

## Effective Factors on Implementation of Pediatric Home Care Program Amid COVID 19 Pandemic: Facilitators and Barriers

### Abstract

**Background:** Home care service is considered as comprehensive care for children with chronic disease or COVID-19. This study aimed to investigate the factors affecting the implementation of a home care nursing program for such children in 2019–2020. **Materials and Methods:** A descriptive-analytical study was conducted with 198 nurses working in pediatric wards of selective hospitals of Isfahan University of Medical Sciences. The data were collected through an author-administered questionnaire with 44 questions. The questionnaire was designed in two parts. Part one involved gathering the demographic data of the participants. Facilitating and barrier factors of the implementation of the care were prioritized and examined in part two by using the Likert scale in both the individual and the organizational domains. The data were analyzed using the mean frequency and paired *t* test. **Results:** The mean (SD) score of individual and organizational facilitating factors were 65.65 (16.24) and 65.98 (11.29), respectively, and the mean (SD) score of the organizational barriers was 82.04 (14.36), which was significantly higher than the mean score (SD) of the individual barriers of 57.94 (14.82) ( $t_{197} = 21.32, p < 0.05$ ). The most important individual facilitating factor (53.82%) was “respectful communication with the family,” and the most important organizational facilitator (80.40%) was “Physicians’ support of the nurses.” **Conclusions:** Organizational factors were the most significant barriers. Therefore, the findings of this study will help policymakers in the program implementation.

**Keywords:** Chronic diseases, COVID-19, home care services, nurses, pediatrics

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### Introduction

Childhood illness or disability may affect one’s health for life. For instance, the normal development of a child with chronic diseases and frequent hospitalizations may involve many challenges.<sup>[1]</sup> Difficult and complex processes of treatment, physical problems, and confrontation with social and psychological stresses exhaust the families and make them need required support and adaptations in different aspects.<sup>[2]</sup> In addition, with the spread of the coronavirus pandemic, the incidences are increasing in the children population. In this situation, parents need to be supported by professional health providers at home.<sup>[3]</sup> To reduce family problems and prevent the separation of children from their families, the health system has concentrated on home care service so that the children are treated at home instead of immediate interventions and frequent hospitalizations.<sup>[4]</sup>

The results of the studies conducted over the past years have shown the advantages of home care, which can be beneficial to children with type 1 diabetes, patients in need of respiratory support, cerebral palsy, cystic fibrosis, malignancies, neonatal discharge, etc.<sup>[5-7]</sup> Home care service is uniquely considered throughout the world. But, based on some studies, the care is not well adopted by both families and the health system in Iran.<sup>[8,9]</sup> Heydari *et al.*<sup>[10]</sup> studied the barriers to home care. The main categories of their study on the treatment-based approach in the health care system included cultural aspects and lack of adequate infrastructure. A review of some other studies showed many advantages of home care for infants and children.<sup>[11-14]</sup> For instance, Sardari *et al.*<sup>[15]</sup> revealed that at-home phototherapy can be a suitable alternative to the treatment of neonatal jaundice, reducing parental stress and preventing hospitalization of

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infants.<sup>[16]</sup> Some researchers designed home-care programs for a number of children with physical disabilities and chronic conditions and their families through several studies. These programs were not received well by the health care system. These days, the world society is severely engaged with Covid-19 and health protocols are enforced to the inhabitants worldwide and the necessity for the implementation of the home-care program is better understood. Policymakers have developed some programs during the last two years that encounter the required issues as well. The programs are not officially and comprehensively implemented yet, leading to inadequate information about the facilitating and barrier factors.

To use the numerous advantages of home care and regarding various challenges in implementing home care programs, we need to assess the facilitating and barrier factors. Therefore, the purpose of this study was to investigate the factors affecting the implementation of the pediatric home care nursing program.

