover, this prototype alarms with siren sound when slipping or falling is detected in order to call for help from people around.

2. Concept of Portable Slipping/Falling Alert System

The concept of the portable slipping or falling alert system is to detect the slipping or falling condition that can follow along with user. The system needs to have alarm sound and mobile calling function in order to call for help when the accident occurs.

The prototype should be located near the center of gravity (COG) of human body because the COG changes and rotates when the slip or fall occurs. Moreover, at the COG, the proposed prototype will not be affect from other movements such as sitting, walking, etc.

The slipping and falling classification used principle of center of gravity (COG) changing (Son, 1990). The human COG located around human hip is not change when body is balanced. Normally, Human body, COG and earth gravity are in the same line to maintain balance which is not change when stand, sit, walk and run. If one of human body, COG and earth gravity is not in the same line, body loses balance or slip/fall. Therefore, in sensing unit, in order to detect the slipping or falling condition, two mercury switches are uses as sensor to detect the rotation around the COG position.The alarm system starts, when one of the mercury switches is ON.

For processing unit, this research uses ET-BASE GSM SIM900 module as the processor to process the signal from sensing unit. It can alarm and make a call, when slip or fall is detected.

3. Prototype Components

This proposed prototype is a combination of mercury switches as sensing unit and ET-BASE GSM SIM900 Module as processer unit. The detail of these units is describes in the following subsection.

3.1 Mercury Switch

Mercury switch is one of the electrical switches which can turns ON/OFF according to the rotation of itself. It has mercury inside located near two electrodes. If the switch is rotated, the mercury will flow and contact the electrodes and make a completed electrical circuit then the mercury switch turns ON. If the switch is rotated back to reference position, the mercury will flow out of the electrode, and the switch turns OFF.

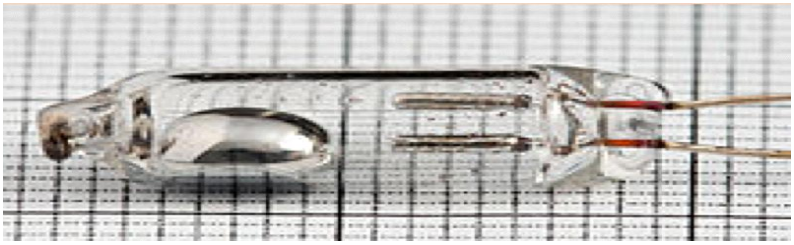

Figure 2. Mercury Switch

3.2 ET-BASE GSM SIM900 Module

This module used as processing unit supports the Global System for Mobile (GSM) communication system at frequency of 850/900/1800/1900 MHz which can communicate with many methods such as voice, SMS, data and Fax. Moreover, it can communicate using Transmission Control Protocol/Internet Protocol (TCP/IP) or communicate via internet. It also supports General Packet Radio Service (GPRS) Multi-Slot Class 10 and GPRS Mobile Station Class B. The AT command is used to program to microprocessor in order to command this module. This module needs 3.2V-4.8V of supplied voltage.

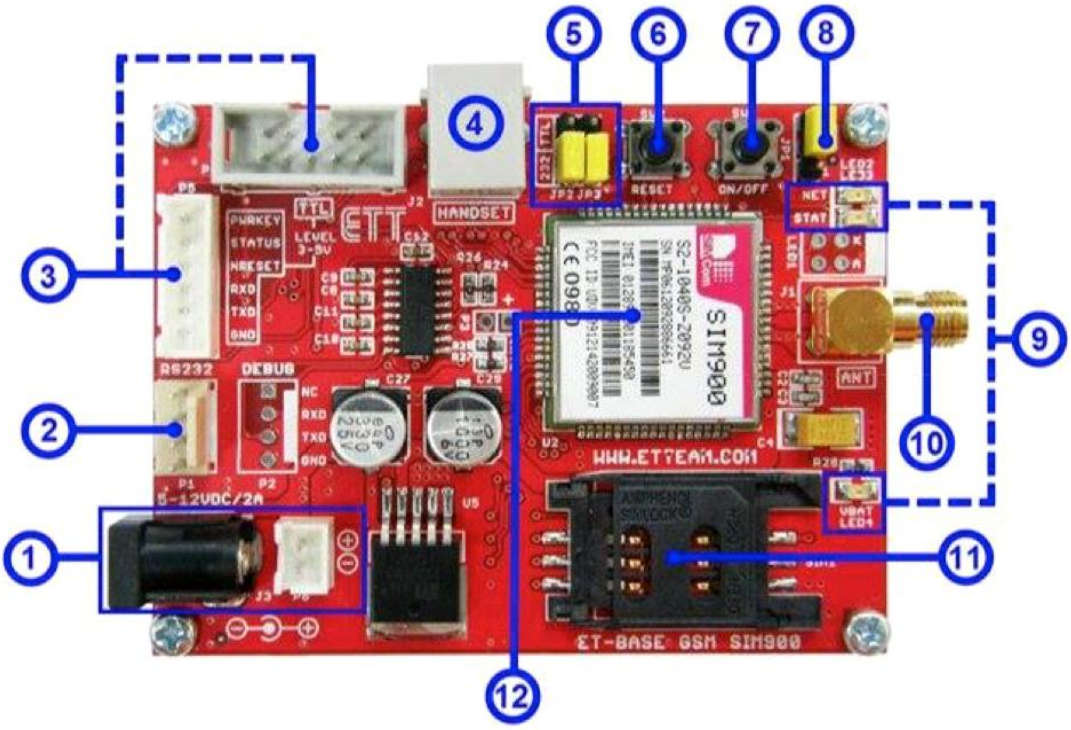

Figure 3. ET-BASE GSM SIM900 components

According to Figure 3, the components of ET-BASE GSM SIM900 can be described as follows:

Number 1 : DC jack power supply (3.2V- 4.8V)
Number 2 : 4 pins-RS232 connector
Number 3 : TTL Level 3-5V
Number 4 : RJ11 connector
Number 5 : Jumper of RXD and TXD
Number 6 : Push button switch (reset)
Number 7 : Push button switch (ON/OFF)
Number 8 : Jumper of SIM900
Number 9 : Status LED
Number 10 : GSM antenna connector 850/900/1800/1900MHz
Number 11 : SIM card socket
Number 12 : SIM900 module

4. Prototype Design

In the proposed prototype, it consists of 3 main parts which are sensing part, processor part and power supplied part. The diagram of proposed prototype is shown by following figure.

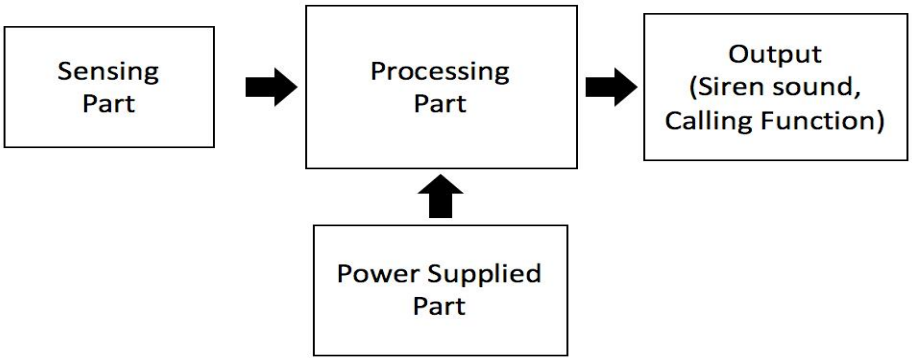

Figure 4. Prototype diagram

According to Figure. 4, the sening part is used to detect fall condition and sends electrical signal to processing part supplied by power supply part. The processing part is used to process receiving electrical signal from sensing part. Finally, the output of this prototype indicates siren sound to call for help from around people and calling to memorized number which can turn it ON/OFF optionally

The sensing part used by two mercury switches is located inside the prototype. At the referent position (stand, walk or sit), each mercury switch has 45 degree angled to the floor as shown in the following figure.

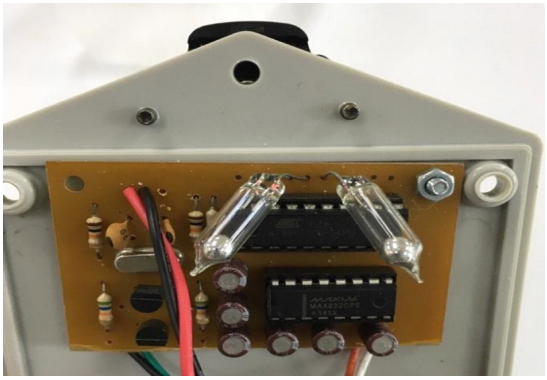

Figure 5. Mercury switches in the proposed prototype

According to Figure 5, the two mercury switches locate at referent position which is the normal position. When slip, fall or body losing balance occurs, the mercury switches located near the center of gravity (COG) rotate also. Then, the sensing part (mercury switch) sends the electrical signal to processing part. The processing part processes the received signal and commands the alarm function to produce siren sound. Moreover, the processing part also commands the mobile calling function in order to call for help via mobile network to memorized number automatically. The mobile calling function is an optional function that can turnoff manually using push button switch.

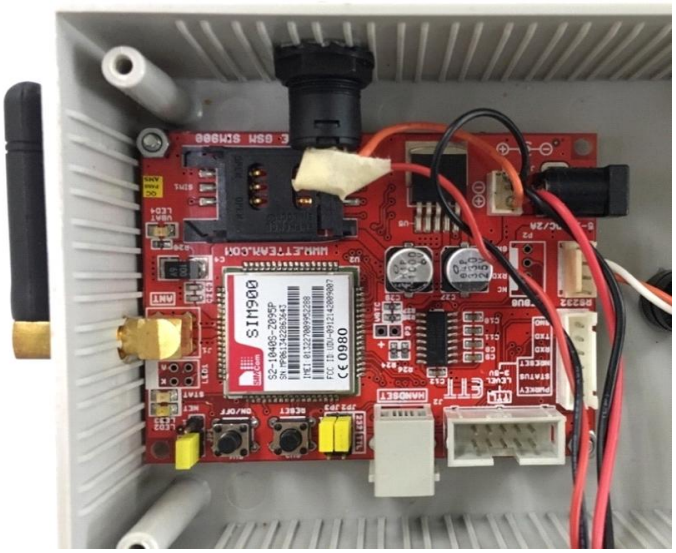

Figure 6. Processing part with antenna

Figure 7. Power supplied part

5. Experimental Result

Since the proposed prototype should locate near the center of gravity (COG) of the human body reviewed in section 2 in order to detect the rotation or losing balance of the body while slip or fall, it is designed to connect with belt which is closes to the center of gravity, and it conveniences at this position to daily life living as shown in the following figure.

