Effect of Social Media Platforms Education regarding Early Ambulation on Mothers' Knowledge and Practices Caring for Children with Congenital Heart Defects post Cardiac Catheterization

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Abstract

Background: The whole family experiences stress when a child is diagnosed with heart disease. Families are currently concerned about their child's health. During this period, nurses are crucial in informing parents or other caregivers about the child's condition, the procedure, and the care provided before and after the procedure. **Aim:** To bridge the gaps, this study was done to determine the effect of social media platforms education regarding early ambulation on mothers' knowledge and practices caring for children with congenital heart defects post cardiac catheterization. **Design**: To accomplish this study a quasi-experimental research design pre-post- test was used. **Settings**: The study was conducted at Sohag City in Egypt. **Sample**: A purposive sample of 200 mothers of children with congenital heart disease was enrolled in the study after cardiac catheterization was obtained from social media such as Facebook and WhatsApp groups, 2023 which the online Google form spreadsheet was opened from the first day of June 2023 to the end of June 2023, it was closed. **Tolls of data collection: Tool I** Mothers' knowledge Questionnaire Sheet **Tool (II)** Mothers' **Reported** practices of Early Ambulation. **Results:** The present study revealed that there were highly statistically significant differences between mothers' knowledge and practices caring for children with congenital heart defects post cardiac catheterization pre and post-implementation of the social media platforms education at P=<0.001. **Conclusion:** the study concluded that social media platforms education achieved significant improvements in the mothers' knowledge and practices. **Recommendations:** The social media platforms education should be applied and carefully planned for all for mothers of children with congenital heart defects post cardiac catheterization as a new teaching method for proving health issues. Brochures included guidelines for mothers of children with congenital heart disease should be conducted, discussed, and integrated into rehabilitation programs.

Keywords: Early ambulation, Cardiac catheterization, Congenital heart defects, Mothers' knowledge and practices, Social media platforms education.

Introduction:

Congenital heart disease (CHD) is a common congenital heart and major vascular condition found in children. CHD is categorized into two types: cyanotic and (A)-cyanotic lesions. The outcomes for pediatric patients have improved significantly due to the increased accessibility of pediatric echocardiograms (ECHO) and advancements in the surgical and percutaneous treatment of children with CHD. Additionally, children diagnosed with CHD are living longer lives thanks to enhanced healthcare services. Over the past two decades, treatments such as open heart surgery, cardiopulmonary bypass, and cardiac catheterization have become available **(O'Byrne et al., 2020).**

Approximately 9 out of every 1000 individuals are born with these conditions. The incidence of significant CHD is 8 per 1000 live births, excluding minor defects that may manifest later in childhood or adulthood (for instance, bicuspid aortic valves occur in 1 out of 100 individuals). The prevalence of congenital heart disease among children in Egypt has been estimated at 5-6 per 1000 live births **(Bellsham-Revell & Burch, 2018).** CHD is responsible for nearly 10% of infant mortality **(Wu et al., 2020).** While the precise cause of CHD remains unclear,

it is known that most cases are affected by genetic factors and family history. Conditions such as Down syndrome and other chromosomal abnormalities (including Trisomy 21 and Turner syndrome) impact approximately 5–8% of newborns diagnosed with congenital heart disease. Other contributing factors associated with an elevated risk of congenital heart disease include maternal and fetal infections such as German measles, exposure to teratogenic drugs, maternal alcohol consumption, radiation exposure during the first trimester of pregnancy, fetal hypoxia, and birth asphyxia **(Wang et al., 2019).**

Pediatric cardiology is a field that has experienced rapid advancements in the identification and management of congenital heart defects (CHDs) over the past few decades, utilizing techniques such as echocardiograms, electrocardiograms, cardiac catheterization, and cardiovascular magnetic resonance imaging. Pediatric cardiac catheterization serves as a highly effective method for diagnosing and treating heart irregularities **(Moustafa et al., 2022).**

Despite the fact that children represent the most susceptible demographic in society, parents or other guardians may find the prospect of their child being hospitalized for CHD diagnostic and intervention procedures to be daunting and anxiety-inducing, primarily due to their lack of understanding regarding the condition and the necessary investigative procedures involved. They also express concerns regarding the quality of care their child will receive both pre- and post-surgery, whether at home or in the hospital, in order to avert complications **(Graziano & Bianchi, 2024).**

Early ambulation is a nursing intervention that promotes physical activity, fosters independence during or after surgical procedures, and alleviates the consequences of inactivity **(Baqal & Mahmood, 2022).** Given that cardiology is a specialized and complex discipline, delivering high-quality nursing care to children in these environments requires a significant level of professional expertise and skills. The topic of early ambulation following cardiac catheterization has recently emerged as a compelling and challenging area of interest for nurses. This practice is frequently implemented in intensive care units. Consequently, primary care nurses are tasked with providing early intervention in pediatric cardiac care (**Bulut & Calik, 2020**).

