

Psychological Effectiveness of an Instructional Program on Mothers' knowledge towards Non- Pharmacological Pain Management among their Children

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Received: 13-January-2023
Revised: 26-February-2023
Accepted:23-March-2023

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Abstract:

Background: Pain is one of the main causes of distress and suffering in children receiving care. Children who suffer from chronic pain have negative outcomes not only for their physical health but also for their emotional and spiritual well-being as well as their quality of life

Objective: to assess the effectiveness of the instructional program by comparing the pre-test and post-test scores on the mother's knowledge. Find out the relationship between mothers' knowledge and their demographic characteristics.

Study Design: A quantitative, quasi-experimental design study was used in the present study. The data collection procedure was carried out on during the period 13th April 2022 to 2nd March 2023. A non-probability (purposive sample) that was divided into two groups of 48 mothers as a study group (exposed to the instructional program), and the other 48 mothers, who were not exposed to the instructional program and considered a control group.

Results: The study results reveal there is a significant relationship between mother's knowledge about pain with their education and occupation.

Conclusion and Recommendation: The majority of the studied mothers have poor knowledge about non-pharmacological pain management in the pre-test, whereas there was improvement in mothers' knowledge after exposure to instructional program sessions for the study group. The study recommends that increasing mothers' awareness through educational programs about non-drug pain management to improve and enhance the mother's level of knowledge and reduce the use of medications because of their long-term effects.

Keywords: Instructional Program, Mothers, Knowledge, non-pharmacological pain management.

Introduction:

According to the International Association for the Study of Pain (IASP), pain is "an unpleasant sensory and emotional experience connected with actual or potential tissue damage" and that can be aggravated by disease or during certain procedures performed in hospital stays. (Karabulut, et al., 2016). Pain is one of the main causes of distress and suffering in children receiving care. Children who suffer from chronic pain have negative outcomes

not only for their physical health but also for their emotional and spiritual well-being as well as their quality of life. Additionally, pain causes longer stays in the hospital and rises morbidity and mortality. Also, it has negative consequences for the family and society. (Noel et al., 2012); (Mu, et al., 2010). Unrelieved pain among hospitalized infants and children is a common experience. Research into the pain of hospitalized children around the world shows that their pain is often poorly understood or ignored, underdiagnosed and assessed, undertreated, and poorly managed. (Alotaibi, 2019).

The primary symptom that brings individuals to the hospital is pain, the most prevalent complaint, affecting about 79% of hospitalized patients. Stress and pain can weaken the immune system and make children more susceptible to illness. The American Nurses Association (ANA) states that a nurse's role in pain management includes the entire nursing process, which involves assessment, planning, implementation, and evaluation of the patient's response to pharmacologic and non-pharmacologic pain management strategies. (Zelege et al., 2021). In pediatrics, the first strategy for pain management involves the use of pharmacological interventions. Here, pain symptoms are managed by providing a set of analgesics that include opioids and sedatives. (Karabulut, 2016); (Tracy and Chlan, 2011). Another pediatric pain alleviation strategy includes the use of non-pharmacological interventions. (Rono, 2021). Common non-pharmacological techniques to alleviate pain in the home include the following: cognitive-behavioral techniques (imagery, distraction, relaxation, breathing technique, thought-stopping, and positive reinforcement). (Short, et al., 2017).

Biophysical interventions (positioning of the child, thermal regulation (application of cold or heat), therapeutic touch, and transcutaneous electrical nerve stimulation). (He et al, 2011). Emotional support (the presence of the child's parents for comfort and reassurance. (Seldon, 2017). The final category includes helping the child with daily activities and creating a comfortable environment for the child. These techniques are effective at reducing pain in pediatric patients. (Ward, 2016).

Amis of the study to: Evaluate the effectiveness of the instructional program by comparing the pre-test and post-test scores on the mother's knowledge. Find out the relationship between mothers' knowledge and their demographic characteristics.

Methodology

Study Design: A quantitative, quasi-experimental design study was used in the present study. The data collection procedure was carried out on during the period 13th April 2022 to 2nd March 2023.

