BELITUNG NURSING JOURNAL

https://belitungraya.org/BRP/index.php/bnj/index

BELITUNG NURSING

JOURNAL

Volume 6 Issue 1: January – February 2020

EDITORIAL TEAM

ASSOCIATE EDITOR, BRUNEI DARUSSALAM
Dr. Kadizah Haji Abdul Mumin, (Scopus ID: 56720402400, h-index 3) Pengiran Anak Puteri Rashidah Sa'adatul Bolkiah, Institute of Health Sciences, University Brunei Darussalam, Brunei Darussalam

ASSOCIATE EDITOR, LAO PDR
Souksavanh Phanpaseuth, MNS, RN, (Scopus ID:56764567600, h-index 1) University of Health Sciences, Lao PDR, Lao People's Democratic Republic

ASSOCIATE EDITOR, MYANMAR
Miss May Sein Ba, RN, MNS, Principal Nursing Training School (East Yangon), Department of Human Resources for Health, Myanmar

ASSOCIATE EDITOR, THE PHILIPPINES
Barbara Lyn A. Galvez, MAN, RN, PhD, Silliman University Hibbard Avenue, Dumaguete City, Negros Oriental Philippines, Philippines

ASSOCIATE EDITOR, MALAYSIA
Mohd Khairul Zul Hasymi Bin Firdaus, BHSc, MN, Department of Medical Surgical Nursing, Faculty of Nursing, International Islamic University Malaysia, Malaysia

COPYEDITOR & LAYOUT EDITOR
Anggie Amanda, Belitung Raya Foundation, Indonesia

TABLE OF CONTENTS

BNJ | BELITUNG NURSING JOURNAL

ORIGINAL RESEARCH

COMPARISON OF THE EFFECTS OF REMINISCENCE THERAPY ALONE AND IN COMBINATION WITH PSYCHOEDUCATION THERAPY ON DEPRESSION LEVEL OF ELDERLY IN INDONESIA: A QUASI-EXPERIMENTAL STUDY

Sutinah*

Program Studi Ilmu Keperawatan, Sekolah Tinggi Ilmu Kesehatan Harapan Ibu, Jambi, Indonesia

*Correspondence:
Ns. Sutinah. M.Kep
Program Studi Ilmu Keperawatan, Sekolah Tinggi Ilmu Kesehatan Harapan Ibu, Jambi, Indonesia. Jalan Tarmizi Kadir No.71 Pakuan Baru Jambi 36132 Telp (0741) 7552270 Fax (0741) 7552710
Email: ns.titin@gmail.com
Cell: +6285266401824

Abstract

Background: Depression can occur in elderly, but it is not a part of normal aging. Untreated depression increases rates of completed suicide and mortality. Therefore, an effort to reduce depression level is needed. Reminiscence and psychoeducation therapy are assumed to be effective in reducing the level of depression in elderly.

Objective: To compare the effects of reminiscence therapy alone and in combination with psychoeducation therapy on depression level in elderly.

Methods: This study employed a quasi-experiment with comparison group design. Seventy-two respondents were selected in this study using a simple random sampling, which 36 were assigned in each group. Data were collected in 2018 using Geriatric Depression Scale (GDS). Dependent and Independent t-test were used for data analyses.

Results: The reminiscence therapy alone or in combination with the psychoeducation therapy were effective in reducing depression level in elderly ($p<.05$). The combination of reminiscence and psychoeducation therapy was much more effective than reminiscence therapy alone ($p<.05$).

Conclusion: These findings serve as an input for the Government of Indonesia to provide the combination of the reminiscence and psychoeducation therapy in the elderly program. This study provides a new knowledge for geriatric nurses to provide new interventions specifically to reduce depression level among elderly.

KEYWORDS

depression; Indonesia; geriatric nursing; psychotherapy

BACKGROUND

Elderly in general will experience changes spiritually, cognitively, biologically, psychologically, and socially (Touhy & Jett, 2010). Psychologically, changes in the elderly in the form of decreased ability of sensation, perception, and psychomotor appearance, which are very important for the functioning of everyday people's lives (Atchley & Barusch, 2004). However, many elderly are unable to adapt to the psychological changes they experience, which are characterized by symptoms such as sensitive, unstable, easy to feel sad, feelings of hopelessness, paranoia, feelings of guilt, feeling burdened, feelings of loss, loneliness, depression, and difficulty sleep which results in a risk of depression (Miller, 2004).

The prevalence of depression in the elderly in the world is around 8-15% in women, which is twice as many as in men with a ratio of 14.1: 8.6. In Indonesia, according to the National Commission for the Protection of Older Persons (2010), the prevalence of depression in the elderly is around 30%. But according to Frazer et al. (2005), the

prevalence of elderly depression in the community ranges from 1% to 44%. While Jambi Province ranks highest with 20% of elderly experiencing emotional mental disorders, especially depression (Department of Health, 2019).

According to Touhy and Jett (2010), depression will hamper the fulfillment of developmental tasks of the elderly and also shorten life expectancy which causes a decrease in quality of life. Elderly with depression will experience feelings of lack of enthusiasm and lack of socializing to others for fear of being embarrassed. This situation is rarely detected because it is very rarely reported. The further impact experienced by the elderly with depression are physical pain, drug abuse, alcohol and nicotine, and suicide if they do not get the right and immediate intervention (Miller, 2004). The results of our preliminary study found that many elderly people experience depressive symptoms mainly due to physical weakness, decreased health conditions, impaired communication and interactions that result in being unable to carry out

activities as usual. Many of them are very dependent on family members which causes them to tend to be at home and not do activities. Therefore, an intervention to deal with depression in the elderly needs to be done.

In this study, there are two therapies that can be given to the elderly with depression, namely reminiscence therapy and psychoeducation therapy. Reminiscence therapy is a therapy for recalling past events and experiences (Bryant et al., 2005; Wheeler, 2008). Herr (1998) said that reminiscence therapy aims to collect past memories from childhood, adolescence and adulthood including relationships with family, which are done through sharing and facilitated by therapists (Perese et al., 2008). The benefit of this reminiscence therapy is to increase self-esteem, identity, and self-integrity (Frisch & Frisch, 2006; Mckee et al., 2005). However, reminiscence therapy is relatively easy to implement, the costs are affordable, and side effects are minimal (Jones, 2003).

While psychoeducation therapy is one form of family therapy through health education to caregivers patient care about caring for family members, efforts and signs of behavior that can support the strength of the family to reduce the intensity of emotions in the family, and increase family knowledge about diseases that occur in elderly (Frisch & Frisch, 2006; Wheeler, 2008). This family psychoeducation therapy has proven to be effective in increasing family cognitive and psychomotor abilities, lightening the burden, and increasing family coping (Liu et al., 2007; Rafiyah, 2011). However, this therapy is very important, because based on the results of our interviews with caregivers it was found that sometimes caregivers often complain of the condition of the elderly who are like young children again, unstable emotions, and physical weakness. Many caregivers also don't know how to provide for and treat elderly people with depression. Therefore, psychoeducation for this family needs to be done.

By looking at the phenomena and the effects of reminiscence and psychoeducation therapy on depression, this study therefore wants to test the effectiveness of these two therapies in depressed elderly people in Jambi, Indonesia.

METHODS

Study Design
This study employed a quasi-experiment with a comparison group design.

Sample
The samples in this study were 72 respondents who were selected using simple random sampling using a lottery. The sample was based on a previous study with 90% power, 95% confidence interval, significance at .05, with a total of 25 participants (Syarniah et al., 2010). 30% of the attrition rate was added, with 36 participants at least per group. Criteria for inclusion of the sample are the elderly aged 60 years to 75 years, the elderly living with family, the value of the Geriatric Depression Scale (GDS) $\geq$ 11, willing to be a respondent, communicative, and cooperative. As this study also included caregivers, so the samples of caregivers were also 36 in the experimental group and 36 in the comparison group.

Instrument
There are two instruments in this study: the first instrument is to measure demographic data consisting of age, gender, educational status, marriage, employment, and health status. The second instrument is to measure depression in the elderly using the Geriatric Depression Scale (GDS), which is valid in the Indonesian version consisting of 30 questions with a sensitivity level of 90.19% and a specificity of 83.67% (Syarniah et al., 2010). The GDS scale is a universal and accurate measure of depression in the elderly than other depression measures (Touhy & Jett, 2010). A dichotomous scale is used with the choice of "yes" or "no" to answer questions according to the conditions they feel. The range of values for each answer is between 0 and 1 with a total of 30. Depression is detected if a score $\geq$ 11. The validity test of this scale used Pearson product moment correlation test with a corrected item-total correlation value of .884 (> *r table* of .444), which indicates that all items questions on the scale were valid.

Intervention
In the experimental group, there were two interventions given, namely psychoeducation therapy and reminiscence therapy. Psychoeducation therapy was done first and then followed by reminiscence therapy in the next day. Psychoeducation therapy consists of 5 sessions with 5 meetings, and each session was carried out for 45-60 minutes. While reminiscence therapy consists of 5 sessions with 9 meetings and each session carried out for 75 minutes. Psychoeducation and reminiscence therapy were done in groups. The intervention was carried out for 6 weeks, from Monday to Saturday, according to the agreed schedule. The intervention was conducted in two places, namely in Integrated Health Care of Melati and Pomegranate. In reminiscence therapy, the elderly was divided into two groups in one session, and in one group there were 9-10 people. In psychoeducation therapy, participants were only family members from the elderly.

In the comparison group, the intervention was reminiscence therapy for 5 sessions with 5 meetings per session conducted for 75 minutes conducted in groups. There was no difference between reminiscence therapy in the experimental group and the control group. The intervention in the control group was conducted at the Integrated Health Care of Palm and Kemuning I. The steps of psychoeducation therapy and reminiscence can be seen in **Table 1** and **2**.

Table 1. Steps in Reminiscence Therapy

---

1. Preparation Phase
    1.1 Agreeing on the implementation of therapeutic activities with the client before session 1 is held.
    1.2 Reminding the client 1 hour before the implementation of therapy.
    1.3 Preparing a meeting place
    1.4 Preparing media / tools:
        1.4.1 Nametag of therapist and client

Table 1. Steps in Reminiscence Therapy (Cont.)

    1.4.2 The therapist evaluates the objects that are still owned by the client in relation to the topic of discussion on reminiscence therapy at the first meeting, which is the most preferred experience of play in childhood. This evaluation activity is carried out 1 day before the therapeutic activity is carried out.

    1.4.3 The therapist asks the client to bring objects that are still owned by the client which are related to the game of childhood that is most preferred. This activity is carried out 1 day before the therapeutic activity and repeated 1 hour before the implementation of the therapeutic activity.

    1.4.4 The therapist prepares the process evaluation format, the documentation format, the client's independent evaluation format (report cards), and stationery such as the workbook and pen.

2. Implementation Phase

  2.1 Orientation

    2.1.1 Therapeutic greetings.

      2.1.1.1 Greetings from the therapist.

      2.1.1.2 Introducing the therapist's name and nickname.

      2.1.1.3 Asking the client's name and nickname and using the nametag.

    2.1.2 Evaluation/validation

      2.1.2.1 Asking the feeling of client

      2.1.2.2 Contract

- Agreeing on the length of the meeting and the number of sessions, namely 9 meetings and 5 sessions: (1) childhood experience sessions, (2) experiences of adolescence, (3) experiences of adulthood, (4) experiences with family and at home, and (5) evaluation activities. Each meeting is 75 minutes long.
- Explaining the purpose of the first meeting, namely: clients share pleasant experiences that occur at the age of the child associated with the game most preferred in childhood; and clients are expected to be able to express their feelings after sharing experiences with group members.
- The therapist explains the following rules: length of activity is 75 minutes, clients follow activities from start to finish, clients play an active role in sharing experiences and expressing their feelings after sharing experiences with others.

  2.2 Working

    2.2.1 The therapist introduces him/herself: name, nickname, place of residence and educational status.

    2.2.2 The therapist asks each group member to introduce themselves including their name, preferred nickname, age and place of residence. This introductory activity starts with the client sitting to the right of the therapist and continues clockwise until all group members have introduced themselves.

    2.2.3 The therapist leads the client to perform deep breathing techniques 3 times, then the client is asked to close his eyes. The therapist invites the client to remember the experiences of childhood, then the client is asked to recall games that were often done during childhood, what games had been done, what games were most liked during the child's time, with whoever was playing the game, where the game was done, when the game was played and what events were the most fun or most memorable with the most liked game. Then the client is asked to open his eyes again and take a deep breath 3 times.

    2.2.4 The therapist gives an opportunity for 1 client to tell the most enjoyable experience related to the most liked game in childhood.

    2.2.5 The therapist gives the client the opportunity to show the objects that he/she still has that are meaningful to the client in relation to the game he/she likes best in childhood.

    2.2.6 The therapist asks other clients to respond to the experiences that have been conveyed by their peers.

    2.2.7 The therapist discusses the client's feelings after sharing pleasant experiences with others - what the client feels after sharing his/her experience with others, and the benefits that the client feels as well as past relationships with the client's current condition.

    2.2.8 The therapist encourages the client to accept his/her pleasant past as a valuable part of the client.

    2.2.9 Repeating activities 4 until 8 for other clients until all group members have the same opportunity.

    2.2.10 The therapist explains the relationship of remembering and sharing pleasant experiences with others with self-acceptance at this time.

    2.2.11 The therapist motivates clients to do the same activities with others without being structured.

    2.2.12 The therapist compliments the client's commitment and enthusiasm.

3. Termination Phase

  3.1 Evaluation

    3.1.1 Asking the client's feelings after reminiscence therapy activities.

    3.1.2 Evaluating the client's ability to convey pleasant past experiences in childhood.

    3.1.3 Giving positive feedback on the ability and good client cooperation.

  3.2 Follow-up

    3.2.1 Encouraging clients to recall other pleasant experiences that occurred during childhood, and sharing these experiences with others outside of group therapy activities both in groups and with others individually. Activities carried out by the client will be evaluated at each meeting from the second meeting to the 9th meeting.

Table 1. Steps in Reminiscence Therapy (Cont.)

3.3 Upcoming contract
    3.3.1 Agreeing on a topic at the second meeting, which is to share fun experiences in childhood related to experiences about most loved friends in childhood. Clients are asked to bring memory objects that are still owned by clients related to the topic.
    3.3.2 Agreeing on the time and place for the 2nd meeting and the 75-minute meeting time.
4. Evaluation and Documentation Phase
    4.1 Process evaluation
        Evaluation is carried out during the therapy process, especially at the working phase. The aspect evaluated in session 1 is the ability of the client to introduce him/herself, express his/her feelings, convey his/her experiences on the topic and express his/her feelings after the activity.
    4.2 Documentation
        Documenting the abilities of the client has during therapy on the nursing process record. If the client is considered capable, then it is recorded as the client following reminiscence therapy session 1, able to express feelings, convey their experiences on topic and express feelings after the activity. Clients can continue to attend session 2. If the client is deemed incapable, then it is recorded as the client following reminiscence therapy session 1, unable to express feelings, not unable to convey his/her experience according to the topic and unable to express feelings after the activity. It is recommended that the client should try to remember the past memories according to topic and doing exercises to convey to others outside of therapeutic activities.

