Original Article

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Effects of Yakson Therapeutic Touch on the Behavioral Response of Premature Infants

F. Eshghi (MSc)[*1], S. Iranmanesh (PhD)[2], B. Bahman Bijari (MD)[3], F. Borhani (PhD)[2], M. Motamed Jahromi (MSc)[4]

1.Department of Midwifery, Faculty of Nursing and Midwifery, Hormozgan University of Medical Sciences, BandarAbbas, I.R.Iran
2.Department of Midwifery, Razi Faculty of Nursing and Midwifery, Kerman University of Medical Sciences, Kerman, I.R.Iran
3.Department of Pediatrics, Faculty of Medicine, Kerman University of Medical Sciences, Kerman, I.R.Iran
4.Faculty of Midwifery, Fasa University of Medical Sciences, Fasa, I.R.Iran

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ABSTRACT

BACKGROUND AND OBJECTIVE: Due to incomplete physical development, premature infants are susceptible to various sources of stress. Therapeutic touch is considered as an effective method to reduce stress in neonates. This study aimed to compare the effects of Yakson therapeutic touch and routine nursing care on the behavioral response of premature infants.

METHODS: This quasi-experimental study was conducted on 60 premature infants aged 26-34 weeks, admitted at the neonatal intensive care unit (NICU) of Afzalipour Hospital of Kerman, Iran. Subjects were randomly selected by minimization and equally divided into two groups of intervention and control (N=30). Infants in the intervention group received Yakson massage therapy for 5 days, twice daily for 15 minutes, and infants in the control group received routine care. Behavioral responses of infants, including the status of sleep, waking and restlessness, were evaluated using Anderson Behavioral State Scale (ABSS) before and after intervention.

FINDINGS: In this study, mean scores of ABSS in preterm infants of the intervention and control groups was 4.83±0.14 and 10.63±0.14, respectively. Moreover, there was a significant difference between the scores of behavioral response after the intervention between the groups (p=0.001).

CONCLUSION: According to the results of this study, increased scores of sleep status in the infants of the Yakson therapy group indicated that this method could be effective in the provision of nursing care for premature infants admitted at the NICU.

KEY WORDS: Prematurity, Yakson, Human Touch, Behavioral Response.

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Introduction

Neonatal period is a critical stage in human life, and rate of infant mortality is considered as an important indicator of health and development in a society. In recent decades, rate of prematurity has increased substantially due to the rapid advances in medical technology (1). Inevitably, the majority of

[*] **Corresponding Author: F. Eshghi (MSc)**
Address: Faculty of Nursing and Midwifery, Hormozgan University of Medical Sciences, Southern Resalat, BandarAbbas, I.R.Iran
Tel: +98 76 33666367
Email: eshghifateme@yahoo.com

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premature infants need to be admitted at neonatal intensive care units (NICUs), which may lead to the occurrence of several cognitive, sensory and health deficits (2). In addition, prematurity is a major risk factor for cognitive delays, behavioral disorders, and neurological development disorders during infancy (1). Admission at the NICU due to incomplete physical development exposes neonates to hazardous stimuli such as light, sound, and invasive procedures performed for diagnostic and therapeutic purposes. Therefore, finding new methods to reduce stress in preterm infants at the NICU is a notable issue in the field of nursing care. Primary needs of infants are manifested through different behaviors and responses (3,4); behavioral patterns in infants mainly consist of sleeping, waking and activities such as crying (5). Sleep and waking are associated with developmental outcomes since they reflect the immediate response of the infant to the stimulation caused by central nervous system function (6-10). To evaluate the possibility of different diseases and need for further investigations, medical experts focus on the behavioral changes of infants. Certain behaviors could be assessed to determine the pain and response of infants during different interventions used for the improvement of neonatal health (11-13). Spontaneous sensory stimulation could enhance physical development in premature infants (14). Use of gentle touch, as the most developed human sense, has been proven to be remarkably effective in the relaxation of premature infants (3). By reducing stress, kinesthetic stimulation increases developmental growth in these infants (15-17). Yakson is a tactile stimulation method to improve infant health and relaxation. It is a traditional Korean therapeutic technique used for premature infants with fragile medical conditions (3, 17). In modern medicine, protocol of Yakson touch involves the key elements of the traditional approach, including warm hands, gentle touch without pressure, and slow movement of hands, which are appropriate for premature infants (18). In Yakson massage, the non-dominant hand is placed on the infant's back, while the dominant hand is placed on the infant's chest and abdomen (18). According to a study by Im et al., gentle touch and Yakson massage therapy could improve sleep status in premature infants, and in comparison to gentle touch, Yakson massage is more effective in the stress relief of premature infants (19). Furthermore, Im et al. evaluated the effects of Yakson massage therapy, gentle touch and routine nursing care on premature infant by measuring different variables, such as urinary cortisol and norepinephrine hormone concentrations. According to their observations, Yakson massage and gentle touch could significantly decrease the level of stress hormones and increase sleep efficiency during and after the intervention. Additionally, rate of the waking state was observed to increase among the studied neonates during and after Yakson massage therapy (3). Regarding the alarming rate of premature births and NICU admission, as well as the possible adverse effects of medical and nursing procedures on the behavioral state of preterm infants, there is an urgent need to find new approaches for stress relief and relaxation in infants admitted at the NICU. Being established via a protocol, Yakson therapeutic touch is easily implemented and cost-efficient. Since no previous studies have been conducted on Yakson massage therapy in Iran, this study aimed to evaluate the effects of this method on the behavioral response of premature infants admitted at the NICU. The findings of the present study could contribute to the improvement of the quality of nursing care, as well as the reduction of hospitalization costs

