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Application of Swaddling, Side/Stomach Position, Sushing, Swinging, Sucking (5S) Methods to Overcome the Main Problem of Acute Pain in Infants With Pentavalent Immunization

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Abstract

Background: Immunization is an act of giving immunity to a baby whose injection can cause pain in the baby. Untreated pain can have serious effects in the short and long term. Pain remedies can be given pharmacologically or non-pharmacological. One non-pharmacological action with the method of Swaddling, Side/Stomach Position, Sushing, Swinging, Sucking (5S). Objective: To learn a picture of the application of 5S method and to know the picture of acute pain before and after application of the method 5S. Method: This study is a qualitative descriptive study with a case study strategy, using 2 respondents, 2-4 months old babies who receive pentavalent immunization. The operation was performed after immunization with an action duration of ±3 minutes and a pain scale measurement with the FLACC Pain Assessment Tool on before and after the action. Results: The 5S method can lower the pain scale from severe pain to moderate pain. Conclusion: The application of the 5S method can effectively reduce the scale of pain in babies who are immunized pentavalent with the most effective action is sucking.

Keywords: 5S Method; Acute Pain; Pentavalent Imunization.

1. INTRODUCTION

Immunization is an effort to actively create/increase a person's immunity against a disease so that if one day they are exposed to the disease, they will not get sick or only get mild illness (Ministry of Health, 2017). The infant phase is an important phase in a child's growth and development and is susceptible to disease, especially infections because the child's immune system has not yet formed and is functioning optimally. Diseases that can be prevented by immunization include tuberculosis, measles, hepatitis, pertussis, diphtheria, polio, neonatal tetanus, pneumonia, meningitis, and so on (Ministry of Health, 2022).

Basic immunizations that must be given to infants include immunization, Bacillus Calmette-Guerin (BCG), Polio, Diphtheria Pertussis Tetanus (DPT), Hepatitis B (HB), Haemophillus Influenza type B (Hib), and Measles (Oktiawati, et al., 2017). Pentavalent/pentabio immunization consists of DPT, HB, and Hib vaccines (Ismail, et al., 2014).

Based on WHO data in 2021, as many as 25 million children have not received complete immunization globally. The number of children who have not received complete immunization in Indonesia since 2017-2021 is 1,525,936 children. The achievement of Complete Basic Immunization (IDL) in 2020-2021 in Indonesia has decreased significantly

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compared to previous years, where the achievement in 2020 was 84.2% and the achievement in 2021 also only reached 84.2% (Ministry of Health, 2023).

IDL coverage in Central Java in 2021 from all antigens was 86.7% which should be 94.6% based on the target of the Central Java Provincial Health Office's Strategic Plan in 2021. IDL coverage in Magelang City was 78.7% and Magelang Regency was 100.1% (Central Java Health Office, 2021). At the Kyai Langgeng Sub-Health Center, from January to June 2024, 140 pentavalent immunization services have been carried out.

Immunization is carried out as an effort to provide immunity to infants by inserting vaccines into the body so that the body is able to produce antibodies to fight antigens that cause disease (Darmin, et al., 2023). The vaccine contains a weakened virus which is then inserted into the baby's body which then the baby's body will react to the immune reaction in the same way as when attacked by the disease (Berhman in Harahap, et al., 2021). Side effects of immunization include pain, swelling, redness in the area of injection, fever, lethargy, headache, mild infection can occur if the baby is allergic to the vaccine components (Herlinadiyaningsih & Lucin, 2022). Immunization, one type of which is given by injecting into one part of the baby's body, can cause acute pain or pain in babies (Harahap, et al., 2021).