In the psychoeducation therapy, each session has different objective, but the steps are similar. The objectives include: 1) Identifying the changes that occur in the elderly and the problems that arise due to changes in the elderly, 2) Caring for elderly with depression, 3) Family stress management, 4) Management of family burden, and 5) Community empowerment in helping family.

Table 2. Example Steps in the Psychoeducation Therapy (Session 1)

1. Preparation Phase
    1.1 Reminding the family 2 days before the implementation of therapy.
    1.2 Preparing tools and meeting places.
2. Implementation Phase
    2.1 Orientation
        2.1.1 Therapeutic greetings from the therapist.
        2.1.2 Introducing the therapist's name and nickname, using the name tag.
        2.1.3 Asking your family name and nickname.
        2.1.4 Validation: Asking how the family feels in joining the current family psychoeducation program.
        2.1.5 Contract: Explaining the purpose of the first meeting - to work together and help families who have family members with depression.
        2.1.6 The therapist reminds the steps of each session as follows: 1) Agreeing on the implementation of therapy for 5 sessions, 2) Activity duration is 45-60 minutes, 3) The family follows the activities from start to finish with the same family members.
    2.2 Working
        2.2.1 Asking about what the family feels so far is related to depression experienced by one family member.
            2.2.1.1 Personal problems felt by family members themselves.
            2.2.1.2 Problems in caring for family members who are depressed.
            2.2.1.3 The family writes down the problem in the family workbook.
            2.2.1.4 The therapist writes in his/her own workbook.
            2.2.1.5 Ask about the changes that occur in the family with a family member suffering from depression.
        2.2.2 Providing family opportunities to convey changes experienced in the family such as changes in family roles and family functions after a family member is depressed.
        2.2.3 Asking the wishes and hopes of the family while attending therapy.
        2.2.4 Providing family opportunities to ask questions related to the results of discussions that have been conducted.
3. Termination Phase
    3.1 Evaluation
        3.1.1 Summing up the results of session 1 discussion.
        3.1.2 Asking the family's feelings after finishing session 1.
        3.1.3 Providing positive feedback on cooperation and the ability of the family to convey their feelings.
    3.2 Follow-up: Encouraging the family to convey and discuss with other family members about the problems and the changes that occur in families with depression.
    3.3 Contract
        3.3.1 Agreeing on the topic of session 2, which is about how to treat depressed elderly.
        3.3.2 Agreeing a time and place for the next meeting.

Data Collection
This research was conducted in the Simpang Kawat Village, Jambi Indonesia from February to June 2018. The data collection was carried out by the researchers themselves assisted by 5 research assistants. The research assistants were cadres in each integrated health care. Each assistant received training to intervene and collect data using a questionnaire. Distribution of questionnaires to the experimental and control groups was done before and after the intervention.

Data Analysis
Descriptive statistics were used to measure demographic data. As the data were normally distributed by Kolmogorov Smirnov ($p = .95$), Dependent and Independent t-test were used to measure depression.

Ethical Consideration
This study was approved by the Ethics Commission of the University of Jambi under 1619 / UN21.6 / LT / 2019 on February 13, 2019. Before

the study was conducted, the researcher gave an explanation to respondents about the aims, procedures, and expectations of this study. If they were willing to participate, they had to sign an informed consent.

RESULTS

Characteristics of Respondents
Most respondents in this study were women (62.5%) than men (37.5%). The average age of respondents in the experimental group was 68.44 years, and respondents in the control group were 68.33 years, with confidence intervals between 60 and 75 years. The majority of respondents were married (72.9%), had attended school (66.7%), and did not work (80.6%). Most were not sick (54.2%). There was no difference in the respondents' characteristics between the experimental group and the comparison group ($p> .05$) (**Table 3**).

Table 3. Characteristics of Respondents (*N*=72)

Characteristics	Experiment Group (*n*=36)		Comparison Group (*n*=36)		Total (n=72)		*p-value*
	n	*%*	*n*	*%*	*n*	*%*	
Gender							
Male	14	38.9	13	36.1	27	37.5	1.000[a]
Female	22	61.1	23	63.9	45	62.5	
Age (year)	Mean (SD, Min-Max))		Mean (SD, Min-Max)				.800[b]
	68.44 (5.102, 60-75)		68.33 (5.340, 60-75)				
Marital Status							
Marriage	22	61.1	19	52.7	41	72.9	.634[a]
Widow/widower	14	38.9	17	47.3	31	43.1	
Educational Status							
Yes	20	55.6	28	77.8	48	66.7	.080[a]
No	16	44.4	8	22.2	24	33.3	
Working Status							
Yes	7	19.4	7	19.4	14	19.4	1.000[a]
No	29	20.6	29	20.6	58	80.6	
Health Status							
Sick	13	36.1	20	55.6	33	45.8	.636[a]
Health	23	63.9	16	44.4	39	54.2	

[a]Chi-Square [b]Independent t-test

Table 4. Effect of Psychoeducation and Reminiscence Therapy on Depression Level in Elderly Between Experiment and Control Group (*N*=72)

Group	Depression		Mean difference (SD)	t	*p-value*
	Pretest	Posttest			
	Mean (SD)	Mean (SD)			
Experimental group (*n*=36)	15.19 (3.37)	6.11 (2.85)	9.08 (2.91)	18.717	<.001[a]
Comparison group (*n*=36)	15.00 (4.00)	11.58 (5.22)	3.41 (2)	5.543	<.001[a]
p-value	.175[b]	.001[b]			

[a]Dependent t-test | [b]Independent t-test

Effect of Psychoeducation and Reminiscence Therapy on Depression Level in Elderly
Based on the Dependent-t-test, there were significant differences in the levels of depression in the experimental group before and after the intervention (p <.05). Similar to the comparison group, there was a significant difference in the level of depression before and after the intervention (p <.05). It could be interpreted that the combination of

psychoeducation and reminiscence therapy, or even reminiscence alone can reduce depression in the elderly. However, based on the results of the Independent t-test, there was a significant difference in the level of depression after the intervention, which the combination therapy in the experimental group was better at reducing depression level than in the therapy in the comparison group (p <.01) (**Table 4**).

DISCUSSION

The purpose of this study is to compare the effects of reminiscence therapy alone and in combination with psychoeducation therapy on depression level of the elderly. The results of this study indicated that there was a significant effect of reminiscence therapy alone or in combination with psychoeducation therapy on depression level in the elderly. The results obtained by this study were in line with Chiang et al. (2010) which states that reminiscence therapy could reduce depression and negative feelings in the elderly. Likewise, Frazer et al. (2005) found that reminiscence therapy was effective in reducing depression in the elderly.

In reminiscence therapy, the therapist helped the elderly to recall the positive aspects and things that are meaningful to the elderly who have experienced the elderly in their past to integrate these positive things in the daily lives of the elderly in their old age at this time to assess the life they have passed until now, so that the elderly could feel satisfaction with their lives (Herr, 1998). The core of reminiscence therapy activities focuses on exploring the successes that have been achieved by the elderly, thereby increasing feelings of happiness, pleasure and pride in yourself, and eliminating negative and sad feelings. However, reminiscence therapy is an effective therapy for reducing depression (Jones, 2003; Stinson, 2009; Touhy & Jett, 2010).

Interestingly, it was also found that the combination of reminiscence therapy and psychoeducation showed a better effect than reminiscence therapy alone. The results of this study were in line with Schulenberg and Melton (2010), which states that reminiscence is very good when combined with other therapeutic methods. Supported also by Andrén and Elmståhl (2007) who said that involving the family caregivers by providing information and education would help families to improve skills, understand the situation, and have coping in caring for a sick family. However, the role of the family is very important in this matter. In this study, caregivers were taught about caring for themselves related to problems that can be experienced in treating elderly people with depression. This is intended to improve coping and knowledge of the caregivers themselves. In addition, caregivers were also taught to identify changes and problems due to changes that occur in the elderly, and how to care the elderly with depression. Kate et al. (2013) states that the provision of family psychoeducation and reminiscence therapy affect the increase in knowledge of caregiver care and the elderly in reducing depression.

Another important point is that the reminiscence and psychoeducation therapy were carried out in groups which each respondent could interact with each other, exchange information and experience and feel that they have the same fate, which could increase positive attitudes and motivate each other. This was in line with Wheeler (2008) stated that the implementation of therapy carried out in groups could reduce depression, which group therapy provides an opportunity to socialize, share experiences so as to reduce feelings of isolation, hopelessness, helplessness and solitude.

This study provides the insights of new knowledge for geriatric nurses to apply reminiscence therapy alone or in combination with psychoeducation therapy to reduce depression levels in the elderly. The results of this study fit in with the context of the phenomenon today which most likely the elderly feel lonely and depression. It is our homework as nurses to help them live their lives.

CONCLUSION

Reminiscence therapy alone or in combination with psychoeducation therapy is effective in reducing depression levels in the elderly. The combination of reminiscence therapy and psychoeducation therapy is much more effective than reminiscence therapy alone. The results of this study serve as an input for the Government of Indonesia to provide these therapies in the elderly program specifically to reduce depression levels.

ORCID
Sutinah https://orcid.org/0000-0001-7032-7437

REFERENCES

Andrén, S., & Elmståhl, S. (2007). Relationships between income, subjective health and caregiver burden in caregivers of people with dementia in group living care: A cross-sectional community-based study. *International Journal of Nursing Studies, 44*(3), 435-446. https://doi.org/10.1016/j.ijnurstu.2006.08.016

Atchley, R. C., & Barusch, A. S. (2004). *Social forces and aging: An introduction to social gerontology*. USA: Wadsworth/Thomson Learning.

Bryant, F. B., Smart, C. M., & King, S. P. (2005). Using the past to enhance the present: Boosting happiness through positive reminiscence. *Journal of Happiness Studies, 6*(3), 227-260. https://doi.org/10.1007/s10902-005-3889-4

Chiang, K. J., Chu, H., Chang, H. J., Chung, M. H., Chen, C. H., Chiou, H. Y., & Chou, K. R. (2010). The effects of reminiscence therapy on psychological well-being, depression, and loneliness among the institutionalized aged. *International Journal of Geriatric Psychiatry: A Journal of the Psychiatry of Late Life and Allied Sciences, 25*(4), 380-388. https://doi.org/10.1002/gps.2350

Department of Health. (2019). *Basic health research 2018*. Jakarta: Department of Health of Indonesia.

Frazer, C. J., Christensen, H., & Griffiths, K. M. (2005). Effectiveness of treatments for depression in older people. *Medical Journal of Australia, 182*(12), 627-632. https://doi.org/10.5694/j.1326-5377.2005.tb06849.x

Frisch, N. C., & Frisch, L. E. (2006). *Psychiatric mental health nursing*. Canada: Thomson Delmar Learning.

Herr, K. A. (1998). Group work with elders: 50 therapeutic exercises for reminiscence, validation, and remotivation. *The Clinical Journal of Pain, 14*(2), 178. https://doi.org/10.1097/00002508-199806000-00015

Jones, E. D. (2003). Reminiscence therapy for older women with depression: Effects of nursing intervention classification in assisted-living long-term care. *Journal of Gerontological Nursing, 29*(7), 26-33. https://doi.org/10.3928/0098-9134-20030701-07

Kate, N., Grover, S., Kulhara, P., & Nehra, R. (2013). Relationship of caregiver burden with coping strategies, social support, psychological morbidity, and quality of life in the caregivers of schizophrenia. *Asian Journal of Psychiatry, 6*(5), 380-388. https://doi.org/10.1016/j.ajp.2013.03.014

Liu, M., Lambert, C. E., & Lambert, V. A. (2007). Caregiver burden and coping patterns of Chinese parents of a child with a mental illness. *International Journal of Mental Health Nursing, 16*(2), 86-95. https://doi.org/10.1111/j.1447-0349.2007.00451.x

McKee, K. J., Wilson, F., Chung, M. C., Hinchliff, S., Goudie, F., Elford, H., & Mitchell, C. (2005). Reminiscence, regrets and activity in older people in residential care: associations with psychological health. *British Journal of Clinical Psychology, 44*(4), 543-561. https://doi.org/10.1348/014466505x35290

Miller, C. A. (2004). *Nursing for wellness in older adults: Theory and practice.* USA: Lippincott Williams & Wilkins.

National Commission for the Protection of Older Persons. (2010). *Protection for elderly in Indonesia.* Paper presented at the National Congress - 4, Makassar Indonesia.

Perese, E. F., Simon, M. R., & Ryan, E. (2008). Promoting positive student clinical experiences with older adults through use of group reminiscence therapy. *Journal of Gerontological Nursing, 34*(12), 46-51. https://doi.org/10.3928/00989134-20081201-05

Rafiyah, I. (2011). burden on family caregivers caring for patients with schizophrenia and its related factors. *Nurse Media Journal of Nursing, 1*(1), 29-41. https://doi.org/10.14710/nmjn.v1i1.745

Schulenberg, S. E., & Melton, A. M. A. (2010). A confirmatory factor-analytic evaluation of the purpose in life test: Preliminary psychometric support for a replicable two-factor model. *Journal of Happiness Studies, 11*(1), 95-111. https://doi.org/10.1007/s10902-008-9124-3

Stinson, C. K. (2009). Structured group reminiscence: an intervention for older adults. *The Journal of Continuing Education in Nursing, 40*(11), 521-528. https://doi.org/10.3928/00220124-20091023-10

Syarniah, Keliat, B. A., & Hastono, S. P. (2010). *Pengaruh terapi kelompok reminiscence terhadap depresi pada lansia di panti sosial tresna werdha budi sejahtera provinsi Kalimantan Selatan [The effect of reminiscence group therapy on depression in the elderly in the Tresna Werdha Budi Sejahtera Social Institution in the province of South Kalimantan].* Faculty of Nursing, Universitas Indonesia, Jakarta.

Touhy, T. A., & Jett, K. F. (2010). *Ebersole and Hess' gerontological nursing & healthy aging.* Philadelphia, USA: Mosby, Inc.

Wheeler, K. (2008). *Psychotherapy for the advanced practice psychiatric nurse.* St. Louis: Mosby, Inc.

BNJ BELITUNG NURSING JOURNAL

ORIGINAL RESEARCH

EFFECT OF USING AN ANDROID-BASED MODULE ON KNOWLEDGE AND ATTITUDE OF NURSING STUDENTS ABOUT THE PROVISION OF TRANSCULTURAL NURSING

Apriani Susmita Sari[1*], Elsi Dwi Hapsari[2], Widyawati[2]

[1]Department of Maternity Nursing, Institute of Health Sciences Hamzar, East Lombok, Indonesia
[2]Department of Pediatric and Maternity Nursing, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada, Yogyakarta, Indonesia

*Correspondence:
Apriani Susmita Sari, S.Kep., Ns., M.Kep
Department of Maternity Nursing, Institute of Health Sciences Hamzar
Mamben Daya, Wanasaba, East Lombok Regency, West Nusa Tenggara 83653, Indonesia
Telp. +6287839937352
Email: aprianisusmita442@gmail.com

Abstract
Background: The essence of transcultural nursing is to guide nursing students in order to be able to provide nursing care based on patients' needs and their cultural backgrounds. To transfer the knowledge and attitude of the transcultural nursing effectively among generation Z students, an android-based module can be used and it is considered effective.
Objective: This study aimed to determine the effect of using an android-based module on the knowledge and attitudes of nursing students regarding the provision of transcultural nursing.
Methods: This study employed a quasi-experiment with a non-equivalent control group design. Ninety-four students were selected using a purposive sampling, which forty-seven were assigned in an android-based module group and a printed-module group. Data were measured using knowledge and attitude questionnaires about transcultural nursing, and perceived usefulness and perceived ease of use questionnaire for android-based modules. Data were analyzed using paired t-test and independent t-test with a significance level of < .05.
Results: There was a significant effect of both android and printed based modules on knowledge of transcultural nursing ($p <$.05), but not for the attitude ($p >$.05). Based on the Independent t-test, there was no significant difference in students' knowledge and attitude about transcultural nursing between both groups ($p >$.05). However, the android-based module was considered useful (97.9%) with a mean value of 44, and was easy to use (91.5%) with a median value of 40.
Conclusion: The use of both printed-based module and android-based module is effective to increase the students' knowledge and attitudes about transcultural nursing.

