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## A Study to assess the knowledge and self-care practices on gestational mellitus among antenatal women.

Jishy Carmal P.N<sup>1</sup>, Sheba James<sup>2</sup>, Prithika.P<sup>3</sup>,Ajith Kumar.M<sup>4</sup>, Surya.V<sup>5</sup>, Radha Krishnan.R .A<sup>6</sup>

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### Abstract

Gestational Diabetes Mellitus is a public health concern and one of the causes of maternal and fetal mortality and morbidity. Gestational diabetes is one of the most common health issue that can occur during pregnancy.it happens when the mother is first diagnosed with diabetes during the pregnancy. The minimizing factors for gestational diabetes are adequate knowledge about the condition for early detection and treatment; healthy practices on diet and physical activeness. Awareness of the condition among antenatal women will translate into adoption of a healthy lifestyle, better health-seeking pattern, better self-care practice, which prevent acute complications and reduce the risk of long-term complications and promote pregnancy outcome.

**Keywords:** Gestation, Diabetes Mellitus , Antenatal Mothers, knowledge, self-care practice.

### INTRODUCTION AND BACKGROUND

Pregnancy is a unique period that entails substantial physiological and psychological adjustment for the mother. During pregnancy lots of metabolic and hormonal changes takes place. Although pregnancy is not a disease but a normal physiological state, it is associated with certain risks to health and survival both for the women and for the fetus<sup>1</sup>.

Gestational Diabetes is one of the most common health issue that can occur during pregnancy. It happens when the mother is first diagnosed with diabetes during the pregnancy. Diabetes mellitus is a metabolic disorder that effects carbohydrates,fats and protein metabolism. Gestational Diabetes Mellitus is considered to be a typical condition of glucose intolerance in which a women

previously undiagnosed with diabetes exhibits high level of blood glucose during the 3rd trimester of pregnancy. The key to minimizing the effect of gestational diabetes is diagnosing it early through the use of an Oral Glucose Tolerance Test. A diagnosis of Gestational Diabetes Mellitus puts a pregnant women into the high-risk category. If Gestational Diabetes is not diagnosed correctly, It can lead to macrosomia in the baby (abnormally large fetal size). A history of gestational diabetes mellitus can be to be the sturdiest risk factors concerning the development of type2diabetes mellitus. Among women who have a history of gestational diabetes mellitus, the risk of developing classical type 2 diabetes usually ranges from 20-50% <sup>2</sup>.

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With an estimated 50.8 million people living with diabetes, India has the largest diabetes population in the world and has the dubious distinction of being the diabetes prevalence of which is constantly increasing. After delivery, though the glucose levels return to normalcy, the mother is at a higher risk for type 2 DM, and the child of the women with Gestational Diabetes Mellitus is at a higher risk for metabolic syndrome<sup>1</sup>.

The precise mechanisms underlying gestational diabetes remain unknown. The hallmark of GDM is increased insulin resistance. Pregnancy hormones and other factors are thought to interfere with the action of insulin as it binds to the insulin receptor. The interference probably occurs at the level of the cell signaling pathway beyond the insulin receptor. Since insulin promotes the entry of glucose into most cells, insulin resistance prevents glucose from entering the cells properly. As a result, glucose remains in the bloodstream, where glucose levels rise. More hypoglycemic agent is required to beat this resistance; concerning 1.5 to 2.5 times additional hypoglycemic agent is created than in an exceedingly traditional physiological state. The main cause and risk factor of Gestational Diabetes Mellitus are age above 25 years, pre-gestational obesity or excessive weight gain during pregnancy, family history of diabetes, personal history of poor obstetric outcomes such as polyhydramnios, macrosomia, pre-eclampsia, fetal malformation of an ethnic group with a high risk prevalence of diabetes and history of diabetes mellitus in previous pregnancy<sup>3</sup>

Knowledge is an important component of health literacy. Studies show that inadequate knowledge about the disease leads to poor understanding of medical information. This leads to limited adherence to management strategies and ultimately unfavorable pregnancy outcome. In the Indian context, several cultural factors also play a very important role in health seeking behaviour, especially amongst pregnant women<sup>4</sup>

Gestational Diabetes leads to maternal, fetal and neonatal complications as pre-eclampsia, polyhydramnios, pre-term labour, fetal malformation, macrosomia, hypoglycemia, hyperbilirubinemia, respiratory distress syndrome and perinatal mortality. Furthermore, in later life, other complications may develop and affect both women and their infants as obesity, type 2 Diabetes mellitus, heart disease and Neuropsychological women<sup>4</sup>

## MATERIALS AND METHOD

The chapter explains the methodology adopted by the researcher to assess the knowledge and self-care practices on Gestational Diabetes mellitus among antenatal women in Chettinad hospital and research institute, kelambakkam, Tamilnadu. It deals with the research approach, research design, setting of the study, population, sample and sample size, sampling technique, criteria for the selection of sample, data collection procedure, description of tool for data collection, plan for

### RESEARCH APPROACH :

The researcher adopted a quantitative approach

**RESEARCH DESIGN:** A Descriptive study

### RESEARCH SETTING:

Chettinad Hospital and Research Institute, Kelambakkam

### POPULATION :

Antenatal Mothers with Gestational Diabetes Mellitus

### SAMPLE:

60 Antenatal Women

### SAMPLE SIZE:

FORMULA,

$$n = z^2 p_1(1-p_1) + p_2(1-p_2)$$

d<sup>2</sup>

Where,

n=60 Antenatal women

d/2= confidence interval

p<sub>1</sub>= Estimated proportion

d= Desired precision

### SAMPLE TECHNIQUE

Convenience Sampling techniques was used in the study

## FINDINGS

**Objectives 1: To assess the knowledge and self-care Practices on Gestational Diabetes Mellitus among Antenatal Women.**

From the findings it shows that majority (85 %) of the antenatal mother has average knowledge where as (15 %) of the antenatal mother has poor knowledge on gestational

diabetics and majority (60%) of the antenatal mothers has average practice whereas the (40%) of the antenatal mothers has good practice on gestational diabetics.

**Objectives 2: To identify the relationship between knowledge and self-care practices on Gestational Diabetes Mellitus among Antenatal Women.**

From the findings it shows that the correlation between the level of knowledge and practice score shows that the  $r = -0.038$ , it shows that there is negative correlation between level of knowledge and practice. Hence  $H_1$  is strongly rejected.

**Objectives 3: To identify the association of knowledge on Gestational Diabetes Mellitus with selected socio-demographic variables among Antenatal Women.**

From the findings it shows that there is no significant association between level of knowledge on gestational diabetic mellitus with selected socio-demographic variables among antenatal mothers

**Objectives 4: To identify the association of self-care practices on Gestational Diabetes Mellitus with Selected socio demographic variables among Antenatal Women.**

From the findings it shows that there is no significant association between level of self-care practice on gestational diabetic mellitus with selected socio-demographic variables among antenatal mothers.

**DISCUSSION:**

The study intends to assess the knowledge and self-care practices on gestational diabetes mellitus among antenatal women, in order to achieve the objectives of the study, Descriptive research design was adopted. Purposive sampling techniques were used to select the samples. Data was collected from 60 antenatal women by using self-structured practice and knowledge questionnaire. Data gathered was analyzed by using descriptive and inferential statistics.

**CONCLUSION:**

The present study assessed the knowledge and self-care practices on Gestational Diabetes Mellitus among Antenatal Women. The results showed that (85%) of Antenatal Women have average knowledge and (60%) of Antenatal Women had average self-care practice on Gestational Diabetes Mellitus. A negative correlation was found between knowledge and practice which is not statistically significant at  $p > 0.05$  level of significance.

**CONFLICT OF INTEREST: NIL**

**SOURCE OF FUNDING: SELF**

**ETHICAL CLEARANCE:**

The research was conducted according to established guidelines (Paules 2007). The UG committee clearance and institutional ethical committee clearance was obtained from CARE institutional. The study was explained to the participants. The participants were reminded that they may withdraw their participation whenever they wish and the study results will be solely for research purpose.

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# Study to Assess the Knowledge and Practice of Pediatric Nurses Regarding Postoperative Pain Management in a Selected Hospital, Tamil Nadu, India

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## Abstract

**Background:** Children continue to experience unrelieved moderate to severe pain post operatively despite the evidence to guide practice being readily available. Objectives to ascertain how nurses actually manage post operative pain in children and whether pain management practices adhere to current best practice guidelines.<sup>1</sup>

**Materials and Methods:** The sample size was 69 from chettinad hospital and research institute. The research design used in this study is Quantitative descriptive design. Non-probability convenient sampling technique will be used to select the samples.

Standardized questionnaire and checklist was used to collect data. There data was analyzed and tabulated.

**Result:** Study shows Starting with age group majority of nurses about 72.5% were under the age group of 20 to 29. Among the nurses, majority about 63.9% were female, male nurses were very less comparatively. About 70% of pediatric nurses were inadequate in knowledge and 30% of pediatric nurses were moderate in knowledge. About 72.5% of nurses were good in practice and 27.5% of nurses were moderate in practice. There is no association between the selected demographic variables and the level practice of pediatric nurses regarding post operative pain management in children.

**Keywords:** Knowledge, Practice Pain management, Peadiatric Nurses.

## Introduction

Pain is a feeling of distress, suffering or agony, caused by stimulation of specialized nerve endings. Its purpose is chiefly protective and induces the sufferer to remove or withdraw from the source. The role of

nurse is vital in the assessment and management of pain experienced by children during hospitalization.<sup>2</sup>

Pain is perhaps the most feared symptom of disease, which a man is always trying to alleviate and conquer since ages. It is defined by the international

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association for study of pain as an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage.<sup>3</sup>

Knowledge has found to be lacking in the areas of addiction, scheduling of analgesics, and the pharmacological and non-pharmacological treatment of post-operative pain and in assessment of pain. In the case of postoperative pain, it is the result of the surgery. The goal for postoperative pain management is to reduce or eliminate pain and discomfort with a minimum of side effects as cheaply as possible. It is the pediatric nurse who plays important role in pain relief.<sup>4</sup>

Pain has become the universal disorder, a serious and costly public health issue, and a challenge for the family friends, and healthcare providers who must give support to the individual suffering from physical as well as the emotional consequences of pain.<sup>3</sup>

Nurses are primarily responsible for providing pain relief in the health care arena. So, by participating in research projects nurses become leaders in their own departments by working to improve nursing practice and patient care.<sup>5</sup>

Statement of problem: A study to assess the knowledge and practice of pediatric nurses regarding post operative pain management in a chettinad hospital, Tamil Nadu, India

#### Objectives of the study:

1. To assess the knowledge of pediatric nurses regarding post-operative pain management
2. To assess the practice of pediatric nurses regarding post-operative pain management.
3. To find out the association between the knowledge and practice of pediatric nurses regarding post-operative pain management.

#### Subject and Methods

Research Approach: Quantitative approach

Research design: Descriptive research design

Setting of study: chettinad hospital and research institute

Sample: All registered nurses who work in children's ward

Sample size: 69

Inclusion criteria: Nurses who were all working in pediatric ward in selected hospital Chennai, Tamil Nadu, India, Pediatric nurses who were all available at a time of data collection

The tools had 3 parts

Part 1: Demographic variables

Part 2: Knowledge questionnaire on postoperative pain management in children

Part 3: Practice checklist on postoperative pain management in children

#### Result

**Table 1: Frequency and percentage distribution of level of knowledge score of staff nurses regarding post-operative pain management of children.**

Level of Practice	Frequency	Percentage
Poor	0	0
Moderate	22	27.5
Good	58	72.5

**Table 2: Frequency and percentage distribution of level of practice score of staff nurses regarding post-operative pain management of children.**

Level Of Practice	Frequency	Percentage
Poor	0	0
Moderate	22	27.5
Good	58	72.5



**Table 3: Association of selected demographic variables with level of knowledge score and level of practice score of pediatric nurses regarding post-operative pain management of children.**

S. No	Demographic Variables	Category	No Of Samples	Knowledge		$\chi^2$	P Value	Practice		$\chi^2$	P value
				Inadequate	Moderate			moderate	good		
1	Age in Years	20-29	58	41	17	4.918	df=2 0.086 (Not significant)	13	45	2.828	df=2 0.243 (Not significant)
		30-39	20	15	5			8	12		
		40-49	2	0	2			1	1		
		50-59	0	0	0			0	0		
2	Gender	Male	29	18	11	1.363	df=1 0.243 (significant)	7	22	0.258	df=1 0.612(Not significant)
		Female	51	38	13			15	36		
3	Religion	Hindu	39	30	9	2.681	df=2 0.262(not significant)	11	27	0.770	df=3 0.857(not significant)
		Christian	23	16	7			7	16		
		Muslim	18	10	8			4	14		
4	Duration	Fresher	27	19	8	0.914	df=4 0.923(not significant)	6	21	4.554	df=4 0.336(not significant)
		1-5 years	26	18	8			6	20		
		6-10 years	25	17	8			9	16		
		10-15 year	1	1	0			1	0		
		More than 15 years	1	1	0			0	1		
	Educational qualification	Diploma in nursing	37	25	12	1.101	df=2 0.577 (Not significant)	9	28	0.349	df=2 0.84 Not significant
		Bachelor in nursing	33	25	8			10	23		
		Masters in nursing science	10	6	4			3	7		
6	Current position	Staff nurse	45	36	9	10.313	df=2 0.006 (Not significant)	13	32	4.908	df=2 0.086 (Not significant)
		Senior staff nurse	19	14	5			2	17		
		Ward in charge	16	6	10			0	0		
		Nursing supervisor	0	0	0			10	20		
7	Reading nursing journal	Monthly	20	21	9	10.248	df=3 0.017 (significant)	8	15	6.219	df=3 0.101 (Not significant)
		Quarterly	23	11	12			2	21		
		Yearly	23	20	3			2	2		
		Never	4	4	0			–	–		
8	Management protocol	Yes	60	42	18	0.000	df=1 1.000 (not significant)	–	–	–	–
		No	20	14	6			–	–		

## Discussions

The results study shows Starting with age group majority of nurses about 72.5% were under the age group of 20 to 29. Among the nurses, majority about 63.9% were female, male nurses were very less comparatively. About 70% of pediatric nurses were inadequate in knowledge and 30% of pediatric nurses were moderate in knowledge. About 72.5% of nurses were good in practice and 27.5% of nurses were moderate in practice. There is no association between the selected demographic variables and the level practice of pediatric nurses regarding post operative pain management in children.

