

The Influence of Parental Holding with Sitting Position on The Successful Installation of Intravenous Fluid Drips in Childhood Patients in The Emergency Installation of Toto Kabila Hospital

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ABSTRACT

IVFD installation is one of the most common procedures given to children, especially in hospitals. Around 80% of pediatric patients receive an infusion procedure which causes the child to experience unpleasant experiences such as hospitalization problems. So that there is no adverse response for the child and during treatment therapy is needed to reduce distress and suppress this negative response. One of them is Parental Holding or the holding position carried out by parents or family. The research method used in this research is quantitative research, namely experimental research with a quasi-experimental approach. Quasi experimental research design with a Two Group Post test only Design approach. The sampling technique used is Accidental Sampling. The number of respondents was 60 people consisting of 30 respondents in each group. Implementation of Parental Holding with Sitting Position is carried out every time an IVFD is installed on a pediatric patient until completion. Analysis in this study used the Wilcoxon and Mann Whitney U tests with $\alpha \leq 0.05$. The results of this study using the Mann Whitney U statistical test showed that there was an effect of Parental Holding with Sitting Position on the Success of IVFD Installation in Pediatric Patients in the Emergency Room, $p=0.047$, (p value ≤ 0.05). It is suggested that the results of this research can be used to maximize nursing services, especially in independent nursing actions by implementing the Holding Parental with Sitting Position when installing IVFD on pediatric patients, so that in the future this nursing action can become a standard operational procedure that applies in hospitals.

Keywords: Parental Holding, Sitting Position, IVFD Installation in Children

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1. INTRODUCTION

Children have different needs from adults so children are called unique individuals. Parents must take care of their children's development and health. However, sometimes children are in a condition of declining health that requires hospitalization (Colin et al., 2020). Hospitalization that occurs in children can cause stress (Novitasari et al., 2019). During hospitalization, the child will undergo a series of procedures such as IVFD installation (*Intravenous Fluid Drip*) (Colin et al., 2020).

IVFD installation is one of the most common procedures given to children, especially in intensive care. This action is carried out by inserting a needle into the child's blood vessel which can cause pain. Infusion installation is the second source of pain most felt by children after the disease they suffer from (Fauzi, 2017).

Approximately 80% of pediatric patients receive an infusion procedure in the hospital which aims to provide fluids, nutrition and continuous administration of medication and is very useful for administering medication to children who are dehydrated, children who need parenteral medication for a short period of time. for a long time, and children who require treatment so that children experience unpleasant experiences such as pain and hospitalization problems. (Fatriansari, 2019).

Hospitalization creates feelings of insecurity in children and is felt to be threatening to children, so it often causes trauma to children. This will cause children to experience trauma, both short and long term. The child will continue

to stay and be treated in hospital until a predetermined limit to receive treatment according to the severity of the disease [1]. Bad processes such as interventions involving needles or causing unpleasant experiences will be responded negatively and disrupt the child's self-integrity and can result in threats and distress for the child himself [2].

There are several forms of children's responses to the distress they experience, such as withdrawal, not caring about their environment, weakness, refusing to interact with other people, not wanting to be separated from their attachment figures, anorexia, difficulty sleeping, angry responses and committing violent acts, crying and increased blood pressure. vitals such as blood pressure, pulse and respiration, expressions of fear of procedures that cause pain, and anxiety [3]. So that there is no adverse response for the child and during treatment therapy is needed to reduce distress and suppress this negative response. One of them is Parental Holding or the holding position carried out by parents or family [4].

Parental holding or holding therapy is carried out in a comfortable, safe and temporary holding position between the child and an attached figure in a sitting position. The child is held by the mother with the child positioned parallel to the mother with head control, with the child's back supported by the mother's hands. Parental holding therapy can reduce stress, because parental holding can overcome stress, depression and anxiety in children and provide a sense of comfort (Sari, 2019).

Comfort theory states that increasing comfort will strengthen patients to consciously or unconsciously engage in behavior that moves them towards a state of well-being [5]. Therapeutic hugs are a comfort intervention that can be carried out by nurses, families and parents for children during intravenous insertion procedures such as intravenous therapy for children who experience fluid balance disorders [6].