Worldwide, billions of people engage with social media, which is constantly evolving in its significance. According to **Kazemi et al. (2021),** this term generally denotes Internet-based platforms that allow individuals and communities to share information, ideas, images, and various forms of content. Healthcare professionals utilize social media to promote professionalism, increase individual awareness, interact with patients, address healthcare regulations and practice concerns, encourage healthy behaviors, and distribute health information to the public.

People who obtain news from newspapers, television, and radio may seek healthcare services as a consequence of their media exposure. The term "social media" encompasses any written, spoken, or broadcast communication aimed at a wider audience. The media serves as a crucial instrument for promoting social cohesion (**Viswanath et al., 2020).** The integration of mobile health services with in-person interactions presents a promising approach to encouraging healthier behaviors. Smartphones offer a diverse array of applications tailored to users' requirements, including Instagram, WhatsApp, email, and SMS (short message service). Although WhatsApp has become the preferred platform for multimedia communication, SMS remains a vital resource for healthcare providers to send reminders to children and their parents regarding adherence to prescriptions. Moreover, WhatsApp continues to be a widely used application for enhancing communication within the healthcare sector. The phrase "mobile health," or "mHealth," refers to the application of wireless and mobile communication technologies aimed at improving healthcare delivery, outcomes, and research. Digital technology can help to address traditional barriers related to geography, economics, and literacy (**Ouedraogo, 2021).**

Leveraging mHealth to enhance the skills and awareness of nurses represents a highly economical strategy, particularly in low- and middle-income countries. Mobile phone interventions, which may encompass voice messages, SMS (short message service), videos, and applications, can be implemented independently. This strategy holds the potential to markedly improve health outcomes by

broadening access to vital information and empowering healthcare providers **(Irvine & Russell, 2022).**

Nurses are pivotal in educating parents, and numerous studies have indicated that they are essential in identifying the educational and training needs of caregivers. Parental education reduces the likelihood of complications during postoperative care and disease management **(Mannarino et al., 2020).**

To deliver a comprehensive and scientifically validated educational intervention for parents and their children with congenital heart disease, pediatric nurses are indispensable **(United Nations Development Program, 2023).** Nurses are vital in informing mothers about their children's conditions, and early detection, supportive management, and counseling are critical in alleviating the anxiety linked to the diagnosis and improving the child's overall well-being **(Sjostrom-Strand & Terp, 2019).**

Significance of the study:

Cardiac catheterization (CC) is a notable procedure that is widely acknowledged as a stressful experience for both children and their families. The global incidence of congenital heart defects (CHDs stands at 9.410 per 1000, indicating a potential increase over the last fifteen years **(Liu et al., 2019).** In Egypt, national data revealed that 796 cases (79.2%) were classified as (A)-cyanotic, while 209 cases (20.8%) were identified as cyanotic CHD **(Al-Fahham & Ali, 2021)**. The standards of nursing care during CC are a vital concern for all healthcare teams, focusing on delivering high-quality care to pediatric patients and minimizing post-CC complications. There have been few studies conducted in Egypt regarding nursing care, particularly concerning the early ambulation of children following cardiac catheterization.

Social media platforms such as Facebook, Instagram, WhatsApp, Snapchat, and Twitter have removed barriers related to in-person interactions, enabling consistent and effective communication. As noted by **Darvish et al. (2024)**, mothers use social media to exchange medical records with others who are experiencing similar issues, acquire insights into their conditions, and communicate quickly and effectively. It is becoming increasingly clear that social media platforms, along with mobile applications and communication technologies, are leading the way in healthcare innovation. However, there is a lack of substantial evidence to indicate that this significantly impacts the health outcomes of women. Therefore, this study aimed to evaluate the effect of social media–based education on nurses' performance in the care of patients with pancreatitis

Operational definitions

Social media platforms education: The primary objectives of social media marketing were to create an "online community for everyone" and to promote interpersonal relationships. In the current study, nurses who had access to the internet on their mobile devices (either through mobile data or home WiFi) and engaged with social media platforms (such as Facebook, Viber, or WhatsApp) were guided on how to provide care for children with congenital heart disease. The communication methods encompassed messages sent through the WhatsApp application, direct calls from mobile phones, interactive resources, images, videos, and responses to inquiries, all of which are integral to the anticipated participation in online forums.