**Conflict of interest:** Nil

**Source of funding:** Self

**Type of study:** Original

Ethical clearance:

1. Permission was obtained from the HOD, Department of Child Health Nursing, Chettinad College of Nursing.
2. UG Committee clearance was obtained.

3. Institutional Human Ethics Committee clearance was obtained from Chettinad Academy of Research and Education.
4. Written consent was obtained from the study participants.

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## A Study to Assess the Parenting Style among Working and Non-Working Mothers of Children

MERIN SUSAN JACOB<sup>1</sup>, FEBA MARIYAM BIJU<sup>2</sup>, HEMA PIRIYA<sup>3</sup>, ARUN KUMAR<sup>4</sup>,  
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### Abstract

In a specific area in Chengalpattu, Tamilnadu, a non-experimental study was conducted to assess the parenting styles of working and non-working mothers. The study's aims were to assess parenting behaviors among working and non-working mothers, compare parenting behaviors among working and non-working mothers, and compare parenting behaviors between working and non-working mothers. The study included 100 samples in total. To select the sample, through probability sampling methods were used. The researcher has set aside a week to collect the necessary data. Before starting the study, the sample would provide informed consent and permission. The checklist will be given by the researcher to many community centers. Working and non working mothers will complete the checklist and submit it to the researcher.

**KEYWORDS:** Parenting style, working and non working mothers of children.

### INTRODUCTION AND BACKGROUND

A parenting style is a psychological construct representing standard strategies that parents use in their child rearing. The quality of parenting can be more essential than the quantity of time spent with the child. For instance, the parent may be engaging in a different activity and not demonstrating enough interest in the child. Parenting styles are the representation of how parents respond to and make demands on their children. Parenting practices are specific behaviors, while parenting styles represent broader patterns of parenting practices.[<sup>1</sup>] (Spera, Christopher [1 June 2005]) There are various theories and opinions on the best ways to

rear children, as well as differing levels of time and effort that parents are willing to invest. Children go through different stages in life, therefore parents create their own parenting styles from a combination of factors that evolve over time as children begin to develop their own personalities. During the stage of infancy, parents try to adjust to a new lifestyle in terms of adapting and bonding with their new infant. Developmental psychologists distinguish between the relationship between the child and parent, which ideally is one of attachment, and the relationship between the parent and child, referred to as bonding. In the stage of adolescence, parents encounter new challenges, such as adolescents seeking and desiring freedom.[<sup>2</sup>] (Banks JA, [September 10,2009])

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A child's temperament and parents' cultural patterns have an influence on the kind of parenting style a child may receive. [3] (Berger S., Kathleen [18 February 2011]).

It is not clear as to whether a child's education is part of parenting. Early research in parenting and child development found that parents who provide their children with proper nurture, independence and firm control, have children who appear to have higher levels of competence and are socially skilled and proficient.[1] (Spera, Christopher [1 June 2005]).

Showing love and nurturing children with care and affection encourages positive, physical, and mental progress in children.[4] (Biglan, Anthony; Flay, Brian R.; Embry, Dennis D.; Sandler, Irwin N. [2012]).

Additional developmental skills result from positive parenting styles including: maintaining a close relationship with others, being self-reliant, and being independent. During the mid 1980s, researchers began to explore how specific parenting styles influence a child's development later in life. [5] (Bishnoi M, Singh R., [2021]).

Diana Baumrind's influential typology divides parenting styles into three styles, the authoritative, authoritarian and indulgent (or permissive) styles. According to a literature review by Christopher Spera (2005), Darling and Steinberg (1993) suggest that it is important to better understand the differences between parenting styles and parenting practices: "Parenting practices are defined as specific behaviors that parents use to socialize their children", while parenting style is "the emotional climate in which parents raise their children. [1](Spera, Christopher [1 June 2005]).

Others such as Lamborn and Dornbusch Darling and Steinberg assisted in the research focusing on impacts of parenting practices on adolescence achievement. [6] (Steinberg, Laurence; Lamborn, Susie D.; Dornbusch, Sanford M.; Darling, Nancy [1992]).

One study association that has been made is the difference between "child's outcome and continuous measures of parental behavior." Some of the associations listed include: Support, Engagement, Warmth, Recognition, Control, Monitoring, and Severe punishment. [7] Amato, Paul R. [February 1988]). [8](Kurdek, Lawrence A.; Fine, Mark A. [August 1994]).

Parenting practices such as parental support, supervision and strict boundaries appear to be associated with higher school grades, fewer behavioral problems and better mental health.[9] (Gray, Marjory Roberts;

[August 1999]).

These components have no age limit and can start in preschool all the way through college.[10](Amato, Paul R.; Fowler, Frieda [2002]).

## Material and Methods

The chapter deals with the description of research method ologyadopted by researcher to study and to assess the parenting style. It includes research approach, research design, research setting, population, sample, sample size and sampling technique.

### RESEARCH APPROACH:

The research eradopted qualitative approach research.

**RESEARCH DESIGN:** A descriptive study.

**RESEARCH SETTING:** The mothers of children who are residing at Poonjeri village.

### SAMPLE SIZE:

Sample size  $n = DEFF * NP(1-p)1/[d2/z2/2*(n-1)+p(1-p)$ .  
Population size (N):100

**Working mothers:** 50 Non working mothers:50

**SAMPLING TECHNIQUE;** Probability sampling technique was used in the study

## FINDINGS

**Objectives1:**To assess the parenting style among working and non working mothers of children with selected demographic data.

From the findings it shows that the majority of working mothers were 25-30 years of age (36%). Most of them were Hindus (74%), belonging to nuclear family (70%). All of the participants were married (100%). Most of them are graduates (38%), private employees (60%) with monthly income of Rs.2500-Rs.5000 (36%). No participants were having any long term health problems (100%). They are all aware about the parenting style (100%). And for non working mothers the maximum age of mother participated in the study were 31-45 years of age (44%). Most of them were Hindus (74%), belonging to nuclear family (72%). All of the participants were married (100%). Most of them are high school education (34%), home maker (100%) with monthly income of less than Rs. 2500 (36%). No participants were having any long term health problems (100%). They are all aware about the parenting style(100%).

**Objectives 2:** To compare the parenting style among working and non working mothers of children.

From the findings it shows that the majority of working mothers have good parenting style. The mean is 85.89 and the standard deviation is 10.415 and non working mothers also implement good parenting style. The mean is 82.80 and the standard deviation is 12.005

**Objectives 3:** To associate the parenting style among working and children.

From the findings there is no association between working mothers and non working mothers with demographic data.

## DISCUSSION

We have conducted are search on A study to assess the parenting style among working and non working mothers of children.

From the findings it shows that the majority of working mothers were 25-30 years of age (36%). Most of them were Hindus (74%), belonging to nuclear family (70%). All of the participants were married (100%). Most of them are graduates (38%), private employees (60%) with monthly income of Rs.2500 Rs.5000 (36%). No participants were having any long term health problems (100%). They are all aware about the parenting style (100%). And for non working mothers the maximum age of mother participated in the study were 31-45 years of age (44%). Most of them were Hindus (74%), belonging to nuclear family (72%). All of the participants were married (100%). Most of them are high school education (34%), home maker (100%) with monthly income of less than Rs. 2500 (36%). No participants were having any long term health problems (100%). They are all aware about the parenting style (100%). And the majority of working mothers have good parenting style. The mean is 85.89 and the standard deviation is 10.415 and non working mothers also implement good parenting style. The mean is 82.80 and the standard deviation is 12.005. There is no association between working mother and demographic data as well as non working mother is not associated with demographic data.

## CONCLUSION:

Parenting is very important. Effective parenting plays

a vital role in whether a child becomes a productive member of society or not. Proper parenting lets the child know what to expect out of life and how to deal with them as well. Parenting styles does not always have to be strict. As long as the parent is consistent with the rules given we believe children may follow them more with any problems.

**CONFLICT OF INTEREST:** NIL

**SOURCE OF FUNDING :** SELF

**ETHICAL CLEARANCE**

The UGC committee clearance and institutional ethical committee clearance was obtained from CARE institution. The study was explained to the participants. The participants were reminded they may withdraw their participation whenever they wishes and the study results will be solely for research purpose.

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## A Study to Assess the Incidence of Pre - Menstrual Syndrome (Pms) and Practice During Menstruation Among Adolescent Girls At Selected Institution, Salem

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### ABSTRACT:

Descriptive research design was adopted for the study. The investigator selected 156 samples through non-probability convenient sampling technique . The tool has three parts Section- A consists of Semi structured interview schedule to assess the demographic variables. Section- B was check list to assess Pre Menstrual Syndrome among adolescent girls. Section –C included Rating scale to assess the practice during menstruation among adolescent girls. The results of present study reveals that majority 98(73%) of adolescent girls experience irritability,headache 68(51%), anxiety41(30%), tension 83(62%), depression 51(38%), anger 85(63%), breast tenderness/Pain 49(36%),Impaired work activities 8(51%),and only 35(26%) adolescent girls have confusion as Pre Menstrual Symptoms before their menstruation . 156(100%) of them were having adequate practices during menstruation. There was no significant association found between level of practice during menstruation with their selected demographic variables such as age, and age at menarche, duration of menstruation, menstrual cycle, type of menstrual flow , experience of Pre Menstrual Syndrome, Dysmenorrhoea during menstruation.

**Key words:** PMS- Pre Menstrual Syndrome, Practices, Menstruation, Adolescent girls.

### INTRODUCTION

Adolescence is the phase of life between childhood and adulthood, from ages 10 to 19. It is a unique stage of human development and an important time for laying the foundations of good health.

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Adolescents experience rapid physical, cognitive and psychosocial growth. This affects how they feel, think, make decisions, and interact with the world around them. Adolescence has been recognized as a special period that requires specific attention as it marks the onset of menarche, an important milestone, and hence good hygienic practices during menstruation are crucial to maintain a healthy life.<sup>1</sup>

Menarche is an important landmark in the process of growth and development among adolescent girls. A number of physical, psychological and emotional symptoms occur to the adolescent girls. Pre-Menstrually and during menstruation poor menstrual hygiene in developing countries has been an insufficiently, acknowledged problem.<sup>2</sup>

Menstrual hygiene deals with a women's special health care needs and requirements during her monthly menstruation or menstrual cycles. This is a matter to be taken into special attention which includes choosing the best period protection or feminine hygiene products, bathing, care of her vulva and vagina, as well as the supported benefits of vaginal douching at the end of each menstrual period. The manner in which a girl learns about menstruation and its associated changes may have an impact on her attitude to event of menarche.<sup>4</sup>

Menstrual hygiene hasn't received much attention because it's an accepted fact that menstruation is normal physiological process in girls. Some girls may experience backache, constipation, premenstrual tension during menstruation. If guidance is given on time, the young girls will clear to cope up with it in a better way. Adolescent girls may be exposed to wrong information which contributes to their, misconception, unhygienic practices and fear towards menstruation, menstruation and menstrual practices are still clouded by the taboos and socio cultural restrictions resulting in remaining ignorant of the fact and hygienic health practices.<sup>2</sup>

Menstrual hygiene refers to the personal hygiene practice during menstruation. A girl needs to practice a high level of personal hygiene during her periods and the personal hygiene starts from the selection of best sanitary products, its proper usage, disposal, body cleanliness, diet, etc. Different menstrual abnormalities are found in different populations, suggesting socio cultural and regional variations.

