

The effect of consultancy on phone after hospital discharge on self-efficacy of mothers of children with congenital heart disease: A quasi-experimental study

*Mitra Soltanian, Maryam Nikroo, Sedigeh Montaseri, Hamid Amoozegar

Sri Lanka Journal of Child Health, 2021; 50(2): 209-214

Abstract

Background: The parents of children with congenital heart disease (CHD) are faced with multiple needs such as home care of children and medicinal care after the child is discharged from hospital.

Objectives: To assess the effect of consultancy on phone after hospital discharge on self-efficacy of mothers of children with CHD.

Method: This is a quasi-experimental study in which 100 mothers were selected from among those whose children were hospitalized due to their CHD using a simple random sampling and randomly divided into control and intervention groups using block randomization: the intervention group on phone consultancy and the control group. Tools used for collecting data were the Demographic Information and General Self-Efficacy questionnaires. The principal researcher phoned mothers in the intervention group on the third and fifth days after hospital discharge and consulted with them about giving medications. Immediately after hospital discharge and one week later, questionnaires were filled out.

Results: The mothers' self-efficacy score in the intervention group had a statistically significant difference immediately after hospital discharge and one week later ($p=0.000$, $p<0.001$). However, the difference in the mothers' self-efficacy score in the control group was not significant immediately after hospital discharge and one week later ($p=0.421$).

¹*Shiraz University of Medical Sciences, Shiraz, Islamic Republic of Iran*

*Correspondence: Mitsoltan@yahoo.com

 <https://orcid.org/000-0002-6771-5831>

(Received on 18 April 2020; Accepted after revision on 26 June 2020)

The authors declare that there are no conflicts of interest

Personal funding was used for the project.

Open Access Article published under the Creative Commons Attribution CC-BY  License

Moreover, a significant difference was observed between the self-efficacy score of the intervention and control groups one week after discharge ($p=0.000$, $p<0.001$).

Conclusions: The present study showed that consultancy on phone, after being discharged from hospital, was effective in self-efficacy of mothers of children with CHD.

DOI: <http://dx.doi.org/10.4038/sljch.v50i2.9557>

(Key words: Consultancy on phone, hospital discharge, mothers' self-efficacy, congenital heart disease)

Introduction

Congenital heart disease (CHD) causes the longest stay in hospital and the highest rate of death¹. Prevalence of CHD is around 9.3 per 1000 live births in Asia². After the birth of a child with CHD, parents are faced with multiple psychological problems due to their children having special requirements, such as necessity of home care^{3,4}. Kheradmand M, *et al*⁵ showed that the educational needs of mothers regarding their infants' medicines are higher than other issues. Goldbeck L, *et al*⁶ showed that in CHD of children, like in other chronic diseases, parents have fears about their children's uncertain future, health plan and the prognosis of the disease. Nousi D, *et al*⁷ showed that family members are affected by the care of the child who has CHD, especially the mother who feels an inadequate strength in herself as she considers herself responsible for her child's birth. One of the problems related to the family of children having chronic diseases is their low self-efficacy. If parents fail to perform their duties properly, they will experience excessive anxiety⁸. Stress of adults can be decreased by improving self-efficacy beliefs⁹.

For treatment of CHD, multiple medicines are consumed which are completely necessary. In the prescription of medicines, using methods to administer the medicines safely to the child is considered a vital factor in improving the quality and safety of services to the patients¹⁰. Medicines with similar names are easily confused with each other. There is also the possibility of drug interactions¹¹. An effective relationship between the family and the nurse is central to family support³, because nurses

are one of the largest providers of health care services¹² and nurse phone calls facilitate access to health care, monitoring and education for people with chronic problems³. The care of children with CHD is a responsibility of mothers when they are discharged from hospital, especially administering medicines; therefore, it is necessary to teach mothers to provide the child with safe care with regard to medication, especially after hospital discharge.

Objectives

To assess the effect of consultancy on phone after hospital discharge on self-efficacy of mothers of children with CHD.