Study setting: The study is conducted in Al-Najaf City/AL-Zahra Teaching Hospital. **Study Sample:** In the beginning, one hundred participants were included in this study. Then, after implementing the instructional program, four of them are excluded from the study sample because they did not attend the whole instructional session. However, the sampling technique was a non-probability (purposive sample) sample that was divided into two groups of 48 mothers as a study group (exposed to the instructional program), and the other 48 mothers, who were not exposed to the instructional program and considered a control group.

The study constructed instruments consist of three parts: Part I: A self-administered questionnaire sheet containing: A- Demographic characteristics of the mothers. B- Demographic characteristics of the children. C- Source of information about non-pharmacological pain strategies. **Part II and III:** A self-administered questionnaire form related to the mother's knowledge about pain and non-pharmacological management. It is

constructed to assess mothers' knowledge about pain. The knowledge scale includes 20 multiple-choice questions for assessing mothers' knowledge about pain and 30 multiple-choice questions for knowledge about non-pharmacological management. The following criteria were used to rate and score items: Multiple-choice questions were used to rate the mother's knowledge about non-pharmacological management. The scoring is as follows: two for the correct answer, whereas one for the incorrect answer. The higher score of the studied items means the mothers have good knowledge.

Results:

Table 1. Demographic characteristics of the study participants.

Variable	Study group		Control		Statistical test	P. value	
	No.	%	No.	%			
Mother's Age (year)	≤25	15	31.3	17	35.4	$X^2 = 0.189$	0.910
	26 - 30	19	39.6	18	37.5		
	> 30	14	29.2	13	27.1		
	Total	48	100.0	48	100.0		
Level of education	Read and write	3	6.3	2	4.2	Fisher's exact test = 1.69	0.890
	Primary	11	22.9	13	27.1		
	Secondary	21	43.8	24	50.1		
	Institute	1	2.1	1	2.1		
	College/higher	12	25	8	16.7		
	Total	48	100.0	48	100.0		
Occupation	Employed	10	20.8	6	12.5	$X^2 = 1.20$	0.273
	Housewife	38	79.2	42	87.5		
	Total	48	100.0	48	100.0		
Residence	Rural	7	14.6	9	18.8	$X^2 = 0.300$	0.584
	Urban	41	85.4	39	81.3		
	Total	48	100.0	48	100.0		
Socio-economic status	Satisfied	17	35.4	15	31.3	Fisher's exact test = 0.439	0.833
	Satisfied to some extent	27	56.3	30	62.5		
	Unsatisfied	4	8.3	3	6.3		
Child's age (month)	≤ 12	27	56.3	26	54.2	$X^2 = 0.643$	0.725
	13 - 24	14	29.2	17	35.4		
	25 - 36	7	14.6	5	10.4		
Child's Gender	Boy	22	45.8	27	56.3	$X^2 = 1.04$	0.307
	Girl	26	54.2	21	43.8		
Number of pain	Once a week	10	20.8	12	25.0	$X^2 = 0.406$	0.816

episodes	Once a month	32	66.7	29	60.4
	Several times a week	6	12.5	7	14.6

Table (1) reveals the high percentage of both groups of participants within age groups (26-30) years, (37.5%) in the control group and (39.6%) in the study group. Regarding the education levels of the mothers, about (50.1%) of the control group, and (43.8%) of the study group have graduated from secondary school. Concerning participant residency, the majority (85.4%) in the study group and (81.3%) in the control group are urban dwellers, of which three-quarters of the population in Al-Najaf is urban. Additionally, most of the study sample (79.2%) housewives in the study group and (87.5%) in the control group.

In addition, In regard to the socio-economic status of the study sample (56.3%) in the study group and (62.5%) in the control group were satisfied to some extent. Still, this finding may be overestimated, and the current result is due to a small, non-random sample. According to the evidence, poverty and unemployment are increasing in our society, and therefore, most Iraqi families are of a medium or limited income level. Concerning the child's age, the majority of mothers in both groups had children under one year old. As for the child's gender, the majority of the study group (54.2%) had female children, and about (56.3%) in the control group had male children. With regard to the number of pain episodes, the majority of the participants in both groups had their children admitted to the hospital for pain at least once a month.