Menstrual abnormalities and disorders are frequently linked to physical, mental, social, psychological and reproductive issues, affecting adolescents' daily lives and their families' lives by various psychosocial problems such as anxiety.

Poor menstrual hygiene is one of the major reasons for prevalence of Reproductive tract infections in the country and contribute significantly to female morbidity. Lack of knowledge regarding menstruation and menstrual hygiene leads to poor attitude and practice. Nurses are in a position to assess the hygienic practices of adolescent girls and inculcate right practices. This study aims to assess the incidence of Pre Menstrual Syndrome and practices followed during menstruation of adolescent girls which lay's foundation for their good menstrual hygiene practices.

#### **STATEMENT OF THE PROBLEM:**

A study to assess the Incidence of Pre Menstrual Syndrome and Practices during menstruation among Adolescent Girls at Selected Institution, Salem.

#### **OBJECTIVES:**

1. To assess the incidence of pre menstrual syndrome among adolescent girls.
2. To assess the level of practice regarding menstrual hygiene among adolescent girls .
3. To associate the level of practice regarding menstrual hygiene among adolescent girls, with their demographic variables.

#### **HYPOTHESIS:**

H1: There is a significant association between the level of practices during menstruation among adolescent girls with their demographic variables at  $p \leq 0.05$  level.

#### **RESEARCH METHODOLOGY:**

Quantitative research approach with Descriptive research design, Survey method was adopted for study. Data was collected among 156 adolescent girls studying B. Sc Nursing programme at Sri Gokulam College of Nursing, Salem. They were selected through non probability convenient sampling technique.

**Description of the Tool:** The tool comprises of three sections.

**Section –A** was semi structured questionnaire which comprises of demographic variables such as age, religion, age of menarche, frequency of menstrual cycle, duration of menstruation, type of menstrual flow throughout menstruation, experiences of pre menstrual syndrome, dysmenorrhea during menstruation and treatment for regularizing menstrual cycle.

**Section – B** Comprises of check list to assess the symptoms of Pre Menstrual Syndrome. It consists of a list of statements to assess the incidence of premenstrual syndrome among adolescent girls. The statements in the check list for Pre Menstrual Syndrome was scored 1 for Yes and 0 if No.

**Section – C** Comprises of rating scale to assess practice during menstruation. It consist of 17 self rated practice Statements to assess the practice during menstruation among

adolescent girls. List of statements in the Rating scale was rated as 3 for always, 2 for sometimes and 1 for Never. Level of Practice were scored as inadequate practice( 0-7) s ,moderately adequate practice ( 18-34) and adequate practice( 35-51).

#### Ethical Consideration:

Ethical clearance was obtained from the Institutional Ethical Committee and written informed consent was obtained from the participants. Confidentiality of the information obtained was ensured.

#### Data Collection Procedure:

After obtaining permission from the concerned authorities of the Institution , the data was collected from adolescent girls of I ,II, III & IV year B.Sc Nursing. Alltheadolescent girls were gathered in a hall. The purpose of the study was explained and instructions were given regarding each sections in the tool. Tool was distributed to the students. It to complete the tool.

### RESULTS AND DISSCUSION:

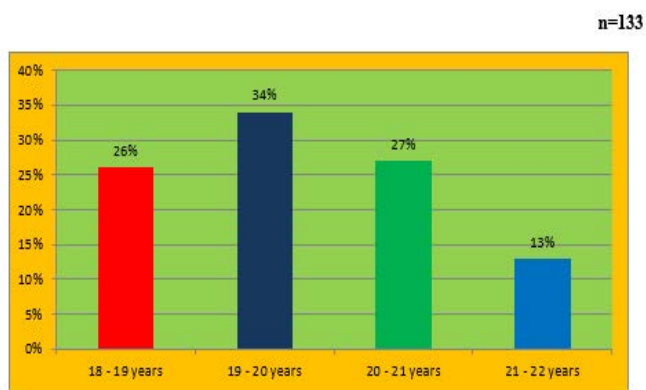
**Table.1:Frequency & percentage distribution of of Adolescent girls according to their demographic variables n = 156**

S.No	Demographic variables	Frequency	Percentage
1.	<b>Age of the sample</b>		
	a) 18-19 years	42	27
	b) 19-20 years	53	34
	c) 20-21 years	40	26
	d) 21-22 years	21	13
2.	<b>Religion</b>		
	a) Hindu	121	78
	b) Christian	30	19
	c) Muslim	5	3
3.	<b>Age of menarche</b>		
	a) Below 10 years	4	3
	b) Between 10-15 years	123	79
	c) Above 15 years	29	18
4.	<b>Frequency of menstrual cycle</b>		
	a) Less than 25 days	20	13
	b) 25-30 days	111	71
	c) Above 30 days	25	16
5.	<b>Duration of menstruation</b>		
	a) less than 5 days	93	60
	b) More than 5 days	63	40
6.	<b>Type of menstrual flow throughout menstruation</b>		
	a) Normal	120	77
	b) Heavy	26	17
	c) With blood clots	10	6
7.	<b>Did you experience premenstrual symptoms?</b>		
	a) Yes	133	85
	b) No	23	15
7.1	<b>If yes, how many days before menstruation</b>		
	a) One day	24	18
	b) Two days	72	59
	c) Three – four days	37	28
8.	<b>Dysmenorrhoea during menstruation</b>		
	a) Present	68	44
	b) Absent	88	56

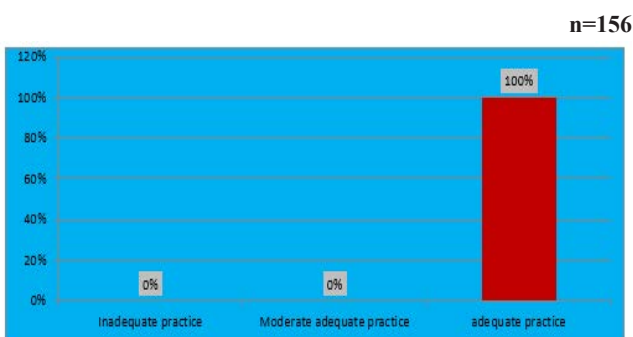
9.	<b>Do you take any medication during menstruation</b>		
	a) Yes	9	6
	b) No	147	94
10	<b>Are you on any treatment for regularization menstrual cycle</b>		
	a) Yes	2	1
	b) No	154	99

**Table–2Frequency and percentage distribution of Pre Menstrual Symptoms among Adolescent girls n=156 .**

S.No	Symptoms	Frequency	Percentage
1.	Depression	51	38
2.	Headache	68	51
3.	Anxiety	41	30
4.	Tension	83	62
5.	Irritability	98	73
6.	Confusion	35	26
7.	Anger	85	63
8.	Breast tenderness/pain	49	36
9.	Impaired work activities	68	51



**Fig-1 Frequency and percentage distribution of PMS of Adolescent Girls according to their Age**



**Figure-2 : Frequency and percentage distribution of Adolescent girls according to their level of practice during menstruation.**

#### **Distribution of adolescent girls according to demographic variables.**

Majority of adolescent girls 53(34%) belongs to the age group of 19-20 years, 121(78%) adolescent girls, belongs to Hindu religion, Majority 123(79%) have attained menarche at age between 10 – 15 years, 111(71%) of them have 25 – 30 days menstrual cycle, and 93(60%) of adolescent girls have less than 5 days of menstruation and 120(77%) of adolescent girls have normal menstrual flow,

The majority 133(85%) of adolescent girls having Pre Menstrual Syndrome and 23(15%) of adolescent girls not having Pre Menstrual Syndrome. Only 68(44%) of adolescent girls having dysmenorrhea during menstruation and 147 (94%) have not taken medication during menstruation, only 2 (1%) of adolescent girls are taking treatment for regularization of menstrual cycle and majority 154 (99%) of adolescent girls are not taking treatment for regularization of menstrual cycle .

#### **The first objective of the study was to assess the incidence of pre menstrual syndrome among adolescent girls.**

Study reveals that majority of 98(73%) Adolescent girls experiences irritability and only 35(26%) adolescent girls have confusion as Pre Menstrual Symptoms before their menstruation. and the majority 44(34%) of adolescent girls having Pre Menstrual Syndrome were belonging to the age group of 19 – 20 years. Thus , it revealed that adolescent girls have higher incidence of Pre Menstrual Syndrome .

#### **The second objective of the study was to assess the level of practice regarding menstrual hygiene among adolescent girls .**

Study findings reveals that all the sample 156(100%) adolescent girls have adequate practice and none of them have inadequate or moderately adequate practice during menstruation. Hence hypothesis  $H_1$  was retained.

#### **The third objective of the study was to associate the level of practice during menstruation among adolescent girls with their demographic variables.**

Chi – square find out the association between the level of practice during menstruation among Adolescent girls with their demographic variables. There was no association found between the level of practice during menstruation with their selected demographic variables such as age, religion, age of menarche, frequency of menstrual cycle, duration of menstruation and type of menstrual flow . Hypothesis  $H_1$  was rejected

#### **NURSING IMPLICATIONS:**

##### **Nursing Practice:**

Nursing personnel have to impart health education, demonstration, guidance and counselling to adolescent girls regarding personal hygiene, diet, daily activities and pain management during menstruation.

##### **Nursing Research:**

The findings of the study helps the nurse researcher to explore the menstrual Practices during menstruation followed by adolescent girls. Nurse Researcher can utilize the findings of the research to educate the public.

##### **Nursing Education:**

Various Education programmes like seminars and conferences can be organized to nursing students from first year in order to promote their knowledge and practices during menstruation .

##### **Recommendation:**

- 1) A similar study can be done for large number of samples to generalize the findings.
- 2) A study can be done to assess the effectiveness of structured teaching programmed on practice during menstruation among adolescent girls .

#### **CONCLUSION:**

Globally, approximately 52% of the female population (26% of the total population) is of reproductive age. Most of these women and girls will menstruate each month for between two and seven days . Menstruation is a natural part of the reproductive cycle, in which blood is lost through the vagina . However , in most parts of the world , it remains taboo and is rarely talked about . As a result , the practical challenges of

menstrual hygiene are made even more difficult by various socio – cultural factors . Poor hygiene and inadequate self care practices are major determinants of morbidity and other complication among this age group.

This study was conducted to assess the incidence of Pre Menstrual syndrome and practice during menstruation among adolescent girls in Sri Gokulam College Of Nursing, Neikkarapatti, Salem. The majority 133 (85%) of adolescent girls having experiences the Pre Menstrual Syndrome . The majority 44(34%) of adolescent girls having Pre Menstrual Syndrome were belonging to the age group of 19- 20 years. All the samples, 156(100%) of adolescent girls were practicing adequate practice during menstruation .And there was no significant association between the level of practice during menstruation among adolescent girls with their demographic variables.

**Ethical Clearance:** Taken from Institutional Ethical Committee.

**Source of Funding:** Self

**Conflict Of Interest:** Nil.

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## Training program concern employ energetic learning strategies among Pediatric nursing students: developmental study

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### Abstract

#### Background:

Strengthening pediatric nursing students to keep pace with digital development so that they can choose an active learning strategy that suits their educational goals, identify educational resources, and have the ability to evaluate themselves. **Purpose and design:** This study was adopted a quasi-experimental pre and posttest equivalent experiment and control group, design to examine the effects of training program on developmental level of pediatric nursing student's related to employ energetic learning strategies and self-efficacy. **Sample and setting:** hundred nursing students who enrolled in Pediatric Nursing course in nursing faculty, Benha university, Egypt. **Instruments:** Tool I: The Learning and Study Strategies Inventory (LASSI) to measure learning and study practices and attitudes. Tool II: " Modified Short version self-efficacy (SES) to measure student's self-efficacy. Tool III: "Modified Short version the flow state scale (FSS) to measure positive optimal experience experiment group only post applies on pediatric nursing course content. **Results:** There was statistically positive correlation between pediatric nursing students' female gender with urban residence and well-mannered developmental level concerning the Learning and Study Strategies Inventory, employs energetic learning strategies and their self-efficacy soon after training program. The majority of subgroup pediatric nursing students' trial reported that high score and narrated efficiency learning strategies was animation videos and simulation in practical content and web/computer assisted learning and problem-based learning in theoretical content. **Conclusion and recommendation:** Research assert that training program was effective and linked with high developmental level of pediatric nursing students about employing active learning strategies and self-efficacy. Distributing the content of the pediatric nursing curriculum on energetic learning strategies and directing students to learning the course according to the appropriate strategy type this is after their creativity in applying.

**Keywords:** Training program, pediatric nursing students, energetic learning strategies

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## 1-Introduction:

In light of the digital transformation that includes nursing education, pediatric nursing students must be trained and knowledgeable about active learning strategies to keep pace with the digital generations. The goal is to help students process information more deeply, which allows them to relate new information to existing ideas or experiences and accelerating the efficacy of knowledge and skills retention for students, as well as improving their efficacy (Zarshenas, et al., 2022).