Method:

A quasi-experimental study was conducted in a hospital affiliated to the Shiraz University of Medical Sciences, Iran, to assess the effect of consultancy on phone after discharge on self-efficacy of mothers having children with CHD. One hundred mothers of 1-24 month old children with CHD were selected to participate in this study. The location of the study was the paediatric cardiology ward of the hospital. The sample size was 100 (50 cases in each group) and determined based on the results of a previous study¹³, the following characteristics: $\beta=0.2$, $\alpha=0.05$ and this formula:

$$n = \frac{(sd_1^2 + sd_2^2) \times (z_{1-\alpha/2} + z_{1-\beta})^2}{(\mu_1 - \mu_2)^2}$$

$$N=100$$

$$\mu_1 = 64.93$$

$$sd_2^2 = 14.92$$

$$sd_1^2 = 15.38$$

$$\mu_2 = 56.4$$

Sampling was done using the simple random method among the mothers who had hospitalized 1-24 month old children with CHD. Inclusion criteria were diagnosis of CHD in the child including atrial septal defect, ventricular septal defect, and patent ductus arteriosus by a paediatric cardiologist, providing care by the mother, elapse of at least a fortnight from the primary diagnosis of CHD, maternal literacy for reading and writing, and mother's physical-mental health based on her statement. (We recruited mothers who could read and write, and mothers without any mental or physical illnesses requiring drug treatment). Exclusion criteria were the child's death and necessity for performing cardiac surgery during the study period. Tools for collecting the data were the Demographic and General Self-efficacy (GSE) questionnaires.

The Demographic questionnaire was made by researchers and consisted of two parts; the first part

was related to the mothers' characteristics, for example age, level of education. The second part was related to the children's characteristics, including age, gender, birth rank, and type of disease. This form was confirmed by some of the faculty members of paediatric nursing. GSE questionnaire was developed by Sherer M, *et al*¹⁴ in 1982. This questionnaire was developed to measure "a general set of expectations that the individual carries into new situations". This self-administered questionnaire contained 17 items, responses using a 5-point Likert scale ranging from strongly disagree (score=1) to strongly agree (score=5). The final score of GSE ranged from 17 to 85, with higher scores indicating higher self-efficacy.

In this study, researchers used the Persian version of the questionnaire. In the study by Beyrami M¹⁵, titled 'Effect of emotional intelligence training on assertiveness, self-efficacy and mental health of students', the internal consistency coefficient of the Persian version of the questionnaire was 0.79 via Cronbach alpha. In the study by Asgharinejad T, *et al*¹⁶, titled 'Psychometric properties of Sherer self-efficacy scale', the internal consistency coefficient was 0.83. In the study by Najafi M, *et al*¹⁷, titled 'Relationship between self-efficacy and mental health among high school students', reliability of test was 0.80 based on Cronbach alpha and the concurrent validity of the questionnaire was $r=0.45$ via a concurrent performance with a 90-question checklist. The Persian version of GSE has been used in other studies in Iran. Moreover, the internal consistency of the Persian version of GSE was reported as 0.78¹³.

Among mothers of 1- 24 month-old children with CHD who were admitted to hospital, 100 were selected by simple random sampling and then they were assigned into intervention and control groups using block randomization.

To do the study, the assistant researcher attended the paediatric cardiology ward of the hospital after receiving permission to carry out the study and obtaining written consent. For both groups, face to face training and written training of mothers on the use of drugs was done immediately after hospital discharge by the nurses according to the routine of the paediatric ward. The demographic and self-efficacy questionnaires were filled out for all participants by the assistant researcher. The researcher phoned the intervention group mothers on the third and fifth days after discharge from the hospital and guided and consulted them about giving medicines according to the summary of the patient's file. One week after discharge, when the mothers of the two groups were referred to the paediatric cardiologist, the self-efficacy questionnaires were filled out by the assistant researcher. The person

who participated in collecting the data and also the statistician who performed the analysis of data were blinded to the intervention and control groups.

Ethical issues: The study was approved by the Research Ethics Committee of Shiraz University of Medical Sciences (code: 1397.103). The mothers signed the informed consent form and they were assured that they can withdraw from study whenever they wished and that their information would remain confidential. This study is semi-experimental, so it is not registered on the Register of Clinical Trials (RCT) site because only RCT studies are recorded on the mentioned site.