Methods

This quasi-experimental study was conducted on 60 premature infants aged 26-34 weeks, admitted at the NICU of Afzalipour Hospital in Kerman, Iran. The study protocol was approved by the Ethics Committee of Kerman University of

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Medical Sciences, and written informed consent was obtained from the parents of selected neonates. Exclusion criteria of the study were as follows: 1) neonates with congenital malformations; 2) presence of medical conditions prohibiting Yakson massage therapy (e.g., unstable medical conditions); 3) five-minute Apgar score of <6 and 4) history of surgery. Subjects were equally divided into two groups of intervention and control (N=30). Yakson therapy was performed by one researcher on the subjects of the intervention group, and control subjects received routine nursing care. In addition, two researchers separately carried out the intervention and measured behavioral responses in the study groups. Participation was voluntary, and parents were allowed to eliminate the infants from the study at any time. was Yakson massage therapy ۱۵performed by a researcher twice a day for ۵-۳)and evening (am ۱۱-۹)minutes in the morning Duration of massage therapy was .days ۵for (pm .determined based on the study by Vickers et al if neonates are frequently presuming that ,(۱۹) they will become ,exposed to tactile stimulation more familiar with the therapy and remember the which will yield more ,stimulation better According to another study .(۲۰)satisfactory results ogical stability is physiol ,.Talbott et al-by Modercin achieved within seven days after birth in premature we performed ,Correspondingly .(۲۱)infants Yakson massage therapy during seven days after behavioral response of premature ,Moreover .birth d after infants was evaluated two minutes before an Infants in the control group .the intervention received routine nursing care (fig 1) .



Figure 1. Yakson therapeutic touch (22)

In this study, we used the Anderson Behavioral State Scale (ABSS) to determine the effects of Yakson therapy on the behavioral response of premature infants (23). Validity of this tool has been reviewed previously by a panel of experts (24), and reliability of the measure was assessed through meticulous observations (25-27). ABSS was translated from English to Persian by two experts, and twoother expertstranslated the scale back intoEnglish , which yielded satisfactory results. Since this measure is used for the evaluation of physiological parameters, content validity was not required. ,In ABSS scoring system behavioral status of the infant is assessed based on status of the ,the function of the respiratory system n trunk and level of activity i ,(open or closed)eyes This scale consists of .and severity of crying ,limbs classifying behavioral status into three ,levels ۱۲ Status of .and restlessness ,waking ,sleeping :phases ,۸-۶and ۵-۱sleep and waking is scored and ,(most appropriate nursing mode)respectively behavioral ,In this study .۱۲-۹restlessness is scored ۲response of the premature infants was measured Data .minutes before and after the intervention ,test-analysis was performed using independent t and ,۱۸.test in SPSS V-square and paired t-Chi .was considered significant ۰.۰۵>p

Results

The results of the present study were indicative of no significant difference in the demographic variables of the intervention and control groups. Out of 30 preterm infants, 13 (43.3%) were male and 17 (56.7%) were female. Mean of birth weight was 1569.66±315.98 and 1631.66±407.36 grams in the intervention and control groups, respectively. Mean gestational age of premature infants in the intervention and control groups was 31.70±2.16 and 31.33±1.95 weeks, respectively. In the intervention group, 9 (30%) and 21 (70%) premature infants were born via natural delivery and cesarean section, respectively. In the control

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group 13 (43.3%) and 17 (56.7%) infants were born via natural delivery and cesarean section, respectively. Moreover, mean of Apgar scores in the intervention and control groups was 8.7±98.0 and 7.8±1.11, respectively. According to the findings of this study, type of delivery and gender of premature infants had no significant effects on the scores of ABSS. Mean of ABSS scores in neonates born via cesarean section was 6.74±0.11, while it was 6.8±0.14 in those born via natural delivery. These scores were calculated at 6.87±0.13 and 6.67±0.11 in male and female infants, respectively. In addition, mean of total ABSS score in preterm infants of the intervention and control groups was 10.63±0.14 and 4.83±0.14, respectively. In this study, no significant difference was observed between ABSS scores of the infants receiving Yakson massage therapy and control subjects before intervention; however, there was a significant difference between the scores of behavioral response after the intervention (p=0.001) (fig 2).