In education systems learners must be possess an increased degree of autonomy and show initiative in learning processes, inspecting learning materials and understanding contents. An efficient growth of knowledge inside and outside of faculty is only possible if students have skills which initiate, guide and control the search for information and later on its processing and storage. Training on learning strategies is necessary for students to use in order to foster their application of results in education (Wegner, et al., 2013).

Along time ago pediatric nursing students, in higher education, should be depend on computer to do their study. Also, using network technology can create, foster, deliver, facilitate learning, and enhance students experience and knowledge. So, the rapid developments and growth of information literacy and communication technology had profoundly influence on higher nursing education (Elsayed and El-Sebaie 2022).

Our need to develop and train pediatric nursing students on energetic learning strategies appeared clearly during the Corona virus crisis, and many researches were done supporting and recommending e-learning and simulation in practical training for students (Cook, et al., 2022). Then it appears to us that students need training in energetic learning methods and self-efficacy in using them, and then develop students' skills and keep pace with digital transformation and develop outcome Learning for students (Horntvedt, et al., 2018).

Self-efficacy is the judgement that a person makes about their own capability to achieve a future task. High self-efficacy is the confidence or strength of belief that one can learn and experience success in learning. Students tend to avoid tasks that exceed their ability and seek tasks at which they can succeed (Inanlou, et al., 2020).

Therefore, self-efficacy judgements affect which activities students choose or avoid, how much effort they put in, how much resilience they have, and how long they persist with a task.

In study done by (Culha., 2019) concluded that using active learning methods in nursing education provides positive cognitive, affective and psychomotor outcomes for nursing students. Therefore, nursing students should be supported for the use of these methods.

### Research important:

In studies of (Salari, et al., 2018) & (Oh, et al., 2019) concluded and recommended that necessary to develop pediatric nursing students self-learning skills, problem-solving and self-efficacy to enable them facing professional and educational challenge, adapt to future professions, and become a graduate who contributes to improving health care systems, qualified for lifelong learning skills and appropriate decision-making. So, the current study aims to training pediatric nursing students on employ energetic learning strategies on neonatal congenital anomalies as theoretical chapter and neonatal injection as practical parts. Improve pediatric nursing student's self-efficacy and set higher goals and expend more effort towards their achievement. Pediatric nursing students need to develop their skills and self-efficacy regarding uses of active learning strategies, to keep pace with digital learning and development in nursing education. Hence the study hypothesis support to offering students, a framework that is linked with academic success encourage students to perform better.

### Research purpose:

Determine the developmental level of pediatric nursing students (experiment and control) about energetic learning strategies and self-efficacy at starting point and after soon training program.

Represent the correlation between the pediatric nursing experiment group gender and residence with their total of the Learning and Study Strategies Inventory (LASSI), employ energetic learning strategies and self-efficacy soon after training program.

Find out which one of energetic learning strategies was prolifically for pediatric nursing students (experiment group) post applies.



### Research hypothesis:

Training program will enhance developmental level of pediatric nursing students (experiment and control) related to employ energetic learning strategies with creative efficacy.

Pediatric nursing students experiment group who applies energetic learning strategy on congenital anomalies and neonatal injection will display which one of the energetic learning strategies was high productively.

### Technical design:

#### 2-Subjects and methods:

**2.1. Research design and setting:** quasi- experimental research carried out in nursing faculty, Benha University, Egypt.

#### 2.2. Participants:

A convenience sampling of 100 nursing students out of 300 students who enrolled in the Pediatric Nursing course, during the first semester of the academic year 2022. All students who had computer skills and internet access were included in the study. The sample size was estimated using Epi info program version 10 according to the following parameters; students' size of 300, Confidence coefficient of 95%, expected frequency of 50%, and acceptable error of 5%. The minimum sample size required was 95 students. Eligible students who fit the inclusion criteria and agreed upon their participation were randomly assigned using random number generator program into two equals groups (50 students per group).

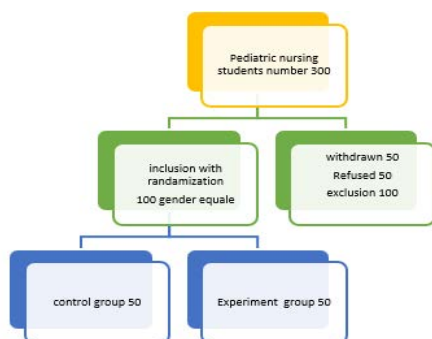


Figure 1: Flow chart of participants' enlistment manner.

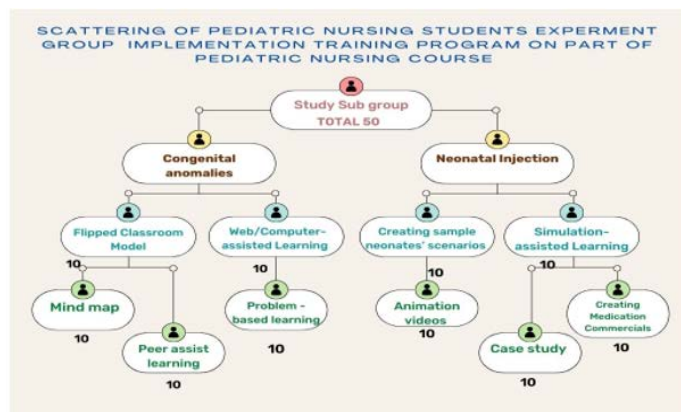


Figure 2: Experiment sub-group employ energetic learning strategies

#### 2.3. Instruments:

**Tool1: PartA:** Socio demographic characteristics of pediatric nursing students, such as, gender and residence.

**Part B:** "The Learning and Study Strategies Inventory (LASSI) (Weinstein, et al., 1996) to measure learning and study practices and attitudes. The components of strategic learning: skill, will and self-regulation, at starting point and soon after, training program for experiment and control group".

**Tool II:** "Modified Short version self-efficacy (SES) believe, ability scale and promoting strategies (Beierlein, et al., (2013) to measure efficacy at starting point and soon after training program for experiment and control group".

**Tool III:** "Modified Short version the flow state scale (FSS) (Jackson et al., 2008) to measure positive optimal experience experiment group only post applies appraisal on theoretical congenital anomalies, neonatal injection as practical part of pediatric nursing course, figure 2 show detail scattering energetic learning strategies".

#### 2.4. Measure outcome:

**Tool 1:** "The Learning and Study Strategies Inventory (LASSI) is a 10-scale covered 60-item, Respondent answer each item on a 5-point Likert scale wherein 1 = not at all like me, 2 = not very much like me, 3 = somewhat like me, 4 = fairly much like me, and 5 = very much like me. Assessment of students' developmental level about using learning and study strategies related to following components of Strategic Learning" components of Strategic Learning"

• "Will: Motivation, Attitude, Anxiety"

• "Skill: Selecting Main Idea, Information Processing, Test Strategies"

• "Self-regulation: Self-Testing, Concentration, Time Management, and Using Academic Resources"

**Tool 2:** "Modified Short version self-efficacy (SES) contain seven statements categories as 1=Does not apply at all, 2=applies only slightly, 3=somewhat applies, 4=fairly applies and 5=applies completely" Employ self-efficacy".

**Tool 3:** "Modified Short version the flow state scale (FSS), flow state a positive experiential state, totally a 5-point Likert scale which energetic learning strategies with a higher score indicates a higher level of learning flow.

The total of developmental level of the Learning and Study Strategies Inventory (LASSI) was 300 score, flow state scale 45 score and self-efficacy 35 score, total

### 2.7. Ethical approval and administrative design:

categorizes as more than 85% well mannered, from 85 to 65 % standard and less than 65% deliberated humble soon after training program".

**2.5. Validity and Reliability:** Each tool was inspected by two experts of pediatric nursing teaching staff to assess the content validity was 0.902 the needed modification was done. Reliability was measuring the internal consistency Via Cronbach's alpha= FSS was 0.82, SES was 0.91. The SSI subscales is measured by Cronbach's alpha= FSS was 0.82, SES was 0.91. The reliability of LASSI subscales is measured by Cronbach's alpha of 0.72–0.88 and demonstrates good validity.

**2.6. Pilot study:** was done on 5% of pediatric nursing students and excluded from study sample after making the necessary modification to support clarity and feasibility of . tool application.

Objective	Content	Time/day	Method and media of training	Pre/Post Evaluation method and task
Improve developmental level of pediatric nursing students academic and study skills	<ul style="list-style-type: none"> <li>- "Anxiety (ANX)"</li> <li>- "Attitude (ATT)"</li> <li>- "Concentration (CON)"</li> <li>- "Information Processing (INP)"</li> <li>- "Motivation (MOT)"</li> <li>- "Selecting Main Ideas (SMI)"</li> <li>- "Self-Testing (SFT)"</li> <li>- "Test Strategies (TST)"</li> <li>- "Time Management (TMT)"</li> <li>- "Using Academic Resources (UAR)"</li> </ul>	30-45 m/ Saturday	<ul style="list-style-type: none"> <li>- "E- PowerPoint illustration"</li> <li>- "Drawboard platform"</li> <li>- "Animation scientific Videos"</li> <li>- "Scientific game"</li> </ul>	<p>E- survey " The Learning and Study Strategies Inventory (LASSI)"</p> <p>Ten scales divided to three learning components:</p> <ul style="list-style-type: none"> <li>- "Will: Motivation, Attitude, Anxiety</li> <li>- "Skill: Selecting Main Idea, Information Processing, Test Strategies"</li> <li>- "Self-regulation: Self-Testing, Concentration, Time Management, and Using Academic Resources"</li> </ul> <p>at starting point and soon after, training program for experiment and control group</p>
Expansion the pediatric nursing student's strategies that can increase self-efficacy	<ul style="list-style-type: none"> <li>- "Task accomplishment and success"</li> <li>- "Peer modelling"</li> <li>- "Goals and feedback"</li> <li>- "Give daily problem-solving opportunities"</li> <li>- "Support students' affirmation"</li> <li>- "Use self-assessment"</li> </ul>	30-45 m Saturday	<ul style="list-style-type: none"> <li>- "Registered video with explanation"</li> <li>- "E- PowerPoint illustration"</li> <li>- "Podcast"</li> </ul>	<p>E- survey (SES) "short version self-efficacy believes, ability scale and promoting strategies modified for pediatric nursing students,</p> <ul style="list-style-type: none"> <li>- "I solve difficult academic problems I can rely on my skills".</li> <li>- "I can accomplish my goals in nursing field</li> <li>- I will remain calm in my exam because I know I will have the knowledge to pass"</li> <li>- "The motto 'if other people can, I can too' applies to me when it comes to my field of study"</li> <li>- "In difficult situations I can rely on my skills".</li> <li>- "I can deal with most problems using my own resources".</li> <li>- "Even difficult and complicated tasks I can successfully resolve at starting point and soon after, training program for experiment and control group"</li> </ul>

Continue table.....

- Employ energetic learning strategies on theoretical and practical parts from pediatric nursing course	- Neonatal congenital anomalies as - Definition - Pathophysiology	30-45 m Saturday  5	- "Web/Computer-assisted Learning" - "Flipped Classroom Model"	- E- survey "The flow state scale to measure positive optimal experience (FSS) has nine items that assess
	- Types - Clinical features - management - Preoperative and postoperative nursing process		- "Mind map" - "Problem -based learning and NCLEX question" - "Peer assist learning"	challenge-skill balance, action-awareness merging, clear goals, unambiguous feedback, concentration on the task at hand, sense of control, loss of self-consciousness, transformation of time, and autotelic experience. Item scores are measured on a 5-point Likert scale where a higher score indicates a higher level of learning flow".
	Neonatal injection as types, route and technique	30-45 m Saturday	- "Animation videos" - "Simulation-assisted Learning" - "Creating sample neonates' scenarios" - "Case study" - "Creating Medication Commercials"	- "Each sub group of experiment group upload their application on creative drive" - "Registered video practical checklist for experiment group only" - "Solution form"

Formal consent taken from faculty of nursing, Benha University before research project conduct. Informed consent taken from participant after explaining the purpose of the study, participant information well secured and free to withdrawn at any time of the study.

**2.8. Field work and procedure:**

The researcher reviews the recent current & relevant literatures and selected the appropriate energetic learning strategies for pediatric nursing students. The data were collected during one and half months from 15 June to 30 July at 2022 academic years. The electronic survey was distributed for participant to fill the demographic characteristic at Saturday in break time then conduct the program at three phases.