Figure 8. Prototype equipping

To test how the proposed prototype works, the experiment is designed to test with multiple slip directions which are occur to elderly or anyone. Since, slip or fall comes from losing balance of the body, the experiments are to test slipping or falling detection of proposed prototype in8 directions of slip which are front, back, left, right, front-left, front-right, back-left and back-right as shown in Figure 9.

Moreover, in this experiment, the mobile calling function is to test how the fast of mobile connecting time is in order to call for help as fast as possible. In this research, 10 people were experimented with 8 falling directions. The results show that the mercury switches used as balanced sensor can detect all of the falling directions. Moreover, the calling function can work with average calling time shown in

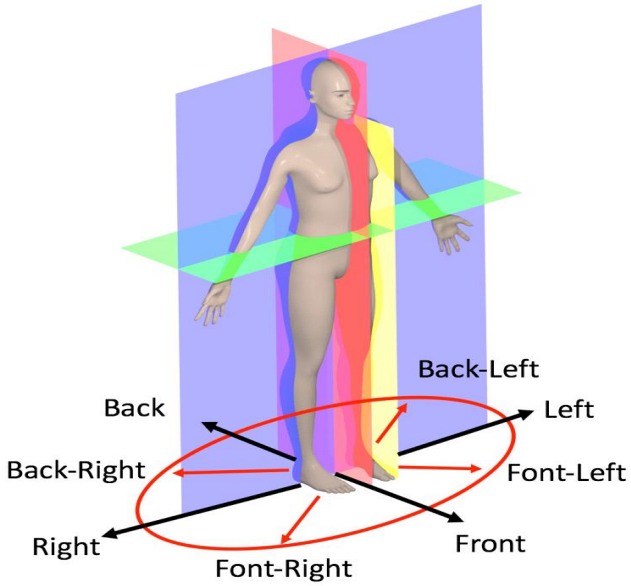

Figure 9. Direction of slipping experiment (Anatomical plane, 2014)

Table 1. Experimental Results

Slipping Direction	Detecting Status bile	Average Mobile Connecting Time (second)
Front	Detected	5.35
Back	Detected	4.61
Left	Detected	5.52
Right	Detected	6.18
Front-Left	Detected	6.86
Front-Right	Detected	5.27
Back-Left	Detected	4.79
Back-Right	Detected	5.44

6. Discussion

According to Table 1., the proposed prototype can detect 8 directions body balanced losing completely. Therefore, it is ready to use in slipping or falling detection. In real condition. The siren alarm is also work when slip or fall is detected. The alarm sound comes from internal PC speaker that has at least loudness around 5 meters which enough for calling for help. Moreover, the mobile calling function is fast work completely with 5.50 second mobile connecting time averagely that is not delay in processing time.

According to results, the proposed prototype can work similarly with commercial devices that can detect falling condition in each direction, but the proposed prototype is a standalone device that has no base station. Therefore, it not only uses at home, but also uses anywhere. Moreover, the proposed prototype has low cost and no monthly fee that anyone can access to this device. Thus, it is suit for underdeveloped and developing countries that has no advanced medical service center.

The most advantage of the balanced sensor located at the center of gravity (COG) is that can classify falling condition that it works when the body is losing balance. Some gestures are not detected by a proposed prototype such as sitting, standing, leaning without losing balance. For more falling-like gesture such as lying position, user can manually switch off.

However, the proposed prototype still needs more improvement, because it cannot work in some conditions for example: it cannot use in the place that has no mobile signal, or it has long mobile connecting time in low mobile

signal. Moreover, the proposed prototype cannot use when user is in lying position.

There are many other new ways to develop the proposed prototype such as reducing size, using rechargeable battery, wifi connecting, adding accelerator sensor, etc. that can be developed in the future. For more accuracy, it is not only to detect the unbalanced body, but also the body acceleration when falling occurs. Therefore, a 3-axis accelerometer should add to this prototype in order to work with unbalanced sensor.

7. Conclusion and Implication

This research study proposes a prototype of portable slipping/falling alert system for elderly via mobile signal network. This proposed prototype can detect and alarm when user's body is losing balance in order to call for help. Moreover, the proposed prototype additionally has a mobile calling function in order to call for help to the memorized number automatically.

User themselves can manually stop mobile calling function, if they do not want to use. The results showed that the proposed prototype can detect 8 slipping directions completely, and mobile calling function works without delaying of processing time. However, this prototype need more improvement such as reducing size, using rechargeable battery, wifi connecting, adding accelerator sensor, etc. This prototype can usefully help elderlies in order to call for help when they slip or fall with high impact which leads to their disabled or death.

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The Program Evaluation of Nursing Specialty in Nurse Practitioner in Thailand

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Abstract

The purpose of this study were to analyze the situations of training programs and quality care of nurse practitioner. The CIPP evaluation model was used as a framework for this study. The study used both quantitative and qualitative method for data collection. Data were collected from reviewing all NP specialty training program accredited from the Thailand Nursing Council), reviewing course evaluation of the program training (n=19 training institution), 3) interviewing program directors (n=9 program directors), 4) mailing questionnaires to nurse practitioner (n=2,406), 5) interviewing nurse practitioner'scolleagues (n= 33), 6) interviewing nurse practitioners (n= 24 NP), 7) interviewing patients (n= 76), and 8) reviewing medical records (n= 46). Data were analyzed using content analysis and descriptive statistics.

The results showed that curriculum structure consist of 16 to 18 credit hours enough to develop essential competencies in primary medical care. The process of teaching and learning method in the theory courses had an appropriated level at very high degree and the content in the course of health policy and primary care should be developed. Clinical setting for practicum should involve more physicians to supervise students. Physical examination and documentation was impractical. The quality of medical record were mostly incomplete.The quality of health care services provided by NP was recognized and appreciated among the colleague, administrators, and patients

There should be an adjusting of the content in the curriculum responding to the context of current health care system and health care needs. There should be a preparation support for nurse faculty to increase their teaching capacity as well as recognizing the values of nurse practitioner.

Keywords : nurse specialty curriculum evaluation, nurse practitioner, primary medical care, quality care of nurse practitioner

Background and significance of the problem

Four-month short-term training program of nursing specialty in nurse practitioner (primary medical care) arrangements have been ongoing since 2003-2010: 11,000 nursing practitioners having completed these courses from 30 educational institutions. Of this number, roughly 3,000 nursing practitioners are working in primary care service units/ community health centers, performing the role of primary medical care providers within the legal scope of the nurse practitioner (primary medical care Act, 2002) and in accordance with the strategic plan to develop primary care service systems for 2008-2011 (Steering Committee, Primary Care Service System Strategic and Cooperative Improvement Work Committee, 2008), which gives significance to improving professional potential to support the needs of the population in accordance with changes in the health services system. As the organization playing a key role in protecting health service with increase the quality of primary care services and health care provider especially in nurse practitioners, the Thailand Nursing and Midwifery Council needs to promote the aforementioned in attaining skills and abilities meeting the standards for educational arrangements and operational standards specified by the Thailand Nursing and Midwifery Council. At the operational meeting to develop general medicine nursing courses (preliminary treatment) and courses to enhance the performance of standard nursing practitioners in 2009 (Thailand Nursing and Midwifery Council, 2009) and 2010 (Thailand Nursing and Midwifery Council, 2010), it was found that the operational situation of nursing practitioners who have completed courses remains varied in terms of quality and operational capabilities required in nursing practitioners in addition to cooperative performance and capabilities of nurse practitioners should have. The conclusions presented to the Thailand Nursing and Midwifery Council emphasized support, a driver for course arrangements and increases in the capabilities of nurse practitioners to meet the nation's demands. For this reason, the research committee

led by a work committee appointed by the Thailand Nursing and Midwifery Council has conducted research on outcome evaluation of nursing specialty courses, general medicine (preliminary treatment) using the CIPP Model The CIPP evaluation model (see figure 1) is a framework for guiding evaluations of programs, (Stufflebeam, 2003). as a conceptual framework, which is composed of evaluation of course contexts or structures and objectives of the program, evaluation of necessary input factors on education arrangements and processes associated with course arrangements. Also included are outcome evaluations on service quality and satisfaction of associated participants such as service recipients, Service recipients/patients colleagues and supervisors of nursing practitioners who have completed training. The aforementioned information can provide a guideline for improving courses and education arrangements to achieve quality to equip nursing practitioners who have completed courses with effective knowledge and skills in their work in primary service units in concurrence with the needs of service recipients and current mechanisms for health system development.

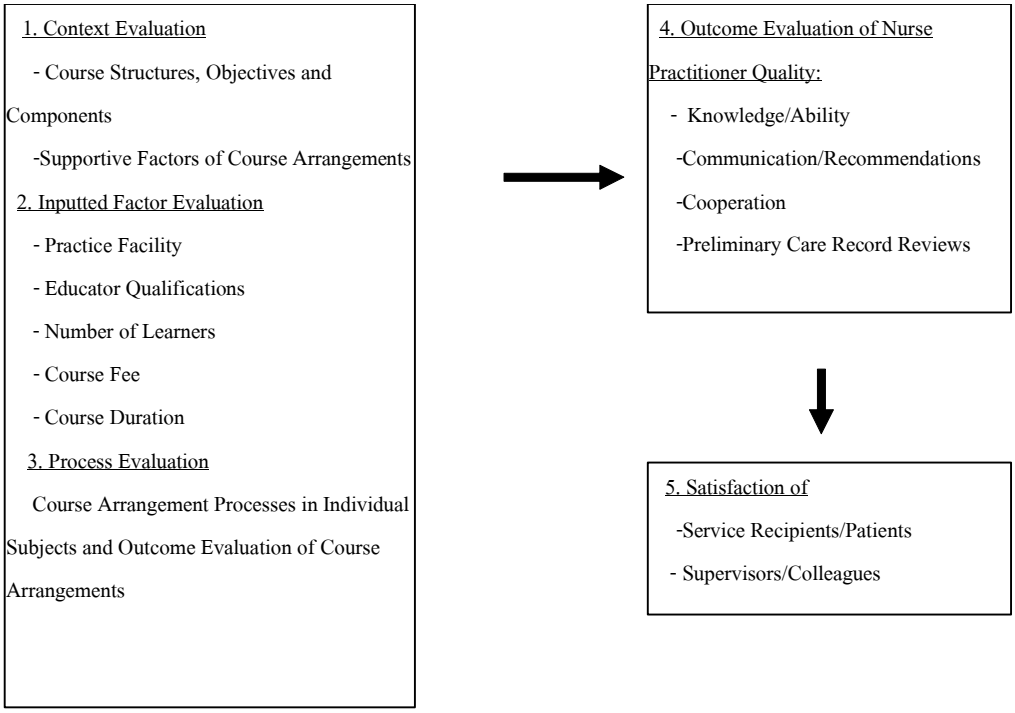
Objectives

1. To evaluate the context of arrangement for courses composed of course structure and objectives.
2. To evaluate the necessary factors involved in arrangements of lessons in courses composed of course-providing agency, practice facility, number of learners, course fee and course duration.
3. To study the procedures involved in lesson arrangements and evaluation of individual subjects.
4. To study the outcomes or service quality of nursing practitioners who have completed course lessons and the satisfaction of colleagues, supervisors and patients or service recipients.