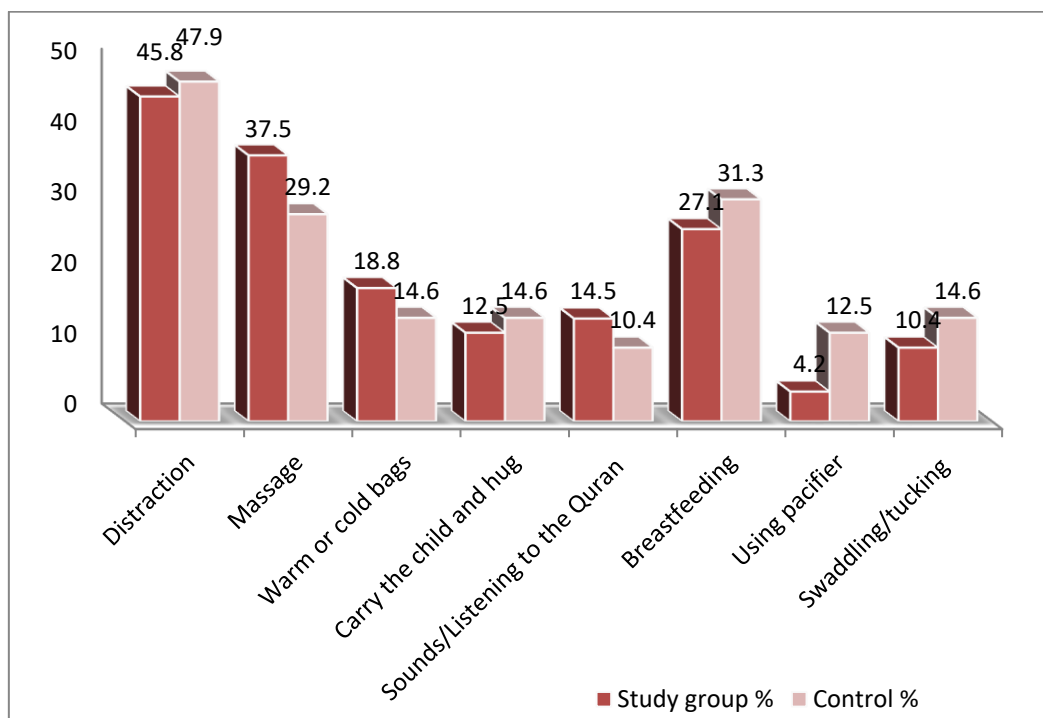


Figure 1: Distribution of the strategies mothers use to relieve the child's pain.

As for the most important strategies that mothers used to relieve their children's pain, many mothers resorted to using more than one strategy to relieve pain, as the percentage was as follows: about

(45.8%) in the study group and (47.9%) in the control group used distraction; (37.5%) in the study group and (29.2%) in the control group used massage to reduce the feeling of pain; and breastfeeding was (27.1%) and (31.3%) respectively, in the study and control group

Table 2. Mothers' knowledge about pain among their children in the study group (pre-posttest).

Items	Pre-test		Post-test	
	Mean score	Assessment	Mean score	Assessment
Q1	1.63	Good	1.79	Good
Q2	1.31	Poor	1.73	Good
Q3	1.31	Poor	1.81	Good
Q4	1.67	Good	1.83	Good
Q5	1.33	Poor	1.77	Good
Q6	1.27	Poor	1.44	Poor
Q7	1.25	Poor	1.4	Poor
Q8	1.33	Poor	1.77	Good
Q9	1.63	Good	1.69	Good
Q10	1.31	Poor	1.65	Good
Q11	1.38	Poor	1.71	Good
Q12	1.33	Poor	1.48	Poor
Q13	1.56	Good	1.67	Good
Q14	1.27	Poor	1.81	Good
Q15	1.29	Poor	1.67	Good
Q16	1.65	Good	1.77	Good
Q17	1.25	Poor	1.33	Poor
Q18	1.42	Poor	1.77	Good
Q19	1.23	Poor	1.35	Poor
Q20	1.6	Good	1.88	Good

Table 2 reveals that most mothers in the study group before presenting the instructional program had poor knowledge about all items except items numbered (1,4,9,13,16, and 20) the mothers' responses' were good. Whereas the majority of participants' knowledge after applying the instructional program was good for all items except items numbered (6,7,12,17, and 19) their responses were weak.