Aim of the study:

To bridge the gaps, this study was done to determine the effect of social media platforms education regarding early ambulation on mothers' knowledge and practices caring for children with congenital heart defects post cardiac catheterization through the following objectives:

- Assessing mothers' knowledge regarding early ambulation.
- Assessing mothers' practices regarding early ambulation.
- Designing and implementing the social media platforms education regarding early ambulation concerning mothers' needs.
- Determining the effect of social media platforms education regarding early ambulation on mothers' knowledge and practices caring for

children with congenital heart defects post cardiac catheterization

Research hypothesis:

H1: Mothers' knowledge mean scores regarding early ambulation expected to be improved post-social media platforms education than pre-education .

H2: Mothers' practices mean scores regarding early ambulation expected to be improved post-post-social media platforms education than pre-education .

Subjects and Method

Research design:

To accomplish this study a quasi-experimental research design pre-post- test was used. This design is important to the nature of the study issue, subjects observed on pre and post-manipulations (**Creswell, 2012)**.

Setting:

The study was conducted at Sohag City in Egypt.

Subjects:

A purposive sample of 200 mothers of children with congenital heart disease was enrolled in the study after cardiac catheterization was obtained from social media such as Facebook and WhatsApp groups, 2023 which the online Google form spreadsheet was opened from the first day of June 2023 to the end of June 2023, it was closed.

Inclusion Criteria:

Mothers caring for children with congenital heart defects post cardiac catheterization were included in the study, educated, and had internet access .

Data collection tools:

Two instruments were used as follows:

Tool (I): Mothers' Knowledge Questionnaire Sheet: This instrument was created by the researcher following a thorough review of pertinent literature **(Baqal & Mahmood, 2022; Al-Fahham & Ali, 2021; Bulut and Calik, 2020)** to evaluate mothers' understanding of early ambulation. It is composed in the Arabic language and is organized into two distinct sections:

Part I: Personal characteristics of the mothers involved in the study, which include age, education, place of residence, and prior training related to early ambulation.

Part II: Mothers' knowledge concerning early ambulation (pre/post): This section comprises thirty-two (32) questions aimed at assessing mothers' knowledge of early ambulation, which is divided into three main areas of knowledge. The first area addresses congenital heart defects, including definitions, causes, symptoms, types, diagnostic procedures, complications, treatment options, and preventive measures. The second area pertains to cardiac catheterization, discussing definitions, indications for both diagnostic and therapeutic catheters, the most frequently used insertion sites, advantages, types, contraindications, issues, and interventional procedures (tests) conducted during cardiac catheterization. The third area focuses on knowledge of early ambulation, covering definitions, timing, frequency of evaluations during early ambulation, criteria for initiating early ambulation, types of exercises, levels of activity undertaken, benefits, contraindications, criteria for discontinuing early ambulation, barriers, complications arising from immobility, and facilitators for the implementation of early ambulation.

Scoring system:

The mothers received a score of 1 when their answer was correct, whereas a score of 0 was assigned if the answer was incorrect. A mother was deemed to possess satisfactory knowledge if her score was (≥60%), while those with unsatisfactory knowledge had a score of (< 60%).

Tool (II) Mothers' reported practices of Early Ambulation: This tool was created by the researchers following a review of pertinent literature **(Mannarino et al., 2020; Lin et al., 2020; Dweekat, 2020).** It comprised thirty-two (32) questions aimed at evaluating mothers' practices regarding early ambulation, including aspects such as timing, frequency of evaluations during early ambulation, criteria for initiating early ambulation, types of exercises, levels of activity undertaken, benefits, contraindications, criteria for discontinuing early ambulation, barriers, complications associated with immobility, and facilitators for the implementation of early ambulation.

Scoring system:

1. A score of 1 was awarded for actions performed correctly.
2. A score of 0 was assigned for actions performed incorrectly.

Adequate practices were characterized as those meeting or exceeding 60%, while inadequate practices were identified as those falling below 60%.

Social platform platforms education:

In this section, the impact of social media platforms on education concerning early ambulation was assessed in relation to mothers' knowledge and practices for caring for children with congenital heart defects following cardiac catheterization. The evaluation comprised five questions: Were the nursing guidelines provided by the social platforms adequately informative? Was the education from the social platforms received satisfactorily? Did the education from the social platforms enhance mothers' knowledge and practices?

Fieldwork:

The educational component of the social media platforms was conducted with the objective of the current research, which encompassed the stages of assessment, planning, implementation, and evaluation phases. Fieldwork was carried out from the first day of June 2023 until the end of June 2023.

Administrative design:

For the execution of this study, administrative approval was secured from the Dean of the Faculty of Nursing at Sohag University and communicated to the Director of the relevant Department associated with Sohag University Hospital via a formal letter.

Tool validity and reliability:

The validity of the data collection tool was assessed by five experts in the domains of Pediatric Nursing, Pediatric Surgery, and Pediatric Cardio-Thoracic Surgery, focusing on its clarity, comprehensiveness, appropriateness, and relevance. The current study employed the internal consistency method to assess the reliability of the three tools, achieving Cronbach alpha scores of 0.95 for the first tool and 0.943 for the second tool, indicating very high reliability.