Acute pain according to the SDKI Working Group Team (2017) is a sensory or emotional experience related to actual or functional tissue damage, with sudden or slow onset and mild to severe intensity that lasts less than 3 months with major minor signs and symptoms that can appear including grimacing, being protective of the painful area, restlessness, increased pulse rate, difficulty sleeping, increased blood pressure, changes in breathing patterns, changes in appetite, impaired thought processes, withdrawal, self-focus, and diaphoresis. One of the pain scale measurements can be using the Face, Legs, Activity, Cry, Consolability (FLACC) Pain Assessment Tool which can be used on children aged 0-18 years. The score results are 0 for relaxed and comfortable, 1-3 for mild pain, 4-6 for moderate pain, and 7-10 for severe pain (Oktiawati, et al., 2017).

Immunization in children that is traumatic, painful, and terrible can cause anxiety in children and the pain response experienced and felt by children also causes stress in parents (Handayani, et al., 2021). Untreated pain can have serious impacts in the short and long term (Trimawati, 2016). The impact in the short or fast term, children will experience memories of the pain they experience, high sensitivity and the impact for the long or long term, children will experience increased somatic complaints, increased physiological signs, and children's behavior that is easily emotional and depressed (Harahap, et al., 2021).

Pain management can be given pharmacologically or non-pharmacologically, including by administering opioids, non-opioids/NSAIDs, analgesics, TENS, hypnosis, acupressure, music therapy, biofeedback, massage therapy, aromatherapy, guided imagery techniques, and distraction techniques (SIKI Working Group Team, 2018). One of the distraction pain management techniques is the Swaddling, Side/Stomach position, Sushing, Swinging, Sucking (5S) method to increase infant comfort. This is based on research by Sari, et al. (2020) "The Effect of the Harvey 5S Method on Pain Responses in Infants During Immunization" by carrying out the Harvey 5S method for ± 3 minutes from the injection immunization, the results obtained p value = 0.000 with an average pain response in the intervention group lower than the control group, which means that the application of the 5S method has an effect on the baby's pain response during immunization.

Swaddling or swaddling a baby can provide comfort because the baby feels like he is in the womb and can keep the baby's attention focused, stop hitting, prevent fussiness and give him a signal to sleep. The side/stomach position, which is positioning the baby on the right/left side as when in the womb, can help calm the baby. Sushing is done by whispering the sound "sushhh" near the baby's ear, this sound imitates the mother's blood circulation when the baby is still in the womb. The swinging method by swinging the baby slowly helps calm the newborn. The sucking method, which is sucking, interventions (giving a pacifier or breast milk) have been shown to manage mild pain (Harahap, et al., 2021).

The 5S method has been proven to be effective in reducing infant pain during immunization, which is mostly severe pain, to moderate or mild pain (Harahap, et al., 2021). The 5S method is carried out for ±3 minutes since the injection and pain scale measurement using the FLACC Pain Assessment Tool.

Some studies that support it include those conducted by Trimawati in 2016, pain was significantly lower in the 5S intervention group compared to the control group with the measurement results obtained a p value <0.01 in all measurements with an Odd ratio value for each measurement of 3.4 (95% CI 1.28-8.91), 3.8 (95% CI 1.34-10.5), and 5.0 (95% CI 1.64-15.5). Another study by Harahap, et al. in 2021 proved that the Harvey 5'S Method can reduce infant pain, the majority of which is severe pain, to moderate or mild pain with p = 0.000 (p <0.05). Also in line with the literature review study conducted by Juniah & Siahaan (2023) showed that the application of the 5S method is effective in overcoming pain in infants who are immunized.

The study was conducted at the Kyai Langgeng Sub-Health Center in Magelang City, located in Kemirirejo, Central Magelang District, Magelang City. The study was conducted at

the health center's immunization service located on the 2nd floor. Based on the background above, it encouraged researchers to conduct a case study on "Implementation of the Swaddling, Side/Stomach position, Sushing, Swinging, and Sucking (5S) Methods to Overcome the Main Problem of Acute Pain in Children with Pentavalent Immunization at the Kyai Langgeng Sub-Health Center in Magelang", it is expected that after the implementation of the 5S method, it can increase knowledge and skills to overcome acute pain in children who are immunized.