Conceptual Framework

This study was an application of the CIPP Model consisting of evaluation of contexts, input, processes and products on the work quality of nursing practitioners who have completed courses and satisfaction in service recipients/ patients and colleagues/supervisors (Figure 1).

Figure 1: Research Conceptual Framework on Evaluation of Course Arrangements



Scope of the Study

The scope of the present study covered a population in relation to course arrangements certified by the Thailand Nursing and Midwifery Council in 2003-2010. The study was done during 1 June 2010 and concluded 31 May 2011.

Research Procedures

1. Research Design

This study was a quantitative study using surveys and a qualitative study conducted by in-depth interviews, course document analysis, learning outcome evaluation, report post course-completion analysis and chart reviews on the topics based on the research conceptual framework.

2. Population and Sample Group

2.1 The population and sample group in the quantitative study portion of the research consisted of the following:

2.1.1 One registered course administrator or representative from each of the 30 educational institutions that have been certified for course arrangements by the Thailand Nursing and Midwifery Council.

2.1.2 A total of 2,400 nurses composed of 80 nursing practitioners per

each of the 30 educational institutions who have completed courses and have been registered and certified to have completed courses by the Thailand Nursing and Midwifery Council from 2003-2010 out of a total of 8,906 subjects obtained by simple random sampling from serial numbers registered in the databases of the Thailand Nursing and Midwifery Council.

2.2 The informants and documented studies in the qualitative study portion of the research consisted of the following:

2.2.1 The informants in the qualitative portion of the research by in-depth interviews consisted of the following: 1) Nursing practitioners who had completed courses and were operating in primary service units on two levels, namely, community level hospitals and sub-district health promotion hospitals. The nurses were obtained by multi-step random sampling. Sampling began at the provincial level in five regions to obtain two provinces per region, or ten provinces total, followed by random sampling for one district per province. In each of the ten districts obtained, random sampling was conducted for two primary level service units in order to obtain one nursing practitioner who had completed courses and was operating in a community-level hospital and one nursing practitioner who had completed courses and was operating in a sub-district health promotion hospital. The total number of nursing practitioner informants was 20 persons from 20 service units; 2) 2 colleagues/supervisors per service unit such as hospital directors, head nurses or heads of service units of the course-completed nursing practitioners and 3) 2-5 service recipients per service unit who sought services provided by the nursing practitioners who have completed courses.

2.2.2 The documented studies consisted of the following: 1) Courses certified by Thai Nursing and Midwifery Council from 2005-2010 in 30 educational institutions; 2) learning outcome evaluation report post course-completion from 30 educational institutions and 3) 2-5 records per service of preliminary treatment outcomes of course-completed nursing practitioners.

3. The research instrumentation, instrument quality and data collection procedures were as follows:

3.1 The Opinion Questionnaire for Course Administrators or Representatives and Course-Completed Nursing practitioners[1] was composed of the following : 1) demographic data; 2) lesson processes consisting of close-ended questions composed of 2.1) course arrangements (5 questions); 2.2) theoretical lesson arrangements covering content suitability and duration (6 questions); 2.3) practical lesson arrangements covering suitability of arrangements in terms of practice facilities and practice activities (18 questions divided into five levels from

1-5 in ascending order with mean opinion outcomes translated by level). Scores of 4.51-5.00 indicated maximum suitability; 3.51-4.50 indicated high suitability; 2.51-3.50 indicated moderate suitability; 1.51-2.50 indicated low suitability and 1.00-1.51 indicated minimum suitability. The accuracy of the instruments was tested using Cronbach's Alpha Coefficient, and 2.4) on course arrangements (α =0.805 2.2), theoretical lesson arrangements (α = 0.955 2.3), practical lesson arrangements (α = 0.956); and 3) course revision recommendations.

3.2 The Service Quality Interview Form and Record Quality Evaluation Form was composed of the following: 1) interview form for agency administrators/colleagues and course-completed nursing practitioners consisting of open-ended questions, namely, the informants' demographic data, the service quality of course-completed nurse practitioners and work outcomes from application of learning after course completion.The service recipient/patient interview form consisted of the following two parts : 1) open-ended questions, namely, demographic information of service recipients/patients and expectations of patients using services; 2) interviews of satisfaction toward the activities of service recipients/patients using six open-ended questions divided by five levels of satisfaction. Scoring ranged from 1-5 from lowest to highest satisfaction; 2) The evaluation form of the record quality of preliminary treatment in the medical history of outpatients. Both interview and quality evaluation forms were tested by advisors and the research committee, and content objects were tested by collecting data in one community hospital, one sub-district health promotion hospital then appropriately revised before actual use in the research.

3.2 The document analysis based on the Research Conceptual Framework Record Form was composed of the following: 1) Training course evaluation form; 2) Outcome evaluation report on course arrangements following course completion.

Protecting the Rights of the Sample Group

The research entitled "The program evaluation of nursing specialty in nurse practitioner in Thailand" has been examined and certified by the Institutional Review Board on Research Involving Human Subjects, Thailand Nursing and Midwifery Council, 1 May 2010. The research committee held a letter to request data collection in which the objectives, procedures, benefits of the research were explained with the assurance that data would be presented from an aggregate perspective without disclosing the informants' identities. In completing the questionnaires, the sample group was entitled to not answer one question or another in the questionnaires as they saw fit. And in the interviews, the research committee presented letters to request permission to conduct interviews

and make audio and visual recordings to service unit administrators and informants prior to conducting interviews and explain data collection objectives and the right to refuse providing data immediately when any discomfort was felt.

Data Collection - The research committee proceeded with data collection as follows:

5.1 A letter was presented to the President of the Thailand Nursing and Midwifery Council to request volumes of registered certifications from the Thailand Nursing and Midwifery Council for 30 educational institutions; 28 course volumes were stored as evidence at the Thailand Nursing and Midwifery Council.

5.2 A letter explaining the objectives of the study in the project was presented to 30 educational institution administrators by the Secretary-General of the Thailand Nursing and Midwifery Council to request permission for data collection on the learning outcome evaluation report post course-completion of the current year. In total, 19 institutions replied. The number of nursing practitioners in the outcome evaluation reports was 1290 people (Group 1).

5.3 The questionnaires and letters of explanation were sent by post to the course administrators of all thirty educational institutions, and 2,400 course-completed nursing practitioners who were randomly sampled from certified registration numbers to be persons who completed courses at the Thailand Nursing and Midwifery Council. Nine institution administrators returned the questionnaires (Group 2), and 2,406 nursing practitioners returned the questionnaires (Group 3).

5.4 A letter was sent to the service unit administrators of the sample group to request permission to conduct interviews and record audio and visual data in 20 service units in five regions. The number of course-completed nursing practitioner informants obtained was 24 persons with annother 33 supervisors/colleagues, 76 patients/service recipients and 46 records of preliminary treatment service outcome records of nursing practitioners.

Data Analysis

Data were analyzed from the questionnaires and interviews with patients/service recipients using percentages, mean values and standard deviation.

Data from interviews were analyzed by transcription of recordings. The research committee analyzed the content to obtain a summary of topics based on the conceptual framework of the study and reviewed every issue on evidences in the content obtained by interviews until analysis is complete and a joint conclusion is reached by the research committee in each service unit.

Research Findings – The findings of the study were presented in two parts: Part 1 – Situation of Arrangements of Courses, and Part 2 – Service Quality of Nursing practitioners. The findings are as follows: Part 1 – Situation of Arrangement of Courses are as follows:

1.1 The input contexts and factors into the course arrangements were as follows:

1.1.1 According to the analysis of courses from 28 institutions, seven courses were government university courses (25%) and 21 were nursing college courses (75%). Course structures are diverse and range from 15 credits to 22 credits with the majority (71.42%) at 16 credits. Most courses were certified by the Thailand Nursing and Midwifery Council in 2007 (42.82%). The following three course arrangement models were encountered: (1) theoretical and practical lessons during official hours; (2) theoretical lessons outside of official hours and practical lessons during official hours and (3) theoretical lessons and practical lessons inside and outside of official hours. Courses ranged in length from 16–18 weeks with practice hours at 300–360 hours.

Overall components of individual subjects in the courses followed the specifications of Thailand Nursing and Midwifery Council. These components indicated similar lesson methods in practices in individual subjects such as case conferences and case study reports. However, indications of preliminary treatment experience requirements in terms of time/person lack clarity in some courses.

Regarding the lecturers specified in the courses in preliminary treatment, emergency patient care, accidents and incisions, which roughly combined to 5–6 credits, most were lecturing medical professors. Practical subjects in the courses specified that lecturing professors were doctors and senior nurses in training sources that have completed course lessons specified by the Thailand Nursing and Midwifery Council. And these practical courses were arranged for 82.14 percent of community hospitals and health centers.

1.1.2 The learning outcome evaluation report post course-completion from 19 educational institutions found that five institutions were universities (26.31%) and 14 were nursing colleges (73.69%). The number of course-completed nursing practitioners in the learning outcome evaluation reports was 1,290 people with the level of suitability of content concurrence with course objectives, arrangements of less on activities and educators/lecturers at a high level ($\overline{X}$ = 4.29, SD=0.56, $\overline{X}$ = 4.13, SD=0.61 and $\overline{X}$ = 4.39, S.D=0.51, respectively).

1.1.3 On the opinions of nine course administrators, all administrators were females (55.56%) aged 51–60 years with five administrators having completed master's degrees and four having completed doctoral degrees. Course registration fees ranged from 20,000–35,000 baht with suitability

of content concurrence with course objectives of educators/lecturers at the highest level ($\overline{X}$= 4.55, SD=0.53) equally and suitability of course activities at a high level ($\overline{X}$=4.33, SD=0.71).

1.1.4 On the opinions of 2,406 nursing practitioners, the nursing practitioners were females (95.6%) with a mean age of 41.57 years who had completed courses from nursing colleges (53.2%) and from the Faculty of Medicine of a government university (46.8%). The nursing practitioners worked in community hospitals (35.6%), health/sub-district health promotion hospitals (15.5%) and general hospitals (5.4%). The nursing practitioners were operating nurses (83.3%), executives/ supervisors (11.6%) and nursing professors (3.2%). The suitability of course content concurrence with objectives was highest ($\overline{X}$=4.51, SD=0.58). The number of credits, number of learners, number of educators/ professors, number of practice facilities were suitable to a high degree ($\overline{X}$=4.35, SD=0.62, $\overline{X}$=4, SD=0.83, $\overline{X}$=4.02, SD=0.80, $\overline{X}$=3.96, SD=0.80, respectively).