Based on the results of a survey in the emergency room at Toto Kabila Regional Hospital, it was found that the number of pediatric patients in the emergency room on 07-12 August 2023 was 49 people. The results of a simple interview with an executive nurse and observations made on pediatric patients being treated in the emergency room at Toto Kabila Regional Hospital showed that when installing IVFD on pediatric patients around 70% were successful in one attempt and of the 49 pediatric patients who were admitted to the emergency room there were 15 children. who underwent IVFD installation more than once. According to emergency room nurses, this can be influenced by various factors, including health problems such as lack of body fluids, the anatomical structure of veins and the behavior of children who cry and make the family or parents panic, thereby disturbing the nurse's concentration. Apart from that, the results of observations also show that nurses sometimes apply Parental Holding with Sitting Position when installing an IVFD on a baby patient to make the patient calmer so that the IVFD installation is successful in one try. However, it is unfortunate that not all nurses in the emergency room at Toto Kabila Regional Hospital apply this therapeutic intervention when installing an IVFD on a child.

Based on the description above, the author is interested in conducting research with the title "The Effect of Parental Holding with Sitting Position on the Success of IFVD Installation in Pediatric Patients in the Emergency Room at Toto Kabila Hospital".

2. METHOD

This research was carried out using a Quasi experimental type of research with a Two Group Post test only Design approach, namely a research design that uses two groups of subjects, namely the control and experimental groups and takes measurements after giving treatment to the subjects (Nursalam, 2020).

Table 1 Research design

Group	Results
X	O
AND	O

Note: X: Control Group

Y : Experimental Group

O: Results (Successful IVFD installation in children)

This study used 60 pediatric patients as respondents who were divided into 2 groups, namely 30 control groups and 30 experimental groups.

3. RESULTS AND DISCUSSION

3.1. Results

3.1.1 Univariate

In this study, the variables analyzed by researchers using univariate analysis were the characteristics of the respondents which included age, gender and triage of pediatric patients admitted to the emergency room at Toto Kabila Regional Hospital.

1. Respondent Characteristics

In this study, the selected respondents were 60 respondents who were pediatric patients with indications for IVFD installation in the emergency room at Toto Kabila Regional Hospital, divided into 2 groups, namely 30 respondents in the control group and 30 respondents in the experimental group in the time period between 21 August - 31 August 2023.

a. Distribution of Respondents Based on Gender

Based on the research results, the distribution of respondent characteristics based on gender can be seen in table 2 as follows:

Table 2. Distribution of Characteristics of Pediatric Patients Based on Gender in the Emergency Room of Toto Hospital

Gender	Control Group		Experimental Group		Total	
	F	%	F	%	F	%
Man	16	26,7	17	28,3	33	55
Woman	14	23,3	13	21,7	27	45
Amount	30	50	30	50	60	100

Source: Primary Data 2023

b. Distribution of Respondents Based on Age

Based on the research results, the distribution of respondent characteristics based on age can be seen in table 3.2 as follows:

Table 3. Distribution of Characteristics of Pediatric Patients Based on Age in the Emergency Room at Toto Kabila Regional Hospital

Age Category	Control Group		Experimental Group		Total	
	F	%	F	%	F	%
Toddler (1-3Tahun)	20	33,3	19	31,7	39	65
Preschool (3-6 years)	10	16,7	11	18,3	21	35
Amount	30	50	30	50	60	100

Source: Primary Data 2023

Table 3. shows that most of the respondents fall into the age category *Toddler* (1-3 Years) were 39 people (65%) and those belonging to Preschool age (3-6 Years) were 21 people (35%).

c. Distribution of Respondents Based on *Triage*

Based on the research results, the distribution of respondents' characteristics was obtained based on *Triage* can be seen in table 4.3 as follows:

Table 3.3 Distribution of Characteristics of Pediatric Patients Based on *Triage* in the emergency room at Toto Kabila Regional Hospital

Triage	Control Group		Experimental Group		Total	
	F	%	F	%	F	%
P3 (Green and Blue)	22	36,65	22	36,65	44	73,3
P2 (Yellow)	8	13,35	8	13,35	16	26,7
Amount	30	50	30	50	100	60