2. LITERATURE REVIEW

Immunization is the provision of immunity to a disease by inserting something into the body so that the body is able to withstand an epidemic or a disease that is dangerous to a person (Dewi & Megaputri, 2021).

The purpose of immunization according to the Immunization Pocket Book is to implement the PD3I (Immunization-preventable Diseases) immunization program as an effort to reduce morbidity, disability, and mortality. Some diseases that can be prevented by immunization are hepatitis B, polio, diphtheria, pertussis, measles, tetanus, whooping cough, chickenpox, mumps, tuberculosis (Dewi & Megaputri, 2021).

AEFI is a medical event related to immunization, either in the form of vaccine effects or side effects, toxicity, sensitivity reactions, pharmacological effects or program errors, coincidences, injection reactions or causal relationships that cannot be determined after vaccination. Immunization carried out by injection can cause reactions in children (Suryani & Badi'ah, 2017).

Immunization, one of which is given by injection into one part of the baby's body, can cause pain or soreness in the baby (Harahap, et al., 2021). Immunization can cause tissue damage that will stimulate the release of serotonin, prostaglandin, and bradykinin hormones, thereby stimulating a pain response (Bellieni, et al. in Dewi, et al., 2020).

Pain that is not treated immediately can cause physical and psychological impacts. Physical impacts that can arise include rapid and shallow breathing, increased heart rate, increased cortisol and adrenaline hormones that can increase stress, muscle tension, fatigue that causes children to be reluctant to move. Psychological impacts that can arise due to pain include behavioral disorders such as anxiety, fear, stress, sleep disorders, and can cause decreased coping so that it can cause developmental regression (Sarfika, et al., in Irmayani, 2018).

A number of methods for assessing pain have been developed to measure pain in children. Pain measurement consists of objective measurements based on child behavioral or physiological parameter score observations and subjective measurements based on self-reports so that children can measure their pain (Oktiawati, et al., 2017).

Pain measurements that can be used in infants who have been given pentavalent immunization are the Face, Legs, Activity, Cry, Consolability (FLACC) Pain Assessment Tool. This pain measurement is used to measure the pain scale in children aged 0-18 years. A total score of 0 for relaxed and comfortable, a score of 1-3 for mild pain, a score of 4-6 for moderate pain, and a score of 7-10 for severe pain (Oktiawati, et al., 2017).

Pharmacological management according to Mardona, et al. (2023) can be done by giving pain relievers, including:

1. Non-Steroid Anti-Inflammatory Drugs (NSAIDs) are a group of drugs that have analgesic, anti-inflammatory, and antipyretic effects that can be used to reduce pain, inflammation, and fever.
2. The opioid (narcotic) group is a drug with a strong analgesic effect that can relieve pain and its use must be based on a doctor's prescription because it causes addiction.
3. Adjuvant analgesics are additional drugs to help the main drug work.

Nonpharmacology

1. Fear of the side effects of analgesic drugs including respiratory depression and addiction is a major obstacle to the treatment of pain in children so that the use of nonpharmacological interventions is needed to control pain in children (Kahsay in Purwoto, et al. 2023). The following is nonpharmacological pain management according to Mardona, et al. (2023):
2. Skin stimulation using warm compresses to reduce stiffness and cold compresses to reduce swelling.
3. Distraction is a technique for diverting pain to something such as playing, listening to music, and the 5S method (Trimawati, 2016).
4. Relaxation by taking a deep breath and then exhaling regularly can reduce anxiety and muscle tension.
5. Guided imagery can reduce the perception of pain with cognitive activity.
6. Biofeedback is changing the experience of pain by influencing physiological responses.

3. METHODS

This study is a qualitative descriptive study with a case study approach on the application of the Swaddling, Side/Stomach position, Sushing, Swinging, Sucking (5S) method in infants who received pentavalent immunization, which is a method to investigate, study the problem of acute pain experienced by infants when immunization is carried out in an integrative and comprehensive manner in order to gain a deep understanding of infants with acute pain with the aim that acute pain can be overcome.