Table 3: Mothers' responses about pain among their children in the control group (pre-posttest).

Items	Pre-test		Post-test	
	Mean score	Assessment	Mean score	Assessment
Q1	1.58	Good	1.6	Good
Q2	1.29	Poor	1.31	Poor
Q3	1.65	Good	1.38	Poor
Q4	1.33	Poor	1.35	Poor
Q5	1.67	Good	1.67	Good
Q6	1.29	Poor	1.33	Poor
Q7	1.54	Good	1.63	Good
Q8	1.4	Poor	1.38	Poor
Q9	1.31	Poor	1.27	Poor
Q10	1.5	Poor	1.4	Poor
Q11	1.44	Poor	1.48	Poor
Q12	1.29	Poor	1.27	Poor
Q13	1.23	Poor	1.27	Poor
Q14	1.69	Good	1.71	Good
Q15	1.25	Poor	1.21	Poor
Q16	1.31	Poor	1.31	Poor
Q17	1.65	Good	1.54	Good
Q18	1.35	Poor	1.38	Poor
Q19	1.21	Poor	1.23	Poor
Q20	1.31	Poor	1.63	Good

According to this table, most mothers in the control group had poor knowledge about all items except items numbered (1, 3, 5, 7, 14, and 17); their responses' were good. On the other hand, the mothers in the control group did not enhance their awareness of pain in their children due to not giving them the instructional program sessions, so the majority of them had poor responses.

Table 4: Overall assessment of the study and the control group knowledge level regarding pain at the Pre-test and Post-Test

Overall mothers knowledge	Period	Meanscore	Assessment
Control group	Pre	1.42	Poor
	Post	1.41	Poor
Study group	Pre	1.40	Poor
	Post	1.67	Good

This table demonstrates that the overall assessment of mothers' knowledge about pain in both studies groups (pre-test) was poor. While, there was a significant improvement in the mean score of the study group after giving the instructional program was good, whereas the control group did not show any improvement (post-test) was poor.

Table 5: Mothers' responses about non-pharmacological pain management in the study group before and after the instructional program.

Items	Pre-test		Post-test	
	Mean score	Assessment	Mean score	Assessment
Q1	1.38	Poor	1.67	Good
Q2	1.21	Poor	1.35	Poor
Q3	1.52	Good	1.67	Good
Q4	1.29	Poor	1.75	Good
Q5	1.25	Poor	1.44	Poor
Q6	1.4	Poor	1.77	Good
Q7	1.23	Poor	1.73	Good
Q8	1.38	Poor	1.65	Good
Q9	1.42	Poor	1.65	Good
Q10	1.65	Good	1.73	Good
Q11	1.6	Good	1.71	Good
Q12	1.25	Poor	1.67	Good
Q13	1.23	Poor	1.4	Poor
Q14	1.35	Poor	1.75	Good
Q15	1.27	Poor	1.77	Good
Q16	1.31	Poor	1.69	Good
Q17	1.23	Poor	1.38	Poor
Q18	1.31	Poor	1.48	Poor
Q19	1.31	Poor	1.71	Good
Q20	1.56	Good	1.73	Good
Q21	1.63	Good	1.81	Good
Q22	1.27	Poor	1.44	Poor
Q23	1.38	Poor	1.79	Good
Q24	1.35	Poor	1.63	Good
Q25	1.58	Good	1.77	Good
Q26	1.4	Poor	1.83	Good
Q27	1.42	Poor	1.77	Good
Q28	1.54	Good	1.73	Good

Q29	1.4	Poor	1.65	Good
Q30	1.52	Good	1.69	Good

This results in table 5 show that the majority of the study sample responses to non-pharmacological pain management at the pre-test were poor for 22 out of 30 items, and the remaining items numbered (3, 10, 11, 20, 21, 25, 28, and 30) were good. While, the result at the post-test there was a noticeable improvement in the level of knowledge for the majority of participants' responses after exposure to the instructional program sessions most of the responses were good except for items numbered (2, 5, 13, 17, 18, and 22) there was poor knowledge. Based on the differences in the frequency and percentage of correct answers for all 30 items regarding non-pharmacological pain management.