Statistical analysis: SPSS software was used for data analysis using descriptive statistics (number and percentage) and perceptible statistics (Chi-

square test, independent t-test, paired t-test and repeated measures analysis of variance test)

Results

The goal of this study was the effect of consultancy on phone after being discharged from the hospital on the self-efficacy of mothers of 1-24 month old children with CHD. The sample consisted of 100 mothers with a mean age of 32.08±7.81 years in the intervention group and 29.82±6.74 years in the control group; mean age of fathers in the intervention group was 34.86±6.91 and 32.6±7.53 years in the control group. Mean age of the children in the intervention group was 7.57±11.01 months and 8.71±9.16 months in the control group. Before the intervention, there were no significant differences between the two groups in the quantitative and qualitative variables (p>0.05). Qualitative demographic characteristics are listed in table 1.

Table 1: Demographic information of participants in the Intervention and Control groups (n=100)

Demographic characteristic	Intervention n (%)	Control n (%)	p-value*
<i>Mother's educational level</i>			
Diploma and lower than diploma	42 (84)	41 (82)	0.778
Higher than diploma	08 (16)	09 (18)	
<i>Mother's job</i>			
Housewife	37 (74)	34 (68)	0.141
Employee	09 (18)	10 (20)	
Self-employment	04 (08)	06 (12)	
<i>Father's job</i>			
Employee	15 (30)	08 (16)	0.422
Self-employment	26 (52)	32 (64)	
Labourer	09 (18)	10 (20)	
<i>Father's educational level</i>			
Diploma and lower than diploma	39 (78)	41 (82)	0.755
Higher than diploma	11 (22)	09 (18)	
<i>Child's gender</i>			
Female	26 (52)	29 (58)	0.502
Male	24 (48)	21 (42)	
<i>Child's birth rank</i>			
1 st	15 (30)	22 (44)	0.511
2 nd	17 (34)	16 (32)	
3 rd to 6 th	18 (36)	12 (24)	
<i>Child's congenital heart disease</i>			
Atrial septal defect	12 (24)	07 (14)	0.182
Ventricular septal defect	23 (46)	32 (64)	
Patent ductus arteriosus	15 (30)	11 (22)	
<i>Child's medication</i>			
Captopril	14 (28)	17 (34)	0.403
Digoxin	07 (14)	08 (16)	
Furosemide	16 (32)	10 (20)	
Propranolol	05 (10)	04 (08)	
Aspirin	03 (06)	09 (18)	
Ibuprofen and other drugs	05 (10)	02 (04)	

T-test results showed that there were no meaningful differences between maternal self-efficacy scores in the intervention and control groups immediately after discharge (p=0.722). The mean score of self-

efficacy was 59.50 ± 10.01 in the control group immediately after discharge and the mean was 60.04 ± 8.53 in the intervention group. In the self-efficacy scores of mothers in the control group, there were no

meaningful differences between the ones being discharged immediately and those discharged one week later ($p=0.421$), while there was a statistically significant difference between the self-efficacy score of mothers in the intervention group immediately after discharge and one week after it ($p=0.000$, $p<0.0001$). The mean score of self-efficacy was 60.04 ± 8.53 immediately after

discharge and 66.56 ± 5.73 one week after discharge in the intervention group; this increased rate was meaningful statistically ($p=0.000$, $p<0.0001$) in the intervention group. Moreover, a significant difference was observed between the self-efficacy score of the control and intervention groups one week after discharge ($p=0.000$, $p<0.0001$) (Table 2)

Table 2: The comparison of the mean scores of self-efficacy in mothers immediately after, and one week after discharge in intervention and control groups

Self-efficacy	Control group (n=50) Mean ± SD	Intervention group (n=50) Mean ± SD	p-value *(between groups)
Immediately after discharge	59.50±10.01	60.04±8.53	0.722
One week after discharge	58.46±9.53	66.56±5.73	0.000
p-value* (within groups)	0.421	0.000	