**Phase 1: Assessment and preparation:**

The researcher equipped the necessary tools and questionnaire to implement the training program in terms of creating a drive to upload all E- material illustration such as educational videos, simulation videos, simulation software, demonstration play software. Before starting the intervention, participants were informed of the purpose and process of the trial, Participants from both groups were given 45 min to complete the pretest to assess their developmental level about LASSI, self-efficacy and learning flow then fill the main demographic information. The participants in the experiment group were given an additional five-minute explanation about how to apply energetic learning strategies on part of pediatric nursing course (neonatal congenital anomalies and Injection). During the experimental period, participants learned two weeks through predetermined learning strategies (figure 2) and distributed to subgroup each one take two

**Results**

**Table 2: +33 Mean and Standard deviation of the developmental level of pediatric nursing students (experiment and control) group starting point and soon after and post two weeks**

learning strategies one for theoretical and another for practical. Communicate participants to check their learning progress using Microsoft teams meeting two a week and conducted a question-and-answer session. As a final step, all participants complete a post-test to assess outcome variables similar to the pre-test. For ethical

**Phase 2: planning and implementation:**

Training program structure (Table 1) contain detail of the program

**Phase 3: Evaluation:**

For control and experiment group pediatric nursing students evaluate at starting point and soon after training program but experiment group evaluates after implement energetic learning strategies on congenital anomalies as theoretical part and neonatal injection as practical part of pediatric nursing course.

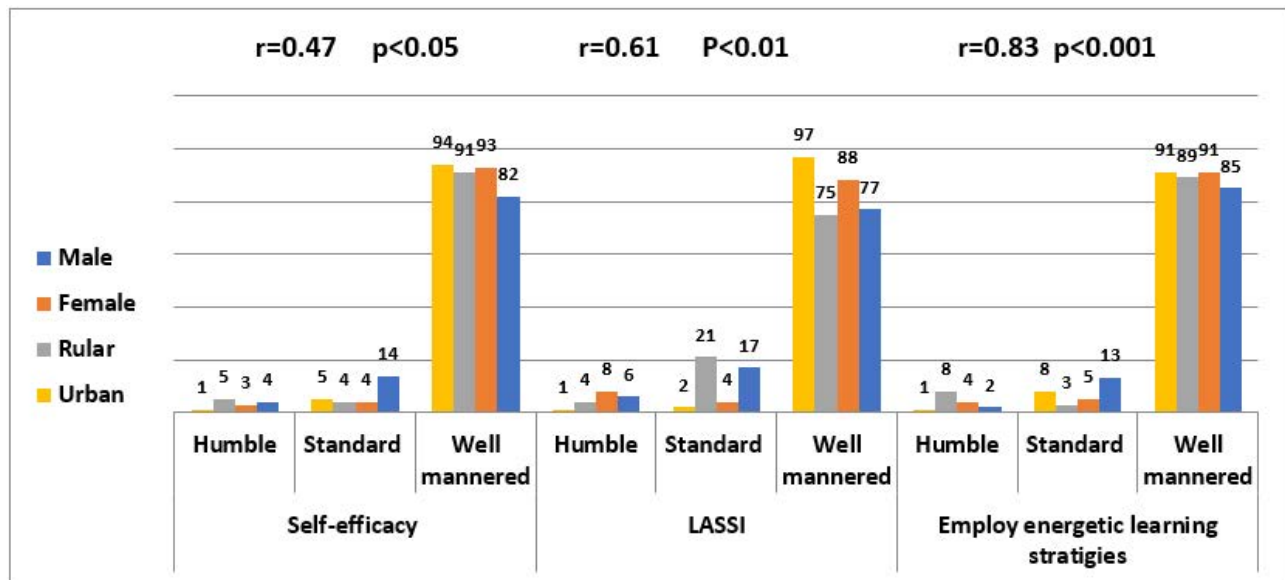
**2.9. Statistical design:** the data analysis through (SPSS) version 23 the difference between variable as (mean and standard deviation). A correlation coefficient for two variable set. paired t-test for differences between pre and post program. Statistical significance as a two-tailed a p value of 0.05.



	Experiment group			Control group			p-value
	Starting point	Soon after	Two-week Post soon trial	Starting point	Soon after	Two weeks without trial	
	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD	
<b>The Learning and Study Strategies Inventory (LASSI)</b>							
<b>Will</b>							
Motivation (MOT)	4.2 ± 1.21	5.2 ± 2.71	5.8 ± 2.05	4.5 ± 1.67	5.2 ± 2.65	5.1 ± 2.11	≤0.01
Attitude (ATT)	4.1 ± 1.23	5.4 ± 2.62	5.3 ± 2.15	4.3 ± 1.83	5.7 ± 2.71	5.3 ± 2.10	≤0.01
Anxiety (ANX)	4.3 ± 1.01	5.1 ± 2.41	5.7 ± 2.21	3.4 ± 1.92	5.8 ± 2.82	5.2 ± 2.61	≤0.01
<b>Total</b>	<b>4.2 ± 1.15</b>	<b>5.2 ± 2.5</b>	<b>5.6 ± 2.1</b>	<b>4.06 ± 1.8</b>	<b>5.5 ± 2.7</b>	<b>5.2 ± 2.2</b>	<b>≤0.01</b>
<b>Skill</b>							
Selecting Main Idea (SMI)	3.4 ± 1.31	5.4 ± 2.13	5.8 ± 2.32	3.9 ± 1.9	5.6 ± 2.14	4.8 ± 2.06	≤0.01
Information Processing (INP)	3.1 ± 1.21	5.7 ± 2.07	5.9 ± 2.34	3.1 ± 1.01	5.4 ± 2.02	5.1 ± 2.08	≤0.01
Test Strategies (TST)	3.3 ± 1.01	5.6 ± 2.05	5.8 ± 2.45	3.6 ± 1.02	5.3 ± 2.06	4.9 ± 2.09	≤0.01
<b>Total</b>	<b>3.2 ± 1.1</b>	<b>5.5 ± 2.08</b>	<b>5.8 ± 2.37</b>	<b>3.5 ± 1.31</b>	<b>5.4 ± 2.07</b>	<b>4.9 ± 2.07</b>	<b>≤0.01</b>
<b>Self-regulation</b>							
Self-Testing (SFT)	3.1 ± 1.90	5.4 ± 2.02	5.9 ± 3.04	3.2 ± 1.12	5.8 ± 2.21	5.5 ± 2.01	≤0.01
Concentration (CON)	3.2 ± 1.30	4.4 ± 2.12	5.4 ± 3.12	3.3 ± 1.32	5.2 ± 2.32	5.1 ± 2.21	≤0.01
Time Management (TMT)	3.9 ± 1.80	5.3 ± 2.22	5.8 ± 3.11	2.5 ± 1.41	5.6 ± 2.45	5.4 ± 2.02	≤0.01
Using Academic Resources (UAR)	3.4 ± 1.6	4.2 ± 2.32	5.1 ± 3.23	2.9 ± 1.65	4.9 ± 2.76	4.1 ± 2.03	≤0.01
<b>Total</b>	<b>3.4 ± 1.65</b>	<b>4.8 ± 2.17</b>	<b>5.5 ± 3.12</b>	<b>2.9 ± 1.37</b>	<b>5.37 ± 2.4</b>	<b>5.02 ± 2.06</b>	<b>≤0.01</b>
<b>Total Self-efficacy</b>	<b>3.1 ± 2.10</b>	<b>4.29 ± 2.12</b>	<b>4.7 ± 2.14</b>	<b>2.6 ± 2.11</b>	<b>4.8 ± 2.21</b>	<b>4.21 ± 2.05</b>	<b>≤0.01</b>
<b>The flow state scale to measure positive optimal experience (FSS)</b>							
Challenge–skill balance	2.2 ± 1.90	4.2 ± 3.01	4.9 ± 3.31	2.5 ± 1.41	4.2 ± 3.05	3.9 ± 2.9	≤0.05
Action–awareness merging	2.3 ± 1.81	4.4 ± 3.02	4.8 ± 3.23	2.9 ± 1.45	4.1 ± 3.02	3.8 ± 2.7	≤0.05
Clear goals	2.1 ± 1.74	4.3 ± 3.03	4.6 ± 3.21	2.6 ± 1.31	4.3 ± 3.03	4.2 ± 3.01	≤0.05
Unambiguous feedback	2.4 ± 1.41	4.5 ± 3.32	4.7 ± 3.63	2.7 ± 1.25	4.4 ± 3.16	4.1 ± 3.02	≤0.05
Concentration on the task at hand	2.6 ± 1.30	4.6 ± 3.09	4.8 ± 3.11	2.8 ± 1.91	4.6 ± 3.45	4.2 ± 3.05	≤0.05
Sense of control	2.4 ± 1.51	4.1 ± 3.12	4.9 ± 3.53	2.9 ± 1.35	4.5 ± 3.26	4.1 ± 3.02	≤0.05
Autotelic experience	2.9 ± 1.80	4.3 ± 3.22	4.8 ± 3.41	2.7 ± 1.11	4.9 ± 3.35	4.4 ± 3.16	≤0.05
<b>Total</b>	<b>2.4 ± 1.63</b>	<b>4.2 ± 3.11</b>	<b>4.78 ± 3.34</b>	<b>2.72 ± 1.39</b>	<b>4.42 ± 3.18</b>	<b>4.1 ± 2.98</b>	<b>&lt;0.01</b>

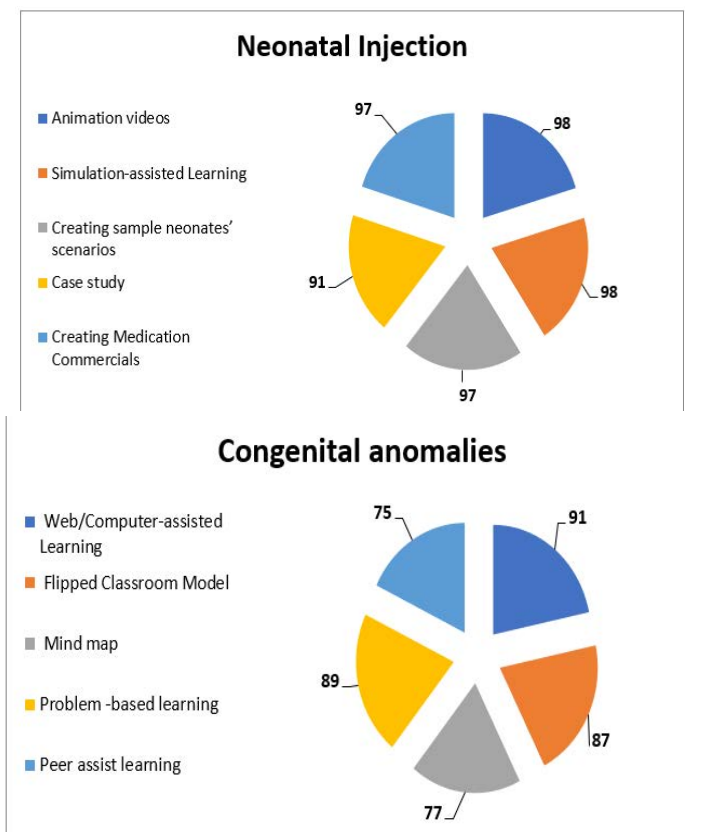
**Table 2:** The mean score of the experiment and control group starting point and soon after the training program was statistically significant (p = 0.01), while two-week post soon trial for experiment group achieved high developmental level related to LASSI, SES and FSS.

**Figure 3:** Correlation coefficient between pediatric nursing students experiment group gender and residence with their developmental level of LASSI, employ energetic learning strategies and their self-efficacy soon after training program.



**Figure 3:** Proven that there was statistically positive correlation between pediatric nursing students' female gender with urban residence and well-mannered developmental level concerning to Learning and Study Strategies Inventory (LASSI), employs energetic learning strategies and their self-efficacy soon after training program.

**Figure 4: Experiment group positive optimal experience around energetic learning strategies post applies on theoretical and practical part of pediatric nursing course**



**Figure 4: Evidence that 98% of subgroup pediatric nursing students trial achieved that high score and narrated efficiency learning strategies for animation videos and simulation for practical content, meanwhile web/computer assisted learning and problem-based learning in theoretical content was 91% and 89% respectively.**

#### Discussion:

The current study supported the scientific research has proven that pediatric nursing students need training to raise their self-efficacy so that they can use active learning strategies and employ them in the pediatric nursing course, where students qualify to develop their skills for lifelong learning and contribute to the development of the nursing profession to keep pace with digital development. Therefore the aim of study was determining the developmental level of pediatric nursing students (experiment and control) about energetic learning strategies, self-efficacy at starting point and after soon training program. Represent the

correlation between the pediatric nursing experiment group gender and residence with their total energetic learning strategies and self-efficacy soon after training program. Find out which one of energetic learning strategies was prolifically for pediatric nursing students (experiment group) post applies.