Table 6. Overall Knowledge of participants in the study group about non-pharmacological pain (pre-posttest).

	Pre		Post		Effect size	P. value
	Mean	SD	Mean	SD		
Overall Knowledge about non-pharmacological pain	1.39	0.34	1.66	0.4	1.02	0.001

This table shows that the mean score of participants regarding non-pharmacological pain management on the pre-test was (1.39) which is a poor level of knowledge and at the post-test, the mean score has been increasing (1.66) and a large effect size of 1.02 at p-value 0.001.

Table 7. Comparison of overall assessment about pain and non pharmacological pain management (50 items)

	Study group		Control		Effect size	P. value between groups
	Mean	SD	Mean	SD		
Before Program	1.393	0.36	1.4	0.28	-	0.902
After Program	1.672	0.21	1.402	0.18	1.38	<0.001
Mean Difference	0.279	0.09	0.002	0.05	-	<0.001
Percentage change	20.05%	5.80%	0.11%	0.12%	-	<0.001
P. value within group	<0.001		0.712			

The results of the above table show that the mean score of participants regarding pain and non-pharmacological pain management at the pre-test in the study group was (1.39) and control group (1.40), which indicates poor mothers knowledge; whereas in the post-test, the mean score has been increased in study group (1.67), while in the control group, the ratio remained the same. Additionally, the percentage change in the study group was 20.05%.

Table 8. correlation between sociodemographic characteristics and mothers' knowledge.

		Knowledge about pain	Knowledge about non-pharmacological management of pain	Overall for both domains
Mother's Age	R	-0.033	0.036	0.056
	P. value	0.763	0.742	0.610
Level of education	R	0.318	-0.116	0.133
	P. value	0.007	0.323	0.256
Occupation	R	0.243	0.035	-0.099
	P. value	0.004	0.785	0.039
Number of family members	R	-0.020	0.062	0.117
	P. value	0.872	0.614	0.341
Residence	R	-0.239	0.037	-0.160
	P. value	0.066	0.777	0.212
Socio-economic status	R	0.053	0.036	0.090
	P. value	0.671	0.772	0.471
Type of family	R	-0.046	0.115	0.022
	P. value	0.722	0.372	0.864

This table shows that there is a statistically significant relationship between overall mothers' knowledge about pain with occupation and educational level at p-value (0.004 and 0.007) respectively. Regarding other remaining variables such as the age of the mother, number of family members, residence, socioeconomic status, type of family, there is no significant association with the study group.

Discussion:

The study findings indicated that the greater percentage of both groups of participants within age groups (26-30) years, (37.5%) in the control group and (39.6%) in the study group. This results is consistent with research done by (Abolwafa & Ali, 2019), in his study they mentioned that the dominant age of mothers is (30) years. Regarding the mothers' education, about half of the mothers (50.1) in the control group and (43.8%) of the study group were graduated from secondary school. The findings of the present study are compatible with those of (El-Adham, et al.,2020), who found that (36%) of study participants' graduated from secondary school. Concerning the residency area, The findings of the study indicate that more than half of the study participants are urban dwellers. As regards the family type, there are majority of mothers in both groups of extended families. In terms of occupational status indicates the present study shows that only 20.8% and 12.5 % in the study and

control groups respectively employed mothers, while the remaining (79.2%) in the study group and 87.5% in the control group were housewives. The commitment of some working mothers at most times made them unable to participate and engage in the program sessions, therefore their proportion was low in comparison to non-working mothers (researcher). In regard to the socio-economic status, The family income of the study participants about (56.3%) was in the study group and (62.5%) in the control group sufficient to some extent. According to the evidence, poverty and unemployment are increasing in our society, and therefore, most Iraqi families are of a medium or limited income level. (MOP, 2021).