The subjects of the study were infants who received pentavalent immunization with the following criteria infants aged 2-4 months, infants who will receive pentavalent immunization and infants accompanied by family, especially parents.

The study was conducted at the Kyai Langgeng Assistant Health Center, Magelang City. Title submission was made on January 22, 2024, proposal preparation was made on January 22 - March 02, 2024, proposal examination was made on March 04-16, 2024, and case taking was made on March 18 - May 04, 2024.

Data Collection Methods and Instruments using interview methods. test methods and documentation. Data validity testing is intended to test the quality of data or information obtained in the study so as to produce data with high validity. In addition to the integrity of the researcher, data validity testing can use source/method triangulation.

4. RESULTS

The case study was conducted at the Kyai Langgeng Sub-Health Center in Magelang City located at Gang Cempaka, RT.08/RW.07, Kemirirejo, Central Magelang, Magelang City, Central Java. The Kyai Langgeng Sub-Health Center is affiliated with the Kerkopan Health Center in Magelang City, located right in front of the entrance to the Kyai Langgeng Park tourist attraction in Magelang with available services including general services, infectious services, KIA/KB services, immunization, laboratory services, and integrated counseling services. The number of Pentavalent immunization services recorded from January to June 2024 was 140 services.

The researcher conducted a case study at the Kyai Langgeng Sub-Health Center in the immunization service located on the 2nd floor of the health center. Immunization services at the health center are carried out twice a week, namely on Tuesday and Thursday with service hours from 07.30 WIB to 11.00 WIB

The study was conducted on 2 respondents who experienced acute pain nursing problems after immunization according to the inclusion criteria set by the researcher. The researcher identified the inclusion criteria described in table 1.

Table 1: Respondent Inclusion Criteria

No	Inclusion Criteria	By. N	By. B
1.	Age 2-4 months.	Yes	Yes
2.	Pentavalent immunization.	Yes	Yes
3.	Accompanied by family, especially parents.	Yes	Yes

The nursing diagnosis that emerged in the two respondents in this study was acute pain. Pain assessment in infants is supported by an assessment using the FLACC Pain Assessment Tool because infants cannot describe pain like adults. Pain assessment with the FLACC Pain Assessment Tool is described in table 2 below:

Table 2: Pain Scale Assessment with the FLACC Pain Assessment Tool

No	Monitor	An. N	An. B
1.	Face	2	2
2.	Legs	2	2
3.	Activity	1	2
4.	Cry	2	2
5.	Consolability	2	2
Score		9	10

Description:

Score 1-3: Mild pain

Score 4-6: Moderate pain

Score 7-10: Severe pain

The results of the pain assessment in table 1.3 and it can be concluded that An.N and An. B experienced severe pain with a score range of 7-10. In By. N got a score of 9 for the pain scale (90%) and in By. B got a score of 10 for the pain scale (100%).

Condition before the implementation of the action. The researcher conducted an examination of both respondents to determine the effect of the action taken using the FLACC Pain Assessment Tool pain scale instrument with the results of the examination described in table 3.

Table 3: Observation Results Before Action

No	Monitor	By. N	By. B
		Before Action	Before Action
1.	Face	2	2
2.	Legs	2	2
3.	Activity	1	2
4.	Cry	2	2
5.	Consolability	2	2
Total Score		9	10

Table 3 shows the results of the examination on both respondents experiencing pain with data showing that both respondents had a pain score range of 9-10 which is included in the category of severe pain. Based on the examination data, the researcher carried out nursing action planning, namely distraction techniques with a focus on the application of the 5S method (Swaddling, Side/Stomach Position, Sucking, Swinging, Sucking) to overcome the nursing problem of pain in infants who were given Pentavalent immunization.