The mean score of the experiment and control group starting point and soon after the training program was statistically significant ( $p=0.01$ ), while two-week post soon trial for experiment group achieved high developmental level for LASSI, FSS and self-efficacy. According to Joshi et al. (2017) who found that participants' suggestions to achieve high learning performance referred to consideration of learning styles and strategies like daily revision of topics, being regular and attentive during ward postings. Activities offered in a lively atmosphere with interactions between students and teachers contribute to improving learning efficiency. According to study done by An, et al., (2022) in Korea on the nursing students was from two university found that there was not significant interaction between the effects of time and the intervention in perceived learning competency, knowledge, academic stress, and learning flow. In contrast to subitems in the self-regulated learning competency, environmental structuring, task strategies, time management, help seeking, and self-evaluation were significantly improved after intervention. Also, Khalil, et al., (2020) found that the main LASSI subscales that were significantly different between high-performing and low-performing students for internal and external examinations.

The present study proven that statistically positive correlation between pediatric nursing students' female gender with urban residence and well-mannered developmental level concerning to Learning and Study Strategies Inventory (LASSI), employs energetic learning strategies and their self-efficacy soon after

training program. The results of Viswam Athira **et al.**, (2017) reported self-efficacy was high among nursing students 53% and found association between gender female and their self-efficacy. In contrast with study by Tiwari & Srivastava, (2021) conduct in India about nursing student's self- efficacy related online learning discover eighty percent were female and half of them were gratified with the online education and two third with poor self-efficacy scores in learning domain. The current study evidence that the majority of subgroup pediatric nursing students' trial with animation videos and simulation in practical content, meanwhile web/computer assisted learning and problem-based learning in theoretical content was high score and narrated efficiency learning strategies. **Phuong et al.**, (2020) study done in Vietnam had same finding and reported that the participants saw PBL as an effective approach for achieving learning outcomes; PBL encouraged proactivity, convenience, and creativity. Visual content enhanced active learning for several core skills. In addition, **Park & Moon (2022)** reported that requires a high level of student preparation with innovative education methods, such as web-based or computer-based learning. Also, **An et al.**, (2022) concluded, education strategies use of innovative technology will lead to higher academic achievement. Study done in University of Pittsburgh School of Nursing on 66 students Harlan, **et al.**, (2021) found that preferred learning strategies included voice-over Power Points, simulation, case studies, and did not enjoy group work. The author view that pediatric nursing students were in need of a training program related to active learning strategies in addition to measuring their self-efficacy and their ability to employ these strategies in the pediatric nursing course to achieve success rates of excellence and develop lifelong learning skills and keep pace with the development in digital transformation in the nursing field where nursing students contribute in developing the profession and providing advanced nursing care

The researcher assert that the training program was effective, as the students showed unprecedented cooperation and were able to raise their self-efficacy and became able to employ appropriate strategies for the content that wants to study.

### **Conclusion:**

The study confirms that video animation, web/computer simulation assisted learning and problem-based achieved the highest rates comprehend for pediatric nursing students after applying on neonatal injection as practical parts and congenital anomalies as a theoretical part from pediatric nursing course content. Research assert that training program was effective and linked with developing the level of pediatric nursing students about employing active learning strategies, and self-efficacy, which achieves the high developmental learning outcomes

### **Recommendation and further research:**

-The study recommends distributing the content of the pediatric nursing curriculum on energetic learning strategies and directing students to learning the course according to the appropriate strategy type this is after their creativity in applying.

- Orientation program for nursing students about varieties electronic learning resources provided by Benha University.

- Learning strategies based on technology need to be a universal learning method and training students in different research setting area.

- Additional studies are needed to replicate this study using larger sample size, and assess factors affecting learning strategies.

**Ethical clearance-** Taken from faculty of nursing administration, Benha University before research project conduct. Informed consent taken from participant after explaining the purpose of the study, participant information well secured and free to withdrawn at any time of the study.

**Source of funding-** Self.

**Conflict of Interest -** nil.



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# Effectiveness of Comfort Theory Model Based on Holistic Care for Hospitalized Children with Sickle Cell Disease Crises

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## ABSTRACT

**Background:** Children's experience of hospital when suffering acute sickle cell crises can be improved by a comfort approach to nursing care.

**Aim and Design:** The true experimental design approach was used to investigate the efficiency of comfort theory in improving the comfort level model for children with SCD crises.

**Sample and setting:** A convenience sample was taken from children admitted at pediatric inpatient department of Benha University Hospital and Specialized Children Hospital, Benha city, Egypt during sickle cell crises.

**Data collection tool:** Data collection was undertaken in a number of ways, including a demographic information form, patient Comfort Behaviors Checklist, Comfort Daisies Scale, and General Comfort Questionnaire, both pre- and post-theory intervention, based on the nursing process.

**Results:** When compared to a control group, significant differences were observed in children with SCD crises post-comfort theory application. There was also a positive correlation between the children's state of comfort and post-comfort theory intervention. An association was also noted between children in secondary education and at a higher economic level in comfort state at second observation, which was deemed to be the best comfort achievement.

**Conclusion and recommendations:** Nursing care modelled on comfort theory can significantly improve children's experience of hospitalization during sickle cell crises. The nursing of children should be holistic, and evaluate their physical, emotional, and psychological needs when addressing their level of comfort.

**Keywords:** *comfort theory, pediatric, sickle cell disease crises.*

## INTRODUCTION

Sickle cell disease is an inherited blood cell disorder affecting many people worldwide. There are approximately 300 million carriers of sickle cell trait worldwide, and SCD is most commonly found among people from Africa (Custódio, et al., 2017). Studies of Egyptian SCD carrier rates indicate a prevalence of between 9 and 22%, but the distribution is not uniform (Hasan et al., 2021). One study on primary

school children in Egypt conducted by Moez and Younan (2016) using HB electrophoresis and blood counts, found 22% of children had abnormal Hb profiles and 19% had Hb S, the hemoglobin disorder responsible for SCD. Of the children with HB S, 94% had the sickle cell trait and 6% had SCD.

SCD has high morbidity and can be fatal in young children. It has been determined that 98.5% of children suffer from crisis

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characterized by pain, weakness, and exhaustion, and that they often need to be hospitalized between one and five times per year (Elobied, & Abdelmotaleb, (2021).

Hospitalization is one of the most stressful experiences for children with sickle cell disease. A child may often require frequent or long-term admissions and this can be a traumatic experience. Diagnosing SCD is extremely painful, and together with the separation from family members and fear of death or disability, children in hospital with acute SCD crises undergo a very traumatic experience (Sepahvand, et al., 2021). It is important for nursing practices to effectively comfort these children. This can be achieved by adopting the comfort model proposed by Kolcaba (1994). This approach (Theory of Comfort) is comprehensive and effective in alleviating discomfort in children, which is a vital component of inpatient care. Proper management of pain can reduce physiological complications in children, improve their psychological state, and ultimately reduce the cost of treatment (Mansky, (2020).

In her theory of nursing, Kolcaba (1994) describes the provision of comfort as the primary goal of nursing care. This requires comprehensive assessment of children's needs for comfort and the application of effective interventions. This approach employs a scale for measuring children's comfort, the Comfort Daisies Scale, and is based on observations. A hierarchical structure is used to categorize comfort and includes all dimensions of the comfort construct - socio-cultural, psychological/spiritual, physical, environmental (Kolcaba, 2021).

Kolcaba (1994) describes comfort as an individual's feeling of being strengthened by having their needs addressed on all four levels. Relief involves reducing pain and discomfort, while easing pain involves removing particular discomforts (Lima, et al., 2017). The experience of 'ease' does not require that pain or discomfort has been experienced by the child or family members beforehand, although it is possible for nurses to be aware

of specific susceptibilities in those children (e.g. SCD crises). Some pain cannot be removed entirely and must be endured. Transcendence refers to the state in which a person bears the pain, but manages to cope by facing it from a higher psychospiritual perspective. In this way a child may understand that walking will hurt, but nonetheless feels reassured that they will be able to do it. Transcendence, therefore, is a state in which the child feels strengthened, rather than one where the pain has been removed. To foster transcendence in children it is important for nurses and relatives to remain positive, and for interventions to be used that improve the environment (including the social environment) and reassure the child. The comfort model is holistic and includes three types of intervention: (a) maintaining equilibrium using standard pain relief. (b) training on anxiety control techniques, listening and reassuring the patient, remaining hopeful, developing a recovery plan. (c) acts of kindness and treats/distractions for the patient, such as massage and guided imagery, that reinforce feelings of being cared for, alleviate fear, and strengthen the child and family (DiMarco & Kolcaba, 2005).

Nursing research has shown that comfort techniques based on empirical evidence can be effective for reducing pain and discomfort during treatments. Accurate evaluation of comfort levels when providing support for children with SCD crisis is essential when assessing specific interventions ("**Holistic Comfort**," 2017). Comfort theory can be used to improve pediatric nursing by emphasizing a holistic approach that incorporates the four elements of comfort theory. The evidence suggests that techniques such as comfort holding, meditation, breathing exercises, focusing attention away from symptoms, sensory stimulation, topical anesthesia, cooling aerosols, raising, or changing position, sugar water, and cold/heat treatments can help reduce discomfort and pain and increase feelings of safety and being cared for or protected (Canbulat, et al., 2015) & (Stevens & Marvicsin, 2016).



### Significance of the study

Nearly a third of a million people worldwide are born with SCD each year. It is a genetic autosomal recessive blood disorder caused by abnormal hemoglobin (HB S) and is more common in Afro-Caribbeans (~1.1% of children in Africa are born with the condition). Children with SCD are admitted to hospital with crisis episodes and pediatric nurses consider their patients' comfort continuously during hospitalization. By taking account of the four dimensions of comfort theory, nurses can help to reduce the symptoms of pain and discomfort in children with SCD (Lin et al., 2023). This study evaluates the effectiveness of comfort theory in the management of pain in hospitalized children suffering acute sickle cell crisis.

### Aim of the study

To testing the efficiency of comfort theory in the improvement of the comfort levels of hospitalized children with SCD crises, via comparisons between an experimental group and a control group.

### Hypothesis

That the instigation of comfort theory will identify the differences between measures of comfort levels in hospitalized children with SCD crises and those in the experimental group.

### METHODOLOGY

#### Technical design

**Study design:** True-experimental designs were conducted over a period of six months.

**Setting:** The research conduct in Pediatric inpatient department, Benha University Hospital and Specialized Children Hospital, Benha city, Egypt.

**Sample size and criteria:** The convenience sample included 62 children (42 boys and 20 girls), aged between 6 to 18 years, with SCD. Children were assigned at random to the comfort theory or control theory group (children chose a white or black ball). Epi Info 7 was used to estimate the required sample size to have the probability of a type 1 error and type 2 error of .01 and .05 respectively. These figures were based on finding an effect that was at least 5 units on the comfort scale assuming an SD of 9. This resulted in 62 children being assigned to the experimental and control groups (N (total) = 124).

$$N = \frac{(s_1^2 + s_2^2)(Z_{1-\frac{\alpha}{2}} + Z_{1-\beta})^2}{(\mu_1 - \mu_2)^2}$$

#### Inclusion criteria

- Children with SCD crises, both genders.
- All participants were informed about the study and gave their consent



- First day of child's admission to hospital
- Mother as Primary caregiver

#### Exclusion criteria

- Children with other systematic diseases
- Children with a mental disability.

#### Description of tool and measurement:

##### Tool 1: Structured Interviewing Intervention:

**Part A:** The principal sociodemographic data relating to the educational and economic level of the children.

**Part B: "Comfort behavior checklist (Kolcaba, 2021):** was used to assess the children. This consists in 30 observations/questions on 5 aspects/signs of comfort: motoric, performance-related, vocalizations, facial expressions, and uncategorized behaviors.

**Tool 2: "The comfort measurement scale (Dimarco and Kolcaba, 2005):** This categorizes the child's comfort by the completion of the Comfort Daisies Scale" (Figure 2).

**Tool 3: "The modified Shortened General Comfort Questionnaire (SGCQ) (Kolcaba, 2003)** Application of pre- and post-comfort theory to create comfort care interventions

was delivered through the nursing process. The effectiveness of using this approach will be examined".

#### Outcome measure

**"Comfort behavior checklist:** A 5-point Likert scale was used to rate the level of discomfort based on observations and ranged from 0 to 4 (none, some, moderate, and strong). A score of 0 could be given if the child was too young or ill to respond or was asleep. Checklist scores ranged from 0 to 120. The experimental group that received the application of comfort theory were observed pre intervention at O1, and post intervention three were observed at O2 immediately, at and O3 and O4 two hours thereafter. The mean score and significance of each observation was compared to control group.

**"The comfort measurement scale:** This measurement enabled a child to better express his/her feelings as 'this is the way I feel right now', with a possible total score of 16. These were categorized as Very Good - 4 score (100%), Sort of Good - 3 score (75%), Sort of Bad 2 score (50%), Very Bad  $\leq 1$  score. The pre- and post-mean score and significance of the results were compared between the two groups".