*Independent t-test; **Repeated Measures Analysis of Variance test

Discussion

This study demonstrated that the consultancy on phone after being discharged from hospital was effective in promoting self-efficacy of mothers of 1-24 month old children having CHD. Our findings were consistent with other studies. In this respect Li LL, *et al*¹⁸ reminds us that telephone intervention after being discharged in rehabilitation after surgery of full joint placement has been effective in improving rehabilitation. Arshadi Bostanabad M, *et al*¹⁹, in a study done to investigate the effect of performing empowerment programme on self-efficacy of the mothers having premature children, showed that it was effective in improving all aspects of the mothers' self-efficacy except for the significance rate of empowerment. Edraki M, *et al*¹³ pointed out the positive effect of educational programme on the quality of life and self-efficacy of the mothers having infants with CHD. Gharaati F, *et al*²⁰ studied the effect of educational intervention via cell phone on the self-care behaviours of patients suffering from thalassaemia and showed that educational intervention via cellphone was effective. Behzad Y, *et al*²¹ revealed that the effect of the empowerment programme based on phone follow up was effective on the self-efficacy of the elderly suffering from high blood pressure. Moreover, Faraji N, *et al*²², in a study on determining the effect of training the patient before being discharged and following up on the realization of her disease, indicated that telephone tracking after being discharged was effective on realizing patients' disease.

The significant findings of the present research showed that 'consultancy on phone' after being discharged from hospital, on the third and fifth days, was significantly effective in promoting self-efficacy of mothers of 1-24 month old children with CHD. Therefore, considering the high costs of the care and treatment processes, this type of intervention for the children and their family support

is recommended as a cost-effective way and a part of the pediatric nurses' activities to improve the mothers' functional status and self-efficacy in promoting the health status of the children with CHD.

Restrictions of this study were limited consultancy sessions and study in a single centre. Therefore, it is recommended that similar studies be conducted in multiple centres, with increased consultancy on phone sessions.

Conclusions

The present study showed that consultancy on phone, after being discharged from hospital, was effective in promoting the self-efficacy of mothers of 1-24 month the children having CHD.

Acknowledgement: The present study is a part of a thesis written by the second author that was supported by Shiraz University of Medical Sciences. [Grant No. 97-15471]. The authors would like to thank the vice- chancellor for research affiliated with Shiraz University of Medical Sciences for financial support and also Centre for Development of Clinical Research and Dr. Nasrin Shokrpour for editorial assistance. Moreover, we thank all the mothers who participated in this study.

