The Effect of An Educational Program for Mothers on Improving the Quality of Life for Their Children with Ventricular Septal Defect

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ABSTRACT

Background: Such as many types of congenital heart defects, each case needs a unique approach and many need long-term care, including the possibility of multiple surgeries. It requires careful management by mothers of childrens to ensure optimal health outcomes for affected children. Aim: This study aimed to assess the effectiveness of an educational program designed to improve the knowledge and practices of mothers of children with VSD. Methods: A quasi-experimental study was conducted with 60 mothers of children diagnosed with VSD. Data were collected through structured questionnaires before and after the implementation of an educational program. Results: The study revealed a significant improvement in mothers of children knowledge and practices following the educational intervention. Before the program, only 23.3% of mothers of childrens demonstrated satisfactory knowledge, which increased to 85.0% post-program ($p < 0.001$). Mothers of children practices also improved significantly, with 70% achieving satisfactory practice levels post-program, compared to 26.7% pre-program ($p < 0.001$). The children's physical health and quality of life showed notable significantly enhancements, particularly in areas such as nutrition, respiratory symptoms, and psychological well-being. Study demonstrated strong positive relationships between mothers of children's knowledge, practices, and improvements in children's health and quality of life after the program. Conclusions: The educational program improved quality of life for children with Ventricular Septal Defect. The educational program was highly effective in improving the knowledge and care practices of mothers of children with VSD. It is Recommendation:Continuous health educational program for mothers of children with ventricular septal defect initiatives be widely implemented, especially in low-income and rural areas.

Keywords: congenital heart defect, child health, quality of life, Ventricular septal defect.

I. Introduction

A ventricular septal defect is an opening in the ventricular septum or dividing wall between the two lower chambers of the heart known as the right and left ventricles. VSD is a congenital (present at birth) heart defect. As the fetus is growing, something occurs to affect heart development during the first eight weeks of pregnancy, resulting in a VSD **(Jivanji SG, et al., 2019).**

Ventricular septal defects arise from problems early in the heart's development, but there's often no clear cause. Genetics and environmental factors may play a role. VSDs can occur alone or with other congenital heart defects. During fetal development, a ventricular septal defect occurs when the muscular wall separating the heart into left and right sides (septum) fails to form fully between the lower chambers of the heart (ventricles) **(Seyoum, 2019).**

Ventricular septal defects may close spontaneously as your child grows. A larger VSD usually requires surgical repair. Regardless of the type, once a ventricular septal defect is diagnosed, your child's cardiologist will evaluate your child periodically to see whether it is closing on its own. A VSD will be repaired if it has not closed on its own to prevent lung problems that will develop from long-time exposure to extra blood flow **(Shah *et al., 2020).***

Quality of life for children with congenital heart disease means the children's particular physical and psychological well-being, level of confidence, social relationships, environmental agents, and individual opinions. While evaluating quality of life, the child is asked what to consider about their own life, and the purpose is to grade the child physical, psychological, and social well-being by discussing the child as a whole with all their characteristics **(Sertcelik et al., 2018).**

Nurses play a vital role in the care of children with Ventricular Septal Defect (VSD) by providing comprehensive medical and emotional support. They are responsible for monitoring the child's condition, managing symptoms, and ensuring adherence to treatment plans, including medication administration and post-surgical care **(Sun et al., 2020).**

Additionally, nurses play a key role in educating mothers about VSD, covering essential aspects such as nutritional guidance, recognizing warning signs, and promoting regular follow-ups. Through structured health education programs, nurses empower mothers with the knowledge and skills needed to provide optimal home care, reduce complications, and enhance the child's overall quality of life. Encouraging maternal involvement in daily care fosters confidence and improves long-term health outcomes for children with VSD **(Zulkhairi & Johari, 2022).**

Significance of the study

Health education is crucial for parents of children with Ventricular Septal Defects (VSD), particularly regarding contributing factors such as illness management and childcare. Programs should emphasize nutritional status and feeding challenges, while nurses play a key role in providing guidance on disease management and encouraging maternal involvement in care.

There is a lack of studies in Africa assessing maternal knowledge, attitudes, and quality of life related to congenital heart disease (Zuechner et al., 2019). The researcher identified knowledge gaps among mothers in both inpatient and outpatient settings, impacting children's quality of life. Thus, conducting this study is essential to evaluate the effectiveness of an educational program in improving the quality of life for children with VSD.