Pilot study:

To evaluate the effectiveness of the tools and the time necessary for completion, 10% of the overall sample size (20 mothers) was utilized. The mothers who participated in the pilot study were included in the main study sample as no modifications were made.

Ethical considerations:

In order to carry out this study, formal approval was obtained via a letter from the dean of the nursing faculty. An informed consent form was included on the first page of the online questionnaire. A summary of the study's objectives was presented on the cover page of the questionnaire. The researcher informed the participants that they had the right to decline participation at any time and could withdraw from the study at any moment without needing to provide a reason, prior to commencing the questionnaire that would be sent to them. The initial section provided the mothers with an explanation of the study's purpose, along with the link to the online study, a quick response (QR) code, and instructions for its completion. After reviewing the consent form, the mothers proceeded to answer the questionnaire. Furthermore, participants were assured that their responses would remain confidential and would solely be utilized for research purposes.

The research was conducted through the stages of assessment, planning, implementation, and evaluation.

In the assessment stage:

To develop the necessary tools for data collection and to prepare the educational program, the researchers reviewed both contemporary and historical literature, which included textbooks, articles, magazines, and online resources.

The planning stage:

The researcher offered a detailed overview of education concerning social media platforms. The educational content related to social media platforms was formulated based on the insights obtained during the assessment and pertinent literature.

Following the analysis of the preliminary data from the assessment phase and a comprehensive review of existing literature, the researchers produced a simplified booklet that served as supplementary material for mothers of children with congenital heart diseases. The instructions were tailored to align with the comprehension level of mothers in basic Arabic. Various teaching methods were utilized, including

lectures, posters, scenarios, and discussions. A range of teaching materials, such as handouts and educational films, were employed to assist mothers in effectively understanding the content.

The implementation stage:

Participants were asked to complete and submit an online Google Form. The link to the Google Form was shared with caregivers via Facebook and WhatsApp groups (https://docs.google.com/forms/dle/1FRLPS Lsd). Before the online videos and presentation, each mother completed an internet-administered questionnaire as a pretest to assess their demographic characteristics, knowledge, and practices related to congenital heart defects, cardiac catheterization, and early ambulation. Mothers were informed about the study's objectives and expected outcomes, the contents of the tools, and instructions on how to respond on the first page of the online questionnaire. The guide booklet was developed by the researchers. The theoretical component lasted a total of one hour.

Each mother involved in the study was informed about the study's objectives, the components of the tools, and the process for completing the online questionnaire and the scale. The booklet was disseminated via Google Form to participants of the pre-test through Facebook and WhatsApp groups. The researchers utilized appropriate videos, PowerPoint presentations, and posters to aid mothers' understanding of congenital heart defects, cardiac catheterization, and early ambulation. Additionally, to further improve mothers' understanding of congenital heart defects, cardiac catheterization, and early ambulation, the researchers created online videos and audio materials that summarized the contents of the booklet.

Social media platforms' educational content:

It was developed by the researcher with an emphasis on the educational sessions that addressed the following topics:

The first session addressed congenital heart defects, encompassing definitions, causes, symptoms, types, investigations, complications, treatments, and prevention strategies.

The second session concentrated on cardiac catheterization, discussing definitions, indications for both diagnostic and therapeutic catheters, the most common insertion sites, benefits, types, contraindications, issues, and tests conducted during cardiac catheterization.

The third session focused on knowledge regarding early ambulation, including definitions, timing, the number of evaluations during early ambulation, criteria for initiating early ambulation, types of exercises, levels of activity performed, benefits, contraindications, criteria for terminating early ambulation, barriers, complications of immobility, and facilitators for implementing early ambulation.

The evaluation phase:

The impact of social-platform education on mothers' understanding and practices regarding the care of children with congenital heart defects following cardiac catheterization was assessed through a post-test that employed the same evaluation tools immediately after the distribution of the booklet, videos, PowerPoint presentation, and posters. The questionnaire was subsequently resent to participants via Google Form for data collection (post-test).

Statistical analysis:

The data was entered and analyzed using SPSS version 25. McNemar's Test was utilized to identify differences between qualitative variables when the data was paired, dichotomous, and nonparametric. A marginal homogeneity test was conducted. The relationship between the independent categorical variables was examined using the chi-squared (x2) and Fisher exact tests. The Spearman correlation coefficient (γ) test was implemented to evaluate the strength and direction of the relationship between two parameters. P-values below 0.05 were deemed statistically significant.

Results:

The personal characteristics of the mothers are presented in **Table 1.** The majority (80%) of mothers were unemployed, 74% were under 30 years of age, and over half (60%) had completed secondary education. Furthermore, 84% of mothers lived in urban areas.