## Materials and Methods

This is a descriptive-analytical study. The statistical population includes 198 nurses working in selected hospitals of Isfahan University of Medical Sciences in 2019–2020 in Iran. Sampling was done using the quota method. Criteria for entering the study included working in the pediatric ward of the selected hospitals, having at least 6 months of work experience, and willingness to participate in the study. We gathered a list of all eligible nurses to collect required data, and the subjects were then selected using the quota method from hospitals. The number of subjects was determined based on the number of nurses working in the wards of the hospitals. According to the above, the quota of Imam Hussein Hospital for nurses was 144 and 27 for Amin Hospital and Al-Zahra Hospital, respectively. The sample size was estimated as 198 for each hospital, with a confidence level of 95% with  $d = 0.07$ .

The researcher started sampling by referring to the hospitals and presenting the referral letter of the research and explaining the study objectives to the nurses. Data collection was done in the educational hospitals on all days of the week in the morning, evening, and night shifts with prior coordination. The questionnaire was completed by the nurses themselves. At the end of the study, they were thanked and appreciated for their cooperation.

The data collection tool was an author-administered questionnaire. The content of the questionnaire was designed based on numerous studies conducted upcountry or abroad, personal observations and experiences, and authoritative books and sources. The validity of the questionnaire was examined by ten faculty members of the Nursing Faculty of Isfahan University of Medical Sciences, and its reliability was measured

using Cronbach's alpha (0.77). The questionnaire was classified into two parts. Part one was about demographic features (age, gender, education and unit, marital status, occupation, work experience, and hospital workplace), and the second part assessed two main variables: 1. Organizational and individual facilitators of home nursing care for children, such as encouraging home care, nurse's role and time coordination; and 2. Organizational and individual barriers items, such as stressful home environment and resistance of physician. There were 22 questions in the individual domain and 20 questions in the organizational domain. The subjects could select any of the Likert spectrum options, from "very high" (score: 5) to "very low" (score: 1). A full score of 100 was calculated and determined as the result of the facilitators and barriers. In addition, facilitators were considered in terms of importance (priority) (the most important factor was ranked 1<sup>st</sup>, while the least important was ranked 13<sup>th</sup>). In the study, the data were analyzed through descriptive and inferential statistics, including mean, standard deviation, frequency, and paired *t* test. The collected data were analyzed using SPSS 20 (Chicago, IL, USA). The *p* values were smaller than 0.05.

## Ethical considerations

This study was carried out with the approval of the Ethics Committee of Isfahan University of Medical Sciences (Code of Ethics: IR.MUI.RESEARCH.REC.1398.035) and after acquiring written consent from the nurses.

## Results

The results of the study determined the individual and organizational facilitating and barrier factors for implementation of home care programs; most of whom were emergency nurses (18.24%), married (74.72%), and qualified nursing experts (89.40). The *t* test showed that the mean score of the individual facilitating factors (65.65) did not differ significantly ( $p > 0.05$ ) from the score of organizational facilitators (65.98) [Table 1].

The results also showed that according to the viewpoint of participants, the most important individual facilitating factor was "respectful communication with the family while caring for the child" [Table 2]. The most important individual barrier was "repetition of education for the mother" and "difficulty in locating their residences" [Table 3]. The most important organizational facility was "physician' support of the nurses" [Table 4].

**Table 1: Mean scores of facilitators and barrier factors in individual and organizational domains**

Factors	Individual Mean (SD)	Organizational Mean (SD)	Paired <i>t</i> test		
			<i>t</i>	df	<i>p</i>
Facilitators	65.65 (16.24)	65.98 (11.29)	0.33	197	0.74
Barriers	57.94 (14.82)	82.04 (14.36)	21.32	197	0.001