1.2 Lesson processes in theoretical and practical individual subjects and outcome evaluation.

1.2.1 The suitability of course arrangements in theoretical individual theoretical subjects on four topics found the following three topics to concern content: 1) application; 2) concurrence with learner's requirements and 3) modernity. The fourth issue concerned supporting factors of lesson sorted based on the opinions of three groups of samples as follows

Group 1 – 1,290 nursing practitioners in outcome evaluation reports: According to the findings, the majority of individual subjects had high suitability on every issue, except for emergency management and procedures, which had maximum suitability. Furthermore, the application concurred with learner's requirements and modernity.

Group 2 – Nine course administrators – According to the findings, two individual subjects had maximum suitability on every issue, namely, preliminary treatment and medication use. And emergency management and procedures and health status assessment had maximum suitability on every issue. Meanwhile, the suitability of learning supporting factors was high. And disease diagnosis and laboratory result interpretation and primary service had maximum suitability in content modernity, while health policy was suitable to a high degree on every issue.

Group 3 – 2,406 nursing practitioners: According to the findings, the majority of subjects had high suitability on every issue, except the issues of content application in preliminary treatment and medication use, which had maximum suitability. Additional recommendations were provided on content adjustments in health policy and primary treatment, which should

emphasize continuous care to treat chronic illnesses.

1.2.2 The suitability of course arrangements in practical subjects was as follows:

The group consisting of 1,290 nursing practitioners - summary from learning outcome evaluation reports post- course-completion on five topics found that ntraining time and lesson professors/ supervising professors had the highest suitability ($\overline{X}$=4.54, SD=0.53, and $\overline{X}$=4.51, SD=0.51). On the other hand, the practice activities concurred with the subject objectives, while acquired knowledge and skills were applicable to work, and outcome evaluation on individual subjects found suitability to be high ($\overline{X}$=4.45, SD=0.57, $\overline{X}$=4.25, SD=0.49, and $\overline{X}$=4.30, SD=0.59, respectively). Recommendations were provided: increased emphasis should be put on physical examinations and physical examination records.

The suitability of individual practical course on individual subjects in 9 course administrators and 2,406 nursing practitioners on suitability of courses in seven topics and suitability of 11 practice activities are as follows :

1) Course administrators - According to the findings, three out of seven topics had the maximum course arrangement suitability as follows: (1) clarity of practice objectives and concurrence with theoretical learning; (2) number of practice hours and (3) number of service recipients at practice facilities. For practice activities, the only activity with maximum suitability was patient history interview, whereas others had high degrees of suitability. Recommendations were provided on additional practices on necessary procedures for nursing practitioners and physical examination records.

2) Nursing practitioners-It was found that all seven topics for practical courses and all eleven practice activities had high suitability. Recommendations were provided in that practical training should focus on community hospitals because training in community health centers (PCUs) have few service recipients, thereby preventing maximum learning effectiveness. Furthermore, practice facilities should be staffed with attentive doctors or nurses in order to achieve practical experiences that have the most application: according to practical experience, supervising teachers do not have a lot of time for students.

1.2.3 Suitability of course outcome evaluation-summary of learning outcome evaluation reports post-course-completion of 1,290 nursing practitioners found that suitability was high on both theoretical and practical learning outcome evaluation ($\overline{X}$=4.02, SD=0.63 and $\overline{X}$=4.07, SD=0.54, respectively). For level of opinion on course administrators, learning outcome evaluation on individual theoretical subjects and experience on practical lessons had maximum suitability

($\overline{X}$ =4.66, SD=0.50 and $\overline{X}$=4.77, SD=0.44, respectively).

Part 2 – Service Quality of Nursing Practitioners

2.1 Results of in-depth interviews on the service quality of nursing practitioners in the following two groups of informants: 1) course-completed nurse practitioners and 2)supervisor/colleagues, covering topics of knowledge/ability, communication/ recommendations and cooperation with other persons are as follows:

Course-completed nursing practitioners -Overall, these nursing practitioners could apply their knowledge in work with greater confidence: for example, "I used to do whatever my seniors did, but I feel a lot more confident now after the study." The nursing practitioners would also listen to patient problems more: for example, "Before, if the patient didn't ask, I wouldn't tell. But now I would ask more questions if they don't so that we can give better recommendations." They also provided recommendations by using images to help patients understand: for example, "I dare to ask more advice from doctors," "Colleagues respect me more, especially when working in the wards. The majority perform work as assigned in preliminary treatment when doctors are absent or insufficient.

Supervisors/colleagues – According to the findings, the majority held the same opinion that they were satisfied in the work of course-completed nursing practitioners and that nurses had greater work application of their knowledge. The supervisors/colleagues observed performance changes and perceived the benefits of the course arrangements: for example, "They helped process a lot of patients," "Patients were interviewed in detail when being prescribed medications and provided explanations on any potential allergic reactions," "I saw that they gained a lot of confidence in preliminary treatments." In addition, nurses could provide suggestions to colleagues. However, supervisors from two service units viewed that post-course-completion performance might not have any differences: for example, "The course loads might be a little heavy."

2.2 Recording of disease treatment data-According to the findings, the majority of records were incomplete. The details are as follows: 1) General patient information (patient profiles) – records were rather complete, depending on the topic within the record forms. Records were made only once, and records were incomplete on some items. 2) History – the majority recorded chief complaints but lacked completeness in other details. For example, patient history was left unrecorded, and past history was recorded only on medication allergies. 3) Physical examinations-vital signs and weight were recorded. No recording of system reviews were found. Records were found on only parts that were related to important symptoms. 4) Treatment – the

majority of treatments were recorded but were incomplete. Records were made in brief containing diagnosis of encountered symptoms rather than diagnosis of the disease. 5) Laboratory tests-most were left unrecorded, apart from tests in chronic disease clinics, which recorded only results on diseases. 6) Advice/recommendations -The majority was left unrecorded. Some records were short and insufficiently complete for monitoring care, e.g., "diet recommendations", "exercise frequently", etc. According to observations, records remained dependant on the differences in the data recording system. Most community level hospitals recorded data in computers, which had limitations in which only data specified in programs were recorded, while health stations/ sub-district health promotion hospitals made records in OPD cards or family history files, which had limited designs in topics and content of records.

2.3 Satisfaction of service recipients on the services provided by nursing practitioners-it was found that the service recipients were satisfied to the highest degree (78.95%) on politeness and friendliness in service, and the service recipients would not mind receiving recommendations from nurses, e.g., "even repetitions aren't boring." Overall satisfaction was 55.26% (Table 1).

Table 1: Percentage of Service Recipient Satisfaction by Service Activity of Course-completed nursing practitioners (N = 76).

Evaluated Level Administered Service Activity (Percentage)	Maximum	High	Moderate	Low	Minimum
1. Patient History Review and Physical Examinations	40 (52.63)	29 (38.16)	6 (7.89)	0	1 (1.32)
2. Disease Treatment Knowledge and Expertise	43 (56.58)	24 (31.58)	9 (11.84)	0	0
3. Service Politeness and Friendliness	60 (78.95)	16 (21.05)	0	0	0
4. Recommendations and Replies to Questions	50 (65.79)	24 (31.58)	2 (2.63)	0	0
5. Speed and Accuracy of Service	48 (63.16)	18 (23.68)	10 (13.16)		0
6. Treatment Monitoring	31 (40.79)	12 (15.79)	7 (9.21)	26 34.21)	0
7. Overall Satisfaction	42 (55.26)	32 (42.11)	2 (2.63)	0	0

8. Discussion of the Findings and Recommendations

Part 1 – Situation of Nursing Practitioner Production

According to the study, the courses of all 28 institutions (71.42%) were 16-credit courses in concurrence with the standard for nursing specialty courses, general medicine (preliminary treatment) of 2008 (Thailand Nursing and Midwifery Council, 2008). Later in 2011, the Thailand Nursing and Midwifery, however, prescribed the direction for course arrangements for course structures to require at least 18 credits (Thailand Nursing and Midwifery Council, 2011) and place emphasis on course administration in order for course completers to effectively acquire healthcare service knowledge and capabilities in response to social demands. The aforementioned prescription concurs with recommendations for course improvements for the next century with consideration placed on three components, namely, determining course objectives, healthcare service improvement policies of the country and society's requirements and needs (Gagan et al 2002). Accordingly, the current trend in healthcare service improvement at the primary level is focused on community participation and self-dependency via processes aimed at creating and developing community cores (Luechai Sringuenyuang, Suppalak Lertmanorat and Yongyut Pongsasupap, 2009). Meanwhile, courses based on the standard criteria for curriculum in 2011 are attempts to improve learning focused on achieving learning effectiveness in learners by building cooperation among nursing departments with strong clinical practice and education departments equipped with the potential to prepare courses. Thus, the attributes aforementioned are considered important starting points for making course improvements based on developing strong relationships on two levels: 1) administrative level in providing policy support for both parties and 2) educator level in clinics between resident nurses and nursing professors who act as lesson professors and develop a wide range of lesson formats in clinics, strong relationships in continued improvements of lesson courses (Blum, 2009). The outcomes resulting from the needs of nursing practitioners in primary care service units have increased in line with the quality standards for community health center personnel (Chuchai Supawong et al 2009). Nevertheless, there are limitations on leaves from learning, as shortages in practicing nurses have forced lesson formats in various institutions to be theoretical lessons provided outside official working hours. Thus, it is necessary to improve lesson formats in course arrangements to focus on promotion of self-learning in learners. Learning content and content quantity should be

consistent with course duration, and opportunities should be provided to convey learning outcomes from experience with conveying criteria based on the same standard in every institution that arrange courses in concurrence with the life-long learning policy (Ministry of Education, 2009).

As for lecturing professors for the aforementioned courses, the majority of teachers are doctor professors, which concurs with the course standard criteria requiring that a proportion of teachers are nursing professors. Thus, the capacity of nursing professors should improve with long-term planning and additions to faculty practices. Additions to the lesson skills of clinical nurses in practice facilities prepare practice lesson professors importantly and beneficially to furthering education arrangements (Blackwell & Waldrop, 2012). However, improvements in nursing practitioners on preliminary care continue to require clarity in terms of professional advancement channels, which affects professional improvements in nursing practitioners.

Practical arrangements - Since the majority of course participants are persons with work experience, lesson processes should be adjusted to accommodate the work experiences of adult learners and learning methods with the following four learning objectives in mind: learner understanding, practice skills, attitudes toward roles/duties and confidence in self-efficacy in order to create learning processes and application (Trivette et al 2009). And individual theoretical content should be made modern to concur with social demands and applications. Additional practice should be provided for physical examinations and physical examination records. Therefore, lessons should be designed to allow self-practice using the right technologies.