Implementation of the action the 5S method is a combination of non-pharmacological management methods that can reduce pain in infants during routine immunization (Trimawati, 2016). Before implementing the 5S method, the researcher planned nursing care in accordance with the Indonesian Nursing Intervention Standards (SIKI), namely distraction techniques (I.08247), namely diverting attention or reducing negative emotions and thoughts towards unwanted sensations.

Before the 5S method was started, the two respondent mothers received an explanation of the case study research and signed the informed consent given to Mrs. S on April 23, 2024 and Mrs. C on April 25, 2024. The implementation of the action was carried out according to the SOP and its implementation within 1 day immediately after immunization with a duration of action of ±3 minutes.

The first step in carrying out the 5S method is to prepare the necessary tools in the form of baby swaddles and observation sheets. The second step is the orientation phase by identifying the patient's identity, explaining the steps and procedures of the action to the respondent's parents, ensuring a safe environment, and involving the role of the child's parents during the action.

The third step is the work phase. The first action is swaddling, which is swaddling the child with a swaddling cloth, the second action is side/stomach position, which is positioning the child in the arms and holding the child on the stomach, the third action is swinging which is done together with shusing, which is the action of swinging the child to the right and left slowly while whispering the sound "shusss shusss shusss" in the child's ear, and the last action is sucking, which is giving breast milk or a pacifier to the child.

Condition after implementation of the action, in evaluation was conducted after completing the 5S method action to determine the effectiveness of the application of the 5S method to overcome the problem of acute pain nursing in infants who were immunized. Observation using the FLACC Pain Assessment Tool pain scale instrument. The results of the observation are described in table 4.

Table 4: Observation Results After the 5S Method Action

No	Monitor	By. N		By. B	
		Before Action	After Action	Before Action	After Action
1.	*Face*	2	1	2	1
2.	*Legs*	2	1	2	2
3.	*Activity*	1	1	2	1
4.	*Cry*	2	0	2	1
5.	*Consolability*	2	1	2	1
Total Score		9	4	10	6

Table 4 shows that after the 5S method was carried out, the pain level decreased from severe pain to moderate pain. After the application of the 5S method to both respondents for ±3 minutes immediately after immunization, the results showed that the 5S method can reduce pain in infants with a pain score before the procedure of 9 in By. N and a score of 10 in By. B which is included in the category of severe pain, then after the application of the 5S method the pain score decreased to a score of 4 in By. N and a score of 6 in By. B which is included in the category of moderate pain, so it is concluded that the 5S method is effective in reducing pain in infants who receive pentavalent immunization at the Kyai Langgeng Magelang Sub-Health Center.

5. DISCUSSION

Respondents based on age in this study were An. N aged 2 months and An. B aged 4 months. This age is included in the category of toddlers. The age of the respondents is related to the pain response during immunization. Trimawati (2016) stated in her study that older babies tend to respond more to pain than younger babies.

Both respondents received Pentavalent immunization according to their age, By. N aged 2 months received Pentavalent 1 immunization and By. B aged 4 months received Pentavalent 3 immunization. Pentavalent/pentabio immunization is an immunization consisting of the DPT-HB-Hib vaccine which functions to prevent diphtheria, pertussis (whooping cough), hepatitis B, and Haemophilus influenza infection (Armini, et al., 2017). Immunization actions that are implemented by injection can cause pain in children which can then provide a traumatic experience for children.

The two respondents have different genders, By. N is female and By. B is male. According to Greenspan & LeReshe in Trimawati (2016), the prevalence of pain is higher in women compared to men due to the presence of chemicals such as Progestin and Androgen which modulate the nervous system related to pain.

Pentavalent/pentabio immunization consists of the DPT-HB-Hib vaccine which is used to prevent diphtheria, pertussis (whooping cough), hepatitis B, and Haemophilus influenza type b infection simultaneously (Armini, et al., 2017). Immunization, one of which is given by injection into one part of the baby's body, can cause pain or soreness in the baby (Harahap, et al., 2021). In this study, researchers conducted a study on infants who received Pentavalent immunization with a nursing diagnosis that emerged, namely acute pain. Acute pain is a sensory or emotional experience related to actual or functional tissue damage with sudden or slow onset and mild to severe intensity that lasts less than 3 months (SDKI Working Group Team, 2017).