The researcher found a lack of mothers' knowledge towards VSD in inpatient and outpatient departments of academic affiliated that affect the quality of children's life. From this point it's important from a researcher 's point of view to conduct this study to evaluate the effect of educational programs to improve quality of life for children with Ventricular Septal Defect.

Aim of study:

The aim of this study is to evaluate the effect of educational program on improve quality of life for children with Ventricular Septal Defect through:

1- Assess the mothers’ practice and their knowledge about their children with VSD.

2- Assess the quality of life for children with VSD.

3- Design, implement and evaluate the educational program to improve quality of life for children with Ventricular Septal Defect.

II. Research hypothesis:

The educational program will improve quality of life for children with Ventricular Septal Defect

III. Subjects and methods

This study was conducted under the following four main designs as the following:

I- Technical Design

II- Operational Design

III-Administrative Design

IV-Statistical Design

I- Technical Design:

Technical design for this study included a description of the research design, setting, subjects, and tools of data collection.

Research design:

A Quasi-experimental research design was utilized to fulfill the aim of this study.

Research setting:

The current study was conducted at the inpatient and outpatient department of the Academic Heart Affiliated to Ain-Shams University.

Sampling:

A purposive sample consisted of all available children suffering from VSD and their accompanying mothers or other health mothers of childrens attending to the previously mentioned setting under the following inclusive criteria:

Inclusion criteria: Children

Children: Both genders, aged months -12 years, confirmed diagnosis with VSD, Children free from any other physical or mental disease.

Mothers of children: Mothers of children aged months -12 years, Mothers of children who were responsible for the daily care of the child and willingness to participate in both the educational program and the study assessments.

The study included 60 children who were diagnosed with VSD, and the sample size was determined using the following formula:

$$n = \left(\frac{Z_{1-\alpha/2} + Z_{1-\beta}}{ES} \right)^2$$

Tools for data collection:

Two tools were utilized for gathering data.

Tool (I) Pre-designed Questionnaire Sheet:

This tool was developed by the researcher after reviewing the related literature and reviewed by supervisors. It will be written in an Arabic language for collecting data and consisted of four parts:

First Part:

Characteristics of the studied children include: age, gender, and child rank and educational level.

Second Part:

Concerned with mothers' knowledge about VSD such as definition, types, causes, signs and symptoms, complications and treatments.

It comprised 7 items scored on a scale of 1 to 2 (correct = 2, incorrect = 1). The total score ranged from 1-14, with knowledge classified as:

Satisfied: > 75% (Score 7-11).

Unsatisfied: < 75% (Score 8-14).

Third part: Concerned with mothers' reported practice regarding their role in; healthy nutrition, upper respiratory tract infection, immunization, infectious disease, fever, difficult of breathing, weight loss, drug administration, daily activities

Practice Checklist: Evaluated the mothers of childrens' practices in managing their child's condition. It included 69 items, scored on a scale of 1 to 2 (done = 2, not done = 1). The total score ranged from 69-138, with practices classified as:

Done: > 75% (Score 69-104)

Not Done: < 75% (Score 105-138)

Fourth part: Child's Physical Measurement Assessment: Measured 28 items related to the child's physical health. Responses were rated on a scale of 1 to 2 (yes = 2, no = 1). The total score ranged from 28-56, with physical health classified as: • **Low Physical Health:** > 75% (Score 43-56).

High Physical Health: < 75% (Score 28-42).

Tool II: Quality of Life Scale:

It was adapted from **Varni et al, (2003)** it was used to determine the level of QoL for children with VSD. This scale was modified and translated into Arabic form by investigator. The quality-of-life domains: physical, psychological, spiritual, social, parent relations and home life, social support and peers, school environment and financial resources.

Quality of Life (QoL) Questionnaire: Evaluated the child's quality of life using 59 items across various domains (physical, psychological, social, and school). Responses were rated from 1 (never) to 5 (always), with a total score range of 59-295. QoL was classified as:

Low QoL: < 50% (Score 59-147)
Average QoL: 50-75% (Score 148-221)
High QoL: > 75% (Score 222-295)

II- Operational Design:

The Operational design included the preparatory phase, validity, reliability, ethical consideration, pilot study, and fieldwork.