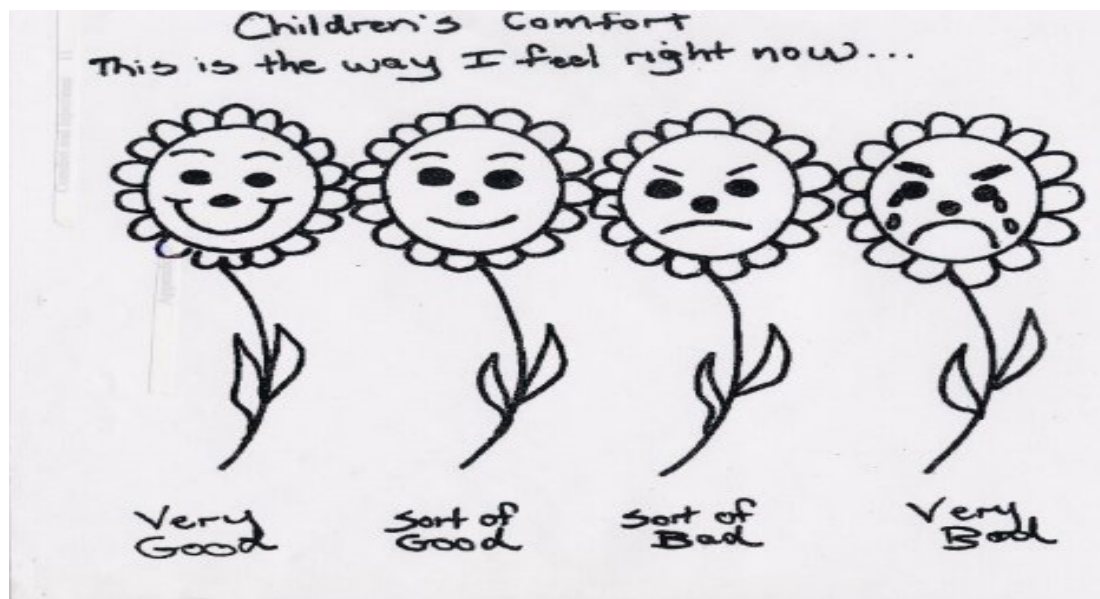


Fig. 2: Comfort measurement scale, Kolcaba's theory of comfort

**“The modified Shortened General Comfort Questionnaire (SGCQ):** This questionnaire contained 28 items, with a possible total score of 112. The scores were categorized as comfortable state from 90-112 (80%-100%), mid-discomfort from 89-74 (66%-79%), moderate discomfort from 54-73 (50%-65%), and severe discomfort <54 (<50%)”.

### **Validity and reliability**

Pediatric nursing experts were used to validate construct content. Interrater reliability was used to validate the Comfort Behavior Checklist ( $r = .85$ ) and test-retest reliability was carried out for the Comfort Daisies Scale (Cronbach's  $\alpha = .90$ ). The SGCQ instrument was judged to be reliable, with scores in the range 0.7-0.95.

### **Operational Design**

#### *Ethical aspect*

The mother's informed consent was obtained for all children included on the study. Detailed explanation of the purpose of the study was provided, and the potential benefits that could arise for the children who were participating. Participants were told that their data would be used anonymously and that confidentiality would be kept all times. All participants had the right to withdraw and have their data destroyed at any time, and were informed that the study would have no harmful effects.

#### *Pilot study*

A pilot study on 5% of participants was conducted to assess the reliability, validity, and clarity of the measuring instruments. Based on the pilot study results, the necessary adjustments were made in the study tools and excluded from the final results of the study.

#### *Fieldwork and administrative design:*

The study obtained the consent of the hospitals used and the appropriate authorities. Data collection took place from 04/2021 – 09/2021. The children and mothers had the purpose and procedure of the study fully explained

to them. Demographic data was recorded for both experimental and control groups. Before employing the intervention, the Comfort Behavioral Observation Checklist observation (O1), Comfort Daisies Scale and general comfort questions were used to measure comfort levels in both groups. After this evaluation the comfort care interventions were given by the nurses through application of the specified procedures. The four dimensions of comfort care (social, physical, psychological, spiritual, and environmental) are displayed in Table 1. The same measurements were taken after the interventions to evaluate post-experimental comfort levels. These were analyzed and disseminated using three categories of observation, with observation (O2) being carried out immediately, and the subsequent observations (O3, O4) being undertaken at two-hourly intervals thereafter for the experimental group only. For the control group, measurement of comfort levels was conducted following routine care.

### **Statistical design**

SPSS 22 was used to analyze the data with descriptive statistics (frequencies, means, SDs) and t-tests. The chi-square test compared two categorical variables. The strength and direction of associations between the variables were assessed with Pearson correlations. An 5% alpha level was used for all tests.

## **RESULTS**

Figure 1 illustrates that the highest number of children with sickle cell disease were at the primary education stage and in a high economic level in each group (experimental and control).

Comfort levels of the SCD crisis children improved after the comfort theory intervention, with higher mean scores on the Comfort Behavior Checklist and Comfort Daisies Scale - as shown in Table 2. The difference between comfort levels before and after the intervention was significant ( $p < .01$ ). The control group receiving standard care also had significantly improved scores at the end of study period.



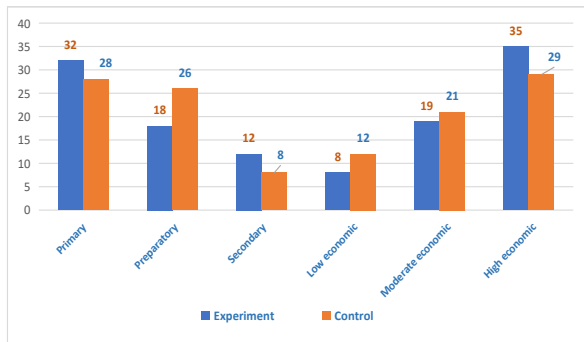
**Table 1: Comfort care interventions were delivered by using nursing process approach (comfort theory application for children with SCD crises).**

Types of comfort	Assess comfort need	Goal	Planning	Implementation	Evaluation
<p><b>"Relief</b></p> <p>Nursing interventions Standard base with concerning comfort need encountered"</p>	<p>"Observational check list to assess comfort, comfort level score, comfort daises expression feeling</p> <p>- "Taxonomy structure of comfort grid".</p> <p><b>"Physical"</b></p> <p>"Determine Factors of crisis".</p> <p>"Pain levels intensity scale, quality, frequency, and aggravate or alleviate the pain factor".</p> <p>"Incidence of infection assessed"</p> <p>"Dehydration signs assessed"</p> <p>"Symptom of distress"</p> <p>Psycho spiritual</p> <p>- Anxiety</p> <p>- fear</p> <p><b>"Sociological"</b></p> <p>"Relief from anxiety</p>	<p>"The children will feel comfort in the relief sense as verification by observation and expression"</p> <p>"Relief of pain".</p> <p>"Decline incidence of crisis".</p> <p>"Enhance sense of self-esteem and power".</p> <p>"Free from complications"</p> <p>"Maintain the child hydrated and oxygenated".</p> <p>sense as verification by observation and expression"</p> <p>"Relief of pain".</p> <p>"Decline incidence of crisis".</p> <p>"Enhance sense of self-esteem and power".</p> <p>"Free from complications"</p> <p>"Maintain the child hydrated and oxygenated</p>	<p>"Standard Nursing care</p> <p>"Document vitals".</p> <p>- "Intake and output chart-maintained balance".</p> <p>"Delivery of comfort bed and positioning"</p> <p>"Provision drug and fluid as tolerated"</p> <p>"Usage of comfortable device"</p> <p>"Soothing child".</p> <p>"Reduction needless noise"</p> <p>"Cognitive and behavioral intervention"</p> <p>"Prevent and manage the crisis"</p> <p>"Preventing and managing infection"</p> <p>"Description to child pre implement intervention"</p> <p>-Consoling child and given developmentally proper knowledge to relieve stressor.</p> <p>"Backup and Consoling</p>	<p>"Standard Nursing care</p> <p>"Document vitals".</p> <p>- "Intake and output chart-maintained balance".</p> <p>"Delivery of comfort bed and positioning"</p> <p>"Provision drug and fluid as tolerated"</p> <p>"Usage of comfortable device"</p> <p>"Soothing child".</p> <p>"Reduction needless noise"</p> <p>"Cognitive and behavioral intervention"</p> <p>"Prevent and manage the crisis"</p> <p>"Preventing and managing infection"</p> <p>"Description to child pre implement intervention"</p> <p>-Consoling child and given developmentally proper knowledge to relieve stressor.</p>	<p>"Relief in the sense of pain, stress and environment disturbance as represent by children expression, and high comfort level".</p>

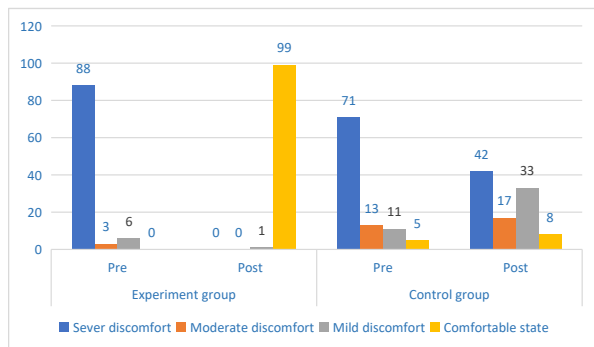
Types of comfort	Assess comfort need	Goal	Planning	Implementation	Evaluation
	Environmental" - "Relief from environmental stressors"	<p>"The children will feel comfort in the relief sense as verification by observation and expression"</p> <p>"Relief of pain".</p> <p>" D e c l i n e incidence of crisis".</p> <p>"Enhance sense of self-esteem and power".</p> <p>"Free from complications"</p> <p>" M a i n t a i n the child hydrated and oxygenated".</p>	Eliminate environmental stressors "	<p>"Child consoled post crying or anger episode".</p> <p>"Intravenous (IV) fluid and oral administered"</p> <p>"Heating pads on back and extremities".</p> <p>"Oxygen for tissue perfusion"</p> <p>"Pediatric hygiene".</p> <p>"Appropriate developmentally knowledge delivered in order to lessen stress and anxiety"</p> <p>"Surrounded noise decreased"</p> <p>- "Remove unnecessary lights disturbing children via curtain "</p> <p>"Crises prevention as well hydrated, no smoke, avoid extremes in temperature, avoid stress, do not miss doses of medications as antibiotics, get sufficient sleep"</p> <p>"Warmer for constant environment temperature"</p> <p>"Breathing exercises, blowing bubbles".</p> <p>"Positive coping behavior model"</p> <p>"implement trusty aseptic technique to avoid nosocomial infections".</p> <p>"Positive strengthening.</p> <p>"Rewarded children's positive speeches, gifts, pre and post painful procedure (as stickers, toys, games, small trophies).</p>	<b>Evaluation</b>
					<p>"Relief in the sense of pain, stress and environment disturbance as represent by children expression, and high comfort level".</p>

Types of comfort	Assess comfort need	Goal	Planning	Implementation	Evaluation
"Ease  Emotional oriented comfort care interventions"	"Physical  "Ease about pain"  "Ease distressing symptoms"	"Ease Goal - The children will experience state of satisfaction (pleasure) by comfort care interventions as verified by pediatric observation and expression".	"Emotional oriented comfort care interventions" "Support coping skills for providing sense of security, hold children hand"  "Pay attention children concern, providing development appropriate data to eradicate fear and anxiety"  "Emotional sustenance via positive talk".  "Destroyed attention to painful procedure"	"Oriented comfort care emotional interventions used to ease the children"  "Mothers children bonding to limit separation"  "Holding children hand for enhance security sense"  "Dialogue with simple development language to ease fear and anxiety"  "Positive conversation about children concern"  "Remove unnecessary objects and instruments, which create fear, from children nearness".  "Quite environment and prevent unnecessary disturbances".  "Limited visitor to comfort children via mother involvement".  "According children interest reading story"	"Children contented or eased as evidence by pediatric expression and vocalization, comfortable talk, absence fear, compact worried behavior"
	"Psycho spiritual  Ease about fear and anxiety"		"Listening carefully about children concern and fear".  "Psychological support and preparation before any procedure".  "Confiscating unnecessary fear creating objects".	"Relaxation techniques, breathing exercises, and distraction to ease pain".  "Mother involvement to enhance a therapeutic association based on communal trust".  "Emphasis on children's strengths rather than deficits to improve active coping skills".	
	"Environmental  Ease on  Stress in the environment as. Noise, light"		"Minimize crying of other children by indulging them with other play activity "  "Prevent disturbance as visitors"  "Planned intervention not frequent to enhance resting time with comfort sleep"		