Conditions before the implementation of the 5S method

Infants who receive immunization by injection will cause pain or pain in infants (Harahap, et al., 2021). Pain or pain in infants which is characterized by the baby crying is caused by the release of the hormones serotonin, prostaglandin, and bradykinin so that it stimulates a pain response (Bellieni, et al. in Dewi, et al., 2020). Before the implementation of the 5S method through pain scale observation using the FLACC Pain Assessment Tool, the results were obtained in By. N, a pain score of 9 which means severe pain and in By. B, a score of 10 which means severe pain.

Implementation of the action

The implementation of the 5S method is carried out one day on the day of immunization with a duration of implementation of ± 3 minutes. The implementation is carried out sequentially from the first action of swaddling, side/stomach position (positioning the baby on the arm and stomach), sushing (whispering a shusss sound), swinging (swinging the baby slowly), and sucking (giving breast milk or a pacifier).

The implementation of the 5S method is a combination method of non-pharmacological pain management that can reduce pain in babies during routine immunization (Trimawati, 2016). Based on the theory of pain control, the body is naturally able to release endorphins and dynorphins as a defense mechanism against pain. When the body feels pain or pain, the body will give a signal to the brain to release endorphins to block nerve cells that receive pain stimuli. Distraction, counseling, and placebo administration are actions that can release endorphins (Trimawati, 2016).

This is supported by research conducted by Harahap, et al. (2021) that the majority of infants experienced severe pain before the 5S method treatment and experienced a decrease after the 5S method treatment to moderate and mild pain.

Condition after implementing the 5S method

After the action was carried out, documentation was carried out to determine the development of the infant's pain before and after the action was carried out. Measurement of the pain scale with the FLACC Pain Assessment Tool was carried out again after the application of the 5S method with the results in By. N experiencing a decrease, namely from a score of 9 to a score of 4 and in By. B experiencing a decrease from a score of 10 to a score of 6.

Analyzing the application of the 5S method to acute pain in infants with Pentavalent immunization

The results of the study showed that both respondents experienced the same nursing problem, namely acute pain. One of the actions that can be taken to overcome the problem of acute pain is with distraction techniques, one of which is the 5S method. The 5S method can reduce pain by releasing endorphin hormones in the body which function to block nerve cells that receive pain stimuli. (Sari, et al., 2020).

The results of the analysis of the application of the 5S method were obtained through the results of pain scale measurements carried out before the application of the 5S method and after the application of the 5S method. The 5S method action intervention was carried out once immediately after the immunization was carried out and the evaluation was carried out after the action was completed.

Observations on `By. N before the 5S method action was carried out, a score of 9 out of 10 FLACC Pain Assessment Tool scores was obtained so that By. N was included in the severe pain category. The application of the 5S method was given once after immunization with a duration of less than three minutes, then a pain scale measurement was carried out. The results of the observation showed a decrease in the pain scale in By. N after the 5S method was carried out, the score was 4 out of 10 and entered the moderate pain category with less conducive environmental obstacles due to the presence of other babies who were going to be immunized.

Observations on By. B before the 5S method were carried out, a score of 10 out of 10 was obtained which was included in the severe pain category. Measurement of the pain scale after implementing the 5S method with a duration of less than 3 minutes showed a decrease in the pain scale to 6 out of 10 and entered the moderate pain category with the obstacle that the baby could not be separated from his parents for a long time.

Evaluation refers to the results of observations before and after the implementation of the 5S method. By. N and By. B showed a decrease in the pain scale from severe pain to

moderate pain. These results are supported by research conducted by Harahap, et al. (2021) entitled "The Effect of the 5'S Method (Swaddling, Side/Sromach Position, Sushing, Swinging, and Sucking) on Reducing Pain in Infants After Basic Immunization" which showed that the results of the pain response in infants who were immunized mostly experienced a decrease in pain in the moderate pain category.