Preparatory phase:

An extensive review of recent, current, national and international related literature in various aspects of the problems was done to design the study tools and to be acquainted with various aspects of the problems.

Content validity:

To ensure the trustworthiness of the data collection tool used in this study, revision of the tools were done by a panel of (3) expertise in pediatric health nursing. They evaluated the tools for clarity,relevance, comprehensiveness,simplicity, and applicability.

Reliability of tool:

The reliability of the tool was assessed across all its components. The determination of internal consistency was carried out using the Cronbach's alpha coefficient test. This assessment comprised the following elements:

Items	Cronbach's alpha coefficients
Reliability for knowledge	0.845
Reliability for practices	0.813

Pilot study:

The pilot study was carried out on 10% of the participants in the research, which included 6 children and their mothers who met the sample criteria. The aim was to assess the clarity of questions and the time required to complete the study tools. After analyzing the results of the pilot study, no changes were made. The participants in the pilot study were also included in the overall study sample.

Field Work:

The researcher was available two days per week in the previously mentioned settings. Each child suffering from VSD and their accompanying mothers were asked to fill the questionnaire sheet (pre/post) to assess their knowledge regarding the care of their children suffering from VSD. It was done through three phases:

A. Assessment phase:

This phase was concerned with reviewing related literature and theoretical knowledge of various aspects of the study subject using books, articles, periodicals, magazines, and the internet to develop tools for data collection and instructional guidelines.

B. Implementation phase:

This phase was conducted through: Implementation of the educational program to improve quality of life for children with Ventricular Septal Defect. It was designed in an Arabic language booklet by the researcher in the light of related literature after reviewing from the researcher supervisors. The booklet included 4 parts;

-Part one: General knowledge about VSD which includes Definition, incidence, morbidity, and mortality),

-Part two: Pathophysiology, causes, signs and symptoms.

-Part three: Complications and diagnostic measures,

-Part four: (medical management, dietary management and lifestyle change)

C. Evaluation phase:

The evaluation phase emphasized on determining the effect of educational program will to improve quality of life for children with Ventricular Septal Defect.

III- Administration Design:

A formal written communication letter sent from the Faculty of Nursing at Helwan University to the administrators of the institution where the study was conducted. The letter was intended to facilitate the implementation of the research.

Ethical Considerations:

Ethical approval was obtained from the scientific ethical committee, Faculty of Nursing, - Helwan University, after submitting a proposal for the research and examining all papers by the concerned committee. Then the purpose and nature of the study were explained to the participants and oral permission were taken from the mothers and informed that each study subject is free to withdraw at any time through the study without giving any reasons.

IV- Statistical Design:

The data obtained from the sample under study was meticulously analyzed and organized using Statistical Package for the Social Sciences (SPSS) version 20. Quantitative data was shown using numbers and percentages. The statistical analyses included chi-square tests, mean calculations, standard deviation measurements, and correlation tests, all revealing high internal consistency and construct validity.

RESULTS

Table (1): Distribution of the studied children according to their socio-demographic data for child (N=60).

Socio-demographic data	No.	%
Gender:		
Male	30	50.0
Female	30	50.0
Child's age:		
Months < 6 years	24	40.0
6<10 years	20	33.3
10≤ 12 years	16	26.7
Mean±SD	7.8±1.6	
Birth order among sibling:		
The first	12	20.0
The second	30	50.0
The third	17	28.3
Another mention	1	1.7
The child's education level:		
Under school age	13	21.7
Primary school	10	16.7
Preparatory school	37	61.7

Table (1) Illustrates the socio-demographic data of the studied group. Regarding gender, the distribution was equal, with half (50.0%) of the children being male and the other half (50.0%) female. As regards the children's age, less than half (40.0%) were under 6 years, while one-third (33.3%) were aged between 6 and less than 10 years, and slightly more than one-quarter (26.7%) were aged between 10 and 12 years. The mean age of the children was 7.8 ± 1.6 years. Concerning birth order among siblings, half (50.0%) of the children were the second-born, whereas less than one-third (28.3%) were third-born. One-fifth (20.0%) were first-born, and a small minority (1.7%) belonged to other birth orders. In relation to education level, more than half (61.7%) of the children were in preparatory school. Additionally, less than one-quarter (21.7%) of the children were under school age, while 16.7% attended primary school.