Part 2 - Nursing Practitioner Service Quality

The service quality of nursing practitioners was accepted and considered satisfactory by supervisors/colleagues and service users on application of knowledge and skills, communication and cooperation with colleagues, which concurs with the reports on quality monitoring of nurse practitioner graduates and practice physicians over a period of two years. According to the aforementioned findings, both practicing physicians and nursing practitioners were able to provide services such as health screening, disease-specific care and emergency service, and services were satisfactory without difference (Lenz et al., 2004; Roblin et al., 2004). Therefore, plans to extend or support education on a consistent basis at a higher level should be part of personnel planning for primary service units in order to improve service quality to be effective and satisfactory for patients with more complex problems and increased home and community care requirements in concurrence with the service quality in service system strategy (Administrative Commission, Work

Committee on Strategy and Cooperation for Development of Primary Care Services, 2006).

The review of medical records found that medical records to be deficient in terms of overall completeness due to limitations of data systems in outpatient care in community hospitals and recordings in family history files in sub-district health promotion hospitals undergoing data record system changes to support planning and evaluation of outcomes and decisions making in work administration (National Policy and Planning Office, National Health Security Office, 2011). Although time consuming, it is a necessary and import chore of nurse practitioners to keep records in patient care. Nurse practitioners are also charged with designing data records to be equipped with a simple data coding system that is uncomplicated and can be monitored with assistance for patient management in line with the lifestyle of patients (Powers et al 2000). Outlooks should be adjusted to be positive in the use and development of data record systems, which is an important foundation for the development of nursing data records in the future and leading to greater effectiveness in planning and improving holistic health care systems (Tornvall et al 2007).

Recommendations

1. The Thailand Nursing and Midwifery Council Nursing professors should be supported to have lesson capabilities. Importance should be provided in developing the skills and expertise of professors in educational institutions and supervising nurses of nursing departments as indicated in the criteria standard for course arrangements by the Thailand Nursing and Midwifery Council.

2. Course structures and components numbering in 16-18 credits are sufficient for making improvements in preliminary treatment. Contents in individual subjects on primary service and health policy should be combined, and additional content should be created on care for patients with chronic illnesses at home and in communities.

3. Records should be suitably designed and specific record systems should be promoted (for patients with chronic illnesses), while actual practice should be emphasized concerning the capacity for continuously planning patient monitoring.

4. Support should be provided for courses to promote sustained self-learning based on work contexts (context-based learning), review of preliminary care treatment, disease-specific services and management to achieve service quality.

5. Supervisors/colleagues should support the creation of work values in

nurse practitioners on care outcome occurring directly in patients and outcomes that facilitate service system improvements as a part of personal work outcome portfolios, and support should be provided regarding the creation of positive objective work environments to promote morale and spirit and professional advancements.

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Ventilator-Associated Pneumonia : Dreaded Complication of Mechanical Ventilation

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Abstract

Ventilator-associated pneumonia (VAP) is the most dreaded complication of mechanical ventilation. VAP is a significant clinical infection affecting up to one-third of patients requiring mechanical ventilation; it is a serious complication in critically ill patients for itcan prolong intubation, increase intensive care unit and hospital length of stay, and increase mortality to twice the level of patients who do not develop VAP. The objective of this article is to discuss the pathophysiology of ventilator-associated pneumonia(VAP), diagnosis,risk factors for this type of pneumonia, treatmentand the nursing roles and strategies that may prevent the occurrence of the disease. Interventions to prevent VAP begin at the time of intubation and should be continued until extubation. With the shortage of nurses and the increase in the number of less experienced nurses in the intensive care unit, education on the prevention of VAP is even more important, because the occurrence of nosocomial infections is directly related to the adequacy of nursing staff.Nurses need to understand the pathophysiology of VAP, risk factors for this type of pneumonia, and nursing activities that will decrease the occurrence of the disease and give physical and psychological comfort for patients requiring mechanical ventilation.

Keywords:Ventilator-Associated Pneumonia, Complications, Nursing Roles and Strategies

Introduction

Patients in the intensive care unit (ICU) are at risk for dying not only from their critical illness but also from secondary processes such as nosocomial infection. Pneumonia is the second most common nosocomial infection in critically ill patients, affecting 27% of all critically ill patients (Richards, Edwards, Culveret, &Gaynes, 1999). Ventilator-associated pneumonia (VAP) is a lung infection acquired in mechanically ventilated patients that was not present at the time of intubation (Centers for Medicare and Medicaid Services [CMS], 2013; Institute for Healthcare Improvement [IHI], 2012).VAP is usually acquired in the hospital setting approximately 48–72 hours after mechanical ventilation. A serious complication in the intensive care unit, VAP prolongs intubation by 4–9 days compared to patients without VAP.

VAP increases the patient stay in the ICU and indirectlyincreases the cost of patient management. Based on the timeof onset of VAP, it can be divided into two types. Early-onsetVAP occurs during the first four days of mechanical ventilationand is usually caused by antibiotic sensitive bacteria. Lateonset VAP develops five or more days after initiation of mechanical ventilator and is caused by multidrug-resistant (MDR) pathogens. Earlydiagnosis of VAP with appropriate antibiotic therapy canreduce the emergence of resistant organisms (Chastre&Fagon, 2007).

Pathophysiology

The onset of VAP can be divided into 2 types: early and late. Early-onset VAP occurs 48 to 96 hours after intubation and is associated with antibiotic-susceptible organisms. Late-onset VAP occurs more than 96 hours after intubation and is associated with antibiotic-resistant organisms(Kollef, 1999).Interventions to prevent VAP should begin at the time of, or if possible, before intubation. The pathophysiology of VAP involves 2 main processes: colonization of the respiratory and digestive tracts and microaspiration of secretions of the upper and lower parts of the airway (Livingston, 2000).

Colonization of bacteria refers to the presence of bacteria without an active host response. Bacterial colonization of the lungs can be due to spread of organisms from many different sources, including the oropharynx, sinus cavities, nares, dental plaque, gastrointestinal tract, patient-to-patient contact, and the ventilator circuit (Kunis & Puntillo, 2003). Inhalation of colonized bacteria from any of these sources can cause an active host response and, ultimately, VAP.

The presence of an endotracheal tube provides a direct route for colonized bacteria to enter the lower respiratory tract. Upper airway and oral secretions can pool above the cuff of an endotracheal tube and line the tube, forming a biofilm. Starting as early as 12 hours after intubation, the biofilm contains large amounts of

bacteria that can be disseminated into the lungs by ventilator-induced breaths. In addition, the biofilm may become dislodged by instillation of saline into the endotracheal tube, suctioning, coughing, or repositioning of the endotracheal tube (Morehead & Pinto, 2002). Endotracheal tubes cause an abnormal interruption between the upper airway and the trachea, bypassing the structures in the upper airway and providing bacteria a direct route into the lower airway (Kunis&Puntillo, 2003). Because the upper airway is bypassed, a decrease occurs in the body's ability to filter and humidify air (Morehead & Pinto, 2002). In addition, the cough reflex is often eliminated and/or decreased by the presence of an endotracheal tube (Kollef, 1999), and mucociliary clearance can be impaired because of mucosal injury during intubation (De Rosa & Craven, 2003). An endotracheal tube provides a place for bacteria to bind in the trachea, a situation that further increases production and secretion of mucus (De Rosa & Craven, 2003). The impairment of these natural host defense mechanisms increases the likelihood of bacterial colonization and subsequent aspiration of the colonized organisms.

Aspiration of gastric contents is another potential cause of VAP, because the stomach serves as a reservoir for bacteria. Most patients receiving mechanical ventilation have a nasogastric or an orogastric tube in place for enteral feedings and administration of medications or for gastric decompression. The presence of a nasogastric or an orogastric tube interrupts the gastroesophageal sphincter, leading to increased gastrointestinal reflux and providing a route for bacteria to translocate to the oropharynx and colonize the upper airway. Enteral feedings increase both gastric pH and gastric volume, increasing the risk of both bacterial colonization and aspiration (Ferrer & Artigas, 2001).

Diagnosis

Because every patient who is intubated and receiving ventilator support is at risk for VAP, making an accurate diagnosis of this disease and starting treatment is critical. Diagnosing VAP remains difficult and controversial. The diagnosis can be made on the basis of radiographic findings, clinical findings, results of microbiological tests of sputum, or invasive testing such as bronchoscopy (Porzecanski&Bowton, 2006). The diagnosis is most often based on visualization of a new or progressive infiltrate on chest radiographs (Grossman & Fein, 2000). However, findings on chest radiographs are not reproducible and should not be used alone for the diagnosis of VAP (De Rosa & Craven, 2003). Other causes of pulmonary infiltrates visualized on chest radiographs of patients receiving mechanical ventilation include atelectasis, aspiration,

pulmonary embolism, pulmonary edema, alveolar hemorrhage, pulmonary infarction, and acute respiratory distress syndrome. The likelihood of VAP increases if a patient has clinical signs and symptoms such as fever, leukocytosis, and purulent sputum in addition to abnormal findings on chest radiographs (Grossman &Fein, 2000). The results of microbiological tests of sputum specimens obtained by either invasive or noninvasive methods are not sufficient for the diagnosis of VAP, but culture and sensitivity results can be helpful for choosing an antibiotic (Rello et al., 2001).

Risk factors

Although any patient with an endotracheal tube in place for more than 48 hours is at risk for VAP, certain patients are at higher risk. The risk factors for VAP can be divided into 3 categories : host related, device related, and personnel related. Host-related risk factors include preexisting conditions such as immunosuppression, chronic obstructive lung disease, and acute respiratory distress syndrome. Other host-related factors include patients' body positioning, level of consciousness, number of intubations, and medications, including sedative agents and antibiotics. In one study (Torres et al., 1992) bacterial contamination of endotracheal secretions was higher in patients in the supine position than in patients in the semi recumbent position. Whether due to a pathophysiological process, medication, or injury, decreased level of consciousness resulting in the loss of the cough and gag reflexes contributes to the risk of aspiration and therefore increased risk for VAP (Schleder, 2003). Reintubation and subsequent aspiration can increase the likelihood of VAP 6-fold (Torres,et al., 1995).

Device-related risk factors include the endotracheal tube, the ventilator circuit, and the presence of a nasogastric or an orogastric tube. Secretions pool above the cuff of an endotracheal tube, and low cuff pressures can lead to microaspiration and/or leakage of bacteria around the cuff into the trachea (Ferrer & Artigas, 2001). As mentioned earlier, nasogastric and orogastric tubes disrupt the gastroesophageal sphincter, leading to reflux and an increased risk for VAP. The question of whether placement of nasogastric or orogastric tubes distal to the pylorus decreases the risk of aspiration and VAP remains unanswered. The results of studies on the relationship between use of small-bore feeding tubes and the incidence of VAP have been inconclusive. The Centers for Disease Control and Prevention makes no recommendations about routine use of postpyloric feeding tubes or small-bore feeding tubes, because these issues remain controversial and further research

is needed (Tablan et al., 2004).