The findings illustrated in **Figure 1** indicate that none of the mothers studied had previously undergone any training related to early ambulation.

Table 2 demonstrates that there were statistically significant differences and enhancements in all knowledge items following education through social media platforms

regarding early ambulation, particularly concerning congenital heart defects, cardiac catheterization, and early ambulation (P<0.001). Prior to the education via social media platforms, the total mean knowledge score was 13.22±0.67, whereas post-education, the score increased to 28.22±1.42.

As depicted in **Figure 2**, 92% of mothers of children with congenital heart diseases exhibited satisfactory knowledge after the social media platforms education on early ambulation, in contrast to 98% who had unsatisfactory knowledge in the pretest.

Following the education through social media platforms regarding early ambulation, all practice items showed a statistically significant improvement (P<0.001), as illustrated in **Table 3.** Before the education via social media platforms, the total practices score was 8.03±2.03, but after the education, the score rose to 15.45±1.88.

Figure 3 reveals that 29% of mothers had adequate practices concerning early ambulation prior to the education through social media platforms, compared to 84% who achieved adequate practices as a result of the post-education.

The overall knowledge and practices scores of mothers before and after the education through social media platforms are correlated in **Table 4.** The results indicated a positive correlation between knowledge and practices both pre and post the social media platforms education with a highly statistically significant at P = 0.001.

Figure (4): Demonstrates that every mother surveyed (100%) indicated that the content was sufficient and expressed satisfaction with the educational aspects of the social media platforms. Regarding its impact on knowledge and practices, all participants (100%) affirmed that it enhanced their knowledge and practices.

Table (1): Percentage distribution of studied mothers regarding personal characteristics (N=200)

Variables	No.	%
Mothers' Age		
- <30	148	74.0
≥ 30	52	26.0
Mothers' education		
Secondary	120	60.0
University	80	40.0
Mothers' Occupation		
Working	40	20.0
Not working	160	80.0
Residence		
Urban	168	84.0
Rural	32	16.0

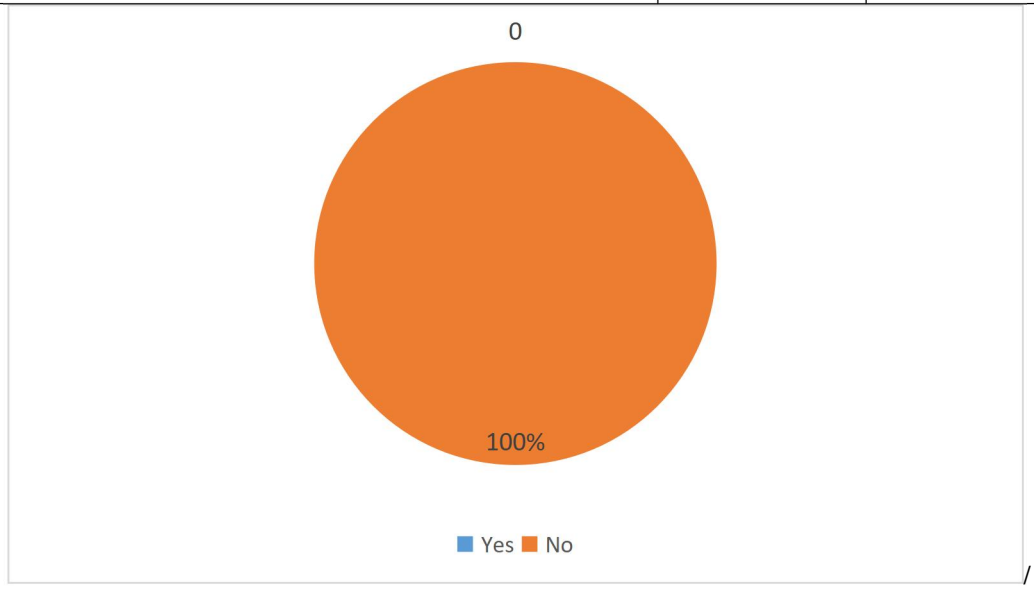

Figure 1: Previous training program regarding early ambulation among mothers caring for children with congenital heart defects post cardiac catheterization (n=200)

Table (2): Comparison between mother's knowledge pre and post – social media platforms education regarding congenital heart defects, cardiac catheterization, and early ambulation of their children with congenital heart defects post cardiac catheterization (n=200)