After the 5S method was carried out on both respondents, it showed that both respondents experienced a decrease in the pain scale. The final results showed that the decrease in the pain scale in By. N was more significant than By. B. This is because the pain scale before the action in By. B was higher than By. N and By. N's age was younger than By. B. The results of the pain scale achievement in both respondents in this case decreased, which means that after the application of the 5S method after immunization, the pain decreased, so it can be concluded that the application of the 5S method is effective in overcoming the main problem of acute pain in infants with Pentavalent immunization according to research conducted by Trimawati (2016) that physical intervention of the 5S method is effective in reducing pain responses in infants during immunization.

6. CONCLUSION

Evaluation after the 5S method was carried out on the two respondents showed a decrease in the pain scale from severe pain to moderate pain, so it can be concluded that the application of the 5S method can reduce pain in infants who received Pentavalent immunization at the Kyai Langgeng Magelang Sub-Health Center.

7. LIMITATION

The study has several limitations that should be addressed to improve its validity and generalizability. Firstly, the sample size is very limited, involving only two respondents, *By. N* and *By. B*. This small sample restricts the ability to generalize findings to a broader population. Additionally, the study lacks control over external variables that could influence the infants' pain responses. For instance, environmental factors such as the presence of other crying babies may have heightened stress levels, while psychological factors like the infants' attachment to their parents might have affected their comfort during the intervention. There is also no mention of the respondents' overall health conditions, which could have played a role in their pain perception.

The intervention duration was notably short, lasting less than three minutes. While this may have been sufficient for immediate pain relief, it does not provide insights into the

long-term effects of the 5S method. Moreover, although the FLACC Pain Assessment Tool was used to measure pain, this method relies on observational data, introducing an element of subjectivity that may vary between researchers.

The study focuses solely on acute pain and does not explore potential long-term effects, such as trauma or behavioral changes following immunization. Furthermore, it does not compare the 5S method with other non-pharmacological or pharmacological pain management techniques, limiting the understanding of its relative effectiveness. The imbalance in age and gender of the respondents—one being a younger female and the other an older male—could also have influenced the results, but this aspect was not examined in depth due to the limited sample size.

Lastly, the study was conducted at a single observation point, immediately after immunization, without follow-up to assess changes in pain levels over time. This limits the ability to evaluate the sustainability of the pain reduction achieved through the 5S method.

To strengthen the study, future research should involve a larger and more diverse sample size, incorporate control for external variables, and include comparisons with alternative pain management techniques. Additionally, longer observation periods and multiple assessments over time could provide deeper insights into the long-term effects of the 5S method.

BIBLIOGRAPHY

Armini, N. W., Sriasih, N. G., Marhaeni, G.A. (2017). *Asuhan Kebidanan Neonatus, Bayi, Balita, dan Anak Prasekolah.* Yogyakarta: Penerbit ANDI.

Darmin, R.F., et al. (2023). Pentingnya Imunisasi Dasar Lengkap Pada Bayi dan Balita. *Jurnal Pengabdian Masyarakat MAPALUS 1*(2).

Dewi, P.D., Megaputri, P.S. (2021). *Askeb Neonatus, Bayi, Balita, Dan Anak Prasekolah Series Imunisasi.* Yogyakarta: Deepublish CV Budi Utama.

Dewi, T.S., Mardiah, W., Rukmasari, E. (2020). Respon dan Pengelolaan Nyeri pada Bayi saat Imunisasi Pentabio Di Wilayah Kerja Puskesmas Haurpanggung. *Seminar Nasional Keperawatan "Pemenuhan Kebutuhan Dasar dalam Perawatan Paliatif pada Era Normal Baru"*.