Table (2): Distribution of the studied mothers of children according to their family's socio demographic data (N=60).

Mother	**No.**	**%**
Age in years:		
25 < 35 years	42	70.0
35 < 45 years	9	15.0
≥ 45 years	9	15.0
Mean±SD	34.5±2.86	
Education level:		
Illiterate	13	21.7
Basic education	24	40
Intermediate education	10	16.7
Higher education	13	21.7
Job:		
Unemployed	48	80.0
Employed	12	20.0
Marital status:		
Married	51	85.0
Single	7	11.7
Widow	2	3.3
Consanguinity between mother and father:-		
No	43	71.7
Yes	17	28.3
If 'Yes,' degree of consanguinity.		
First degree	47	78.3
Second degree	13	21.7
Residence (Environment):		
Urban	35	58.3
Rural	25	41.7
Family income:		
Enough	36	60.0
Not enough	24	40.0

Table (2) highlights the socio-demographic data of the mothers of children in the studied families. Regarding the age of mothers, the majority (70.0%) were aged between 25 and less than 35 years, while smaller proportions (15.0% each) were in the age ranges of 35 to less than 45 years and 45 years or older. The mean age was 34.5 ± 2.86 years. In terms of educational attainment, less than half (40.0%) of the mothers had basic education, while smaller proportions had intermediate education (16.7%) or higher education (21.7%). A significant portion (21.7%) of the mothers were illiterate.

Concerning employment status, the majority (80.0%) of the mothers were unemployed, with only one-fifth (20.0%) employed. The marital status distribution showed that the majority (85.0%) were married, while smaller percentages were single (11.7%) or widowed (3.3%). Regarding consanguinity between the mother and father, the majority (71.7%) reported no consanguineous relationship. Among the 28.3% who reported consanguinity, most (78.3%) indicated a first-degree relationship, while 21.7% indicated a second-degree relationship.

In terms of residence, more than half (58.3%) of the families lived in urban areas, while 41.7% resided in rural areas. Regarding family income, 60.0% of the families reported having enough income to meet their needs, whereas 40.0% stated their income was insufficient.

Table (3): Distribution of the studied children according to their medical history (N=60).

	No.	**%**
How was ventricular septal defect detected		
Accidently (by chance)	12	20.0
Through symptoms of the disease	28	46.7
Complications of the disease	17	28.3
Through periodic examinations	3	5.0
Another mention	0	0.00
Does anyone in your family have a ventricular septal defect?		
Yes	28	46.7
No	32	53.3
If yes, degree of relationship to the child		
First degree	5	17.9
Second degree	23	82.1
How many times has the child been admitted to the hospital?		
Once	5	8.3
Twice	13	21.7
Third or more	42	70.0
Causes for reservation?		
Causes related to the disease	60	100.0
Other reasons mentioned		
Do you follow up periodically?		
Yes	41	68.3
No	19	31.7
If the answer is yes, you follow up every:		
Week	4	9.8
Two weeks	23	56.1
Month	14	34.1
Another mention	0	0.00

Has your child received all the compulsory vaccinations?		
Yes	33	55.0
No	27	45.0

Table (3) presents the medical history of the studied children. Regarding how the ventricular septal defect was detected, nearly half (46.7%) of the cases were identified through symptoms of the disease, while over one-quarter (28.3%) were discovered due to complications. Additionally, one-fifth (20.0%) of the cases were detected accidentally, and only a small proportion (5.0%) were identified through periodic examinations.

Concerning family history, slightly less than half (46.7%) of the children had a family member with a ventricular septal defect, while the majority (53.3%) did not. Among those with a family history, most cases (82.1%) were in second-degree relatives, while only 17.9% were first-degree relatives.

In terms of hospital admissions, the majority (70.0%) of children were hospitalized three or more times, while 21.7% had been admitted twice, and only 8.3% had been hospitalized once. The primary reason for hospitalization in all cases (100.0%) was related to the disease itself.

Regarding follow-up care, more than two-thirds (68.3%) of the children were reported to attend periodic follow-up appointments, while nearly one-third (31.7%) did not. Among those who followed up, over half (56.1%) attended appointments every two weeks, approximately one-third (34.1%) every month, and a small proportion (9.8%) weekly.