Improper hand washing resulting in the cross-contamination of patients is the biggest personnel-related risk factor for VAP. Patients who are intubated and receiving mechanical ventilation often need interventions such as suctioning or manipulation of the ventilator circuit. These interventions increase the likelihood of cross-contamination between patients if healthcare staff do not use proper hand-washing techniques. Failure to wash hands and change gloves between contaminated patients has been associated with an increased incidence of VAP (Kollef, 2004). In addition, failure to wear proper personal protect-resistant organisms have been identified increases the risk of cross-contamination between patients (Tablan et al., 2004).

Treatment

Antimicrobials are synthetic derivatives of chemical substances. Antibiotics are a subset of antimicrobials derived from living microbes. Some antibiotics bind irreversibly to the binding site and are called bacteriostatic. Aminoglycosides, fluoroquinolones, polymixin, colistin, and cotrimoxazole are bacteriostatic. The action of drugs in tissues is based on the maximum concentration of the drug (Cmax) and the rate of clearance of the drug. A drug with concentration-dependent killing and prolonged post-antibiotic effect should be administered in large, infrequent doses to achieve maximum efficacy. Clinical studies have shown that adequate early antimicrobial treatment reduces the mortality rate among VAP patients compared to patients receiving inadequate therapy. The prevalence of antimicrobial resistance among VAP pathogens is steadily increasing. Both intrinsic resistance and acquired resistance to broadly used antimicro bialdrugs are increasing. Staphylococcus resistance to methicillin has increased to 11% and Klebsiellaeresistance to third generation cephalosporin has increased to 47%. Pseudomonas resistance toimipenem, fluoroquinolones, and third-generation cephalosporin has increased to 15%, 9%, and 20%, respectively (Iregui et al., 2002).

MRSA are resistant to other antimicrobial drugs-the drug ofchoice is vancomycin. Newer drugs like Linezolid are being used: these drugs have better tissue penetration and are bacteriostatic rather than bactericidal. Wunderink et al.(2008) conducted a study comparing vancomycin with Linezolid and found that Linezolid has a therapeutic advantage compared to other drugs. Another established treatment for patients with MRSA is a double streptogramin combination quinupristin and dalfopristin.

Imipenem seems to be the drug of choice unless there is a very high level of carbapenems resistance. Against highly

carbapenem-resistant Acinetobacterstrains, rifampins

Optimal duration of antimicrobial therapy

A minimum of 7-10 days treatment is recommended for hospital-acquired pneumonia and VAP caused by Haemophilusspp. and staphylococcal infections, and 14- 21 days treatment for typical cases that are associated with MDR non-fermenting gram-negative bacilli. Short course treatment for three days is recommended for low riskpatients. Treatment can also be discontinued on the basis of clinical response. Rotating antimicrobial therapy seems to reduce the resistance of resistant strains for a particular drug. In a study it was shown that there is an improvement in patients with resistance to antimicrobial drugs by rotating antibiotics (ATS, 2005). The efficacy of antimicrobial drugs depends on the concentration and persistence at the site of infection. Airway delivery of drugs can reduce systemic toxicity particularly for drugs such as aminoglycosides. Aerosolized gentamicin can achieve high concentrations and it is effective, unlike aerosolized cephalosporins at preventing biofilm formation in endotracheal tube.

De-escalation is a method of treatment that can be incorporated in patients with VAP. It refers to the use of aggressive broad-spectrum antimicrobials followed by narrowing or reducing the antimicrobial dose once theresults of antimicrobial tests are available. The AmericanThoracic Society/Infectious Disease Society of America Guidelines advise starting on a broad-spectrum therapy for the VAP patients followed by de-escalation to a narrow-spectrum drug for the specific pathogen.

Nursing interventions to prevent VAP

Although VAP has multiple risk factors, many nursing interventions can reduce the incidence of this disease. Prevention of pneumonia, both in and outside of the hospital, begins with vaccination (CDCP, 2001). Nurses are the first line of defense in preventing bacterial colonization of the oropharynx and the gastrointestinal tract. Meticulous hand washing for 10 seconds should be performed before and after all contact with patients. In addition, gloves should be worn when contact with oral or endotracheal secretions is possible. Strategically placing a sign on a patient's door to remind health-care workers to wash their hands and wear gloves is an easy and cost-effective measure that can help minimize transmission of bacteria between patients. The use of protective gowns is not recommended as routine practice, but gowns should be used when antibiotic-resistant pathogens have been isolated and identified (Tablan, et al., 2004).

Oral decontamination, by reducing the amount of bacteria within a patient's oral cavity, can be accomplished by both

mechanical and pharmacological interventions. Mechanical interventions include tooth brushing and rinsing of the oral cavity to remove dental plaque; pharmacological interventions involve the use of antimicrobial agents (Munro & Grap, 2004). Bacteria in dental plaque can be removed by brushing the teeth and thoroughly suctioning secretions from the mouth. Both of these interventions decrease the likelihood of colonization of the oropharynx.

Mucus in the airways can become stagnant and serve as a medium for bacterial growth. Maintenance of aseptic technique when performing endotracheal suctioning is essential to prevent contamination of the airways. No difference has been found in the incidence of VAP with open versus closed suction systems (Zeitoun et al, 2003). When a closed system is used, the suction catheter should be rinsed free of secretions away from the patient.

Furthermore, saline lavage of endotracheal tubes before suctioning dislodges bacteria from the endotracheal tube into the lower airways, increasing the risk for VAP (Moore, 2003). Saline lavage has long been considered a means to liquefy secretions and prevent plugs of mucus in endotracheal tubes. Maintaining adequate hydration, ensuring proper humidification of the ventilatory circuit, and using nebulizer or mucolytic agents can help decrease the viscosity of secretions and eliminate the need for saline lavage (Moore, 2003) (Akgul&Akyolcu, 2002). Prophylactic use of systemic antibiotics does not decrease the incidence of VAP and when the agents are used inappropriately, antibiotic resistance can develop (Leone et al., 2007).

Routine turning of patients a minimum of every 2 hours can increase pulmonary drainage and decrease the risk for VAP. Use of beds capable of continuous lateral rotation can decrease the incidence of pneumonia but do not decrease mortality or duration of mechanical ventilation (Kirschenbaum, Azzi, Sfier, Tietjen&Astiz, 2002). These beds are costly and are not necessary for routine use in the prevention of VAP, although the use of specialty beds may be cost-effective and therapeutic for patients with poor oxygenation or impaired wound healing.

Colonization of the ventilator circuit can also play a role in the development of VAP. Daily changes of the ventilator circuit do not seem to decrease the incidence of VAP (Collard, Saint & Matthay, 2003). The Centers for Disease Control and Prevention does not recommend changing the ventilator circuit more than once every 48 hours has indicated that changing the ventilator circuit as infrequently as once a week does not increase the risk for VAP. It is recommended that the ventilator circuit be changed when visibly soiled (CDCP, 2007).

Many investigators have compared the impact of heat and moisture exchangers on the incidence of VAP with the impact of heated humidifiers. The results were inconclusive as to which form of humidity is associated with a higher incidence of VAP.

In addition to strategies to prevent colonization, strategies to prevent aspiration can also be used to decrease the risk for VAP. Because the presence of an endotracheal tube predisposes patients to VAP, patients should be assessed on a daily basis for potential weaning and extubation from mechanical ventilation. Several methods of assessing readiness for extubation exist. These include T-piece trials, weaning intermittent mandatory ventilation, and pressure-support ventilation.

Positioning patients in a semi-recumbent position with the head of the bed elevated 30? to 45? prevents reflux and aspiration of bacteria from the stomach into the airways. Simply elevating the head of the bed 30? can decrease VAP by 34% (AACN, 2005). Impaired gastric emptying can lead to over distention, or increased gastric residual volume, of the stomach and the potential for regurgitation and aspiration. Minimizing the use of narcotic agents can help prevent aspiration of gastric and/or oral contents (Kollef, 1999). Decreasing use of narcotic and/or sedative agents in the intensive care unit must be done cautiously, because pain can limit deep breathing and impair oxygenation. Daily interruptions of continuous sedative infusions can shorten the duration of mechanical ventilation by more than 2 days and length of stay in the intensive care unit by 3.5 days (Kress, Pohlman, O'Connor & Hall, 2000). Monitoring gastric residual volumes and administering agents to increase gastric motility have been suggested as ways to prevent gastric overdistention (Kollef, 1999). Although the effectiveness of these interventions in reducing VAP has not been tested in clinical trials, it is reasonable to avoid gastric over distention in an attempt to prevent aspiration.

Role of Nurses

The effects of VAP on morbidity, mortality, length of hospital stay, and cost are immense. Education plays a key role in the management of patients with VAP. Reducing hospital-acquired pneumonia continues to pose a challenge for healthcare providers.

Nursing Implications

VAP, although often preventable, has a large impact on morbidity and mortality. The primary obstacle in diagnosing VAP is the absence of good standard criteria and, therefore, VAP continues to be an inconspicuous clinical syndrome. Together with other healthcare providers, nurses play a key role in preventing VAP; many of the interventions are part

of routine nursing care. Education for all healthcare providers, including nurses, should focus on the risk factors for VAP and on preventive measures. In order to further decrease the incidence of VAP, protocols and monitoring tools must be developed. The nurses should provide patients with physical and psychological comfort. VAP is not a new diagnosis, but education and research on the prevention of this life-threatening problem are essential for nurses taking care of patients requiring mechanical ventilation.

Conclusion

VAP is a common nosocomial infection associated withventilated patients. The mortality associated with VAP is alsohigh. The associated organisms and their resistance patternsvary depending on the patient group and hospital setting.Since the diagnostic method available for VAP is not universal,a proper infection control policy with appropriate antibioticusage can reduce the mortality among ventilated patients.VAP can be prevented by following proper hand washing and using protective gloves. Host and intervention risk factors have to be monitored periodically to minimize the VAP rates. The nurses should focus on reducing the aspiration of secretions and a proper antibiotic usage, therefore decreasing the VAP rates, and providing physical and psychological comfort are needed to be emphasized by nurses.

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Caring for Critically Ill Patients at the End of Life

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Abstract

This paper aims to discuss about death and end of life and "good death." Review hospice care and palliative care and look at the barriers to the quality of end of life care in the critical care setting. And strategies are suggested such as communicating with patients and family members; showing support through loss, grief and bereavement; knowledge for nurses caring for patients in the end of life in the critical care setting. Death is certain for all human beings, and as health care providers, nurses have an important role in the care of the dying individual and their families. Caring for those individuals is one of the most important things we do as nurses, yet nursing education has not been effective in providing education on end-of-life care. While society expects nurses to provide the best care possible for all patients, nurses may not be educationally prepared to fulfill this expectation. The nursing care which patients in ICU receive at the end of life particularly relies on the knowledge, skill and comfort level of the ICU nurse. Studies have been done in the past to examine nurses' attitudes towards care of the dying, but little research has been done focusing specifically on critical care nurses. A number of researches have been done to look into the nursing care provided in the end-of-life, but there is still a need to clearly set a guideline when caring for individuals and their families. Nurses need to be able to give culturally competent care.