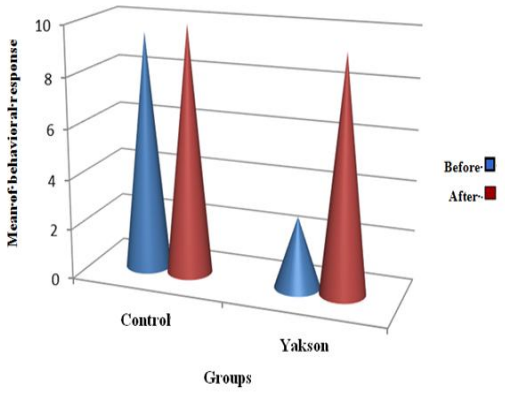


Figure 2. comparison of the mean scores of behavioral response befor and after the intervention in yakson & control groups

Additionally, a significant difference was observed between the mean scores of behavioral response in premature infants at the first and second day of intervention compared to the third, fourth and fifth day of intervention. Correspondingly, scores of behavioral response were not significantly different on the first and second days, whereas they were lower on the last three days of the intervention. Finally, there was no significant difference between the scores of behavioral response during the last three days of intervention between the study groups (table 1).

Table 1. Behavioral response of Premature Infants durring fifth days of intervention based on Mean±SD

Days of Intervention	Mean±SD
First day	8.96±0.263
Secound day	9±0.0330
Thired day	5.57±0.176
Forth day	5.12±0.122
Fifth day	5.14±0109

Discussion

According to the results of this study, there was a significant difference between the ABSS scores of premature infants receiving Yakson massage therapy and control subjects after the intervention (p=0.001). Furthermore, scores of sleep status in infants of the Yakson therapy group were higher compared to the neonates in the control group. Previous studies in this regard have confirmed the efficacy of Yakson massage therapy on the sleep status of premature infants (3, 19).

According to the study by Im et al., Yakson massage and gentle touch resulted in the reduction of stress hormones levels (i.e., norepinephrine and cortisol) in premature infants (3). After Yakson therapy in the current study, scores of waking and restlessness decreased in premature infants, which is consistent with the findings of previous studies confirming the positive effects of Yakson massage therapy on the status of waking and restlessness in premature infants (3, 19). This finding indicated that use of Yakson massage could increase the comfort of premature infants, reduce their stress and help with relaxation during admission at the NICU. In the present study, score of behavioral state was 4.83±0.14 in infants receiving Yakson massage therapy, and scores of sleep status had a significant improvement in these neonates after the

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intervention. Similar results were reported in the study conducted by Im et al. (3, 19). Considering the results of the present research and previous studies in this regard, it could be concluded that Yakson massage therapy exerts soothing effects on preterm infants; therefore, this method could be used as a safe procedure in the nursing care provided at the NICU. The results of the current study indicated that scores of restlessness in premature infants in the control group were higher compared to the intervention group. In addition, behavioral state of preterm infants in the intervention group had a more significant improvement compared to the control group (3, 19). Evidently, touching is only used within the frameworks of nursing and medical care for the neonates admitted at the NICU. In the present study, infants in the control group did not receive any interventions; however, touching was used during routine nursing care procedures and medical treatments, which was suspected to have adverse effects on the behavioral state of premature infants. According to the results of the current study, there was a significant difference in the behavioral state of premature infants between the first and second day of Yakson massage therapy, compared to days three, four and five. As such, scores of sleep status increased on the last three days of intervention, compared to the first and second days. Regarding the length of massage therapy, intervention in the present study was performed during 5 consecutive days, while the duration was more than 5 days in previous studies. In the study by Im et al., Yakson massage therapy continued for 15 days in the premature infants of the intervention group (3). In previous studies on this subject, there are no reports on the relationship between the time of study and intervention, as well as its impact on the sleep status of premature infants.

Therefore, the findings of the present study regarding the differences between the days of intervention and behavioral status of preterm infants could not be compared to other results. During the first days of intervention, infants are not yet familiar with massage therapy, while they become accustomed to the procedure within the last days of intervention, and the effects begin to manifest through the differences in the behavioral state of the neonates. In the current research and previous studies, Yakson massage therapy has been introduced as one of the most effective methods of therapeutic touch for premature infants. According to the results of the present study, Yakson therapeutic touch has significant effects on the behavioral response of premature infants, resulting in increased scores of sleep status, as well as decreased levels of stress hormones and energy consumption. Furthermore, use of this method could effectively reduce oxygen supply dependency during the first weeks of birth in premature infants admitted at the NICU.

On the other hand, Yakson massage therapy contributes to the growth and development of preterm infants. Nevertheless, further research is required as to confirm the effects of Yakson therapeutic touch on the development of infants at different stages. Considering the fact that touch is one of the most potent senses in neonates, it is possible that Yakson massage therapy enhances sensory development during the neonatal period, resulting in the desirable behavior state of the infant at the time of discharge. In conclusion, it is recommended that future research focus on the viewpoint of mothers and NICU nurses towards the efficacy of therapeutic touch, as well as its advantages and disadvantages, for premature neonates.

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