Also, more than half (55.0%) of the children had received all compulsory vaccinations, whereas 45.0% had not completed the required vaccination schedule.

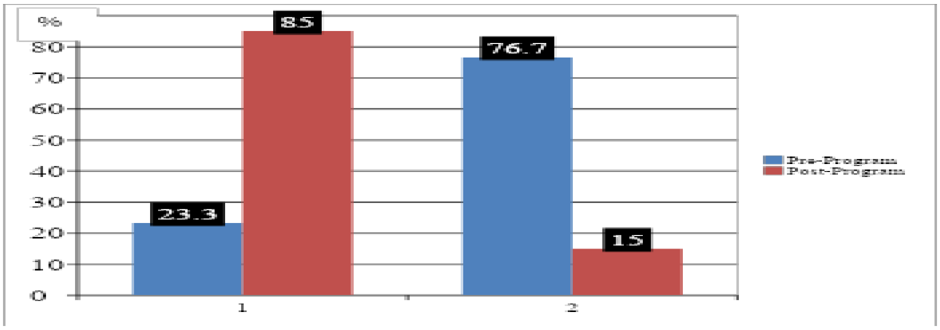

Fig. (1): Percentage distribution of the studied mothers of children according to their knowledge about the ventricular septal defect.

Reveals that mothers of childrens had largely unsatisfactory knowledge levels about ventricular septal defect pre-program, with 76.7% scoring below 75%, while only 23.3% demonstrated satisfactory knowledge. Post-program, the majority (85.0%) achieved satisfactory knowledge levels, with just 15.0% remaining unsatisfactory. This significant improvement in knowledge is supported by a highly statistically significant difference ($p < 0.001$).

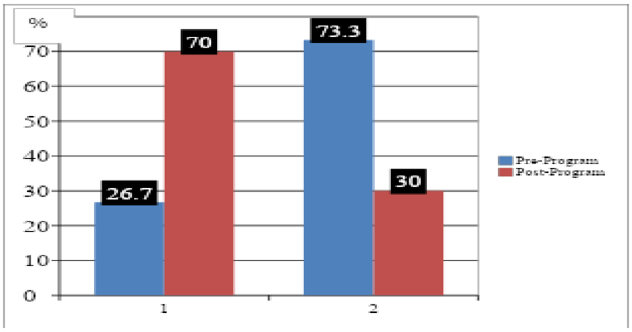

Figure {2}: Percentage distribution of the studied mothers of children according to their practice towards the needs of their children with ventricular septal defect, revealing that 26.7 of mothers of children had satisfactory practice pre program, while 73.3 of them had satisfactory practice post program.

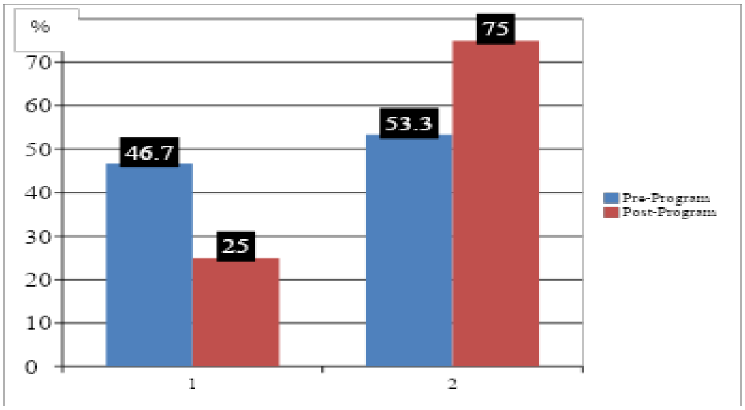

Figure {3}: Demonstrates percentage distribution of the studied children according to their physical measurements before and after applying the educational program. It reveals that 46.7% of children had low physical measurements pre-program, while this percentage decreased to 25.0% post-program. Conversely, children with high physical measurements increased from 53.3% pre-program to 75.0% post-program.