Keyword: Death, End of life, Nursing Care

Introduction

Death and dying is an unavoidable topic when talking about life threatening diseases and unbeatable illnesses. In end-of-life care, nurses are the major professional caregivers who provide care to dying patients and their families. End-of-life nursing care has an impact on the well-being and the death of end stage patients. When the course of the disease directs to an expected death, care is focused on decreasing the severity of the symptoms rather than trying to stop the disease or provide a cure.

The care patients in the ICU receive at the end of life particularly relies on the knowledge, skill, and comfort level of the ICU nurse. The main goal of intensive care is to help the patients survive acute threats to their lives while preserving and restoring the quality of those lives. These goals are frequently achieved, but it has become common for individuals to die in the ICU. Admission to the ICU is with the aim to treat the underlying condition. When the treatment fails the patients and families consider a change in goals, from restorative care to palliative are. This change, which has been called the transition from cure to comfort, is one of the most difficult and important aspects of nursing practice in the ICU. The transition from curative to comfort care requires excellent clinical and communication skills from all caregivers. It is necessary that nurses feel empowered to provide the most direct care to the patient and their families and be provided with the needed education and support to provide the optimal end of life care. Nursing care at the end of life should be rooted in values these include providing safe, compassionate, competent and ethical care; promoting health & well being; promoting & respecting informed decision-making; preserving dignity; maintaining & respecting privacy and confidentially; and being accountable. When people in their care are dying, nurses foster comfort, alleviate suffering, advocate for adequate relief of discomfort and pain and support a dignified & peaceful death (Harris et al, 2014)

The objective of this article is to discuss end of life, examine the useful strategies which may be applied by the nurses and illustrate the barriers which are encoun tered by nurses providing care to the end of life in the critical care setting.

Caring

Jean Watson's Theory of Human Care describes the nurse's caring process by which a patient attains health or dies a peaceful death (Tomey and Alligood, 2006). A caring attitude is a dynamic phenomenon in the culture of nursing. The care given by nurses is described as an art, and it expresses a commitment to serve the patients. Watson believes that nurse-patient relationships

which have a therapeutic outcome are the core of nursing practice (Tomey and Alligood, 2006). The theory of Watson illustrates ten carative factors of a nurse, which includes the development and growth of a helping-trust relationship and assistance with meeting human needs. The ten carative factors expect the nurse to bring about a careful decision and commitment to really care for the patient. In the case of the dying patient, the nurse must regard the decision of the patient to die and to help him/her attain fulfillment and peace with him/herself. Caring is an ethical principle of nursing that takes in respect for human dignity and patient decisions.

A nurses' self-actualization plays a major role in caring for patients. Watson proposes that "caring for the self is a prerequisite to caring for others" (Tomey and Alligood, 2006, p. 98). By being aware of one's own attitudes and feelings, a nurse can provide more holistic care to the patient. In order for the nurse to help a patient face and deal with death, he or she must first come to terms with death within him/herself. In some instances, nurses caring for patients at the end- of-life develop an unfeeling and uncaring outward appearance and separate themselves from the death to avoid emotional arousal.

Defining Death and End of Life

Death is the point at which our vital physical functions stop. In the past, human death was much easier to define than it is now. When our heart or lungs stopped working, we died. Sometimes our brain stopped before our heart and lungs did, sometimes after. But the cessation of these vital organs occurred close together in time.

With the advancement in technology, the line between who is alive and who is dead has become less distinct. When an individual's heart stop anywhere or in the hospital, cardiopulmonary resuscitation (CPR) treatments and technologies can re-start and maintain heart and lung functions. Life support technologies introduced in the 20th century have produced a new kind of patient, one whose brain does not function, but whose heart and lungs continue to work.

The Uniform Determination of Death Act (UDDA), written by the President's Commission on Bioethics in 1981, confronts the complexities concerning the declaration of death. The UDDA wording specifically states: ("Guidelines for Determination of Death", 1981)

"An individual who has sustained either (1) irreversible cessation of circulatory and respiratory functions, or (2) irreversible cessation of all the functions of the entire brain, including the brain stem, is dead."

It means that an individual can be declared dead when either the heart and lungs or the brain and brain stem ceased to function permanently.

The General Medical Council in 2010 stated that people are 'approaching the end of life' when they are likely to die within the next 12 months. This includes people whose death is imminent (expected within a few hours or days) and those with:

- Advanced, progressive, incurable conditions
- General frailty and co-existing conditions that mean they are expected to die within 12 months
- Existing conditions if they are at risk of dying from a sudden acute crisis in their condition
- Life-threatening acute conditions caused by sudden catastrophic events.

Good Death

Individuals have made it their mission to improve the quality of end of life and advocate for a "good death". Advocates working to improve care for dying patients try to determine what elements are necessary for a "good death" to take place. Common elements of a good death have been identified as the following: (Steinhauser et al, 2000)

- Adequate pain and symptom management.
- Avoiding a prolonged dying process.
- Clear communication about decisions by patient, family and physician.
- Adequate preparation for death, for both patient and loved ones.
- Feeling a sense of control.
- Finding a spiritual or emotional sense of completion.
- Affirming the patient as a unique and worthy person.
- Strengthening relationships with loved ones.
- Not being alone

Good Quality Care at the End of Life

Hospice care may be chosen by a dying patient. The hospice care brings together doctors, nurses, social workers and other professionals to provide a holistic and philosophical approach to end of life care. The objective is to allow the patient be comfortable in his or her final days. Hospice emphasizes pain control, symptom management, natural death, and quality of life to comfort the patient's physical body.

When a "good death" is defined, the principle of autonomy is respected and encouraged to allow the individual to choose and participate in decisions about his or her care at the end of life. Autonomy is an individual's ability to control situations and circumstances. Part of the philosophy of hospice involves restoring and supporting both the patient and his or her family's control over the circumstances of death.

Palliative care aims to relieve symptoms of patients. It is an option for patients who are having a terminal condition. It focuses on achieving the best possible quality of life for a patient by emphasizing total and comprehensive care for all a patient's needs: pain and symptom management, spiritual, social, psychological, and emotional well being. Palliative care is similar to that of hospice care but it is not restricted to patients near the end of life and can be used in both acute and long term care settings. One striking similarity between hospice and palliative care is the use of an interdisciplinary team of professionals including doctors, nurses, social workers, psychologists, chaplains, and others to provide comprehensive care. Palliative care supporters believe that failing to address the suffering of a patient with a terminal illness violates two of the main ethical principles behind health care: (Chrystal-Frances, 2003)

1) Providing help or benefit to a patient (beneficence) - Failing to relieve pain and other symptoms does not help the dying patient.
2) Not harming a patient (non-maleficence) - Failing to relieve pain and other symptoms can actually harm a patient and the patient's loved ones.
For dying patients, palliative treatment provides relief of suffering from pain and other symptoms.

The most common symptoms during the last 3 to 5 days of life are: severe fatigue, severe dyspnea, severe pain, decreased capacity for complex communication, anorexia, respiratory changes and accumulation of respiratory tract secretions and terminal delirium (Ferrel, Coyle, 2010). The primary role of the nurse is to promote comfort and manage the symptoms. Other dying patients or their families may choose non-drug treatments-including hypnosis, massage therapy or aromatherapy-to relieve pain and other symptoms. Non-western forms of treatments are called complementary and alternative medicine (CAM) by medical professionals. Frequently used by hospices and palliative care providers to relieve suffering for terminally ill patients, CAMs may also restore a feeling of control over the dying process.

Critical Care Settings

Critical Care Nurses are a valuable resource to improve and address the needs of patients and families facing life-threatening illness in a variety of settings. Almost all critically ill patients and their families have palliative care needs, including relief of distressing symptoms; effective communication about goals of care; alignment of therapies with patient values, goals, and preferences; and planning for transitions to other settings. Meeting these needs is important both for patients expected to benefit from ICU treatment and those likely to die despite intensive care, as well as for their families. Integration of palliative care in the ICU is also important for supporting critical care clinicians and for appropriate use of scarce and expensive critical care resources. (Nelson, et al 2011). However barriers to quality end of life care in the ICU setting have been found. These were categorized as health care provider barriers, patient and family related barriers and institutional barriers. (Granek, et al 2013; Friedenberg et al 2012) Health care provider barriers include lack of training for the ICU nurse and poor role models when dealing with death and dying. (Harris et al, 2014). ICU nurses are not comfortable with death and dying.

Patient and family related barriers include denial on the part of the patient and family to accept death or any end of life issues. The patient and family may have unrealistic expectations with the nurses and physicians. There could be a difference of opinion on goals of care, or there could be language or cultural barriers contributing to poor end of life care. Barriers from an institutional perspective include lack of leadership support for end of life or palliative care and culture that does not support end of life in the ICU setting. End of life training is not usually mandatory for critical care nurses, even though death often occurs in ICUs. Critical care nurses are acknowledged experts in physical care for critically ill patients. The nurses are certified in various courses such as Advanced Cardiac Life Support (ACLS) and follow algorithms protocols, and procedures to stabilize patients' conditions and treat the patients. However, few algorithms, protocols, and procedures are available to guide the care of patients and patients' families at End of life. (Beckstrand, et al 2006)

In the study of Zaghla et al (2014) it was found out that critical care nurses need more knowledge, skill, and a sense of cultural competency in communicating with patients and families about prognoses, limits of aggressive treatment, and lifesaving measures. They also need institutional support for their role as advocates for the patients and their families at the end of life.

These barriers should not hinder the care given to the patients in the end of life. These are opportunities for education and skill development.

The critical care nurses must use strategies to effectively care for the patients: (Klein, 2014)

- Effective communication
- Support through loss, grief and bereavement
- Knowledge of ethics
- Management of pain and symptom
- Care during the final hours of death

To achieve effective communication there must be an open communication between the nurse and the patient and the family members. The nurse must be able to provide information and updates for decision making.

Supporting loss, grief and bereavement, the nurse allows the patient, and the family to grieve, or express sorrow in their own way. It is important to note that these are all strongly influenced by culture.

The ethical principles autonomy, beneficence, maleficence and justice must be observed. Nurses are privileged to help the patient and the family to come up with informed choices. Ethical issues abound in the end of life care thus nurses should focus on preventing the occurrence of conflicts. There should be cultural and spiritual awareness in the part of the nurse.

At the end of life in the intensive care unit, some patients are unable to report symptoms. These symptoms may create distress and suffering. The nurse must be able to prioritize to manage the symptoms which occur frequently and are distressing to the patient and the family. Management of the symptoms may be done with pharmacologic treatment or non-pharmacologic technique which may include consultation with other disciplines.