KEYWORDS
culture; transcultural nursing; attitudes; nursing students; learning

BACKGROUND

Culture is the characteristics of a particular group of people - beliefs, values, behavior, habits, and attitudes, which influences the way people undergo healthy illness (Morton, 2005). According to Pratiwi (2011), it is very important for health workers to know how to care for patients with different cultural backgrounds. Caring for patients who have different cultural backgrounds in nursing is called transcultural nursing.

Nurses need to have knowledge about culture in providing nursing care, nurses are positive in dealing with cultural differences and obstacles related to cultural differences, namely language and communication. The reason for the importance of nurses is having knowledge about culture in providing nursing care, so that nurses are able to understand patients, place themselves or adjust themselves to patients, provide the best service, reduce complaints and discomfort from patients or families, and prevent misunderstanding (Lestari et al., 2014).

A generation born in 1995-2010 is called generation z, platinum generation, generation of cellphones, or the generation of computer games. This generation has advantages in the field of information and technological development. But the educators who were born in the previous era may not be not familiar with it, which are likely claimed to be "clueless" (technology stutter). Thus, new innovations are needed in the teaching and learning process to fit with the characteristics of students (Purnomo et al., 2017).

One of the new innovations in the use of technology is the use of smartphones as learning media. Smartphones are chosen as learning media because of the ease of use, access, and transfer of material or data to students (John & Rani, 2015). A research conducted by Ochs (2017) shows that the use of online learning modules is more effective than traditional classroom learning for transcultural nursing content.

However, lack of studies related to the use of android-based module in students, particularly in transcultural nursing. The purpose of this study was to determine the effect of the use of an android-based module compared to a printed-based module on the knowledge and attitude of nursing students about the provision of transcultural nursing.

METHODS

Study Design
The study employed a quasi-experiment with pretest posttest control group design.

Sample
The sample in this study was selected based on inclusion criteria, including active nursing students from A-accredited higher education institutions who received transcultural nursing material, and students who had their own smartphones which supported browsers to get the applications such as chrome and windows. A-accredited higher education institutions were selected because they use learning system block, adequate facilities and infrastructure, and their students come from various regions.

A purposive sampling technique was used to select participants in the intervention group. But, in the control group, two sampling methods were used: 1) a purposive sampling was performed first to get 90 students, 2) of 90 students who were selected at the beginning, 60 respondents were observed in the next step using a random sampling technique with the use of a computer program. This kind of technique was used to have qual sample size between both groups.

The initial sample was 118 participants, which 58 were assigned in the intervention group and 60 were assigned in the control group. However, 13 participants dropped out in the intervention group, and 11 participants in the control group. Thus, the final sample for further analysis was 47 participants in both groups.

Instruments
The instruments used in this study were the knowledge questionnaire, attitude questionnaire, and perceived usefulness (PU) questionnaire and ease of use (Perceived Ease of Use / PEOU).
1. *Knowledge questionnaire* was compiled based on the modification of the Novieastari et al. (2013) instrument and existing modules. This questionnaire consists of 20 questions in the form of multiple-choices. The correct answer will get a value of 1, and the incorrect one will get a value of 0. The maximum value is 20 and the minimum was 0. The higher the score, the better knowledge that the student has about transcultural nursing.

2. *Attitude questionnaire*, similar with the knowledge questionnaire, the attitude questionnaire compiled based on the modification of the Novieastari et al. (2013) instrument and existing modules. The questionnaire is composed of 25 items using a 4-point Likert scale (strongly disagree, disagree, agree, and strongly agree). The lowest weighted value is 0, and the highest value is 3. The maximum score of the questionnaire is 75 and the minimum is 0. The score close to 75 is considered positive attitude, and the score close to 0 is considered negative attitude.

3. *Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) questionnaire* were adapted from (Handayani, 2017). The original PU and PEOU questionnaires were used to measure the usefulness and ease of use of Facebook, while in this study it was used to measure the usefulness and ease of use of Android-based modules as learning media. The term "Facebook" was only replaced by the term "Android-based module" with no other changes. The PU questionnaire consists of 11 items in terms of favorable using 5-point Likert scale (1= strongly disagree, 2= disagree, 3= neutral, 4= agree, and 5= strongly agree). The total score of PU is 55. While the PEOU questionnaire consists of 11 items including 4 favorable items (Item no 17, 19, 21 and 22), and 7 unfavorable items (Item no 12, 13, 14, 15, 16, 18, and 20). A 5-point Likert scale is used, with favorable scale (strongly disagree = 1, disagree = 2, neutral = 3, agree = 4 and strongly agree = 5), and unfavorable scale (strongly disagree = 5, disagree = 4, neutral = 3, agree = 2 and strongly agree = 1). The weighted value of each dissected answer is given a value of 1 and the highest value is 5. The total score for PEOU is 55. The android-based module is considered useful (PU) if the score is more than or equal to the mean value of 44, and the android-based module is considered easy to use (PEOU) if the score is more than or equal to the median value of 40.

Expert validity was performed for all questionnaires with 3 experts in maternity specialty who understood the curriculum, and had teaching experiences in transcultural nursing for more than 5 years. All questionnaires were considered valid with Content Validity Index (CVI) = 1. A pilot testing was also conducted in 41 students of Nursing Study Program of Aisyiyah Yogyakarta (UNISA) year of 2017 using online format (a google form). The results of the validity test on the knowledge questionnaire using Pearson product moment showed that there were only 20 of 25 items were valid (r_{count} = .317-.540 is greater than r_{table} = .3008), with Cronbach's alpha of .782. While the results of the validity test on the attitude questionnaire using Pearson product moment showed that 25 of 30 items were valid (r_{count} = .383-.758 is greater than r_{table} = .3081), with Cronbach's alpha of .898. For the PU and PEOU questionnaires, its validity and reliability was tested by (Handayani, 2017). Validity test results using Pearson product-moment were valid with r_{count} PU = .366-.6677 and r_{count} PEOU = .325-.635 greater than r_{table} = .227. The reliability test results using Cronbach alpha were declared reliable with alpha PU coefficient = .774 and PEOU = .687.

Intervention
The intervention group was given education using an android-based module while the control group used a printed module. The content in the print module and android-based modules are the same, which consists of 6 materials. Each material has introduction, scenario, material description and problem exercises. All the contents in the printed module and android-based module were made by researchers based on the Indonesian Nursing Education Curriculum (Association of Indonesian Nurse Education Center (AINEC), 2016) (**Table 1**). The content in this module was tested by the experts (similar experts for content validity of the instruments).

After the module contents were declared feasible to be used as a learning medium, the researcher then cooperated with programmers to create an application in the form of an android-based module. Android-based modules were made with attractive designs, each material was designed with different backgrounds. The researcher determined the

criteria for programmers who were invited to work together in making android applications, namely students with information technology educational backgrounds and had experience in following competitions in making android applications.

Table 1 Module contents

No	Module Aspects
1.	Globalization and a transcultural perspective
2.	Diversity in society
3.	Leininger's theory of culture care
4.	Transcultural nursing process
5.	Transcultural nursing applications during pregnancy, childbirth and postpartum
6.	Transcultural application in a variety of patient health problems

Source: Association of Indonesian Nurse Education Center (AINEC) (2016)

Education in both intervention and control groups was carried out for 3 weeks. Both groups were given a reminder message to learn as many as 6 times, which 1 message reminder was sent for each material through the WhatsApp group provided by the researcher. The implementation of the research in the android-based module group as follows: 1) Students were asked to install an android-based module or application called PerKaYa through the link provided by the researcher, www.perkaya.online.com, 2) Students who agreed to take part in the study could click agree on the informed consent page, 3) Students were asked to fill out demographic data questionnaire, knowledge and attitude online questionnaires, 4) Students were included in the WhatsApp group by research assistants, 5) Students received a reminder message to do independent learning through the WhatsApp group, 6) Students learned independently for 3 weeks about transcultural nursing using an android-based module. The material was opened every 3 days, and 7) After all the materials had been studied, students then filled out the post-test questionnaire online, which consists of knowledge, attitude, PU and PEOU.

The implementation of research in the printed-module group, namely: 1) Students who agreed to participate in the study were asked to sign an informed consent sheet, 2) Students filled out paper-based demographic data questionnaire, knowledge and attitude questionnaires, 3) Students were included in the WhatsApp group by research assistants, 4) Students received a reminder message to do independent learning through the WhatsApp group, 5) For 3 weeks students learned independently about transcultural nursing using a printed-module, 6) After all the materials had been studied, students filled in the posttest questionnaire, which consists of knowledge, attitude, PU and PEOU.

Data Collection
Data were collected from September to November 2018 by the researchers and two research assistants. The inclusion criterion of the research assistants was nursing students who completed all course works. All assistants have been given an explanation about the objectives and procedures of the study, and signed a consent form if they were willing to be the research assistants. For the intervention group, the data were collected at the Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada, Yogyakarta on Monday, September 24th, 2018 for pretest, and on Monday, October 22nd, 2018 for posttest. For the control group, the data were collected at the School of Nursing Muhammadiyah University of Yogyakarta on Thursday, October 4th, 2018 for pretest, and on Thursday, November 1st, 2018 for posttest.

Data Analysis
Data were analyzed using descriptive statistics to describe age, gender, ethnicity, religion, and previous sources of information. As data were normally distributed (Saphiro Wilk with $p > .05$),
paired t-test was used to test for differences in knowledge and attitudes of nursing students about transcultural nursing before and after the intervention, and independent t-test was used to compare knowledge and attitudes between the intervention group and the control group.

Ethical Consideration
This research was conducted after obtained an ethical approval from the Ethics Committee of the Faculty of Medicine, Public Health, and UGM Nursing on June 29, 2018, with the number Ref: KE / FK / 0619 / EC / 2018. Prior to data collection, the researcher gave an informed consent to each respondent, and asked them to sign it. The aim and the procedures of the study were clearly explained to the respondents.

RESULTS

Characteristics of the Respondents
The characteristics of the respondents in this study were based on age, gender, religion, ethnicity and other sources used to access transcultural nursing material. Age, religion, and ethnicity were homogeneous in both groups ($p > .05$). Sex and sources of information were significantly different in the two groups ($p < .05$). Although there were significant differences in sex characteristics in both groups, but seen from the percentage, the majority of respondents were female. And although there was a significant difference in the characteristics of the information source, after tested with the regression, information sources were not related to the knowledge and attitude. The majority of respondents in this study were 19 years old, having Islamic religion, female, and Javanese. Most likely the respondents also used other sources to study transcultural nursing materials (**Table 2**).

Comparison of Knowledge and Attitudes of Students About Transcultural Nursing Between the Intervention and Control Group
The average score of the student knowledge about transcultural nursing increased after given intervention in both intervention and control group. The average score of knowledge in the intervention group increased from 9.11 to 11.66. Similar to the control group, the average knowledge score increased from 9.55 to 13.27. While the average score of student attitudes about transcultural nursing did not increase in either intervention or control group. Based on paired t-test, there was a significant effect of android and printed based modules on knowledge of transcultural nursing, but not for the attitudes of transcultural nursing (**Table 3**).

Based on Independent t-test, there was no significant difference in students' knowledge about transcultural nursing in both groups ($p > .05$) after given education. Similar to the knowledge aspect, the attitude aspect was also the same, there was no significant difference in students' attitudes in transcultural nursing in both groups after given education ($p > .05$) (**Table 4**).

Table 2 Characteristics of the Respondents in the Intervention and Control Group

Characteristics of Respondents		Intervention Group		Control Group		Median	p-value
		f	%	f	%	Min-Max	
Age	<19	4	8.5%	7	14.9	19	.568
	≥19	43	91.5%	40	85.1	17-21	
Sex	Male	1	2.1%	8	17.0		.030
	Female	46	97.9%	39	83.0		
Religion	Muslim	43	91.5%	47	100		.117
	Non-Muslim	4	8.5%	0	0.0		
Ethnicity	Java	44	93.6%	38	80.9		.064
	Non-Java	3	6.4%	9	19.1		
Other sources	Yes	41	87.2%	33	70.2		.044
	No	6	12.8%	14	29.8		

Table 3 Comparison of the Knowledge and Attitudes of Students About the Provision of Transcultural Nursing Before and After Intervention

Variable	Pretest		Posttest		Delta Mean	p-value
	n	Mean ± SD	n	Mean ± SD		
Knowledge						
Intervention	47	9.11 ± 2.30	47	11.66 ± 2.88	2.55	.000
Control	47	9.55 ± 2.29	47	13.27± 3.28	3.72	.000
Attitude						
Intervention	47	57.06 ± 7.06	47	57.74 ± 7.94	0.68	.397
Control	47	59.23 ± 6.42	47	59.23 ± 6.85	0.00	1.000

Table 4 Differences in Knowledge and Attitudes of Students About Transcultural Nursing Between the Intervention and Control Group

Variable	Mean ± SD	p-value	CI
Knowledge			
Intervention	2.55 ± 3.68	.130	-2.69-0.35
Control	3.72 ± 3.75		
Attitude			
Intervention	.68 (5.49)	.597	-1.87 – 3.23
Control	.00 (6.87)		

Table 5 Descriptions of Perceived Usefulness and Perceived Ease of Use for Android-based Module as Nursing Transcultural Learning Media

PU and PEOU	Description			
	n	%	Mean ± SD	Median (Min-Max)
Benefit (PU)				
Helpful	46	97.9	44±6.04	43 (31-55)
Useless	1	2.1		
Ease of use (PEOU)				
Easy	43	91.5	40±6.35	40 (30-55)
Not easy	4	8.5		

The majority of respondents thought that the android-based module was considered useful (97.9%) with a mean value of 44, and they also thought that the Android-based module was easy to use (91.5%) with a median value of 40, a minimum value of 30 and a maximum of 55 (**Table 5**).

DISCUSSIONS

Knowledge of Transcultural Nursing
In this study, students' knowledge of transcultural nursing in android-based module group and printed module group increased significantly after given education. There was a significant increase in knowledge before and after given the education using an Android-based module. This result was in line with the research conducted by Golden-Plotnik et al. (2017) which states that there was a significant increase in the knowledge of health workers about providing services to children with fractures after the use of web-based modules seen from the change in the average of the pretest to the posttest average was 12.3 to 14.3 with a value of p = .005. It is indicated that the mobile-based applications have portability characteristics (easy to move, proximity (easy to find information on the internet), and interactivity (easy to connect users with the internet). These conveniences make mobile-based applications

more interactive and responsive than computer-based learning web, so that it leads to more positive learning outcomes (Lee, 2015).