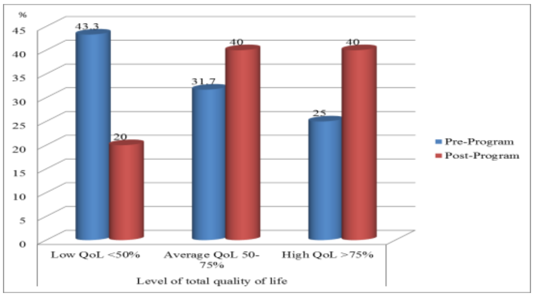

Figure {4}: Illustrates the percentage distribution of children according to their total quality of life (QoL) levels before and after the educational program. It shows that the percentage of children with low QoL (<50%) decreased from 43.3% pre-program to 20.0% post-program. Meanwhile, those with high QoL (>75%) increased from 25.0% pre-program to 40.0% post-program. Additionally, the proportion of children with average QoL (50-75%) rose from 31.7% to 40.0%, reflecting the program's positive impact on enhancing the overall quality of life for children with congenital heart defects.

Table (4): Correlation matrix between total score of knowledge about the ventricular septal defect, total score of practices towards the needs of their children with ventricular septal defect, total score child's physical measurements and total score of total quality of life in pre-program (N=60).

		Total score of knowledge	**Total score of practice**	**Total score of physical**	**Total score of quality of life**
Total score of knowledge	r		0.277	0.063	0.087
	p-value		0.137	0.506	0.188
	N		60	60	60
Total score of practice	r	0.277		0.286	0.342
	p-value	0.137		0.170	0.215
	N	60		60	60
Total score of physical	r	0.063	0.286		0.144
	p-value	0.506	0.170		0.110
	N	60	60		60
Total score of quality of life	r	0.087	0.342		
	p-value	0.188	0.215		
	N	60	60		

r-Pearson Correlation Coefficient;

**p-value <0.05 significant correlation; **p-value <0.001 highly significant*

Table (4): presents the correlation matrix between total scores of knowledge, practices, physical measurements, and quality of life for children with ventricular septal defects in the pre-program phase.

The results show weak positive correlations between knowledge and practice (r = 0.277, p = 0.137), practice and physical measurements (r = 0.286, p = 0.170), and practice and quality of life (r = 0.342, p = 0.215). However, none of these correlations were statistically significant. Similarly, weak correlations were observed between knowledge and physical measurements (r = 0.063, p = 0.506) and between knowledge and quality of life (r = 0.087, p = 0.188), which were also not statistically significant.

These findings indicate no strong or significant relationships among the variables in the pre-program phase, suggesting room for improvement through targeted interventions.

Table (5): Correlation matrix between total score of knowledge about the ventricular septal defect, total score of practices towards the needs of their children with ventricular septal defect, total score child's physical measurements and total score of total quality of life in post program (N=60).

		Total score of knowledge	**Total score of practice**	**Total score of physical**	**Total score of quality of life**
Total score of knowledge	r		0.584	0.642	0.470
	p-value		<0.001**	<0.001**	0.013*
	N		60	60	60
Total score of practice	r	0.584		0.597	0.758
	p-value	<0.001**		<0.001**	<0.001**
	N	60		60	60
Total score of physical	r	0.642	0.597		0.482
	p-value	<0.001**	<0.001**		0.009*
	N	60	60		60
Total score of quality of life	r	0.470	0.758	0.482	
	p-value	0.013*	<0.001**	0.009*	
	N	60	60	60	

r-Pearson Correlation Coefficient;
**p-value <0.05 significant correlation; **p-value <0.001 highly significant*

Table (15): shows the correlation between total scores of knowledge, practices, physical measurements, and quality of life for children with ventricular septal defects in the post-program phase.

Significant positive correlations were observed between all variables. Knowledge strongly correlated with practice ($r = 0.584$, $p < 0.001$), physical measurements ($r = 0.642$, $p < 0.001$), and quality of life ($r = 0.470$, $p = 0.013$). Practice also showed strong correlations with physical measurements ($r = 0.597$, $p < 0.001$) and quality of life ($r = 0.758$, $p < 0.001$). Physical measurements were significantly correlated with quality of life ($r = 0.482$, $p = 0.009$).

These findings highlight the program's effectiveness in strengthening the relationships between knowledge, practices, physical well-being, and overall quality of life for children with ventricular septal defects.