The nurse needs to become the advocate for the patient and the family during the final hours of death. A supportive physical environment should be provided for the patient and the family. It is important to provide privacy and to respect the culture and spiritual beliefs (death rites and rituals). At the final hours, a caring, compassionate, and sensitive approach should be given to the patient and the family to prepare them for the dying process.

Implications

End-of-life care does not focus on aggressively advanced interventions with the aim of healing or curing, but it is to concentrate on providing psychosocial and spiritual comfort to the patient and their families. As the patient's prognosis becomes ill-fated, the focus of care should

gear towards giving comfort and quality of life. There has been a few studies conducted on the care given to patients in their end-of-life; however, there still lacks the guideline and standards to provide an end-of-life care. A number of researches have been done to look into the nursing care provided in the end-of-life, but there is still a need to clearly set a guideline when caring for individuals and their families. In the Western countries, they have legislations that address the ethical dilemmas faced at the end-of-life. However, in Asian countries, nurses and other healthcare workers are frustrated with facing the concerns related to end-of-life. If such is addressed, the nurses will be able to devote their energy in providing holistic care in response to their needs. And with our world becoming smaller every day, nurses must promote and support the cultural and spiritual beliefs of patients and their families. The area of spiritual nursing must be delved into by the nurse practitioners and nurse educators. The nurses are the patient advocate, to help the patient and family in response to beliefs and wishes for care at the end stage; however, nurses would sometimes forget the autonomy of the patient. The rights of the patient have not been fully promoted in the health care especially in the end-of-life. Thus, it is important to address the issue when providing care in the end-of-life.

Conclusion

Nurses are uniquely situated to develop therapeutic relationship with dying people and their families (Engler et al, 2004). Nurses who provide care at the end of life are witness to, and part of, a complex process that is physically, psychologically, emotionally and spiritually intimate and profound for most individuals and their families and their health care providers (King & Jordan-Welch, 2003). The family will always look back on the last days, hours, and minutes of their loved one's life. And nurses are given the chance to participate in these precious moments and to make those moments memorable in a positive way. Equipping nurses with knowledge and skills, the patient and the family of the patient will likely receive the best possible end of life care.

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Example of References in the Publication Manual of the American Psychological Association, (6th ed), 2010.

1. In-text citation

1.1 From a original source

Style I : According to Changmai (1998), "....."

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1.2 From secondary source

Changmai argued that...(as cited in Tangwong, 2003,)

1.3 From E-mail : (S. Sakul, personal communication, January 4, 2001).

2. References

2.1 Book

Author, A. A. (Year of publication). *Title of work* : Capital letter also for subtitle. Location : Publisher.

2.2 Article or Chapter in an Edited Book

Author, A. A., & Author, B. B. (Year of publication). *Title of chapter.* In A. A. Editor & B. B. Editor (Eds.), Title of book (pages of chapter). Location : Publisher.

2.3 Article from Journal

Author, A. A., (Year of publication). Title of Article. *Title of Journal,* volume (number) page range.

2.4 Dissertation, Published

Author, F. N. (Year). *Title of dissertation.* (Doctoral dissertation). Retrieved from Name of database. (Accession or Order Number)

2.5 Conference Proceedings

Author, F. N. & Author, N. N. (Eds.). (1995). *Proceedings from Title of the Conference*. Location : Publisher.

2.6 Article from Online Periodical

Author, A. A., & Author, B. B. (Date of publication). Title of article. *Title of Online Periodical,* volume number (issue number if available). Retrieved from http://www.someaddress.com/full/url/

2.7 Article from an Online Periodical with DOI Assigned

Author, A. A., & Author, B. B. (Date of publication). Title of article. *Title of Journal,* volume number, page range. doi:0000000/000000000000 or http://dx.doi.org/10.0000/0000

2.8 Article from an Online Periodical with no DOI Assigned

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2.10 Newspaper Article

Author, A. A. (Year, Month Day). Title of article. *Title of Newspaper.* Retrieved from http://www.someaddress.com/full/url/

2.11 Electronic Books

Author, S. (n.d.). *Title of eBook.* Available from http://www.powells.com/cgi-bin/biblio?inkey=1-9780931686108-0

2.12 Chapter/Section of a Web Document or Online Book Chapter

Author, A. A., & Author, B. B. (Date of publication). Title of article. *In Title of book or larger document* (chapter or section number). Retrieved from http://www.someaddress.com/full/url/

International Journal of Nursing and Health Science (IJNHS) CHRISTIAN UNIVERSITY OF THAILAND
Volume 2 Issue 1, 2014 (January-June) ISSN : 2408-1035

Example of Research Article

Roles of Travel Incentives on Employee Motivation and Performance

Dr. Nucharee Supatn[1]

[1]Assistant Professor of Department of Management, Martin de Tours School of Management and Economics, Assumption University

Abstract

Travel incentive is a type of the organizational reward that includes individual business meeting, group travel to offsite business meetings, as well as the travel and tours to any places outside the office. The influences of three factors related to travel incentives i.e. destination image, need for travel, and self-congruity on employees' perceived value on the travel incentives, their work motivation, as well as their job performance were tested in this research. Questionnaire survey was conducted. The 418 sets of data were collected from the employees of the firms located in central business districts. The structural equation modeling was performed to determine the relationships among major constructs. The results indicated that destination image influenced perceived value and job performance. Need for travel influenced both work motivation and performance of the employees. Self-congruity influenced perceived value and work motivation. Perceived value could influence work motivation. Finally, work motivation was found to influence job performance of the employees.

Keywords : Perceived Value, Destination Image, Need for Travel, Work Motivation, Job Performance

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Volume 2 Issue 1, 2014 (January-June) ISSN : 2408-1035

Example of Academic Article

An Integrative Literature Review of Global Nursing Ethics

Yoshimi Suzuki[1], Rie Sayama[1]

[1]Faculty of Nursing, Toho University

Abstract

Objectives : The purpose of the integrative literature review is to investigate the literature concerning GNE from the viewpoint of the kind of literature, the countries where the primary authors live, and the major topics related to ethics. We then will generalize on the present condition of GNE. **Method :** Our review was based on the methodology of Cooper's integrative review. We searched the literature of the last ten years using the Pubmed database, CHINAL, and Japana Centra Revuo Medicina. 86 literatures that met our criteria were analyzed. **Findings :** (1) 53 out of the 86 literatures contained "Information". (2) Regarding where the primary authors live, 42 live in the United States, 11 in the United Kingdom, and seven in Canada. (3) The numbers of major topics reviewed were : 1) Nursing ethics between each country, (a) 21 ethical issues related to immigration of nurses, (b) ten related to global nursing cooperation, (c) seven regarding comparison of nursing ethics between countries; 2) nursing ethics on a global scale, (a) 12 related to interpretation and use of global code of ethics for nurses, (b) 11 related to ethical consideration in global nursing research. **Implication :** (1) This research indicates that the knowledge of GNE has been spreading. Although the importance of GNE has been recognized, future research may be required. (2) The top three authors are from English speaking countries indicating that geographical bias exists in the countries that deal with GNE. (3) GNE depends on the context, so, it is necessary to pay attention to where and how they are used.

Keywords : Global, International, Nursing, Ethics, Literature Review

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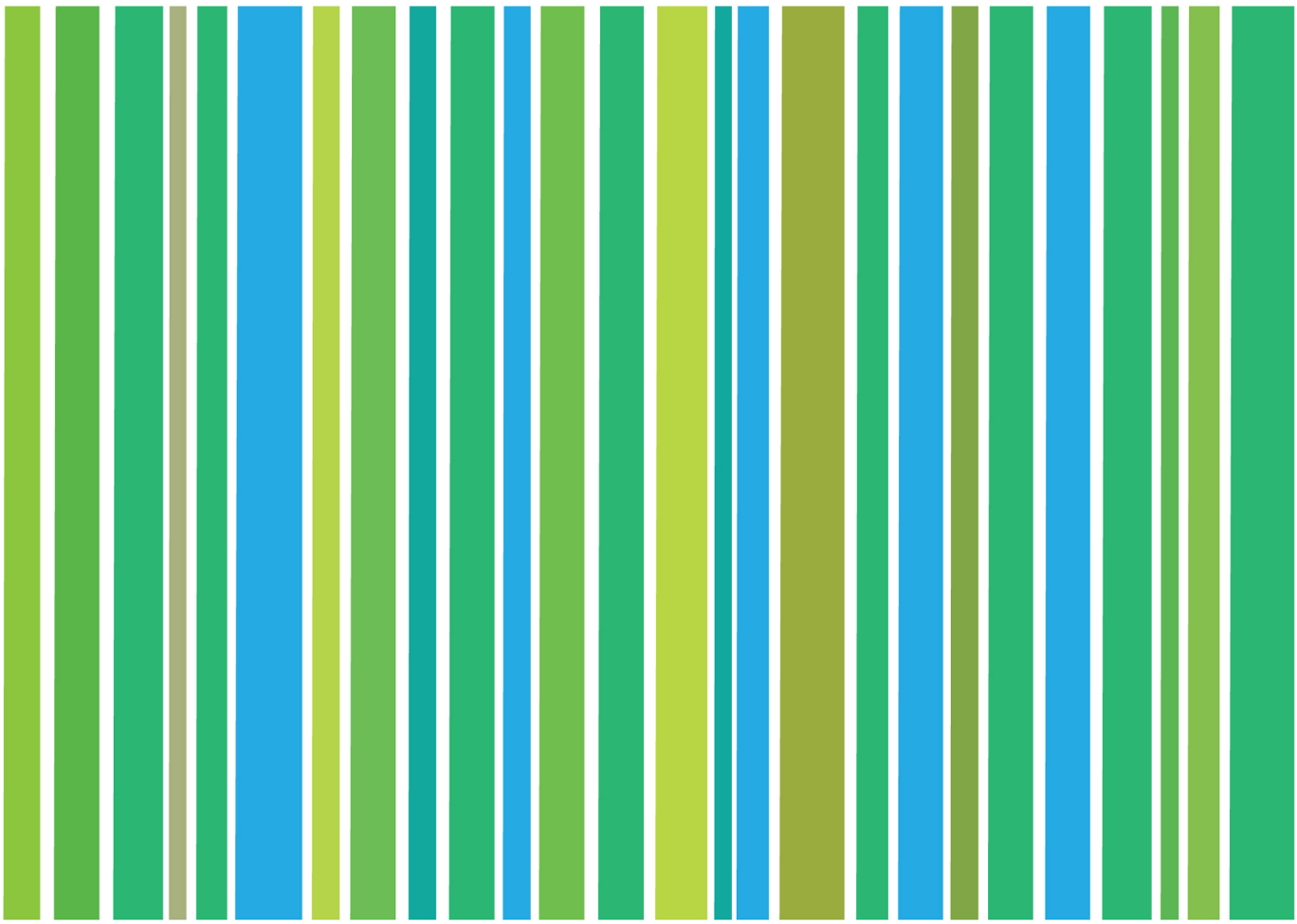

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