Source: Primary Data 2023

Table 3.3 shows that most of the respondents fall into categories *Triage* Green and Blue (P3) were 44 people (73.3%) and those included in the Yellow *Triage* (P2) were 16 people (26.7%)

3.1.2 Bivariate

1. Successful IVFD installation in children

Based on the research results, it was found that the success rate of IVFD installation in children in the emergency room at Toto Kabila Regional Hospital can be seen in table 4.4 as follows:

Table 4. Success Rate of IVFD Installation in Children in the Emergency Room at Toto Kabila Regional Hospital

IVFD installation	Control Group		Experimental Group		Total	
	F	%	F	%	F	%
Succeed	18	30	25	41,7	43	71,7
Has not succeeded	12	20	5	8,3	17	28,3
Total	30	50	30	50	60	100

Source: Primary Data 2023

Table 4 shows that the success rate of IVFD installation among respondents was mostly successful with 43 people (71.7%) out of a total of 60 respondents. The success rate of IVFD installation in control group respondents was mostly successful with 18 people (30%). Meanwhile, the success rate for IVFD installation in experimental group respondents was mostly successful with 25 people (41.7%).

2. Application *Holding Parental with Sitting Position* when installing IVFD

Based on the research results, all respondents implemented the intervention *Holding Parental with Sitting Position* When installing IVFD on children in the emergency room at Toto Kabila Regional Hospital, it can be seen in table 4.5 as follows:

Table 5. Implementation of interventions *Holding Parental with Sitting Position* when installing IVFD in children in the emergency room at Toto Kabila Regional Hospital

<i>Holding Parental with Sitting Position</i>	F	%
Done	30	50
Are not done	30	50
Total	60	100

Source : Data Primer 2023

Table 5 shows that 30 people (50%) of respondents applied the intervention *Holding Parental with Sitting Position* when IVFD was installed and 30 others (50%) did not apply.

3. Influence *Holding Parental with Sitting Position* on the Success of IVFD Installation in Children

Based on the research results, the effect of the intervention *Holding Parental with Sitting Position* regarding the success of IVFD installation in children in the emergency room at Toto Kabila Regional Hospital can be seen in table 4.6 as follows:

Table 6 Effect of intervention *Holding Parental with Sitting Position* when installing IVFD in children Toto Kabila Regional Hospital Emergency Room (n=60)

<i>Holding Parental with Sitting Position</i> Regarding IVFD Installation in Children	n	Median (Min-Max)	We love ± S.b	P-Value
Control Group	30	1 (1-2)	1,40±0,498	0,047
Experimental Group	30	1 (1-2)	1,17±0,370	

Source: Primary Data 2023

Table 6 shows that there is an effect of providing intervention *Holding Parental with Sitting Position* on the success rate of IVFD installation in children in the emergency room at Toto Kabila Regional Hospital with a significance value $P\text{-Value} = 0.047 < \text{value} \alpha = 0.05$.

3.2 Discussion

3.2.1 Description of Respondent Characteristics

The results of the research show that based on table 4.1, of the total 60 respondents involved in the research, in this case the pediatric patients who were admitted and treated in the emergency room at Toto Kabila Regional Hospital, most of them were male, namely 33 people (55%) and the majority were female. totaling 27 people (45%). This is in accordance with Utami & Nuriyah's research in 2023 which showed that the majority of respondents in the control group (57.9%) and treatment group (52.6%) were male. Boys tend

to get sick more easily, so the majority of pediatric patients in hospitals are male. Boys are more susceptible to injury than girls, because boys are more active than girls [8].

Based on theory, boys have lower immunity than girls, which is because boys have fewer x chromosomes. This x chromosome produces microRNA which functions to strengthen the immune system (Ghent University, 2015). Girls have the estrogen hormone enriched with an enzyme called Caspase-12 which strengthens immunity so that girls' immunity is superior to that of boys [9]. Apart from the level of immunity, coping mechanisms also influence children in maintaining health.