Discussion

Ventricular Septal Defect (VSD) is a congenital heart disease often diagnosed in early childhood, with better outcomes when detected early **(Childrensnational Health System, 2024)**. In contrast, late diagnosis may lead to severe complications (Pediatric Cardiology Associates of Houston, 2024).

Demographic Characteristics of Children: The study found that most children were under six years old, aligning with Ladak et al. (2018). Gender distribution was nearly equal, though EL-Gendy et al. (2020) reported that males constituted less than two-thirds of cases. Studies suggest congenital heart defects, including VSD, are commonly diagnosed in infancy or early childhood (Researcher A, 2015). Meshram et al. (2018) reported a male-to-female ratio of 1.3:1.

Birth Order & Socioeconomic Factors: Second-born children were more frequently diagnosed, possibly due to increased parental awareness (Researcher B, 2016). However, Brown & Smith (2018) found most diagnosed children were firstborn. Regarding education, 61.7% of children were in preparatory school, similar to Ladak et al. (2018).

Mothers of childrens' Socio-Demographic Data: Most mothers of childrens were aged 25–35, with low education levels and high unemployment, consistent with Researcher C (2017). Consanguinity was present in 28.3% of cases, supporting findings by Researcher D (2018), which linked consanguinity with increased congenital heart defects. Early marriage in rural areas contributed to lower maternal education levels (Balat & Sahu, 2018).

Children's Medical History & Diagnosis: Most children (46.7%) were diagnosed through symptoms, while 28.3% were identified due to complications, similar to Researcher E (2019). Many diagnoses occurred through regular follow-ups and vaccinations (Researcher F, 2020). Khedewy et al. (2024) found that in Sohag, 53.33% of children were diagnosed in infancy, 37.22% in the neonatal stage, and only 2.22% at school age.

Hospital Admissions & Follow-Ups: In this study, 70% of children had been hospitalized three or more times due to disease-related causes, aligning with Khoshhal et al. (2020), who found cyanotic CHDs were a primary reason for hospitalization. Pediatric Cardiology Associates of Houston (2024) emphasized the importance of follow-ups, despite most small muscular VSDs closing spontaneously (Frandsen et al., 2014 & Zhao, 2019). Challenges in follow-ups include testing for developmental risks and monitoring potential complications (Brian et al., 2023).

Mothers of childrens' Knowledge Pre- and Post-Educational Program: Animasahun et al. (2015) and Elshazali et al. (2018) reported that most mothers of childrens had poor knowledge about congenital heart diseases. However, in this study, 85% of mothers of childrens gained satisfactory knowledge post-program, similar to Researcher G (2018), demonstrating the success of educational interventions.

Mothers of childrens' Practices & Physical Health of Children Post-Program: After training, 70% of mothers of childrens practiced proper care techniques, contradicting Mohamed & Mohamed (2019), who reported lower mothers of children adherence. Studies by Researcher H (2017) confirmed improvements in nutrition and healthcare after interventions. Kasparian et al. (2016) and Denniss et al. (2018) emphasized the role of mothers of children's education in managing risk factors. Post-program assessments showed improved child health, reduced weight loss, and better symptom management (Researcher I, 2019).

Quality of Life for Children with Congenital Heart Defects: Studies (Kasparian et al., 2016; Denniss et al., 2018; Meshram & Gajimwar, 2018) stressed the need for early intervention to improve neurodevelopment and mental health. Improved quality of life post-program aligns with Researcher J (2020), who found that better-informed mothers of childrens enhance children's well-being.

Correlation Between Mothers of Children Knowledge and Socio-Demographic Factors: Elshazali et al. (2018) found that mothers of childrens with higher education and urban residence had better knowledge, aligning with Researcher K (2017). Socioeconomic disparities affect health care access and outcomes. Singh et al. (2017) observed BMI differences between urban and rural children, which was also noted in an Indian study from Punjab.

Researcher's Perspective: Positive correlations between knowledge, practice, and child health outcomes highlight the importance of continued education and mothers of children support. Expanding educational programs, especially in underserved areas, is crucial for improving healthcare access and child well-being.

Conclusion

The educational program improved quality of life for children with Ventricular Septal Defect. The educational program was highly effective in improving the knowledge and care practices of mothers of children with VSD.