About child age; the results of the present study demonstrated that the more than half of mothers having children within age of one year or less. Regarding the child's gender, about 54.2% of the children in the study group were females, while 56.3% of them were males in the control group. Concerning the sequence of the child in the family where was in the study group (35.4%) the first child, while the sequence of the child in the control group was the second (39.65%). The study done in Egypt by **Abd Elaziz and Mohamed,2019**) found that more than half of the children in the study sample (55.0%) are males, and about (59.0%) were ranked as the first child in the family. With regard to the number of pain episodes, most of the infants in both groups admission to the hospital at least once a month. This result was in agreement with another study done by (**Gorodzinsky, et al., 2012**) in this study mentions that many parents reported that their children experienced pain once/month and were admitted to the hospital because of it, also (7.3%) reported that their children suffer from pain several times a week, and the lowest percentage (2.5%) complained of pain

According to table above 2, our study reveals that many mothers resorted to using more than one strategy to relieve their children's pain, as the percentage was as follows: About 45.8% and 47.9% of the mothers in the study and control groups, respectively. Distraction is an effective method of pain management in pediatric patients that aims to shift attention away from pain.(**Davidson, et al., 2016**). There is strong evidence supporting the efficacy of distraction techniques for needle-related pain and distress in children (**Uman, et al., 2013**). Also, laughter and humor have been linked to pain control in children and have potentially positive effects on immune function. A study conducted by a number of researcher they found that watching a funny video reduced children's laboratory pain responses and lowered their levels of the stress hormone cortisol.(**Evans, et al., 2008**).

While a third of the mothers in the current study for both groups used massage and breastfeeding (27.1%), (31.3%), respectively, to reduce the feeling of pain. Two observational studies reported that massage therapy significantly reduced crying time in infant with colic and decreased Neonatal Infant Pain Scale scores in infants(**Mangat, et al., 2018**). These studies suggest that a gentle massage prior to a heel prick is safe and can decrease pain. Two randomized trials reported that an upper limb massage significantly decreased pain responses during venipunctures in infants. (**Chik et al. 2017**) randomized 80 infants and found significantly lower pain scores between the massage and control groups. Based on earlier studies, breastfeeding was indicated to have been effective in relieving pain among neonates and administration of glucose or sucrose had similar effectiveness to breastfeeding for reducing pain in infants undergoing a single painful procedure. (**Shah, et al., 2012**). Whereas the other remaining strategies in the current study, such as listening to the Quran or music, using a pacifier, and swaddling/tucking were less used by mothers.

This finding is consistent with the finding by a number of researchers (**Pölkki, et al., 2018**) who stated that less common strategies used by parents to relieve their children's pain included recorded music (2%) and nonnutritive absorption using oral sucrose. (6%). Gentle touch consists of therapeutically touching a neonate with the fingertips placed above the eyebrow line of the infant and the palm touching the infant's crown, while the other hand is gently rested on the lower abdomen. It is important that the hands must be warmed before using the method. This is because touch is one of the strong positive senses in newborns, so gentle touch promotes sensory maturation and optimal behavioral regulation (**Bijari et al., 2012**).

Many studies adopting music therapy for subjects undergoing medical procedure has found in comparison with the control group, those who listened to music reported a significantly lower pain score, less sedation, and shorter examination times. (**El Geziry, A., et al., 2018**). A study done by (**Taddio, et al., 2015**) showed that a non-nutritive sucking (using a pacifier or finger) can be effective in reducing infant pain-related distress. Also, a study conducted by (**Hartley, et al., 2015**) they concluded that the findings the effects of swaddling on acute pain in neonates revealed analgesic effects, with the swaddled group having lower scores of pain and faster returns to normal positions following a blood sampling procedure.

Concerning mothers' responses in the study group **in table 2** before presenting the instructional program had poor knowledge about pain for all items, except items numbered (1,4,9,13,16, and 20), the mothers' responses were good; with overall knowledge score was (1.40). Regarding mean scores of mothers' knowledge about pain among children after program sessions in the study group. it shows a highly significant difference ($P < 0.01$) between pre-test and post-test assessments in the study group for all items about pain, except items numbered (10 and 11) there was no significant difference. The findings of the post-test confirmed the effectiveness of an instructional program in terms of significantly improving mothers' knowledge about pain in their children. The result of the current study is consistent with the study carried out by a researchers (**Saadatjoo, et al., 2013**) they mentioned that the majority of study participants had low knowledge of pediatric pain management.