**Table 2: Frequency of the individual facilitating factors in pediatric home care**

Questions	Very Little (%)	Little (%)	Medium (%)	Much (%)	Very Much (%)	Importance (%)
1 Encouraging home care for satisfaction	13.25	12.65	29.91	24.91	19.28	6
2 Encouraging home care by earning spiritual and humanitarian rewards	12.69	16.83	28.40	25.40	16.68	7
3 One of the roles of nurses at home	14.69	17.30	31.00	24.41	12.60	8
4 Preference for nursing home care with similar hospital salaries	25.84	27.29	19.19	12.69	14.99	9
5 Respectful communication with the family while caring for the child	1.09	1.01	8.58	35.50	53.82	1
6 Be expert of home care	2.59	5.01	39.79	39.81	12.80	5
7 Improving home care by treating the nurse appropriately with the parents	0	3.10	13.29	36.91	46.70	2
8 The need for regular visits	0.50	3.12	16.45	47.20	32.73	4
9 Parental satisfaction with appropriate nursing response	1.49	2.61	10.37	42.53	43.00	3

**Table 3: Frequency of the barrier factors in pediatric home care in the individual domain**

Questions	Very Little (%)	Little (%)	Medium (%)	Much (%)	Very Much (%)	Importance (%)
1 Stressful home environment for nursing care	12.31	14.39	35.90	22.00	15.40	9
2 Hard to find home addresses	15.19	19.31	39.18	13.12	13.20	11
3 Too much work is a barrier to home care	5.19	9.61	28.90	27.39	28.91	3
4 Opposition from family or spouse	14.20	13.70	17.80	17.30	38.10	4
5 Fear of harming the child	5.59	13.81	35.90	26.27	18.43	6
6 Language barrier for home care	6.20	14.38	44.82	26.31	8.19	8
7 Fear of harm	12.00	23.40	29.69	21.41	13.50	10
8 Inappropriate viewpoint regarding the nurse's presence at home	5.20	7.30	26.39	32.19	29.00	1
9 Maternal dependence on the nurse	4.70	14.45	36.25	31.10	13.50	7
10 Repetition of training	7.40	27.90	43.17	18.43	3.20	12
11 Cultural issues	2.55	6.60	31.15	40.30	19.40	2
12 Concerns about parental trust	3.10	13.24	39.86	29.60	14.30	5

**Table 4: Frequency of the organizational facilitating factors in pediatric home care**

Questions	Very Little (%)	Little (%)	Medium (%)	Much (%)	Very Much (%)	Importance (%)
1 Time coordination for the nurse and family by hospital	2.10	4.18	13.72	34.90	45.10	5
2 Adequate information provided by the hospital	18.58	22.72	26.78	17.00	14.92	10
3 Proper hospital support for the nurses' home care	41.70	29.70	20.29	5.71	2.60	13
4 Responsibility of the health team	9.89	8.81	17.27	28.90	35.13	7
5 The important role of the hospital in trust of parents	41.37	24.59	28.30	4.18	1.58	12
6 Physician support by the hospital	0.53	1.00	4.13	13.94	80.40	1
7 Liability insurance for the nurse	32.61	23.84	23.34	11.91	8.30	11
8 Importance of mass media.	8.10	17.80	44.30	14.10	15.70	9
9 Preparing the necessary equipment by the hospital	2.00	1.60	12.40	38.89	45.11	4
10 Necessity of introducing a home care nurse by the hospital	1.59	1.10	5.70	31.52	60.09	2
11 The need to have formal clothes and a nursing home ID card	4.20	5.80	30.50	40.50	19.00	8
12 The need for insurance to home care service	1.57	4.00	20.70	37.83	35.90	6
13 The need for coordination of the health team by the hospital	0.00	1.50	10.30	35.60	52.60	3

The mean scores of the organizational and individual barrier factors were 82.04 and 57.94, respectively. There was a significant difference between the two barriers showed by the paired *t* test ( $p < 0.05$ ) [Table 1]. The most important individual barrier was "inappropriate viewpoint toward the nurse's presence at home," and the most important organizational barrier was "the implementation bureaucracy," a hindrance to the home care [Table 5].