There was also a significant increase in knowledge before and after given education using a printed module. This research was in line with Greenberg (2013) revealed that the printed module could significantly increase students' cultural knowledge seen from changes in the average pretest score to posttest average of 8.6 to 19.94. This result was also in line with Fitzgerald et al. (2018) revealed that the clinically focused pain modules could significantly improve students' knowledge about neurophysiology of pain with a *p*-value < .001.

However, there was no significant difference in knowledge in the two groups after given the education. This finding was similar with Rockinson-Szapkiw et al. (2013) who compared electronic textbooks with traditional textbooks, which the results showed that there were no significant differences in cognitive learning and values between the two groups. These results indicated that providing education with electronic textbooks is as effective as learning using traditional textbooks. It is therefore the printed module and android-based module are equally effective in increasing student knowledge about transcultural nursing.

There are advantages and disadvantages of each of these learning media. The advantages of using mobile learning as learning media are high access, low cost, more located and contextual learning, convenience for students, continuous communication and interaction between students and tutors and between students and other students, and the ability to assess during learning process. However, the disadvantages of mobile learning include inadequate technology, the risk of learning disruptions using devices that can be used for various purposes, and the potential for interference within the boundaries between personal use of mobile devices and professional or educational use (Walsh, 2015).

The advantages of learning media in print are printed material on several topics easily available in a variety of different formats, flexibility, easy to carry from one place to another because it does not require equipment and electricity, and easy to use because it does not require special skills to navigate (Smaldino et al., 2014). According to Karsidi (2018), each learning media has its own strengths and weaknesses, so it is expected that existing media can be developed or collaborated to overcome various limitations.

Attitude of Transcultural Nursing
In this study, students' attitudes about transcultural nursing in both groups was not significantly increased, and there was no significant difference in attitudes in the two groups. This study was in line with a previous study (Jacobs et al., 2018), which showed that there were no significant differences in attitude about Chronic Low Back Pain (CLBK) in the control module and e-learning modules. The results of this study are reinforced by the theory found in the cone of Edgar Dale (1969) (Sanjaya, 2015) which states that the more concrete students learn the subject matter, the more experience gained, and vice versa, if the more abstract students learn the learning material, the less experience gained. The use of more concrete learning media such as direct experience, the message or information provided by educators to students will be conveyed well. (Arsyad, 2016) also states that changes in attitude could occur because of interactions between new and previous experiences. Personal direct experience gives a stronger

influence than indirect experience (Wawan & Dewi, 2014). However, the respondents in this study were students of 2017, which the students did not have experience in treating patients with different cultures.

Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) of Android Based Module as Learning Media
In this study, the average PU value was 44, which shows that almost all respondents agreed that android-based modules were considered useful as learning media for transcultural nursing material. This result was in line with the research of Fralick et al. (2017) which states that most respondents (85%) agreed that the application was useful. Based on the results of the study of Mekic and Ozlen (2014), there are several uses of smartphones, namely increasing the effectiveness of smartphone use, facilitating communication and information services, increasing productivity, improving the use of communication and information services. Overall, the smartphone is beneficial for respondents to use service communication and information.

The usefulness of an android-based module as a learning media was perceived by the respondents during the study, which provided the greater opportunities in accessing material about transcultural nursing and increasing intensity in seeing transcultural nursing material. Android-based modules could improve the effectiveness in accessing material about transcultural nursing. In addition, the median value of PEOU was 40. This shows that almost all respondents agreed that the Android-based module was considered easy to use as a learning media for transcultural nursing. This result was in line with the research of Fralick et al. (2017) revealed that 90% of respondents agreed that the application was easy to use. The ease of use could be seen as the first attempt at understanding the acceptance of smartphone technology, with clear interaction of respondents with smartphones and understandable, flexible, and applicable (Mekic & Ozlen, 2014).

However, there was one of the obstacles experienced by the respondents when using an Android-based module was the slow response of smartphones. Kim et al. (2011) states that there are several factors that affect smartphone performance speed, namely 1) RAM (random access memory) which influences the performance. A greater RAM will provide good performance, and RAM is not only used to run applications but accommodate system applications, 2) CPU (central processing unit) to process all activities on the smartphone. The more applications on the smartphone, the slower the process.

The implication of this study was that the android-based module is a new innovation that can be used as a learning media in increasing the knowledge of nursing students about transcultural nursing. The Android-based modules can make it easier for nursing students to understand the concept of transcultural nursing in the context of maternity nursing based on Leininger's theory.

Limitations
The limitations in this study included were 1) there were differences in the experience of studying transcultural nursing material in both groups. The experience of studying transcultural nursing material in the intervention group was one year before the intervention was given, while in the control group was one week before the intervention, 2) Although the number of respondents in the control group who participated in the pretest was 60 respondents, but there were 13 respondents could not take the posttest, which therefore only 47

respondents could complete the study, or it could be said that the control group was loss of follow up for > 20%, and 3) The selection of intervention groups and control groups was not randomly implemented.

AUTHORS CONTRIBUTION
A.S.S contributed to the study's conception and design, data collection, data analysis, interpretation of data, manuscript writing, and administrative, technical, or material support. **E.D.H** and **W.W** contributed to the conception and design, analysis and interpretation of data, and critical revision of the manuscript.

ORCID
Apriani Susmita Sari: https://orcid.org/0000-0002-1069-5892
Elsi Dwi Hapsari: https://orcid.org/0000-0002-3965-7291
Widyawati: https://orcid.org/0000-0002-7923-1703

REFERENCES

Arsyad, A. . (2016). *Instructional media*. Jakarta: Rajawali Pers.

Association of Indonesian Nurse Education Center (AINEC). (2016). *Indonesian education curriculum 2015*. Jakarta: Association of Indonesian Nurse Education Center

Fitzgerald, Kylie, Fleischmann, Michael, Vaughan, Brett, de Waal, Kevin, Slater, Sarah, & Harbis, John. (2018). Changes in pain knowledge, attitudes and beliefs of osteopathy students after completing a clinically focused pain education module. *Chiropractic & manual therapies, 26*(1), 42. https://doi.org/10.1186/s12998-018-0212-0

Fralick, Michael, Haj, Reem, Hirpara, Dhruvin, Wong, Karen, Muller, Matthew, Matukas, Larissa, . . . Taggart, Linda. (2017). Can a smartphone app improve medical trainees' knowledge of antibiotics? *International Journal of Medical Education, 8*, 416-420. https://doi.org/10.5116/ijme.5a11.8422

Golden-Plotnik, Stevi, Ali, Samina, Drendel, Amy L., Wong, Tammy, Ferlisi, Frank, Todorovich, Sydney, . . . Elsie, Sharlene. (2017). A Web-based module and online video for pain management education for caregivers of children with fractures: A randomized controlled trial. *Canadian Journal of Emergency Medicine*, 1-10. https://doi.org/10.1017/cem.2017.41

Greenberg, Nancy E. (2013). A project to increase faculty's cultural competence in mentoring English as a second language nursing students. *Teaching and Learning in Nursing, 8*(4), 128-135. http://dx.doi.org/10.1016/j.teln.2013.07.003

Handayani, Dwi Sri. (2017). *Pengaruh pendidikan kesehatan menggunakan media facebook dalam meningkatkan pengetahuan remaja wanita tentang premenstrual syndrome (PMS) di SMK Negeri Pedan Klaten [Effects of health education using facebook media in increasing knowledge of young women about premenstrual syndrome in Vocational High School 1 Pedan Klaten]*. (Dissertation), Universitas Gadjah Mada, Yogyakarta, Indonesia.

Jacobs, Zachary G., Elnicki, D. Michael, Perera, Subashan, & Weiner, Debra K. (2018). An E-learning Module on Chronic Low Back Pain in Older Adults: Effect on Medical Resident Attitudes, Confidence, Knowledge, and Clinical Skills. *Pain Medicine, 19*(6), 1112-1120. https://doi.org/10.1093/pm/pnx333

John, Mr Santhosh, & Rani, Mary Shanthi. (2015). Teaching Java Programming on Smartphone-pedagogy and Innovation; Proposal of its Ontology Oriented Implementation. *Procedia-Social and Behavioral Sciences, 176*, 787-794. https://doi.org/10.1016/j.sbspro.2015.01.541

Karsidi, R. (2018). *Innovative learning media and development*. Bandung: Remaja Rosdakarya.

Kim, H., Agrawal, N., & Ungureanu, C. . (2011). Revisiting storage for smartphones. Retrieved from https://static.usenix.org/events/fast/tech/full_papers/Kim.pdf

Lee, Myung Kyung. (2015). Effects of mobile phone-based app learning compared to computer-based web learning on nursing students: pilot randomized controlled trial. *Healthcare informatics research, 21*(2), 125-133. http://dx.doi.org/10.4258/hir.2015.21.2.125ealthc

Lestari, Siti, Widodo, W., & Sumardino, S. (2014). Pendekatan kultural dalam praktek keperawatan profesional di Rumah Sakit Internasional Jogja [Cultural approach in professional nursing practice at Jogja International Hospital]. *Jurnal Kesehatan Kusuma Husada, 5*(1).

Mekic, E., & Ozlen, M.K. . (2014). Acceptance of Smartphones by Users in BiH Through Extended Technology Acceptance Model. *European Researcher, 67*(1-2). https://doi.org/10.13187/issn.2219-8229

Morton, Patricia Gonce. (2005). *Davis's clinical guide to health assessment (S. Kurnianingsih, Trans.)*. Jakarta: EGC.

Novieastari, E., Azwar, A., Irawaty, D., & Sudarti. (2013). Cultural Competence of Nurses in Providing Culturally Sensitive Nursing Care For Diabetic Patients At Fatmawati Hospital Jakarta. *World Applied Science Journal, 28*(8), 1037-1041.

Ochs, Jessica H. (2017). Online or in-class: Evaluating an alternative online pedagogy for teaching transcultural nursing. *Journal of Nursing Education, 56*(6), 368-372. https://doi.org/10.3928/01484834-20170518-10

Pratiwi, A. (2011). *Textbook on transcultural nursing*. Yogyakarta: Gosyen Publishing.

Purnomo, Agus, Ratnawati, Nurul, & Aristin, Nevy Farista. (2017). Pengembangan pembelajaran blended learning pada generasi Z [Development of blended learning in generation Z]. *Jurnal Teori dan Praksis Pembelajaran IPS, 1*(1), 70-76.

Rockinson-Szapkiw, Amanda J., Courduff, Jennifer, Carter, Kimberly, & Bennett, David. (2013). Electronic versus traditional print textbooks: A comparison study on the influence of university students' learning. *Computers & Education, 63*, 259-266. http://dx.doi.org/10.1016/j.compedu.2012.11.022

Sanjaya, W. (2015). *Learning system planning & design*. Jakarta: Prenadamedia group.

Smaldino, S.E., Lowther, D.L., & Russell, J.D. (2014). *Instructional technology & media for learning (A. Rahman, Trans.)*. Jakarta: Kencana.

Walsh, Kieran. (2015). Mobile learning in medical education. *Ethiopian Journal of Health Sciences, 25*(4), 363-366. http://dx.doi.org/10.4314/ejhs.v25i4.10

Wawan, A., & Dewi, M. (2014). *Theory & measurement of knowledge, attitudes, and human behavior*. Yogyakarta: Nuha Medika.

BNJ | BELITUNG NURSING JOURNAL

ORIGINAL RESEARCH

BONDING AND ATTACHMENT EXPERIENCE AMONG POSTNATAL MOTHERS WITH SPONTANEOUS CHILDBIRTH

Fauziah H. Wada[1], Yayi Suryo Prabandari[2], Elsi Dwi Hapsari[3*]

[1]Sekolah Tinggi Ilmu Kesehatan (STIKes) Bani Saleh, Bekasi, Indonesia
[2]Department of Behavioral Sciences, Environmental Health and Social Medicine, Faculty of Medicine, Public Health and Nursing, Gadjah Mada University, Indonesia
[3]Department of Pediatric and Maternity Nursing, Faculty of Medicine, Public Health and Nursing, Gadjah Mada University, Indonesia

*Correspondence:
Elsi Dwi Hapsari, M.S., D.S
Department of Pediatric and Maternity Nursing, Faculty of Medicine, Public Health and Nursing, Gadjah Mada University
Jalan Farmako Sekip Utara Yogyakarta
Indonesia 55281
Email: elsidhapsari2@gmail.com

Abstract

Background: Bonding is an emotional bond between a mother and a baby that develops gradually after birth until it is formed into an attachment. Bonding is considered important to ensure the baby's protection. However, bonding remains challenging for mothers with spontaneous childbirth because they are most likely to focus on themselves.

Objective: To explore the bonding and attachment experience among postpartum mothers with spontaneous childbirth.

Methods: This was a qualitative study with a phenomenological approach. Data were collected from nine participants using semi-structured interviews and observations. Data were analyzed using Colaizzi's analysis method.

Results: Five themes emerged, namely 1) feeling relieved and happy with the birth of the baby, 2) bonding and attachments are important, 3) stimulating the baby's sense, 4) the need of social supports in bonding and attachment, and 5) internal and external factors of bonding and attachment.

Conclusion: Bonding and attachment are very important that should be done by the mothers to the baby. However, it takes time and needs the supports from the husbands, parents, relatives, and health workers. Therefore, nurses or midwives should pay attention to this process to create the better bonding and attachment between the mothers and the babies.

KEYWORDS
female; infant; mothers; midwifery; postpartum period; social support; attention

BACKGROUND

Postpartum period, often called postpartum or puerperium, is the time when the baby is born and the placenta comes out from the uterus, until the next six weeks, accompanied by the recovery of organs related to the womb, which undergo changes such as injuries and others related with during childbirth (Suherni et al., 2009). The postpartum period is a challenging time for mothers because caring for babies requires constant attention (Nonnenmacher et al., 2016). In the first minutes until a few hours after the birth of the baby, there is touch or skin contact between the mother and the baby that can trigger bonding (Sulistyawati, 2009). Bonding is described as an emotional bond between the mother and her baby that develops gradually and immediately after birth until it is formed into an attachment. Bonding and attachment ensure protection and maintains a newborn baby, which is very relevant to build a relationship between mother and baby (Nonnenmacher et al., 2016).

The development of bonding and attachment between mother and fetus is very important because it can positively influence maternal health practices during pregnancy to the outcome of childbirth (Alhusen et al., 2012). In addition, mothers with higher bonding reported that they have better attachment and their children showed better development than mothers with lower bonding (Alhusen et al., 2012). There are many benefits will be obtained if the mother does bonding and attachment to her baby as soon as possible after the birth process, including being able to develop a relationship between mother and baby in the future, and assisting in achieving the role of parents (Marmi, 2017; Nugroho, 2014). Johnson (2013) observed that the quality of bonding and attachments in newborns during the first hours of life significantly affects the mental health of the mother and the well-being of the newborn, as well as their development and adaptation throughout life. Therefore, these mothers must be given supports to ensure that they have sufficient bonding with their babies. Nurses must implement

strategies that support bonding between mothers and newborns while providing special care in the treatment room (Kearvell & Grant, 2010; Obeidat et al., 2009), especially when the mother goes through the childbirth process spontaneously. Spontaneous childbirth will lead to muscle contraction and severe pain, which mothers are most likely to focus on themselves without thinking about the newborn (Jones, 2002).