According to Thahrir, (2019) the coping mechanisms of boys and girls have physiological differences, where boys have a tendency to focus on problem solving, while girls focus on an emotional approach. This coping mechanism is of course influenced by the child's level of development and the child's ability to think abstractly. Problem solving mechanisms are more difficult to implement when compared to girls' coping responses, namely an emotional approach that has been learned from birth through babies' crying, which causes the stressor level in boys to be greater than in girls. This coping mechanism is of course influenced by the child's level of development based on their age (Tharir, 2019)

Children's ages are divided into several categories starting from Infant, Toddler, Pre-School and School. The age categories of children included in this research are Toddler and Pre-School where based on table 4.2, out of a total of 60 research respondents, most of them fall into the Toddler (1-3 Years) age category as many as 39 people (65%) and those belonging to Pre-School age (3 -6 Years) totaling 21 people (35%). This is in line with research by Mawaddah et al., in 2021, which explains that children under 3 years old are susceptible to diseases that are classified as general in children or commonly known as General Weakness in Young Children, the level of development and adaptation of children. Toddler's age and the environment also influence the level of health [11].

Children who start to be given MP-ASI will have their digestive system adapt to the food they enter and digest. Once the child is 1 year old, parents will try new menus to provide variety and increase the child's appetite. However, this sometimes causes problems with the digestive system so that children experience diarrhea and/or vomiting [7].

Triage of patients who were research respondents based on table 4.3 shows that there were more patients with green and blue triage (P3) with 44 people (73.3%) out of the 60 respondents. Patients who fall into the P3 triage category are pediatric patients with digestive problems such as loose stools <10 times a day, diarrhea accompanied by nausea and vomiting which causes mild dehydration because nutritional intake begins to decrease. Apart from that, there were cases of pediatric patients with hyperthermia with temperatures of 38oC-39oC, and pediatric patients with flu and cough problems and other problems where treatment could take more than 30 minutes if they were in an impossible condition. This is in accordance with Utami & Nuriyah's research in 2023, where most of the pediatric patients who came to the emergency room complained of diarrhea, repeated vomiting, fever, coughs and colds as well as mild dehydration which could take more than 30 minutes to treat.

This is supported by the theory put forward in research by Yin et al., year (2017) where pediatric patients with health problems such as acute gastroenteritis which causes mild to moderate dehydration, fever, and respiratory problems with saturation still within the normal range can be treated more than 30 minutes. Meanwhile, pediatric patients, especially those aged less than 5 years with complaints of Temporary Febrile Convulsions and/or Complex Febrile Convulsions, moderate to severe dehydration, traffic accidents that cause fractures, pain, and respiratory problems with saturation of less than 92% are categorized into Urgent Triage and requires treatment in less than 30 minutes [12].

3.2.2 Description of the Success of IVFD Installation in the Control Group

Based on table 4.4, it can be seen that in the control group, 18 respondents (60%) of the total number of respondents were successful in one experiment. This is in accordance with research by Nengsih & Lestari in (2023) that of the total 38 nurse respondents, most were successful in the infusion procedure, namely 30 respondents (78.9%).

Wahyuni (2020) stated that there are several internal and external factors that help the success of infusion installation, including internal factors: level of education, length of service, therapeutic communication with children, caring behavior of nurses, knowledge and external factors: work environment, age, type the child's gender and condition, as well as parental support.

Based on the theory put forward by Nengsih (2020) in her research, it states that during the process of installing an IV, the nurse's role is to eliminate feelings of anxiety in the child so that the child can give a positive response, namely not rebelling and being cooperative when the act of installing the IV can be done by persuading and calming. children and giving praise and stroking the child's hand which will provide a sense of security. When a child feels that there is a threat around him or something that is scary to him, the child will feel insecure, so he will rebel and make it difficult to carry out actions including administering an IV [14].

Failure to install IVFD in children based on table 4.4 amounted to 12 people (40%) in the control group. In accordance with Rahyanti's research, (2020) where there were 4 respondents (40%) who felt pain so they had not succeeded in installing an IV. Apart from that, these results are in line with Nengsih & Lestari's research (2023) that out of a total of 38 respondents there were 8 nurses (21.1%) who had not succeeded in installing IV fluids in pediatric patients.

According to N. A. Nengsih & Lestari in (2023) failure to install an infusion occurs because the SOP is not implemented properly by the nurse so it will have negative impacts such as choosing the wrong vein, lack of therapeutic communication to build a relationship of mutual trust with pediatric patients, not applying sterile principles and even causing puncture wounds. IV needles are easily infected by germs and cause discomfort for patients.