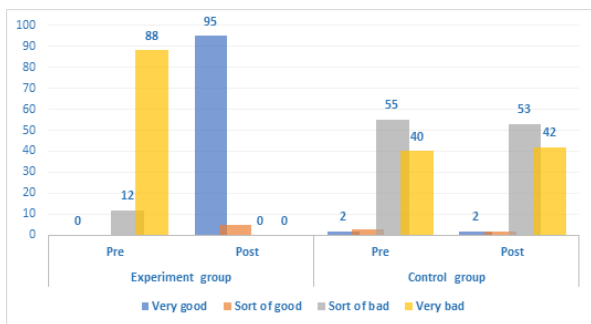
Types of comfort	Assess comfort need	Goal	Planning	Implementation	Evaluation
	<p><b>"Sociological</b></p> <p>-Ease on anxiety due to separation"</p>		<p>"Prevent disturbance as visitors"</p> <p>"Planned intervention not frequent to enhance resting time with comfort sleep"</p> <p>"Eliminate noise surrounding the children to ease".</p> <p>"Bed time sleep telling stories as interested "</p>	<p>"Involvement children for caring decisions to rise feelings of control".</p>	



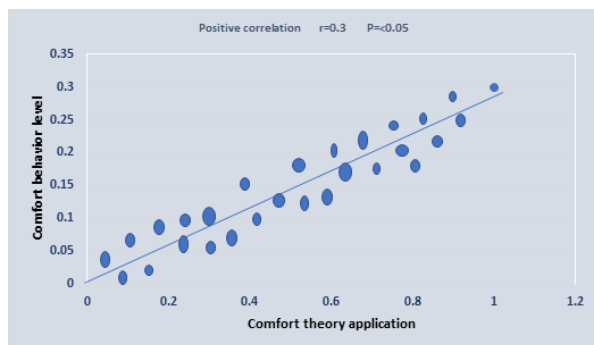
**Fig. 1: Frequency distribution of children with sickle cell disease, educational stage and economic level for experiment and control group N= (124)**



**Fig. 2: Total percentage distribution of comfort level in children with sickle cell disease crisis pre-and post-application of comfort theory for the experimental group, and pre- and post-routine care for the control group N=124**



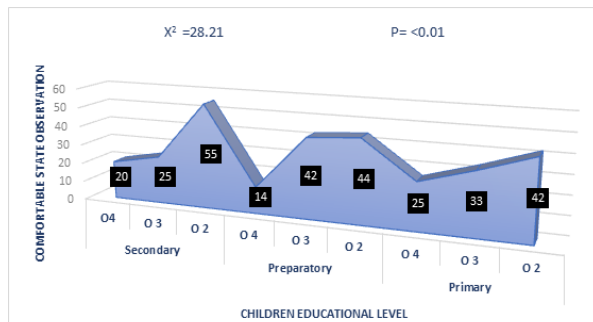
**Figure 3: Total percentage distribution of Comfort Daisies Scale results for children with sickle cell disease crisis pre- and post-application of comfort theory for the experimental group, and pre- and post-routine care for the control group N=124**



**Fig. 4: Correlation between post comfort theory application and comfort behavioral level of children with sickle cell disease crisis (experiment group) N=62**

**Table 2: Mean and standard deviation of comfort evaluation for children with sickle cell disease crisis pre-and post-application of comfort theory for the experimental group, and pre-and post-routine care for the control group N= (124)**

Comfort evaluation	Observation score	Pre				Post				T test	P-Value
		Observe 1	Observe 2	Observe 3	Observe 4	Observe 1	Observe 2	Observe 3	Observe 4		
		Mean ±SD	Mean ±SD	Mean ±SD	Mean ±SD	Mean ±SD	Mean ±SD	Mean ±SD	Mean ±SD		
<b>Experiment group (62)</b>											
Comfort behavior checklist	Score Max -120	21±3.1	58±2.1	55±2.5	52±2.3	8.21	<0.001				
Comfort Daisies (Right now I feel)	Score= (Max-16)	4±2.02	7.8±1.23	7.5±1.21	7.4±1.22	3.01	<0.001				
General comfort question	Score= (Max-112)	28±3.01	52±1.33	50±1.34	49±1.35	4.43	<0.001				
<b>Control group (62)</b>											
Comfort behavior checklist	Score Max -120	28±3.06	34±3.04	30±3.01	32±3.02	10.31	>0.05				
Comfort Daisies (Right now I feel)	Score= (Max-16)	4±2.02	4.8±2.03	4.9±2.06	4.7±2.32	5.02	>0.09				
General comfort question	Score= (Max-112)	28±3.55	32±3.41	30±3.44	29±3.45	6.92	>0.08				

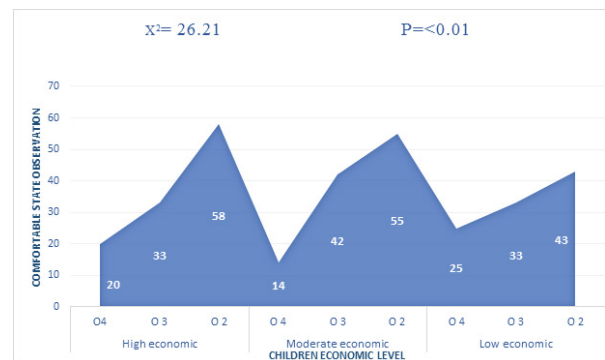


**Fig. 5: The association between comfortable state observation of children with SCD crises and their education phase post-application comfort theory (experimental grCoup) N=62**

Figure 2 reveals the effectiveness of comfort theory on improvement of the comfort levels of the experimental group, where the highest percentage of comfortable state was 99%, compared to 8% for the control group.

Figure 3 indicates that the Comfort Daisies Scale result obtained from the experimental group was 'Feel very Good' at 95% post-comfort theory application, compared to 'Very Good' at 2% in the control group who received routine care.

Figure 4 clarifies that there were statistically significant differences and



**Fig. 6: The association between comfortable state observation of children with sickle cell disease crisis and their economic level post-application comfort theory (experimental group) N=62**

positive correlations between post-comfort theory application and the comfortable behavior levels of children with sickle cell disease crises.

Children in secondary education and experiencing SCD crisis showed improved comfort levels after the comfort theory intervention ( $p < .01$ ), the effect is shown in Figure 5.

Figure 6 shows a statistically significant difference  $P < 0.01$  between children at a high economic level and comfortable state



observation two post application comfort theory for children with sickle cell disease crises.

## DISCUSSION

The comfort of children with sickle cell disease has both a practical and psychological aspect where these children were admitted to hospital with a crisis episode. The purpose of this study was to evaluate the effectiveness of the comfort theory model to pediatric care in children undergoing SCD crisis. It indicated that this model should be adopted to achieve a comprehensive and holistic standard of care. Post-research done the hypothesis was achieved and the children become comfortable and able to rise above their problem.

The current study illustrates that a high number of the children with sickle cell disease crisis were at the primary education stage and in a high economic level. The participants were unequal boys and girls aged from 6 to 18 years. Usman et al. (2019) found that most SCD children in Nigeria were aged 5 years, and that the disease affected approximately equal numbers of males and females, which is consistent with the results of the current study, where equal numbers of each gender were also found to be affected by SCD. In addition, 36.7% of children undergoing acute SCD crisis were educated to secondary level and 5.5% came from moderate income families.

The present study indicated that there was improvement with the mean post-comfort theory application, as shown in the Comfort Behavior Checklist and the Comfort Daisies Scale, compared to the mean pre-application of comfort theory for children with sickle cell disease crises. There was also a significant improvement in comfort evaluations after the intervention ( $p < .01$ ) whereas the difference between pre- and post-intervention scores was not significant in the control group. The results are consistent with a study carried out in Iran by Khaleghi et al. (2023), where significant differences in scores on pain, distress, and heart/breathing rates were observed after comfort theory

intervention. The current study indicates that nursing using a comfort theory approach can comprehensively comfort children, reducing their pain and discomfort and address their needs at all levels. It can therefore be recommended as an approach for pediatric care in this group of patients. Similar results were obtained by Salehi (2023), also in Iran, who found that the comfort theory approach to the care of children undergoing endoscopy reduced their anxiety. This suggests that comfort theory models should be adopted in the care of children needing invasive surgery. Anxiety scores after intervention were 24.11 and after routine care were 49.88 ( $SD = 1.98$ ) and this difference was significant ( $p = .009$ ).

The present study reveals the effectiveness of comfort theory on improvements in comfort levels for the experimental group, where the highest percentage of comfortable state was 99% compared, to 8% for the control group. These results are similar to a study from the Patiala District by Sharma and Kalia (2021), where post-operative discomfort scores were observed to be lower in the group receiving comfort theory care than those in the group receiving standard care ( $p < .001$ ). These results, together with the current study, imply that nursing care that follows a comfort theory guided approach can help reduce discomfort and promote feelings of ease in children undergoing treatments in hospital.

The current study reveals that the Comfort Daisies Scale score for the experimental group was 'Feel very Good' at 95% post-comfort theory application, compared to 'Very Good' at 2% for the control group who received routine care. These results match those of a study by Chandra and Raman (2016) who applied comfort theory in India. These researchers found that soon after children received integrative comfort care they reported feeling 'very good' on the Comfort Daisies Scale. Observations made later found the child to be experiencing moderate discomfort ('sort of good' on the Daisies Comfort Scale) compared to the first observation (O1) made before the intervention.

This study found there to be a significantly greater improvement in comfort in SCD children receiving intervention based on comfort theory than in those receiving routine care. There was also a significant positive correlation between the comfort theory intervention and behavioural measures of children's comfort levels. The findings agree with those of Wihak et al. (2020) who successfully modified the Comfort Ability Program (CAP) so it could be used through video as an intervention for adolescents affected by sickle cell disease pain (SCP). This effect was also observed in a case study by Sepahvand et al. (2021) of a teenage girl in Iran who showed improvements in her comfort level after receiving comfort theory-based interventions. The current author considers comfort to be an inherently positive outcome that promotes healthy behaviours in both children and family members. Comfort is also necessary for death to be peaceful and dignified. Both the child and carer benefit from administering comfort. It is an altruistic action that is also of practical use and rewarding for nurses and healthcare workers. Understanding and evaluating the relationships between comfort, healthy behaviours, and clinical outcomes provides an evidence base for effective and well-structured nursing care and is essential to guide good practice. This body of research, and the experimental evidence presented here, shows that Kolcaba's (1994) theory of comfort is an effective model for managing the pain and discomfort of children.

The children with SCD in this study were mostly in secondary education and came from families with moderate or moderate to high income levels. The children receiving comfort theory interventions showed significantly higher comfort scores after the study period than the children receiving routine care ( $p < .01$ ). The results are also consistent with those of Sil et al. (2021), where children receiving pain management that incorporated both psychological and behavioural techniques (using the CAP for sickle cell disease pain), showed significant increases in comfort.

These children were also mostly in secondary education and came from families with moderate income levels. The researcher suggests there is a significant relationship between a high response to comfortable strategies and younger age children. due to their experience and adaptation to sickle cell disease crises.

This author claims that approaches to pediatric care that use the comfort theory as a model, benefits both children and their carers - including their families and the nursing staff. It strengthens their ability to cope with pain and eases their distress - an outcome which is universally acknowledged to be good. Comfort is not only the relief of pain, but also a multi-dimensional aspect of an individual's wellbeing that includes social and cultural components, as well as physical and psychological components. Evaluating comfort should be carried out by including these holistic elements in any measurements, to enable effective procedures to be designed implemented. Kolcaba's theory of comfort can help to improve the pain management of children as it incorporates the social, cultural, and spiritual aspects of comfort, as well as the purely physical and immediate psychological aspects. This model of comfort is also simple to implement and easy to comprehend, and would enhance pediatric nursing in most contexts, especially in long-term care or treatment.

## CONCLUSION

This study demonstrated that Kolcaba's theory of comfort is a valuable and effective holistic approach to managing pain in children with SCD crisis during hospitalisation. It enables the needs of children and carers to be addressed at all levels and thereby improves the wellbeing of both. Interventions based on the comfort theory were delivered to children with SCD crisis by nursing staff in a clinical setting. Kolcaba's theory enhances pediatric care by including sociocultural, spiritual, and environmental aspects of comfort, in addition to the physical and psychological aspects that

standard care can be restricted to. Statistical analysis showed the comfort theory approach resulted in significantly better comfort outcomes than standard care. This model can therefore be considered an effective and holistic approach to children's need for comfort during an SCD crisis.

## Recommendations

Comfort theory provides an effective approach to managing pain in chronically ill patients. It reduces pain and stress and should be considered by practitioners when designing care plans for children.

The benefits of the comfort theory approach come from its holistic approach to understanding the needs of those suffering pain and discomfort. It would also be of great benefit in the care of children with other painful and chronic diseases.

The study also showed that comfort theory helps formulate plans to alleviate pain and stress in children before treatment commences in hospital.

Comfort theory should be evaluated by further studies that include it as strategy for pediatric care.

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**Conflict of interesting:** the author declares that there is no conflict of interest to report.

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