Based on the first survey at Panembahan Senopati Bantul Yogyakarta General Hospital in 2017, it was revealed that in 8 out of 10 postnatal mothers still did not understand about bonding and attachment, 5 mothers were confused about who should help and enhance good bonding for babies. In addition, it was found that the implementation of care in Panembahan Senopati General Hospital Bantul Yogyakarta was still not optimal. Both nurses and midwives were still giving formula milk to infant although the mothers of the babies were still able to give their breast milks through pumping. Additionally, nurses or midwives in the treatment room were rarely pay attention to the needs of postpartum mothers and infants in fulfilling bonding and attachments. Given this phenomenon, the aim of this study was to explore the bonding and attachment experience among postpartum mothers with spontaneous childbirth.

METHODS
Study Design
This study used a qualitative research with a phenomenological approach.

Participants
Nine participants were selected in this study using a purposive sampling. Participants were selected based on inclusion criteria, including: 1) postpartum mothers with spontaneous childbirth, both primiparous and multiparous, who were willing to be participants, 2) could speak *Bahasa Indonesia* fluently, 3) postpartum mothers on the first day after spontaneous childbirth, 4) healthy condition (could mobilize and have light activities), and 5) those who were "rooming in" (take care together) with their babies. The exclusion criteria were 1) postpartum mothers who experienced postpartum depression, 2) mothers with dead babies, 3) having complications, such as preeclampsia or eclampsia, hemorrhage, postpartum infection, and other complications.

Data Collection
This study was conducted at Panembahan Senopati Bantul Hospital, Yogyakarta, from October to November 2018. Data were collected using semi-structured interviews and observations in Alamanda III Ward. Semi-structured interview was performed using three core questions and probing in each of the questions (See **Table 1**). The interviews were carried out by the researchers in approximately 25 minutes, and observations were conducted approximately 60 minutes, which were carried out by researchers and research assistants more than twice in each participant. There was a recording device (MP3 audio player) which was used to record all conversations or interviews. In addition, field notes, reflective journals and related documents were used for data exploration.

Table 1 Interview questions

---

1. Do you know about bonding and attachments?
    Probing:
    a. Have you ever heard of bonding and attachment before? From whom? When?
    b. What do you know about bonding and attachments, such as definitions, goals, and benefits of them?
    c. What do you think of the factors of the bonding and attachment?
    d. Do you think that there are things that affect the bonding and attachment that are not appropriate for your current condition?
    e. What about your current condition? are there any obstacles when giving a bonding and attachment to a baby?
    f. What do you think about bonding and attachment? how important is the bond of love between mother and baby?
2. Did you know how to give a bonding attachment?
    Probing:
    a. Acquaintance
        1) How did you feel when you first saw and got to know your baby?
        2) How did you feel when you first touched your baby?
        3) How did you feel when you heard your baby's voice?
        4) How did you feel when you first communicated with your baby?
        5) How did you feel when you knew that you already had a baby?
    b. Bonding
        1) How do you describe your relationship with your baby?
        2) How far do you know your baby?
    c. Attachment
        1) How did you feel if you were separated from your baby when a baby was being treated specifically because of illness?
        2) What will you do if you are separated from your baby?
        3) What will you do when your baby is awake and fussy at night while you are resting?
        4) What is your husband's role in caring for a baby, especially at night?
3. How do you provide bonding and attachment to your baby?
    Probing:
    a. Touch
        1) What did you do when carrying your baby?
        2) What did you do after the baby finishes breastfeeding?

Table 1 Interview questions (Cont.)

      3) How did you feel when holding your baby?

      4) How did you act when your baby is crying?

      5) How did you change your baby's diaper when defecating?

      6) What did you do when your baby sleeps? Did you accompany and look after your baby?

   b. Eye contact

      1) How did you feel when you see your baby was breastfeeding?

      2) When you saw your baby, did you often equate the baby's resemblance to yours?

   c. Sound

      1) How did you make your baby sleeps? did you do certain activities such as singing songs?

      2) How did you play with your baby to make the baby laugh?

      3) How did you ask the baby to communicate?

   d. Body scent

      1) What did you do with your baby?

      2) What kind of feelings did you feel when you smell your baby's body?

   e. Entrainment

      1) How did your baby's response when you invited to speak?

      2) How did your baby react when she/he was not able to reach the mother's nipple while breastfeeding?

      3) How was the baby's response when you were giving breastfeeding?

   f. Biorhythms

      1) During pregnancy, did you want to see the baby immediately?

      2) What is your position when breastfeeding? Could you tell me?

      3) How was the response when the baby was first embraced by you?

Data Analysis

Colaizzi's methods were used for data analysis (Speziale et al., 2011), namely: 1) Describing the phenomenon of the study by conducting literature review to get conceptual descriptions and enrich information about bonding and attachment for mothers who experienced spontaneous childbirth, 2) Collecting descriptions of phenomena through the opinions of participants using semi-structured interviews with participants and field notes during the interview process to get a description of the research concept. All interview conversations were transcribed verbatim, 3) Reading all transcripts of the descriptions of the phenomena that have been conveyed by the participants related to the bonding and attachment, 4) Re-reading the transcripts of the interview results and quote meaningful statements used as key words related to the specific objectives of the study, 5) Describing the meanings in significant statements or keywords, and trying to find the meaning of these keywords to form a category, 6) Organizing collections of meanings into theme groups by reading all the existing categories, comparing similarities and differences that existed between the categories, and classifying similar categories into sub themes and themes, and 7) Writing a complete description and compiling the themes.

Trustworthiness

Member-checking was used to ensure the trustworthiness in this study. Audit trail was also performed by a supervisor to ensure the validity of the research process.

Ethical Consideration

This study has been approved by the Ethics Committee of Faculty of Medicine, Public Health and Nursing, Gadjah Mada University on 6 August 2018, with approval number: KE / FK / 0819 / EC / 2018. We assure that all participants have obtained an appropriate informed consent.

RESULTS

The themes found in this study were 1) feeling relieved and happy with the birth of the baby, 2) bonding and attachments are important, 3) efforts to improve bonding attachments through the sense of hearing, vision, touching, and tasting in babies, 4) strong social supports in giving bonding attachments to babies, 5) internal and external factors of bonding and attachments. Each theme is explained in the following descriptions:

Theme 1: Feeling Relieved and Happy with the Birth of the Baby

This theme explains about the participants who felt very relieved and happy with the birth of their babies. Some said they were happy to get new friends and the pain they felt immediately disappeared when they saw the baby and the husband who had been waiting for a long time. Other participants also said that they were very happy with their baby's presence especially because the baby was similar to the face of the participant and the baby's gender was as expected. There are 3 subthemes described in the following:

Subtheme 1: Feeling relieved with the birth of a babies

Participants expressed their feelings of calm and relief because the baby has been born safely without any shortcomings or certain problems. The happiness that is felt by the participants with good bonding and attachment is expressed in the following statement:

> "...I felt very touched, I almost cried. If babies cried, it meant the baby was safe. So, hearing the baby cried right after birth, it felt amazing..." (P7Q2c)

The happiness is also felt by the participants with the less bonding and attachment, which is expressed in the following statement:

"...Relieved (while smiling)... the important thing that the baby is here... happy to see the baby safe. It's very happy (while showing their happy expression to the baby)..." (P2Q2a)

Subtheme 2: Finally, I could hear my baby's voice
After long waiting, finally the participants were very happy with the birth of their children as illustrated by the following participant statement with good bonding and attachment:

"…Feeling happy, finally I could hear his voice. Alhamdulillah. During pregnancy I often talked with my babies, like a crazy person who talked with my own stomach (while laughing)..." (P3Q2c)

And the participant with the less bonding and attachment expressed in the following statement:

"...I really loved it, until I cried. The problem was yesterday that I was waiting to get pregnant too long. And after 16 months I finally got a pregnant, I was really happy..." (P1Q2f)

Subtheme 3: The child was born as expected
The participants were very happy and satisfied with the presence of the babies and their expectations, especially about the babies' faces and genders. Participant said:

"...Yes, the baby looks like me (with happy reaction), not like his father. So happy..." (P1Q3k)

However, although some participants had baby boys instead of baby girls they expected, they were still very happy. Participant said:

"...I am happy, especially when I get a baby girl. So, it is complete actually, with both boy and girl...Alhamdulillah, even though a baby boy, not a baby girl, I still thank God..." (P8Q2b)

Theme 2: Bonding and Attachments are Very Important

All participants agreed that bonding and attachments are indeed very important for the good of their own babies to the baby. There are 3 subthemes described in the following:

Subtheme 1: Bonding and attachment can't be described by words
From the results of interviews conducted with the participants, it was found that bonding and attachment are given in the form of attention and affection. A participant with good bonding and attachment express:

"...Well, it can't be described by words, it is like a very close relationship between me and the baby... " (P9Q1b)

A participant with less bonding attachment also revealed a similar thing:

"...The love between mother and child is like...more than anything. It's because it has been difficult to be born..how painful it is. The baby's weight is 2,600 gr, but the pain is just like the previous child. Basically, both need a struggle...." (P2Q1a)

Subtheme 2: Bonding and attachment are really important
The participants revealed that bonding and attachment were something very important that must be given to the baby and agreed that all parents would definitely say the same thing, which can be seen in the following statement from a participant with good bonding attachment:

"...Oh, it's very important, really. I'm sure all parents who want children will say the same thing like me..." (P3Q1g)

A participant with less bonding and attachment also revealed the same thing:

"...Really important, no one can say like that (while smiling)..." (P6Q1o)

Subtheme 3: Be ready to be a mother
Participants with less bonding attachment said that, in providing bonding and attachment, a readiness greatly affects them although there are still many other influencing factors. Less readiness would not make the bonding and attachment work properly. Participant said:

"...What is it? (showing an expression of thinking)... maybe from our own readiness, are we ready to be a mother?..." (P4Q1f)

Participants with good bonding attachment revealed that they were ready and braved touching and caring for the babies, as expressed by one participant:

"...I was not afraid and nervous at all, but my husband was scared. He said he was afraid of the baby falls..." (P3Q3d)

Theme 3: Stimulating the Baby's Senses

The participants most likely take initiatives to provide stimulation of the baby's senses of hear, see, touch, and taste in various ways that aim to strengthen bonding and attachment. There are 2 subthemes described in the following:

Subtheme 1: Stimulating the baby's senses of hear and see
During postpartum period, the participants with good bonding attachment said that they were happy because when they invited the baby to communicate, sometimes the baby might understand what they said. This is explained in the following statement:

"...How happy I am with my baby. He is like a pious child; I will keep him healthy... Finally, we can play together..." (P3Q3m)
"...He is like listening, then following the direction of my voice, like he understands..." (P5Q3o)

The statement is also expressed by participants with less bonding and attachment:

"...Yeah, at least I'm just talking like this (while practicing how to communicate with the baby, making sounds right above the baby's face)..." (P2Q3m)

Subtheme 2: Stimulating the baby's senses of touch and taste
In addition to communicate with the baby, the participants explained many things they had done with their baby, starting from caring, giving breast milk, and holding babies, all aiming for the baby to get maximum care from the participants or the closest person. This is explained by the participants with good attachment in the following statement:

"...I usually hug him, and breastfeed him..." (P7Q2j)
"...Yes, I carry him, and pat the baby's back. Or breastfeed him..." (P9Q3d)

A similar statement was also expressed by the participants with less attachment:

"...Breastfeeding, carrying, bathing, changing diapers, and inviting the baby to chat. That's all..." (P1Q3)

"...I usually breastfeed and stroke my baby's back while humming slowly..." (P2Q3k)

Theme 4: The Need of Social Supports in Bonding and Attachment

There was the existence of strong social support from husbands, parents, families, closest people, and health workers who were given to postpartum mothers to achieve good bonding and attachment with the babies. In this theme, the statements from the participants with good bonding and attachment are more dominant than those with less bonding and attachment. There are 3 subthemes described in the following:

Subtheme 1: Husband support
Participants stated that the husband's support is the most important. It may include forbidding hard work, avoiding being exhausted, taking vitamins, and always be with them. The participants with good bonding and attachment said:

"...I got the supports from my husband. He said not to work hard, and not to be exhausted too..." (P3Q1d)

A participant with less bonding and attachment also said:

"...Oh yeah, my husband supports me like I have to take vitamins, not to work a lot. I have to think about the baby first, and not allowed to be too energetic..." (P1Q1f)

Subtheme 2: Family support
The family member also provide support, such as accompanying during childbirth, helping and caring for the baby, cleaning the babies' diaper, and calming the baby. It is explained by the participants with less bonding and attachment:

"...Last night, I was accompanied by my husband, mother-in-law, and my mother. But after giving birth, my mother accompanied me, because I was afraid to be alone (while laughing), and my husband was afraid that he would cry in front of the delivery room..." (P1Q2e)

The same statement was also expressed by the participants with good bonding and attachment:

"...I got the support from my family, usually my father and father-in-law. It is because my mother has passed away, so they supported me in terms of economy and love. So, the bond between the family members is still good, as we are still living in the mountains area.. the village (while laughing)..." (P8Q1i)

Subtheme 3: Support from health workers
Participants stated that there was also supports from health workers and other sources that greatly helped them in providing a good care to their babies, such as teaching breastfeeding methods and positions, and helping to clean the babies. The participants with good bonding and attachment said:

"...Your hands should be like this (showing the baby's head on her elbow, and the palm of her hand to the baby's buttock). Then the baby is attached to the chest, and enter the part of it. If possible, you can enter all, so that later the baby won't bite the nipples. When the baby sucks, there should no loud noises. When sitting on, do not

hang the feet, because later it can swell. The nurse taught me immediately after giving birth, I still remember (smiling)..."*(P9Q3rs)

The same thing was also expressed by the participant with less bonding and attachment. They also received the same support from health workers in the care unit, as quoted in the following statement:

"...The midwife taught me, because initially I only used pillow and my position was wrong, but after being taught I can do it (while demonstrating the correct way of breastfeeding and position)..." (P1Q3u)

Theme 5: Internal and External Factors of Bonding and Attachments

This theme describes the internal and external factors that prevent postpartum mothers from giving bonding and attachment to babies. Internal factors include lack of knowledge and excessive worry, while external factor includes lack of support from the closest persons. There are 4 subthemes described in the following:

Subtheme 1: Feeling anxiety and afraid of caring the baby
During postpartum period, a participant had difficulty to sleep because she had to take care of the baby. The other participants also felt anxiety when their babies were difficult to calm, and they were still afraid to carry the babies because of afraid of falling down. A participant with good bonding and attachment expresses:

"...when the baby was crying, I was panic because it is hard to calm down. Luckily, when the baby was able to breastfeed, she could be calm again..."(P3Q3u)

A similar statement was also said by the participant with less bonding and attachment:

"...It feels different, not like yesterday. Now I have a baby and take care of her, I can't sleep well anymore..." (P6Q2e)

Subtheme 2: Low breast milk supply
Another concern by the participants was breast milk has not been smoothly released, which affected the condition of the babies. It is explained in the following statement:

"...The breast milk is not really smooth, so it is sometimes too bad for the baby. I am afraid he is thirsty then his body will be yellow again. When my first child had a problem in breastfeeding, he was in yellow, So I was traumatized, how pity he was.. he had to be in the incubator, shining by the lamp. It's really sad to see..."(P8Q1L)

A participant with less bonding and attachment expressed the same problem, as in the following quote:

"...The baby wants to breastfeed, but my breast milk is not smooth..." (P4Q3b)

Subtheme 3: Lack of knowledge related to baby care in postpartum mothers
The participants with less bonding and attachment still did not understand the correct breastfeeding positions, especially the right position of breastfeeding in a sleeping position. It is explained in the following:

"...My mother said that not to lie down because the baby will be overtaken by the breast, so I must sit and my hands hold the baby's butt (while practicing the way in breastfeeding that she knows).." (P6Q3u)

Subtheme 4: Lack of support from the closest persons
The lack of support from husbands and families is the external factor of bonding and attachment in this study, as expressed by the participants in the following statement:

"...Yeah, the husband is just acting normally because this is the third child. But he acted differently with caring so much for the first child (with a smile)..." (P4Q1h)

DISCUSSION

A study of Nilsson et al. (2013) found that mothers feel so happy when they are able to give birth to children normally, so that it is an incomparable experience. An indescribable feeling of happiness occurs when the baby comes out and the pain disappears. Postpartum mothers also describe unbelievable feeling that they have given birth. They never thought that they could do it and this brought a feeling of pleasure and relief. This is in line with the results of this study, which postpartum mothers expressed relief after childbirth and the baby was born safely. They also revealed that after seeing the baby all the pain during childbirth was gone and replaced by the feeling of happiness.