Based on this research and theory, researchers are of the opinion that discomfort that can cause trauma should be reduced as much as possible or even eliminated. The lack of innovation by nurses to apply therapeutic interventions to pediatric patients is one of the causes of failure of IVFD installation in pediatric patients. So it is necessary to apply therapeutic interventions such as Parental Holding with Sitting Position when installing IVFD in pediatric patients.

3.2.3 Description of the Success of IVFD Installation in the Experimental Group

Based on table 4.4, it can be seen that in the Experimental group there were 25 people (83.3%) who successfully installed IVFD in one attempt. This research is supported by Panggalih & Rahmawati's research (2020) which shows that the majority of nurses were successful in the infusion procedure (98.5%) at Pandan Arang Hospital, Boyolali.

Success in carrying out the infusion procedure is influenced by several factors, both internal and external. Internal factors include physiological and psychological conditions such as age, gender, health and personality. Meanwhile, external factors include regulations, facility environment, and work experience. Nurses who have worked longer will have more experience knowing the location of veins and how to insert an IV than nurses who have just worked. In addition, by showing caring behavior through attention, interventions to maintain patient health and positive energy given to child patients, they will feel safe and comfortable. [13].

Implementing parental holding in a sitting position is an effective intervention to reduce anxiety, stress and feelings of discomfort in children during intravenous insertion. Small children do not yet have adequate coping strategies so that when they feel threatened they will spontaneously hug their parents to gain a sense of security. Hugs can have a relaxing effect so that pain impulses and negative feelings do not reach the brain because the dorsal cornus gate in the spinal cord will close [15].

Failure to install IVFD among respondents can be seen in table 4.4, there were 5 people (16.7%) who had not successfully installed IVFD in the Experimental group. This is in accordance with research conducted by Ayu, (2020) of 36 respondents, only 15 respondents (41.7%) were unsuccessful in installing an IV. This happens because installing an infusion that does not comply with the procedures will have negative impacts, such as the wrong position, instability during fixation, abandoning sterile principles and even creating a puncture wound from the infusion needle so that it is easily infected by germs, and all of these things can cause discomfort for the patient, as well as failure. when selecting veins in pediatric patients [17].

The research results showed that 13 respondents experienced mild to moderate dehydration with complaints of loose stools and repeated vomiting. This is one of the causes of failure to install IVFD in children. Pediatric patients with dehydration conditions will have veins collapsing easily. This research is supported by the theory put forward by Mawaddah et al., Year (2021) Seeing and looking for veins in young children is more difficult than in adults, small children and babies have smaller peripheral blood vessels, children and babies have more fat subcutaneously, and is susceptible to vasoconstriction. In addition, the child's condition also influences the choice of vein. Children with peripheral vascular dehydration problems will collapse, including the veins. This is caused by an inadequate amount of fluid in the body. Therefore, another way to make it easier to see and access veins, and avoid repeated stabbing which can cause trauma to children is to use a vein viewing system.

The results of research conducted by Chapman et al (2018) regarding the use of vein viewers in children when installing an IV in the emergency unit using a random sample of children aged 0-17 years who were about to have an IV installed but not in an emergency. A sample of 323 patients was divided into two groups, namely the group that had an IV installed using standard procedures and the group that had an IV installed using a vein viewer. Results obtained by a group of children aged 0 to 12 years (n = 107) showed that Vein Viewer could reduce the time for infusion installation [18].

3.2.4 Influence Holding Parental With Sitting Position on the Success of IVFD Installation in Child

Based on the research results, the results of the hypothesis test carried out to see the effect of the Holding Parental with Sitting Position intervention on the success of IVFD installation in children in the emergency

room at Toto Kabila Regional Hospital can be seen in table 4.6 showing that there is an influence of the Holding Parental with Sitting Position intervention on the success rate of IVFD installation in children in the emergency room at Toto Kabila Regional Hospital with a significance value of $P\text{-Value} = 0.047 < \alpha \text{ value} = 0.05$. This research is in line with research by Rahyanti in (2020) that the experimental group had a higher success rate with lower pain levels than the control group. Where the Mann Whitney test results show a $P\text{-Value} = 0.016 (<0.05)$, meaning there is a significant influence. Implementation of the Holding Parental with Sitting Position intervention provides a sense of security and comfort to pediatric patients [15].