Dinas Kesehatan Jawa Tengah. 2021. *Profil Kesehatan Jawa Tengah.* Semarang. https://dinkesjatengprov.go.id/v2018/storage/2019/12/CETAK-LAPORAN-RISKESDAS-JATENG-2018-ACC-PIMRED.pdf

Harahap, R.F., Hernida, D., Mahfudhah, N., Khartati, N., Herayani, N. (2021). Pengaruh Metode 5'S (Swaddling, Side/Stomach Position, Sushing, Swinging dan Sucking) Terhadap Penurunan Nyeri Pada Bayi Setelah Imunisasi Dasar. *JUMANTIK 6*(4).

Herlinadiyaningsih., Lucin, Y. (2022). *Ilmu Kesehatan Anak.* Banyumas: Wawasan Ilmu.

Irmayani. 2018. Pengaruh Teknik Distraksi Terhadap Skala Nyeri Pada Tindakan Pemasangan Infus Di Ruang Perawatan Anak RSUD Syekh Yusuf Gowa. *Jurnal Ilmiah Kesehatan Diagnosis 12*(5).

Ismail, S., et al. (2014). *Kontrovesi Imunisasi.* Jakarta: Pustaka Al-Kautsar. Sulistiyo, U. 2019. *Buku Ajar Metode Penelitian Kualitatif.* Jambi: Salim Media Indonesia.

Juniah, & SIahaan, E. R. 2023. Efektifitas Metode 5S (Swaddling, Side/Stomach Position, Sushing, Swinging, Sucking) Terhadap Respon Nyeri Pada Bayi Saat Imunisasi. *Jurnal Keperawatan Bunda Delima 5*(1), 28-37.

Kementerian Kesehatan Republik Indonesia. (2017). *Peraturan Menteri Kesehatan Nomor 12 Tentang Penyelenggaraan Imunisasi.* http://hukor.kemkes.go.id/uploads/produk_hukum/PMK_No._12_ttg_Penyelenggaraan_Imunisasi_.pdf

Kementerian Kesehatan Republik Indonesia. (2022). *Petunjuk Teknis Bulan Imunisasi Anak Nasional (BIAN).* Jakarta. https://promkes.kemkes.go.id/buku-panduan-pekan-imunisasi- dunia-2023

Kementerian Kesehatan Republik Indonesia. (2023). *Buku Panduan Pekan Imunisasi Dunia.* Jakarta. https://promkes.kemkes.go.id/buku-panduan-pekan-imunisasi-dunia-2023

Mardona, Y., et al. (2023). *Manajemen Nyeri Pada Anak 'Perspektif Keperawatan Pediatrik'.* Mimika:Rizmedia Pustaka Indonesia.

Oktiawati, A., et al. (2017). *Teori dan KonsepKeperawatan Pediatrik.* Jakarta: CV Trans Info Media.

Sari, Y.S., Ningsih, N., Andhini, D. (2020). Pengaruh Metode Harvey 5S Terhadap Respon Nyeri Pada Bayi Saat Imunisasi. *Seminar Nasional Keperawatan "Pemenuhan Kebutuhan Dasar dalam Perawatan Paliatif Pada Era Normal Baru".*

Suryani, E., Badi'ah, A. (2017). *Asuhan Keperawatan Anak Sehat dan Anak Berkebutuhan Khusus.* Yogyakarta: Pustaka Baru Press.

Tim Pokja SDKI. (2017). *Standar Diagnosis Keperawatan Indonesia.* Jakarta Selatan: DPP PPNI.

Tim Pokja SIKI. (2018). *Standar Intervensi Keperawatan Indonesia.* Jakarta Selatan: DPP PPNI.

Tim Pokja SLKI. (2018). *Standar Luaran Keperawatan Indonesia.* Jakarta Selatan: DPP PPNI.

Trimawati. (2016). Efektifitas Metode 5S (Swaddling, Side/Stomach Position, Sushing, Swinging, Sucking) Terhadap Respon Nyeri Pada Bayi Saat Imunisasi Pentavalen. *Jurnal Keperawatan Anak 3*(1), 34-38.