Items	Pre social media platforms education	Post social media platforms education	X^2	P
Meaning of congenital heart defects	28 (14)	176(88)	66.77	<0.00 1*
Causes of congenital heart defects	48(24)	180 (90)	99.22	<0.001*
Symptoms of congenital heart defects	44(22)	188(94)	86.33	<0.001*
Types of congenital heart defects	40 (20)	168(84)	75.12	<0.001*
Investigations of congenital heart defects	52(26)	184(92)	85.11	<0.001*
Complications of congenital heart defects	32 (16)	192(96)	63.24	<0.00 1*
Treatment and prevention of congenital heart defects	52(26)	176(88)	80.42	<0.001*
Meaning cardiac catheterization	48 (24)	188(94)	82.78	<0.001*
Indications for diagnostic and therapeutic catheters	50 (25)	176 (88)	92.55	<0.001*
The most common site of insertion	44(22)	188(94)	60.11	<0.001*
Benefits of cardiac catheterization	32 (16)	192(96)	90.33	<0.00 1*
Kinds of cardiac catheterization	42(21)	180(90)	94.20	<0.001*
Contraindications and problems	48(24)	188(94)	62.29	<0.001*
Interventional procedures (tests) performed during cardiac catheterization	46 (23)	176(88)	97.54	<0.001*
Meaning of early ambulation	60 (30)	196(98)	78.22	<0.001*
Time, criteria for initiating, and number of evaluations during early ambulation,	56 (28)	188(94)	122.11	<0.001*
Types of exercise	24 (12)	180(90)	144.33	<0.001*
Levels of activity performed	46 (23)	176 (88)	112.77	<0.001*
Benefits	42 (21)	184 (92)	134.45	<0.001*
Contraindications	40 (20)	172 (86)	171.11	<0.001*
Criteria for terminating early ambulation	48 (24)	192 (96)	117.56	<0.001*
Barriers	28 (14)	184(92)	149.22	<0.001*
Facilitators for implementing early ambulation	48 (24)	176(88)	159.27	<0.001*
Complications of immobility	44 (22)	184 (92)	138.67	<0.001*
Total mean score	**M± SD**	**M± SD**	**t-test**	P
Knowledge	13.22±0.67	28.22±1.42	13.67	0.001*

(*) Statistically significant at P ≤0.05

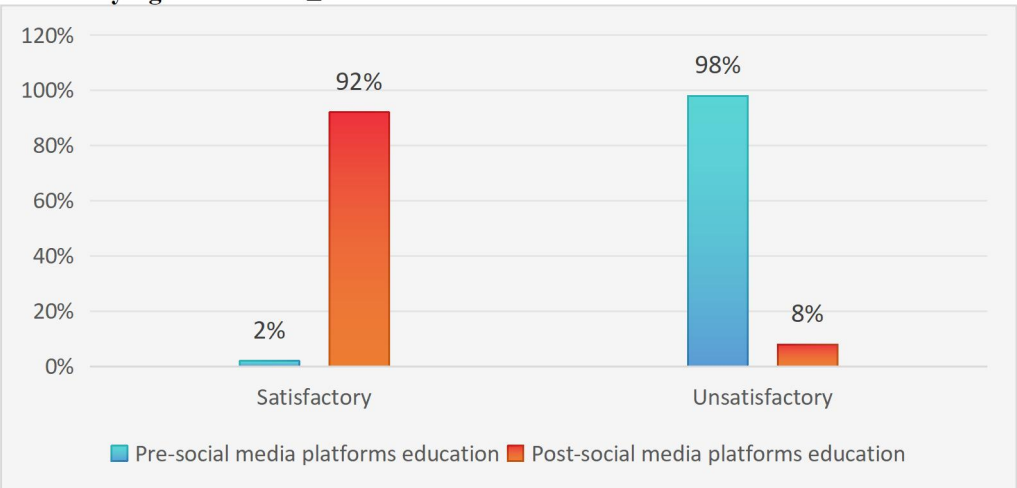

Figure (2): Total knowledge level regarding early ambulation among the studied mother's pre and post-social media platforms education (n = 200)

Table 3: Comparison between the studied mother's reported practices mean scores regarding early ambulation pre and post-social media platforms education (n = 200)

Mothers practices	Pre social media platforms education	Post social media platforms education	t-test	P
	M± SD	M± SD		
Attitude	8.03±2.03	15.45±1.88	15.87	0.001*