Javadifar et al. (2016) revealed that married couples who get children according to their expectations both in terms of face and gender feel very happy and thankful. This is in line with this study that postpartum mothers felt happy with the birth of their children whose faces are similar to theirs and the genders of the children are the same as what they expected. According to Fancourt and Perkins (2018), bonding is an important strategy for human survival. Bonding between mother and baby is not only when the fetus is still in the womb but also when the mother and baby in the postpartum period and throughout the life span with various psychological, biological, and behavioral responses. The results of this study were also in line with that statement, which postpartum mothers always gave great love to their babies, such as feeling more affection than others, always paying attention to babies for all things, and trying to always understand the baby's needs both psychologically and biologically. All of those were even expressed by the postpartum mothers since the babies were still in the womb. It is because the mothers always want the best for the babies.

In addition, rooming-in or joining the mother and baby after giving birth will lead to affection, love, and warmth between the mother and the baby. Rooming-in also encourages a mother to be able to provide breast milk, touch and care for the baby. When mothers and babies are at home, mothers can take care and give breast milk properly and correctly (Girsang, 2016). In line with the results of this study, postpartum mothers with rooming-in acknowledged the emergence of love, affection and courage in caring for the babies like bathing, changing diapers, calming, and giving breast milk to the baby. Although it is still in the learning process, all postpartum mothers always try to do the best for their children.

Filippa et al. (2017) revealed that the mother's voice has the potential to be a source of rich stimulation for the babies. Providing the mother's voice, while still as a fetus, will develop the complex sensory experiences felt by babies after giving birth. Persico et al. (2017) also added that mothers who sing lullabies can increase the bonding. It can also have a positive effect on neonatal behavior and stress on the mother. This is in line with the results of this study that postpartum mothers often invited their babies to communicate at any time, and all of them in this study also said that they had begun to invite the babies to communicate since they were still in the womb. After the babies were born, they were still continue inviting the baby to communicate in various ways.

Sulistyawati and Nugraheny (2010) stated that bonding and attachments are the initial touch or skin contact between the mother and baby in the first minutes until several hours after the birth. This however will determine the child's growth and development to be optimal. Utami (2008) added that a newborn baby has many abilities, like to smell, feel, hear and see. Their skin is also very sensitive to temperature as well as sensitive to be touched during the first hour in regards to study their new world. According to Ardiel and Rankin (2010), sensory stimulation, such as touching, can change many aspects of development in babies. Although it looks simple, however, the benefits for the future of the child cannot be denied, such as making the baby calm. In line with this, all postpartum mothers tried to touch their babies, like stroking, holding, and hugging the baby. These activities are initiatives of the postpartum mothers in response to the sensory stimulation of the babies.

Additionally, the process of bonding and attachments, according to the results of this study, should have the supports not only from the husbands, but also from the closest persons such as parents, family, health workers and neighbors. These supports will make the mothers feel comfortable because they know that the people around them will always help in various ways. Some participants revealed that they always get good supports from their husbands such as accompanying them at the hospital. However, the roles and supports of the husbands were very prominent in all postpartum mothers' statements. A study conducted by Story et al. (2012) revealed that the husband support to their wives can be categorized as emotional support, instrument support, information support, and assessment support. Haryono and Setianingsih (2014) also said that the postpartum mothers need support from family and health workers, but the support that is most expected is from the husband. This is because the husband is the main family and the closest person.

Supports from parents, families or relatives are also very helpful for postpartum mothers. It is because parents are always there to accompany them before, during, and after giving birth. However, family has the opportunity to assist and provide support by giving a sense of security, accepting the situation as it is, not blaming what happened, and being sincere (Girsang, 2016). In addition, Mulyani et al. (2016) said that health workers (midwives, nurses, doctors) are the first persons that help postpartum mothers in health services or hospitals. Their supports are likely related to providing assistance in exclusive breastfeeding, teaching how to breastfeed properly, and helping if there are difficulties in providing breastfeeding and care for the babies. This is in line with the participant's statements, saying that the officers in the unit always help them in providing the best care for their babies. The social support from health workers in the form of midwifery assessments and interventions, has the potential to increase

maternal acceptance of the outcome of the childbirth (Bogossian, 2007). Accordingly, Marmi (2017) stated that the lack of support system, such as lack of support from the closest people i.e. husband and family, will be an obstacle in the provision of bonding and attachments. In line with the results of this study, the postpartum mothers revealed the external factor such as a lack of support provided by their husbands because they were busier with work as well as parents who were less helpful. Thus, it can be the obstacles in giving affection to the babies, as they will feel fatigue doing all things without any assistance, which may lead the development of the babies.

CONCLUSION

Bonding and attachment are very important things that must be given by the mother to the baby, in the form of love and attention. Those who get the good supports from the closest persons had a good bonding and attachment to the babies, and felt satisfied with their new roles as mothers. It is therefore suggested for health workers, especially nurses, to provide information regarding the importance of bonding and attachment in in postpartum mothers. So that the attachment, affection, and acceptance of the postpartum mothers psychologically with their babies will be more optimal.

ORCID
Fauziah H. Wada: https://orcid.org/0000-0001-8369-392X
Yayi Suryo Prabandari: https://orcid.org/0000-0003-3543-3765
Elsi Dwi Hapsari: https://orcid.org/0000-0002-3965-7291

REFERENCES

Alhusen, J. L., Gross, D., Hayat, M. J., Woods, A. B., & Sharps, P. W. (2012). The influence of maternal-fetal attachment and health practices on neonatal outcomes in low-income, urban women. *Research in Nursing & Health, 35*(2), 112-120. https://doi.org/10.1002/nur.21464

Ardiel, E. L., & Rankin, C. H. (2010). The importance of touch in development. *Paediatrics & Child Health, 15*(3), 153-156. https://doi.org/10.1093/pch/15.3.153

Bogossian, F. E. (2007). Social support: proposing a conceptual model for application to midwifery practice. *Women and Birth, 20*(4), 169-173. https://doi.org/10.1016/j.wombi.2007.08.003

Fancourt, D., & Perkins, R. (2018). The effects of mother–infant singing on emotional closeness, affect, anxiety, and stress hormones. *Music & Science, 1*, 2059204317745746. https://doi.org/10.1177/20592043 17745746

Filippa, M., Kuhn, P., & Westrup, B. (2017). *Early vocal contact and preterm infant brain development*. Cham, Switzerland: Springer International Publishing.

Girsang, B. M. (2016). Pengaruh rawat gabung terhadap bounding attachment pada ibu dan bayi [The effect of joint nursing care on the bounding attachment in mothers and infants]. *Jurnal Keperawatan Sriwijaya, 3*(1), 19-29.

Haryono, R., & Setianingsih, S. (2014). *Manfaat ASI eksklusif untuk buah hati [The benefits of exclusive breastfeeding for the baby]*. Yogyakarta: Gosyen Publishing.

Javadifar, N., Majlesi, F., Nikbakht, A., Nedjat, S., & Montazeri, A. (2016). Journey to motherhood in the first year after child birth. *Journal of Family & Reproductive Health, 10*(3), 146-153.

Johnson, K. (2013). Maternal-infant bonding: A review of literature. *International Journal of Childbirth Education, 28*(3), 17-22.

Jones, L. (2002). *Basics of obstetrics and gynecology* Jakarta: Hippocratic.

Kearvell, H., & Grant, J. (2010). Getting connected: How nurses can support mother/infant attachment in the neonatal intensive care unit. *Australian Journal of Advanced Nursing, The, 27*(3), 75-82.

Marmi. (2017). *Asuhan kebidanan pada masa antenatal [Midwifery care during puerperium]*. Yogyakarta: Pustaka Pelajar.

Mulyani, S., Erindra, B. C., & Soetrisno. (2016). Dukungan petugas kesehatan dengan model pendampingan terhadap pemberian asi eksklusif [Support of health workers with a mentoring model for exclusive breastfeeding]. *Jurnal Placentum, 4*(2).

Nilsson, L., Thorsell, T., Hertfelt Wahn, E., & Ekström, A. (2013). Factors influencing positive birth experiences of first-time mothers. *Nursing Research and Practice, 2013*. https://doi.org/10.1155/2013/349124

Nonnenmacher, N., Noe, D., Ehrenthal, J. C., & Reck, C. (2016). Postpartum bonding: The impact of maternal depression and adult attachment style. *Archives of Women's Mental Health, 19*(5), 927-935. https://doi.org/10.1007/s00737-016-0648-y

Nugroho, T. (2014). *Buku ajar asuhan kebidanan nifas 3 [A teaching book of midwifery care and postpartum]*. Yogyakarta: Nuha Medika.

Obeidat, H. M., Bond, E. A., & Callister, L. C. (2009). The parental experience of having an infant in the newborn intensive care unit. *The Journal of Perinatal Education, 18*(3), 23-29. https://doi.org/10.1624/105812409x461199

Persico, G., Antolini, L., Vergani, P., Costantini, W., Nardi, M. T., & Bellotti, L. (2017). Maternal singing of lullabies during pregnancy and after birth: Effects on mother–infant bonding and on newborns' behaviour. Concurrent Cohort Study. *Women and Birth, 30*(4), e214-e220. https://doi.org/10.1016/j.wombi.2017.01.007

Speziale, H. S., Streubert, H. J., & Carpenter, D. R. (2011). *Qualitative research in nursing: Advancing the humanistic imperative* (5th ed.): Lippincott Williams & Wilkins.

Story, W. T., Burgard, S. A., Lori, J. R., Taleb, F., Ali, N. A., & Hoque, D. E. (2012). Husbands' involvement in delivery care utilization in rural Bangladesh: A qualitative study. *BMC Pregnancy and Childbirth, 12*(1), 28. https://doi.org/10.1186/1471-2393-12-28

Suherni, Widyasih, H., & Rahmawati, A. (2009). *Perawatan masa nifas [Postpartum care]* (4th ed.). Yogyakarta: Fitramaya.

Sulistyawati, A. (2009). *Buku ajar: Asuhan kebidanan pada ibu nifas [Teaching book: Midwifery care for postpartum mothers]*. Yogyakarta: Andi Offset.

Sulistyawati, A., & Nugraheny, E. (2010). *Asuhan kebidanan pada ibu bersalin [Midwifery care for maternity]*. Jakarta: Salemba.

Utami. (2008). *Creative games sharpening logical-mathematical intelligence*. Bandung: PT Karya Kita.

BNJ BELITUNG NURSING JOURNAL

ORIGINAL RESEARCH

THE EFFECT OF ORAL CARE INTERVENTION ON ORAL HEALTH STATUS OF INTUBATED PATIENTS IN THE INTENSIVE CARE UNIT

Diah Tika Anggraeni[1*], Ayu Trisna Hayati[2], Aan Nur'aeni[3]

[1]Faculty of Health Science, Universitas Pembangunan Nasional "Veteran" Jakarta, Indonesia
[2]Faculty of Dentistry, Padjadajaran University, West Java, Indonesia
[3]Faculty of Nursing, Padjadjaran University, West Java, Indonesia

*Correspondence:
Ns. Diah Tika Anggraeni, S.Kep., M.Kep
Faculty of Health Science, Universitas Pembangunan Nasional "Veteran" Jakarta
Jl.Raya Limo, Depok, Jawa Barat 16515
Cell: +6289607939075
Email: diahtika@upnvj.ac.id

Abstract
Background: Oral infections can be a potential source of infection resulting in a variety of systemic diseases, especially in intubated patients in an Intensive Care Unit (ICU). Endotracheal tube (ETT) of the intubated patient's mouth can be an entry point and place of bacteria colonization that causes ventilator-associated pneumonia which is one of the causes of the patient's death in ICU. Nurses as caregivers have an important role in providing oral care intervention to maintain oral health and prevent the infection.
Objective: This study aimed to analyze the effect of oral care intervention on oral health status of intubated patients in the ICU.
Methods: This was a pre-experimental study with one group pre-test post-test design. A consecutive sampling was used to select 18 intubated patients in the ICU of Al Islam hospital in Bandung. Oral health status was evaluated by Beck Oral Assessment Scale (BOAS). Descriptive analysis was used for the univariate analysis and t-test was used for bivariate analysis.
Results: The results showed that oral health scores before and after intervention were 11.94 and 13.28 (p=.004). The BOAS subscales had a significant worsening of the lips, gingiva, oral mucosa and saliva (p<.05), while there was an improvement in teeth subscale after oral care intervention (p<.001).
Conclusion: The results suggested that the oral health status of intubated patients had worsened, despite routinely oral care intervention using chlorhexidine gluconate. Mucosa care may become an essential part of the oral care intervention for intubated patients. Therefore, additional topical agent is needed to maintain the moisture of the mucosal membrane, so that the oral health status of intubated patients will be better.

KEYWORDS
intensive care units; chlorhexidine; pneumonia; ventilator associated; intubation; oral health

INTRODUCTION

Oral health is an integral part of human's health body. Arigbede et al. (2012) stated that chronic infections of the oral cavity can be a potential source of infection resulting in various systemic diseases. Azarpazhooh and Leake (2006) added that the aspiration of pathogenic bacteria in the oral cavity can cause pneumonia, especially in patients in the ICU. This pneumonia is a major cause of patient morbidity and mortality in the ICU (Chastre & Fagon, 2002; Hingston et al., 2010).