References

1. Verheugt CL, Uiterwaal CS, van der Velde ET, Meijboom FJ, Pieper PG, van Dijk AP, et al. Mortality in adult congenital heart disease. *European Heart Journal* 2010; **31**(10): 1220-9.
<https://doi.org/10.1093/eurheartj/ehq032>
PMid: 20207625
2. van der Linde D, Konings EE, Slager MA, Witsenburg M, Helbing WA, Takkenberg JJ, et al. Birth prevalence of congenital heart disease worldwide: a systematic review and meta-analysis. *Journal of the American College of Cardiology* 2011; **58**(21):2241-7.
<https://doi.org/10.1016/j.jacc.2011.08.025>
PMid: 22078432
3. Hockenberry M, Wilson D. Wong's Nursing Care of Infants and Children: Elsevier Health Sciences. 2014.
4. Redding A, Marlow R. Text book of Pediatric Nursing. New Delhi: Elsevier; 2005.
5. Kheradmand M, Salmanyazdi N, Alkhani M, Haghani H. Investigating the learning needs of the mothers regarding post operative surgery heart care of their infants in the health centres in Tehran. *Iran Journal of Nursing* 2005; **18**(43):39-47.
6. Goldbeck L, Melches J. Quality of life in families of children with congenital heart disease. *Quality of life Research* 2005; **14**(8):1915-24.
<https://doi.org/10.1007/s11136-005-4327-0>
PMid: 16155778
7. Nousi D, Christou A. Factors affecting the quality of life in children with congenital heart disease. *Health Science Journal* 2010; **4**(2).
8. Hadian Shirazi Z, Sharif F, Rakhshan, M, Pishva N, Jahanpour F. Lived Experiences of the Caregivers of Infants about Family-Centered Care in the Neonatal Intensive Care Unit: A Phenomenological Study. *Iranian Journal of Neonatology* 2018; **9**(1): 13-23.
<https://doi.org/10.22038/ijn.2017.23595.1294>
9. Bandura, A. Psychological aspects of prognostic judgments. In R. Evans, D. Baskin, & F. Yatsu (Eds.), *Prognosis of Neurological Disorders*. New York: Oxford University Press.2000
10. Jalilian M, Mostafavi F. Sharifrad GH. Association between self-efficacy, perceived social support and quality of life in patients with cardiovascular diseases: A cross-sectional study. *Journal Health System Research* 2013, **9**(5):531-9.
11. Hosseinimehr S, Karami M. Chemoprotective effects of captopril against cyclophosphamide-induced genotoxicity in mouse bone marrow cells. *Archives of Toxicology* 2005; **79**(8):482-6.
<https://doi.org/10.1007/s00204-005-0655-7>
PMid: 15856182
12. Edraki M, Zarei A, Soltanian M, Moravej H. The Effect of Peer Education on Self-Care Behaviors and the Mean of Glycosylated Hemoglobin in Adolescents with Type 1 Diabetes: A Randomized Controlled Clinical Trial. *International Journal of Community Based Nursing & Midwifery*, 2020, **8**(3): 209-219
13. Edraki M, Kamali M, Beheshtipour N, Amoozgar H, Zare N, Montaseri S. The effect of educational program on the quality of life and self-efficacy of the mothers of the infants with congenital heart disease: a randomized controlled trial. *International Journal of Community Based Nursing and Midwifery* 2014; **2**(1):51-59
14. Sherer M, Maddux JE, Mercandante B, Prentice-Dunn S, Jacobs B, Rogers RW. The self-efficacy scale: Construction and validation. *Psychological Reports* 1982; **51**(2):663-71.
<https://doi.org/10.2466/pr0.1982.51.2.663>
15. Beyrami M. The survey effect of emotional intelligence training on assertiveness, self-efficacy and mental health of students. *Practical Journal* 2008; **3**(11): 25-42.
16. Asgharnejad T, Ahmadi M, Farzad V, Khodapanahi M. Study of psychometrics properties of Sherer self-efficacy scale. *Journal of Psychology* 2004; **10**(3):262-74.

17. Najafi M, Foadjang M. The relationship between self-efficacy and mental health among high school students. *Scientific Journal of Clinical Psychology and Personality* 2007; **1**(22), 69-83.
18. Li LL, Gan YY, Zhang LN, Wang YB, Zhang F, Qi JM. The effect of post-discharge telephone intervention on rehabilitation following total hip replacement surgery. *International Journal of Nursing Sciences* 2014; **1**(2):207-11. <https://doi.org/10.1016/j.ijnss.2014.05.005>
19. Arshadi Bostanabad M, Seyed Rasouli A, Tapak L. Impact of empowerment program on the self-efficacy of mothers of premature infants and their re-hospitalization. *Iranian Journal of Nursing Research* 2019; **13**(5):30-35.
20. Gharaati F, Aghamolaei T, Hassani L, Mohamadi R, Mohsseni S. The effect of educational intervention using mobile phone on self-care behaviors in patients with thalassemia major. *Journal of Preventive Medicine* 2016; **3**(2):58-72.
21. Behzad Y, Hagani H, Bastani F. Effect of empowerment program with the telephone follow-up (tele-nursing) on self-efficacy in self-care behaviours in hypertensive older adults. *The Journal of Urmia Nursing and Midwifery Faculty* 2016; **13**(11):1004-15.
22. Faraji N, Pashaeypoor S, Negarandeh R. The effect of pre-discharge education and telephone follow-up on illness perception and lifestyle in patients with myocardial infarction. *Avicenna Journal of Nursing and Midwifery Care* 2015; **23**(3): 82-91.