(*) Statistically significant at p≤0.001, (**) Paired t- test

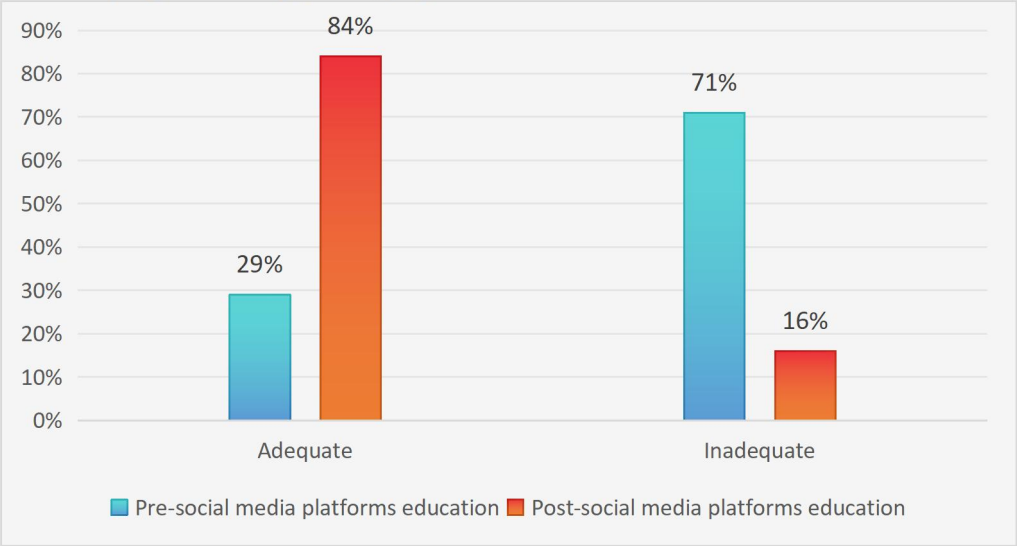

Figure (3): Total reported practices level towards early ambulation among the studied mother's pre and post-social media platforms education (n = 200)

Table (4): Correlation between the studied mothers' total knowledge and practices score pre and post-social media platforms education (n=200)

Items	Total practices level			
	Pre social media platforms education		Post social media platforms education	
	r	P	R	P
Total knowledge level	1.00	0.001*	0.632	0.001*

**Correlation is significant at < 0.01 level

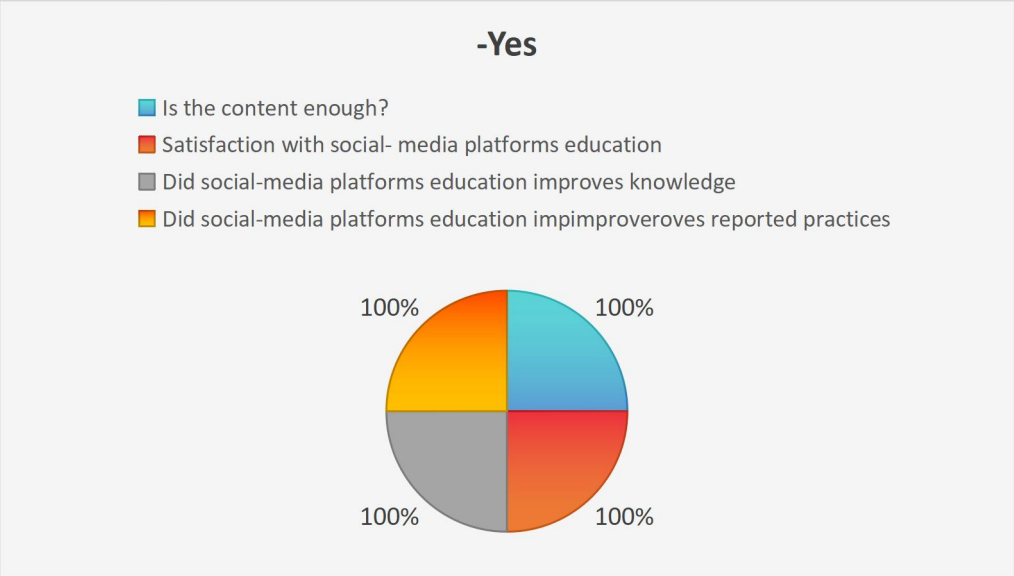

Figure (4): The studied mothers distribution regarding their feedback about using social media platforms education (n=200).

Discussion:

Worldwide, cardiovascular disorders are the primary cause of significant morbidity and mortality, as well as the most prevalent type of birth defect. Upon the diagnosis of a congenital heart condition, parents may endure intense anxiety, and the family, along with their children, frequently confront substantial emotional and financial challenges due to the repercussions. To assist parents of children diagnosed with congenital heart disease in clinical environments, pediatric nurses collaborate closely with parents to provide intervention alternatives **(Findley et al., 2024).**

A congenital heart defect represents the most common congenital disability, impacting nearly one in every 120-166 newborns **(Kiraly, 2022).** With advancements in both palliative and corrective surgical procedures, the survival rate of children with congenital heart disease (CHD) into adulthood has improved. However, CHD remains the foremost cause of mortality among children with congenital anomalies **(Roberts et al., 2020).** Early ambulation is recognized as an effective and safe method to mitigate the negative effects of prolonged bed rest and functional impairments in children following cardiac catheterization. Research indicates that early ambulation in children enhances recovery outcomes post-cardiac catheterization **(Cho et al., 2023).** Therefore, the study was conducted to determine the effect of social media platforms education regarding early ambulation on mothers' knowledge and practices caring for children with congenital heart defects post cardiac catheterization.