Patients in the ICU are critical patients who experience acute failure of one or more vital organs that life-threatening (University of California Davis Health System, 2009). Various tools and monitoring are given to maintain the function of the patient's body, especially the mechanical ventilation through the endotracheal tube after intubated procedure (Morton & Fontaine, 2013; Musliha, 2010). Endotracheal tube (ETT) in a patient's mouth can be an entry point and colonization of bacteria

that have the potential causing infection (Chastre & Fagon, 2002; Webb, 2011). In addition, the use of drugs such as bronchodilators, anti-histamines, anti-hypertension, diuretics, atropine, and beta-blockers have side effects of dryness in the oral mucosa (xerostomia). These conditions can worsen the oral health status of intubated patients in the ICU which will increase the oral infections and Ventilator-associated pneumonia (Dale et al., 2013; Mcneill, 2000).

Cohort studies showed that patients in the ICU have a risk of Ventilator-Associated Pneumonia (VAP) by 3% every day during the first week of ventilator use and 2% in the second week (Luna et al., 2003). Ibrahim et al. (2001) stated that the incidence of VAP was quite high between 10-65% with a mortality rate of 20-70%. Thus, VAP becomes a very important problem to be overcome (Cason et al., 2007; Coppadoro et al., 2012; Perrie & Scribante, 2011).

Nurses as caregivers have full responsibility for the care of critical patients in the ICU (Alspach, 2006; Dochterman & Bulechek, 2004). Most critical patients experience a decrease in awareness and inability to fulfil their basic needs. Therefore, the nurses have an important role in providing oral care intervention to maintain oral health and prevent infection (Morton & Fontaine, 2013). The Centre for Disease Control and Prevention (CDC), the American Association of Critical Care Nurse (AACN) and the Institute for Healthcare Improvement (IHI) also emphasized that the oral care program is one of the strategies in the VAP Bundle to prevent VAP in ICU (Pear et al., 2007). The gold standard of oral care intervention of intubated patients includes assessment with oral health assessment tools and the use of antiseptic chlorhexidine gluconate with tooth brushing techniques. Heo et al. (2008) stated that maintaining oral health plays a very important role in preventing the occurrence of VAP because it is related to the colonization of bacteria in the oral and oropharynx. The purpose of this study was to analyze the effect of oral care intervention on the oral health status of intubated patients in the ICU.

METHODS

Study Design

This research was a pre-experimental study with one group pre-test and post-test design.

Sample

A consecutive sampling was used, which resulted in eighteen respondents to be included in this study. The inclusion criterion was intubated patients aged 18 - 70 years old, while exclusion criteria were patients who needed oral care specifically because of teeth or maxillary trauma, and patients who received a change in mechanical ventilation from ETT to tracheostomy during the study.

Instruments

Collecting data included age, sex, disease severity, the usage of drugs that could cause xerostomia, and assessment of oral health status. The APACHE II score was used to assess the severity of the disease. The APACHE II was developed by Knaus et al. (1985) as a modified version of the APACHE scoring system. It was categorized into low severity (<16), moderate (16-25), severe (26-30), and very severe (> 30).

Assessment of oral health status used a modified Beck Oral Assessment Scale (BOAS) instrument developed by Ames et al. (2011) from the oral health assessment of oncology cases. BOAS as assessment tools for oral health status of intubated patients in the ICU has proven to be valid and reliable. Handa et al. (2014) showed that the interrater reliability of BOAS was .92 with a correlation coefficient of .84 and was validated by experts in dentistry, surgical medical in nursing and critical care nursing. In addition, Indonesian version of BOAS has also been validated for use by Manangkot (2015) with a reliability value of .704. BOAS consists of five subscales assessment, included lips, gingiva and mucous membranes, tongue, teeth, and saliva. The rating of each subscale has a range of scores 1-4. The minimum total score of BOAS is 5, while the highest score is 20. The higher the score indicates the patient's oral health status is getting worse.

Intervention

Oral care was performed using a combination between tooth brushing and swabbing technique with a 20-cc chlorhexidine gluconate. Tooth brushing was done by using a pediatric's toothbrush while swabbing used sterile gauze. Chlorhexidine gluconate .2% has been established as a gold standard solution for oral care patients in the ICU since it has a high broad spectrum of antibacterial, antiviral and antifungal activity (Depaola & Spolarich, 2007; Nicolosi et al., 2014). The direction of the toothbrush started from the upper left of the teeth (gingiva) to the right, then from the lower right teeth to the lower left part of the gingiva. After that, the tooth brushed in the lingual part. Tooth brushing was done for at least 2 minutes. The tongue was also brushed from the back to the front carefully to avoid shifting the ETT. Then, swab on the buccal and ETT tube used sterile gauze with chlorhexidine gluconate. Oral care was done every 12 hours for three days. Grap et al. (2011) emphasized that the implementation of oral care is done every 12 hours because it can reduce the Clinical Pulmonary Infection Score (CPIS) score. Oral care procedures began and end with suction because oral care can stimulate secret. Oral health status was assessed before and after oral care intervention.

Data Collection

The study was conducted in the ICU at Al-Islam Hospital in Bandung for two months, April to May 2018. Data were collected by the authors and primary nurses as research assistants in the study. Before data collection, the authors conducted a common perception with the assistants regarding oral care procedures and the use of research instruments.

Data Analysis

Univariate analysis was used to determine the frequency of respondent characteristics. The normality test using Shapiro-Wilk showed normal distribution ($p>.05$) and the homogeneity test using the Levene test showed that data was homogenous ($p>.05$). Therefore, the bivariate analysis used Paired sample t-test.

Ethical Consideration

Before collecting the data, the authors had obtained ethical clearance from Central Hospital in Bandung on April 2, 2018 with approval number LB.04.01 / A05 / 3C / 100 / IV / 2018. The authors have ensured that all respondents have received appropriate informed consent.

RESULTS

Based on respondent characteristic data showed that the majority of respondents were women (61.1%) with the majority age ranged between 61 to 70 years (55.6%) and moderate disease severity (72.7%). Besides, all respondents in this study used drugs causing xerostomia such as anti-hypertension, diuretics, and anti-histamine (100%) **(Table 1)**.

Based on the data in **Table 2**, it showed that there was a significant difference between oral health scores before and after oral care ($p = 0.04$). The mean before and after oral care showed a value of -1.34. This negative (-) value indicated an increase in oral health score after the intervention, which means that the oral health status worsens because the higher the score, the worse the oral health status.

Table 3 showed that there were significant differences in BOAS scores before and after oral care intervention on the lips ($p = .003$), gingiva and mucosa ($p = .003$), and saliva ($p = .004$) subscales. The mean score before and after the three subscales showed negative results (-), which

means that there was an increase in scores after oral care that showed the existence of worsening oral health status. Teeth subscale obtained $p = .000$ ($p<.05$), which indicated that there were significant differences in the teeth subscale before and after oral care. And the mean score of

the teeth subscale was positive (+1), which showed a decrease in score, thus there was an improvement in teeth hygiene after oral care intervention.

Table 1 Characteristics of intubated patients in the Al Islam Hospital ICU in Bandung

Characteristics	*n*=18	
	f	%
Gender		
Male	7	38.9
Female	11	61.1
Age		
18 – 40 years old	5	27.8
41 – 60 years old	3	16.7
61 – 70 years old	10	55.6
Disease severity (APACHE II Score)		
Mild	3	16.7
Moderate	13	72.2
Severe	2	11.1
Extremely severe	0	0
Using drugs that causes xerostomia		
Yes	18	100
No	0	0

Table 2 Oral Health Status of Intubated Patients in the Al Islam Hospital ICU in Bandung

Oral Health Score			
Before Intervention Mean ± SD	After Intervention Mean ± SD	Mean	*p*-value
11.94 ± 2.920	13.28 ± 2.024	-1.34	.004*

*Dependent t-test, the significance value was $\alpha<.05$

Table 3 BOAS subscale of Intubated Patients in the Al Islam Hospital ICU in Bandung

BOAS Subscale	Before Intervention Mean ±SD	After Intervention Mean ±SD	Mean	*p*-value
Lips	2.72± 1.074	3.78±.647	-1.06	.003*
Gingiva and oral mucosa	2.33± 1.029	3.00±.767	-.67	.003*
Tongue	2.33±.767	2.39±.608	-.06	.705
Teeth	2.22±.647	1.22±.428	1	.000*
Saliva	2.33±.767	2.89±.758	-.56	.004*

*Description: Dependent t-test, the significance value was $\alpha<.05$

DISCUSSION

The results showed that there was an increase in oral health scores at the end of the assessment. This indicates that there was a worsening of oral health status in intubated patients despite oral care intervention. It can be happen because of multifactorial causes of oral health problems in intubated patients such as increased potential for dental plaque, decreased salivary flow and protection, risk of xerostomia due to open mouth and side effects of drugs (Abidia, 2007; Berry et al., 2007; Prendergast et al., 2012; Urden et al., 2014). O'keefe-Mccarthy (2006) in Dale et al. (2013) also found that intubated patients experience an imbalance of natural airway defense because of the disruption of mucociliary function and due to mucosal damage during intubation. Moreover, critical patients will experience changes in the composition of the flora in the oropharynx into gram-negative organisms within 48 hours (Rello et al., 2003). The results of this study were in line with

Ames et al. (2011) who showed that intubated patients will experience worsening oral health status since the first day of intubation. Prendergast et al. (2012) added that the oral health of patients in the ICU worsened along with the increase in the length of days of ETT installation.

Furthermore, the results of the study showed that from the five BOAS subscales, there was a significant increase in scores on the subscales of the lips, gingiva, mucosa, and saliva. This means that there was deterioration of those BOAS subscales. The results of this study were similar to Prendergast et al. (2012) study which showed that there was a significant increase in scores of intubated patients despite oral care intervention. Unlike the case with the three BOAS subscales, the tongue subscale obtained not significant differences in the assessment before and after oral care, and there was an improvement in the teeth subscale.

These results were different from Prendergast et al. (2012) which showed a worsening in the assessment of tongue and teeth. The deterioration might be influenced by the technique of implementing tooth brushing and the type of antiseptic used. This study used chlorhexidine gluconate 0.2% as an antiseptic, while Prendergast et al. (2012) used fluoride toothpaste. Fluoride toothpaste is a type of toothpaste that is often used in hospitals because it can protect tooth enamel, making it more resistant to damage. However, the presence of sodium lauryl sulfate which is the main ingredient of toothpaste can cause dry oral mucosa and worsen the condition of xerostomia if not rinsed evenly in the oral cavity (Herlofson & Barkvoll, 1996). Therefore, Liao et al. (2015), Lorente et al. (2012), and De Lacerda Vidal et al. (2017) stated that chlorhexidine gluconate is an effective antiseptic in inhibiting broad-spectrum gram-negative growth for patients in ICU. Kumari et al. (2013) added that chlorhexidine gluconate can bind to oral tissues, thereby releasing antiseptic effects slowly over a long time, so that it can protect the oral cavity including the tongue from bacterial colonization. Saleem et al. (2016) mentioned that chlorhexidine gluconate is effective for preventing the formation of plaque on teeth.

Another thing that might affect the teeth and tongue subscales was the implementation of oral care techniques. In this study, the oral care technique used a soft-bristled pediatric's toothbrush combined with sterilized gauze. Therefore, the brushing, suctioning and swabbing processes might be carried out optimally. Campbell and Ecklund (2002) asserted that those cleaning processes play an important role in maintaining oral health. Moreover, the implementation of tooth brushing in this study covered all parts of the teeth (gingival and lingual) as well as the tongue. It might cover all parts of the oral cavity. Marino et al. (2016) emphasized that those techniques complement each other in cleaning dental plaque, tongue and all parts of the oral cavity in intubated patients. The use of chlorhexidine gluconate solution, which is a gold standard antiseptic agent, is indeed proven to have high antibacterial, antiviral and antifungal activity with a broad spectrum (Depaola & Spolarich, 2007; Nicolosi et al., 2014). Although the use of chlorhexidine has been proven to be safe, but it has side effects of mucosal irritation and desquamation and causes dry mouth (Azimi et al., 2016; Nicolosi et al., 2014; Potting et al., 2006; Rezaei et al., 2016). This is in line with this study which showed that there was a worsening of the oral mucosa of patients with ETT which was signed by worsening humidity in the lips, gingiva and mucosa subscales.

The limitations of our study were pre-experimental design with a small sample size and the differences of illness severity which might influence the results. Furthermore, the implementation of toothbrush to all parts of the teeth (gingival and lingual) and also the tongue is quite difficult because of the endotracheal tube and patient's response to bite the toothbrush and ETT. Future research is needed a larger sample size with true experimental design and improvement of tooth brushing technique and equipment; therefore, the oral care intervention could be given optimally.

CONCLUSION

Based on the results of this study, it can be concluded that the oral health status of intubated patients in the ICU had worsening of the lips, gingiva, oral mucosa, and saliva subscales despite being given routinely oral care using chlorhexidine gluconate. It could be influenced by the multifactorial that causes the worsening of oral health and the side effects of drugs and chlorhexidine gluconate causing xerostomia. It shows that nurses in the critical care setting should evaluate the oral health status of intubated patients routinely using oral assessment tools as a basis of intervention. Moreover, mucosal care might become an essential part of the oral care intervention for intubated patients.

AUTHORS CONTRIBUTION
D.T.A., A.T.H., A.N have designed, complied and completed this study together, and the final version of the article was agreed by all authors.

ORCID
Diah Tika Anggraeni https://orcid.org/0000-0002-0357-8460
Ayu Trisna Hayati https://orcid.org/0000-0002-8440-9094
Aan Nur'aeni https://orcid.org/0000-0003-1466-7394

REFERENCES

Abidia, R. F. (2007). Oral care in the intensive care unit: a review. *Journal of Contemporary Dental Practice, 8*(1), 76-82.

Alspach, J. A. (2006). *Core curriculum for critical care nursing.* California: Saunders Elsevier.

Ames, N. J., Sulima, P., Yates, J. M., McCullagh, L., Gollins, S. L., Soeken, K., & Wallen, G. R. (2011). Effects of systematic oral care in critically ill patients: a multicenter study. *American Journal of Critical Care, 20*(5), e103-e114. https://doi.org/10.4037/ajcc2011359

Arigbede, A. O., Babatope, B. O., & Bamidele, M. K. (2012). Periodontitis and systemic diseases: A literature review. *Journal of Indian Society of Periodontology, 16*(4), 487-491. https://doi.org/10.4103/0972-124X.106878

Azarpazhooh, A., & Leake, J. L. (2006). Systematic review of the association between respiratory diseases and oral health. *Journal of Periodontology, 77*(9), 1465-1482. https://doi.org/10.1902/jop.2006.060010

Azimi, M., Jouybari, L., Moghadam, S., Ghaemi, E., Behnampoor, N., Sanagoo, A., & Hesam, M. (2016). Antimicrobial effects of chlorhexidine, matrica drop mouthwash (chamomile extract), and normal saline on hospitalized patients with endotracheal tubes. *Iranian Journal of Nursing and Midwifery Research, 21*(5), 458-463. https://doi.org/10.4103/1735-9066.193390

Berry, A. M., Davidson, P. M., Masters, J., & Rolls, K. (2007). Systematic literature review of oral hygiene practices for intensive care patients receiving mechanical ventilation. *American Journal of Critical Care, 16*(6), 552-562.