Implementation of the Holding Parental With Sitting Position intervention in pediatric patients has an influence on the success of IVFD installation. This is proven by the results of research in the experimental group based on table 4.4 showing that out of a total of 30 respondents, 25 people (83.3%) were successfully installed with IVFD. Respondents belonging to the experimental group applied the Holding Parental With Sitting Position intervention at the time of IVFD installation until completion of the implantation. This aims to increase the feeling of safety and comfort for pediatric patients so that the pain they feel will also hopefully be reduced.

In young children, the position of sitting in a parent's arms is effective in reducing pain during injection [12]. Apart from reducing pain, this position also provides emotional comfort, namely reducing the child's distress during the insertion procedure. The same thing was also stated by Short, Pace and Birnbaum in Rahyanti (2020), namely that the sitting position is more effective in reducing children's fear when compared to the supine position during the insertion procedure. A comfortable hug in a parent's lap can also reduce procedural pain and distress because it increases comfort.

According to Kolcaba's Comfort theory by Kolcaba & Wilson (2013), comfort is an integral part of nursing care. This theory develops relief comfort which is a condition where the patient has certain comfort needs. Nurses can carry out interventions that can increase comfort to reduce pain and make it easier to insert an intravenous catheter. One of the comfort interventions from Kolcaba's Comfort theory that can be carried out by nurses is Comfort food for the patient's soul in the form of therapeutic communication and therapeutic touch through a sitting position in a parent's arms. In this position the child will feel comfortable, safe and relaxed and will significantly reduce pain and increase the success of intravenous insertion. Regarding therapeutic communication, nurses can build a relationship of mutual trust with pediatric patients so that they do not assume that nurses will harm them [19].

One way to increase the effectiveness of therapeutic communication with patients is to apply caring behavior (caring) especially to patients who are in the emergency service unit which at any time is busy with a large number of patients [20]. In line with research conducted by Dewi (2018) that there is a relationship between education level, length of service, therapeutic communication and caring behavior of nurses with the level of success of nurses in installing IV drips in toddler-aged children at the Bekasi Hospital polyclinic with the results of analysis using the chi-square test The value obtained was $p = 0.025$ for education level, $p = 0.002$ for length of service, $p = 0.004$ for therapeutic communication and $p = 0.000$ for nurses' caring behavior.

This theory is supported by N. A. Nengsih & Lestari, in (2023) who explained that there is a significant relationship between nurses' caring behavior according to Jean Watson's theory and the success of infusion procedures in pre-school children with a value of $p = 0.000 (<0.05)$, meaning the better If caring behavior is implemented by nurses, the success of the IV installation procedure in children will be better.

Based on theory and research that has been carried out previously, researchers are of the opinion that there is an influence of Parental Holding with Sitting Position on the success of IVFD installation in children in the emergency room. So the Holding Parental with Sitting Position intervention needs to be applied when installing IVFD on pediatric patients.

4. CONCLUSION

Characteristics of research respondents based on gender, of the 60 respondents there were 33 male respondents (55%) and 27 female respondents (45%). Based on age most of them fall into the age category *Toddler* (1-3 Years) were 39 people (65%) and those belonging to Preschool age (3-6 Years) were 21 people (35%). Based on *triage* most of them fall into categories *Triage* Green and Blue (P3) were 44 people (73.3%) and those included in the Yellow *Triage* (P2) were 16 people (26.7%). The average success rate for IVFD installation in pediatric patients in the emergency room for the control group was 1.17, where in the control group of 30 respondents there were 18 people who were successful in one attempt. The average success rate for IVFD installation in pediatric patients in the emergency room for the experimental group was 1.40, where in the experimental group of 30 respondents most of them were successful in one attempt of 25 people. There is an intervention effect *Holding Parental with Sitting Position* on the success rate of IVFD installation in children in the emergency room at Toto Kabila Regional Hospital with a significance value $P\text{-Value} = 0.047 < \alpha \text{ value} = 0,05$

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