The present study revealed that most mothers were unemployed, with over half having completed secondary education. Furthermore, a significant number of them live in urban settings. This contrasts with the findings of **Elshazali et al. (2018),** which indicated that a large minority of mothers had graduated from university, and nearly half had completed secondary education. In this study, more than 75% of the mothers were unemployed, aligning with **Bulut & Calik (2020),** who noted that three-quarters of the mothers in their research were also unemployed. This situation may be attributed to the anticipated stress associated with raising children diagnosed with congenital heart disease, which could hinder the mothers' capacity to work. Additionally, **El-Mahdi (2019)** noted that the majority of mothers were from urban areas.

The findings indicated that none of the mothers involved in the study had previously undergone any training related to early ambulation. This outcome is consistent with **Omer (2020),** who found that most of the participants in his study had not received training sessions for pediatric cardiac catheterization. From the researchers' perspective, these results underscore the necessity for training mothers on the early ambulation of children following cardiac catheterization.

The The findings indicated that there were statistically significant differences and enhancements in all knowledge areas after the education provided through social media platforms concerning early ambulation related to congenital heart defects, cardiac catheterization, and early ambulation. From the perspective of the researchers, this reflected the beneficial effects of social media education, which aids in enhancing mothers' understanding. This enhancement illustrates the influence of implementing social media education and underscores the eagerness of mothers to acquire more knowledge about their children's health conditions. Another study conducted among caregivers in Saudi Arabia yielded similar results during the post-intervention phase **(Azhar et al., 2019).**

The findings revealed that a significant number of mothers of children with congenital heart diseases exhibited satisfactory knowledge following the social media education regarding early ambulation, whereas 98% had inadequate knowledge in the pretest. From the researchers' perspective, this validated the effectiveness of social media education in addressing the needs of mothers. The results corroborated the findings of Abdel Salam and Mahmoud (2018), who noted that over half of the participants initially had inadequate knowledge but improved their knowledge scores after receiving instructional guidelines. This study was further supported by **Animasahun et al. (2019)**, who discovered that parents had limited understanding of the causes, symptoms, management, prevention, and complications associated with congenital heart disease.

The findings demonstrated that after the social media education concerning early ambulation, all practice items exhibited a statistically significant improvement. From the researchers' viewpoint, this confirmed the effectiveness of social media education in achieving the study's objectives. The results aligned with those of **Elfeky et al. (2023),** who showed that the program implementation for mothers was successful and effective in enhancing the levels of practices among mothers.

The findings indicated that the majority of the mothers studied exhibited adequate practices due to the education received from post-social media platforms concerning early ambulation. This may be linked to an enhancement in knowledge, which is associated with an improvement in practices.

The results revealed a positive correlation between knowledge and practices before and after the education provided through social media platforms, with a high level of statistical significance. According to the researcher, this finding

demonstrates that the education offered via social media platforms effectively increased the mothers' awareness and positively influenced their practices. The conclusions of the study confirmed that the mothers' understanding of early ambulation had improved, leading to better practices, both of which were attributed to the effectiveness of the social media platforms education. It underscores the importance of knowledge in shaping mothers' practices regarding early ambulation. Similarly, **Aranha et al. (2020)** noted that enhanced knowledge is linked to improved practices.

This finding aligns with the research conducted by **Huang et al. (2021), Parveen et al. (2024), and Elfeky et al. (2023),** who reported a potential positive relationship between overall knowledge and total practice scores during the pre-and post-implementation phases of the program.

The results showed that all of the mothers studied reported that the content was sufficient and expressed satisfaction with the education provided through social media platforms. Regarding its impact on knowledge and practices, all participants indicated that it had improved their knowledge and practices. From the researchers' viewpoint, this reflects the success of the education delivered via social media platforms.

Conclusion:

In light of the findings and hypotheses presented in this study, the conclusions drawn indicate that the results substantiate the research hypothesis regarding the implementation of the introduction of social-media platforms education for early ambulation improved the knowledge and reported practices of mothers caring for children with congenital heart disease. There was a significant positive correlation (P=0.001) between mothers' knowledge and practices post-social-media platforms education.

Recommendations:

Based on the current study results, the following recommendations are proposed:

- Instructional guidelines for mothers of children with congenital heart disease post cardiac catheterization should be conducted, discussed, and integrated into rehabilitation programs.
- Mothers of children with congenital heart diseases should be given a booklet and illustrated pamphlets to improve their knowledge and reported practices.
- The current study should be replicated with a larger sample in different settings to generalize the results.

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