Campbell, D. L., & Ecklund, M. M. (2002). Development of a research-based oral care procedure for patients with artificial airways. *NTI News, 7*, B1-B16.

Cason, C. L., Tyner, T., Saunders, S., & Broome, L. (2007). Nurses' implementation of guidelines for ventilator-associated pneumonia from the Centers for Disease Control and Prevention. *American Journal of Critical Care, 16*(1), 28-37.

Chastre, J., & Fagon, J.-Y. (2002). Ventilator-associated pneumonia. *American Journal of Respiratory and Critical Care Medicine, 165*(7), 867-903. https://doi.org/10.1164/ajrccm.165.7.2105078

Coppadoro, A., Bittner, E., & Berra, L. (2012). Novel preventive strategies for ventilator-associated pneumonia. *Critical Care, 16*(2), 210. https://doi.org/10.1186/cc11225

Dale, C., Angus, J. E., Sinuff, T., & Mykhalovskiy, E. (2013). Mouth care for orally intubated patients: a critical ethnographic review of the nursing literature. *Intensive and Critical Care Nursing, 29*(5), 266-274. https://doi.org/10.1016/j.iccn.2012.09.003

de Lacerda Vidal, C. F., de Lacerda Vidal, A. K., de Moura Monteiro, J. G., Cavalcanti, A., da Costa Henriques, A. P., Oliveira, M., . . . Vilela, C. Â. (2017). Impact of oral hygiene involving toothbrushing versus chlorhexidine in the prevention of ventilator-associated pneumonia: a randomized study. *BMC Infectious Diseases, 17*(1), 112. https://doi.org/10.1186/s12879-017-2188-0

DePaola, L. G., & Spolarich, A. E. (2007). Safety and efficacy of antimicrobial mouthrinses in clinical practice. *American Dental Hygienists' Association, 81*(suppl 1), 117-117.

Dochterman, J. M., & Bulechek, G. M. (2004). *Nursing Interventions Classification (NIC)* (4th ed.). St. Louis, MO: Mosby.

Grap, M. J., Munro, C. L., Hamilton, V. A., Elswick Jr, R. K., Sessler, C. N., & Ward, K. R. (2011). Early, single chlorhexidine application reduces ventilator-associated pneumonia in trauma patients. *Heart & Lung: The Journal of Acute and Critical Care, 40*(5), e115-e122. https://doi.org/10.1016/j.hrtlng.2011.01.006

Handa, S., Chand, S., Sarin, J., Singh, V., & Sharma, S. (2014). Effectiveness of oral care protocol on oral health status of hospitalised children admitted in intensive care units of selected hospital of Haryana. *Nursing and Midwifery Research Journal, 10*(1), 8-15.

Heo, S.-M., Haase, E. M., Lesse, A. J., Gill, S. R., & Scannapieco, F. A. (2008). Genetic relationships between respiratory pathogens isolated from dental plaque and bronchoalveolar lavage fluid from patients in the intensive care unit undergoing mechanical ventilation. *Clinical Infectious Diseases, 47*(12), 1562-1570. https://doi.org/10.1086/593193

Herlofson, B. B., & Barkvoll, P. (1996). Oral mucosal desquamation caused by two toothpaste detergents in an experimental model. *European Journal of Oral Sciences, 104*(1), 21-26.

Hingston, C. D., Cole, J. M., Hingston, E. J., Frost, P. J., & Wise, M. P. (2010). Oral hygiene and nosocomial pneumonia in critically ill patients. *Chest, 137*(1), 237-238. https://doi.org/10.1378/chest.09-1319

Ibrahim, E. H., Tracy, L., Hill, C., Fraser, V. J., & Kollef, M. H. (2001). The occurrence of ventilator-associated pneumonia in a community hospital: risk factors and clinical outcomes. *Chest, 120*(2), 555-561. https://doi.org/10.1378/chest.120.2.555

Knaus, W. A., Draper, E. A., Wagner, D. P., & Zimmerman, J. E. (1985). APACHE II: a severity of disease classification system. *Critical Care Medicine, 13*(10), 818-829.

Kumari, N., Kumari, V., Varsha, A. S. V., & Chandna, S. (2013). Effectiveness of 0.2% chlorhexidine and oral routine care in terms of oral health status and oral microbiological colony count of self care deficit clients, Experimental study. *Journal of Dental and Medical Sciences, 11*(5), 1-6.

Liao, Y. M., Tsai, J. R., & Chou, F. H. (2015). The effectiveness of an oral health care program for preventing ventilator-associated pneumonia. *Nursing in Critical Care, 20*(2), 89-97. https://doi.org/10.1111/nicc.12037

Lorente, L., Lecuona, M., Jiménez, A., Palmero, S., Pastor, E., Lafuente, N., . . . Sierra, A. (2012). Ventilator-associated pneumonia with or without toothbrushing: a randomized controlled trial. *European Journal of Clinical Microbiology & Infectious Diseases, 31*(10), 2621-2629. https://doi.org/10.1007/s10096-012-1605-y

Luna, C. M., Blanzaco, D., Niederman, M. S., Matarucco, W., Baredes, N. C., Desmery, P., . . . Apezteguia, C. (2003). Resolution of ventilator-associated pneumonia: prospective evaluation of the clinical pulmonary infection score as an early clinical predictor of outcome. *Critical Care Medicine, 31*(3), 676-682. https://doi.org/10.1097/01.ccm.0000055380.86458.1e

Manangkot, M. V. (2015). *Kesesuaian alat ukur bedside oral exam (BOE) dan oral assessment scale (OAS) dalam mengkaji status kesehatan mulut pada pasien di intensive care unit (ICU) RSUP. Dr.Hasan Sadikin Bandung [The suitability of the instrument of the oral bedside exam (BOE) and oral assessment scale (OAS) in assessing the oral health status of patients in the intensive care unit (ICU) of RSUP. Dr.Hasan Sadikin Bandung.* Faculty of Nursing, Padjadjaran University, West Java, Indonesia.

Marino, P. J., Hannigan, A., Haywood, S., Cole, J. M., Palmer, N., Emanuel, C., . . . Williams, D. W. (2016). Comparison of foam swabs and toothbrushes as oral hygiene interventions in mechanically ventilated patients: a randomised split mouth study. *BMJ Open Respiratory Research, 3*(1), e000150. https://doi.org/10.1136/bmjresp-2016-000150

McNeill, H. E. (2000). Biting back at poor oral hygiene. *Intensive and Critical Care Nursing, 16*(6), 367-372. https://doi.org/10.1054/iccn.2000.1531

Morton, P. G., & Fontaine, D. K. (2013). *Critical care nursing: A holistic approach.* Philadelphia: Wolters Kluwer.

Musliha. (2010). *Keperawatan gawat darurat [Emergency nursing].* Jakarta: NuMed.

Nicolosi, L. N., del Carmen Rubio, M., Martinez, C. D., González, N. N., & Cruz, M. E. (2014). Effect of oral hygiene and 0.12% chlorhexidine gluconate oral rinse in preventing ventilator-associated pneumonia after cardiovascular surgery. *Respiratory Care, 59*(4), 504-509. https://doi.org/10.4187/respcare.02666

O'Keefe-McCarthy, S. (2006). Evidence-based nursing strategies to prevent ventilator-acquired pneumonia. *Dynamics, 17*(1), 8-11.

Pear, S., Stoessel, K., & Shoemake, S. (2007). *Oral care is critical care: The role of oral care in the prevention of hospital-acquired pneumonia.* Retrieved from https://www.halyardhealth.com.au/media/74346/4%20-oral%20care%20study%20guide%20.pdf

Perrie, H., & Scribante, J. (2011). A survey of oral care practices in South African intensive care units. *Southern African Journal of Critical Care, 27*(2), 42-46.

Potting, C. M. J., Uitterhoeve, R., Op Reimer, W. S., & van Achterberg, T. (2006). The effectiveness of commonly used mouthwashes for the prevention of chemotherapy-induced oral mucositis: a systematic review. *European Journal of Cancer Care, 15*(5), 431-439. https://doi.org/10.1111/j.1365-2354.2006.00684.x

Prendergast, V., Jakobsson, U., Renvert, S., & Hallberg, I. R. (2012). Effects of a standard versus comprehensive oral care protocol among intubated neuroscience ICU patients: results of a randomized controlled trial. *Journal of Neuroscience Nursing, 44*(3), 134-146. https://doi.org/10.1097/JNN.0b013e3182510688

Rello, J., Lorente, C., Diaz, E., Bodi, M., Boque, C., Sandiumenge, A., & Santamaria, J. M. (2003). Incidence, etiology, and outcome of nosocomial pneumonia in ICU patients requiring percutaneous tracheotomy for mechanical ventilation. *Chest, 124*(6), 2239-2243. https://doi.org/10.1378/chest.124.6.2239

Rezaei, S., Rezaei, K., Mahboubi, M., Jarahzadeh, M. H., Momeni, E., Bagherinasab, M., . . . Memarzadeh, M. R. (2016). Comparison the efficacy of herbal mouthwash with chlorhexidine on gingival index of intubated patients in Intensive Care Unit. *Journal of Indian Society of Periodontology, 20*(4), 404. https://doi.org/10.4103/0972-124x.194269

Saleem, H. G. M., Seers, C. A., Sabri, A. N., & Reynolds, E. C. (2016). Dental plaque bacteria with reduced susceptibility to chlorhexidine are multidrug resistant. *BMC Microbiology, 16*(1), 214. https://doi.org/10.1186/s12866-016-0833-1

University of California Davis Health System. (2009). *Critical care services CPT codes 99291-99292.* Retrieved from https://health.ucdavis.edu/compliance/pdf/billing_coding/crit_care_cpt_adv_2009.pdf

Urden, L. D., Stacy, K. M., & Lough, M. E. (2014). *Critical care nursing: Diagnosis and management.* Missouri: Elsevier Inc.

Webb, M. (2011). *Oral health and systemic disease: A rapid review of the evidence*. Wales: Public Health Wales NHS Trust.

BNJ | BELITUNG NURSING JOURNAL

LETTER TO EDITORS

THREE NOTICEABLE ISSUES ON NOVEL CORONAVIRUS: A QUICK LOOK FROM VIETNAM'S CIRCUMSTANCES

Le Thi Thanh Tuyen*

Faculty of Nursing, Da Nang University of Medical Technology and Pharmacy, Vietnam

*Correspondence:
Le Thi Thanh Tuyen, M.N.S, RN
Lecturer, Faculty of Nursing,
Da Nang University of Medical Technology and Pharmacy,
99 Hung Vuong, Da Nang, Viet Nam.
Cell: 084 936 124 241
Email: thanhtuyen.tt1011@gmail.com

KEYWORDS
Coronavirus; Vietnam; issues; nurse

Dear Editors,
Novel Coronavirus officially COVID-19 has been detected since December 2019 and it has become a global health issue concern today. According to the statistics from the Vietnam's Ministry of Health, until 13 February 2020, Vietnam has fifteen positive cases with COVID-19, which one of those is a 3-month-old baby (Ministry of Health, 2020). It is estimated that the COVID-19 outbreak will be reached the top in the next ten days due to the excessive worrying and wrong behaviors towards the virus (Thu, 2020). In this letter, the author presents three noticeable issues based on the current situation in Vietnam and efforts that nurses should do.

Fake news about COVID-19 in social media has become a big problem in Vietnam. It makes the public confused and unable to clarify the information. Nurses must provide the reliable information from a trustworthy source, such as from the Ministry of Health or World Health Organization.

Wrong health behaviors are likely related to misinformation and misunderstand about the prevention of COVID-19 like in the following examples: 1) The use of mask, people in community believe that wearing a mask can absolutely prevent the virus without doing any other efforts. In fact, wearing the mask is just one of the approaches according to World Health Organization (2020a) and Ministry of Health (2020); 2) Dry alcohol, which people prefer to use for washing hands rather than using clean water and soap. In fact, both alcohol and clean water with soap are equally effective; 3) Misuse of antibiotics and supplements; and 4) Afraid to go to hospitals and pharmacies because people think that the virus is easily transmitted in these places. Therefore, nurses must educate the people in community clearly about what they should and should not do to prevent the virus, such as explaining about the correct and regular way of hand washing, the risks

and symptoms of the virus, and telling that wearing the mask is not only way to prevent the virus, and giving a health education about the use of antibiotics and supplements, and not to be afraid to go to hospitals or pharmacies. It is also suggested for the people to cover their mouth and nose when coughing and sneezing, avoid close contact with anyone with respiratory illness, and thoroughly cooking meat and eggs (World Health Organization, 2020b).

Scarcity of masks. People in Vietnam need to get into line since early morning in front of pharmacies to buy the mask every day, and its price increased up to 6-7 times. The Government of Vietnam should pay more attention to this issue, and provide the masks as many as possible for the community.

To sum up, nurses need to continuously provide the information and advices to the people to protect health and prevent the spread of the outbreak, as well as to keep updated about the transmissibility, severity, and other features associated with the virus. The government also need to clarify the information related to the fake news and provide the resources for the prevention of coronavirus.

DECLARATION OF CONFLICTING INTEREST
There is no conflict of interest to be declared.

ORCID
https://orcid.org/0000-0001-6620-0425

REFERENCES

Ministry of Health. (2020). COVID-19 update. Retrieved from https://moh.gov.vn/

Thu, H. (2020). Deputy Minister of the Ministry of Health: nCoV could reach the highest number in the next week. Retrieved from https://news.zing.vn/thu-truong-bo-y-te-dich-virus-corona-co-the-dat-dinh-vao-tuan-toi-post1042979.html

World Health Organization. (2020a). Basic protective measure against the new coronavirus. Retrieved from https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public

World Health Organization. (2020b). Coronavirus. Retrieved from https://www. who.int/health-topics/coronavirus

BNJ | BELITUNG NURSING JOURNAL

CORRIGENDUM

EFFECTIVENESS OF DIABETIC FOOT EXERCISES USING SPONGES AND NEWSPAPERS ON FOOT SENSITIVITY IN PATIENTS WITH DIABETES MELLITUS - *CORRIGENDUM*

Siti Fadlilah*, Adi Sucipto, Nazwar Hamdani Rahil

Nursing Programme Study, Universitas Respati Yogyakarta, Indonesia

*Correspondence:
Siti Fadlilah, S.Kep., Ns., MSN
Nursing Programme Study, Medical and Surgical Nursing Department, Facuty of Health Science, Universitas Respati Yogyakarta
Kampus 2 Universitas Respati Yogyakarta, Jl. Tjem km 1,5 Maguwoharjo Depok Sleman Yogyakarta 55282 Indonesia
Telephone: +6285710844204
Fax: +622744437999
Email: sitifadlilah@respati.ac.id

In the article by Fadlilah et al. (2019) published in the December 2019 issue of Belitung Nursing Journal, the following ORCID for Adi Sucipto was incorrectly inserted on page 237: "https://orcid.org/0000-0002-1693-4495"

The authors retract this ORCID and change to https://orcid.org/0000-0001-6740-1835. They also apologize for the error.

REFERENCE

Fadlilah, S., Sucipto, A., & Rahil, N. H. (2019). Effectiveness of diabetic foot exercises using sponges and newspapers on foot sensitivity in patients with diabetes mellitus. *Belitung Nursing Journal, 5*(6), 234-238. https://doi.org/10.33546/bnj.822