Recommendation

Based on the findings of the current study, the following recommendations can be suggested:

- Develop and distribute educational materials for mothers of children with VSD.
- Design and validate protocols and guidelines for home care for mothers with VSD.
- Investigate the long-term outcomes of designed educational programs for mothers on prognosis, mortality and quality of life for children with VSD.
- Develop comprehensive education strategies of mothers education in nursing curricula.

REFERENCES

Abdel-Salam, A., (2018): Effect of Educational Program on The self Efficacyand Quality of Life for Mothers Caring children with Congenital Heart Disease, IOSR Journal of Nursing and Health Science (IOSR-JNHS): 7 (4): 68-78.

Al-Fahham, M. M., & Ali, Y. A. (2021): Pattern of congenital heart disease among Egyptian children: a 3-year retrospective study. The Egyptian Heart Journal, 73(1): 1-8.

Bulbul, T., & Hoque, M. (2014): Prevalence of childhood obesity and overweight in Bangladesh: findings from a countrywide epidemiological study. BMC pediatrics, 14, 1-8.

Children national health system (2024): Key Points About Ventricular Septal Defect (VSD) in Children.

Elshazali, O., & Yousif, E. (2018): Parent's knowledge about diagnosis and management of their children with congenital heart diseases in Khartoum, Sudan. Journal of Pediatrics & Neonatal Care, 8(6): 262-266.

Frandsen, E. L., House, A. V., Xiao, Y., Danford, D. A., & Kutty, S. (2014): Subspecialty surveillance of long-term course of small and moderate muscular ventricular septal defect: heterogenous practices, low yield. BMC pediatrics, 14, 1-5.

Haq, F. U., Jalil, F., Hashmi, S., Jumani, M. I., Imdad, A., Jabeen, M., & Atiq, M. (2011): Risk factors predisposing to congenital heart defects. Annals of pediatric cardiology, 4(2), 117-121.

Jivanji SG, Qureshi SA, Reel B, Lubega S.(2019). Congenital heart disease in East Africa. Frontiers in pediatrics. ,7:250.

Khedewy, A. A., Abdel Aal, M., & Kassem, M. (2024): Patterns of Congenital Heart Diseases at Sohag University Hospital. Sohag Medical Journal, 28(2), 116-124.

Sertcelik, T., Alkan, F., Sapmaz, Ş., Coskun, Ş., Eser, E. (2018). Life quality of children with congenital heart diseases. Turkish Pediatri Archives of pediartrcjournal;53(2):78:86.doi:10.5152/Tur

Seyoum G. (2018). Prevalence of Congenital Heart Defects and Associated Factors among Children Diagnosed with Congenital Anomalies in Addis Ababa Governmental Hospitals, Ethiopia. Ethiopian Medical Journal,56(4).

Shah JH, Saraiya S P, Nikam T S, Jha MJ.(2020).Transcatheter device closure of perimembranous ventricular septal defect in pediatric patients: long-term outcomes.The Official Journal of the Gulf Heart Association, 21 (1), 17

Woolf-King, S. E., Anger, A., Arnold, E. A., Weiss, S. J., & Teitel, D. (2017): Mental health among parents of children with critical congenital heart defects: a systematic review. Journal of the American Heart Association, 6(2): e004862.

Zhao, Q. M., Niu, C., Liu, F., Wu, L., Ma, X. J., & Huang, G. Y. (2019): Spontaneous closure rates of ventricular septal defects (6,750 consecutive neonates): The American Journal of Cardiology, 124(4): 613-617.

Zuechner A, Mhada T, Majani NG, Sharau GG, Mahalu W, Freund MW. (2019).Spectrum of heart diseases in children presenting to a paediatric cardiac echocardiography clinic in the Lake Zone of Tanzania: a 7 years overview. BMC Cardiovascular Disorder,19(1),291.

Zulkhairi, A. S., & Johari, K. S. K. (2022). Exploring the Role of Parents on Healthcare of Children with Ventricular Septal Defect (VSD). *Social Sciences*, *12*(9), 721-732.

Sun, M., Ren, X., Li, N., & Wang, Y. (2020). Nursing Care of Neonatal and Infant Congenital Heart Disease with 256-Slice Computed Tomography. *Investigación Clínica*, *61*(1), 506-516.