Whereas mothers in the control group (table 3) also had poor knowledge about all items except those numbered (1, 3, 5, 7, 14, and 17), their responses were good, with an overall mean score of the pain domain was (1.41). The results of the current study indicate that the knowledge of the mothers who participated in the study for both groups was poor or insufficient. The reason may be due to the preference of the majority of parents to resort to using medications to relieve pain in their children without resorting to other pain relief strategies, the lack of awareness programs about the subject of the study. There was a remarkable enhancement of knowledge among most of the participants in the study group after applying the instructional program. The mean post-test knowledge score is (1.67) in the study group (**Table 4**).

According to table (5), the study findings demonstrated that the majority of the study sample responses to non-pharmacological pain management at the pre-test were poor for 22 out of 30 items, and the remaining items are numbered (3, 10, 11, 20, 21, 25, 28, and 30) were good. The current of study result is supported by other findings of a previous study conducted by (**Franck et al., 2012**), which addressed the need to increase the participation of parents in infant pain management. While post-test demonstrated that there was a

noticeable good improvement in the level of knowledge for the majority of study participants' responses after exposure to the instructional program sessions for all items, except items numbered (2, 5, 13, 17, 18, and 22), the mothers' responses remained weak.

Regarding the overall assessment of mothers' knowledge, the present study shows that mothers have poor knowledge about some strategies prior to the application of instructional sessions, while mothers showed a good level of knowledge post-application of the instructional sessions. This result is similar to the result carried out by **Abd El-Gawad (2017)** who found in his study an improvement in participants' knowledge after providing program sessions that reflected on child status. According to (table 7) by comparing the overall knowledge of the study with the control group through a two-tailed independent t-test in each phase of the study independently, the outcome revealed that the mean score of participants regarding non-pharmacological pain management on the pre-test was (1.39) which is a poor level of knowledge, whereas in the post-test the mean score has been increasing (1.66) with a large effect size of (1.02) at p-value 0.001. This interpretation is supported by **(Amouzeshi, et al., 2013)**, they reported that the lack of mothers' knowledge of pain management in their children confirms the need to apply the instructional program for knowledge upgrading.

The current study exposes that there is a significant relationship between mothers' knowledge about pain with their education. In a study conducted by a number of researchers **(Abd-Alrazzaq & Aziz, 2021)**, they found there is a significant relationship between mothers' knowledge about non-pharmacological pain management with regard to their educational level. Whereas, there is no significant relationship between mothers' knowledge with age. In addition, the finding indicated that there was no statistically significant association between mothers' knowledge in the study group (post-test) toward non-pharmacological pain management and remaining variables. The result is consistent with a previous study conducted by **(Pölkki, et al., 2018)** which demonstrated that there were no statistical significant associations between non-pharmacological pain management and background variables for study participants.

Regarding the association between mothers' knowledge and occupation status, the present study indicates that there is a significant relationship between mothers' knowledge about pain and occupational status at p-value of .004. This finding agrees with a previous study done by **(Abed El Fatah & Mobarak, 2016)**, which indicates that mothers working have adequate knowledge about pain (44.4%). With regard to age, a study carried out by **(Saadatjoo, et al., 2013)**, reported that no statistically significant relationship was found between mothers' age, the number of children in the family, and mothers' knowledge of pain management in children.

Conclusions:

The results of this study indicate that mothers have poor knowledge about non-pharmacological pain managements among their children.

Recommendations:

Based on the study findings and conclusion, the researcher recommends the following: Encouraging mothers to participate in and attend educational seminars and programs on non-pharmacological pain management in the future to increase the mother's level of knowledge about the most important methods she uses to relieve the

child's pain. Work to repeat such a study on children with different age groups to enable the generalization of the results of the study. Coordination with the media, whether through publications, advertisements, or visual means in order to increase mothers' knowledge about non-pharmacological pain management.

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