## Discussion

The results of the study determined the individual and organizational facilitating and barrier factors for implementation of home care programs. The most important individual facilitating factors include respectful communication with the family, regular visits and follow-up, and having sufficient knowledge about the caring role. Similarly, Moradi *et al.*<sup>[17]</sup> showed that communicating

**Table 5: Frequency of the organizational barrier factors in the home care**

Questions	Very Little (%)	Little (%)	Medium (%)	Much (%)	Very Much (%)	Importance (%)
1 Resistance of physician	2.62	2.10	11.25	38.63	45.40	4
2 Implementation bureaucracy	1.00	0.00	4.10	27.39	67.51	1
3 Health system emphasis on treatment	3.18	3.11	15.21	31.40	47.10	5
4 Unknown nursing care in the community for the people	2.10	2.10	24.48	32.82	38.50	6
5 No guideline	0.00	1.50	17.50	32.00	49.00	3
6 Lack of security	1.00	1.60	7.71	38.19	51.50	2

with parents plays an important role in caring for the children, and facilitating the nurses with communication skills increases the teaching and the effectiveness of the presented training by the nurses to the home caregivers. The results of the present study showed that the support of physicians and the introduction of a nurse to the patient by the hospital were among the organizational facilitating factors. Team coordination is one of the most important bases for improving the health of children.<sup>[18]</sup> However, the researchers' experience and the results of some studies in Iran also showed that lack of inter-professional coordination is one of the main problems in home care added by many nurses' and physicians' reluctance to go to the home of requesting parents, resulting in the failure of the home care program. At the same time, home visits are a part of the nurses' curriculum, but some other majors have no programs regarding attending homes and their activities are limited to medical centers.<sup>[8,19]</sup>

The present study indicates an inappropriate viewpoint about the presence of the nurse, contrast of different cultures, the high workload of the nurse, disapproval of the nurse's family or spouse, concerns about parental trust (individual factors) and implementation bureaucracy, lack of security, lack of guidelines, resistance of the physicians, emphasis of the health system on the treatment, and unknown situation of the nursing care in the community (organizational factors). In addition, the mean score of the organizational barrier factors was significantly higher than the mean score of the individual barrier factors. The presence of a nurse at home was viewed negatively in this study, that is, a barrier factor. The viewpoint of the community is also negative and stems from Iranian culture and especially in Isfahan. Similarly, Hemati *et al.*<sup>[8]</sup> showed that the neonatal care program in Iran was performed with great difficulty, but this problem was fixed with arrangements such as assigning the driver as a bodyguard and a private car dedicated to home visits as well as the coordination with the hospital and parents.

The lack of guidelines and security, the emphasis of the health system on treatment instead of prevention, and resistance of physicians were among the important barrier factors. Thus, it is necessary to develop appropriate guidelines with contexts and cultural conditions of Iran for the care of children with chronic diseases. On the

contrary, the health system in Iran has a treatment-based approach. Community-based care and home care have no place in Iran's health care system, while most European countries consider home care as a priority in their health care system.<sup>[20]</sup>

The present study showed that the organizational barrier factors were at the priority level. The study by Hemati *et al.*<sup>[8]</sup> to explain the challenges of infant care at home showed that families considered the role of organizational barrier to be an important element. Another study indicated some benefits of patient-centered medical homes for children with special health care needs.<sup>[21]</sup> In addition, evidence showed patients and families as not reluctant to hospitalization amid the COVID-19 pandemic. Mercier *et al.*<sup>[22]</sup> revealed a decrease in the hospital admissions for acute myocardial infarctions by using data from a French multicenter. A study emphasized that telehealth can be used by pediatric interdisciplinary teams and expedite the communication and connection for pediatric palliative programs.<sup>[23]</sup> Recently, in Iran, a home care base has been established for infants in the Soroush Counseling and Nursing Services Center in Isfahan to support parents.<sup>[24]</sup> Moreover, there are some guidelines for taking care of adults with COVID-19 after discharge from the hospital, as well as some instructions for self-care at home.<sup>[25]</sup> Therefore, it is suggested as a necessity to devise a program by taking into consideration the barrier and facilitating factors to implement home care for children infected by the coronavirus at home rather than hospitalization.

There were some limitations to this study. Many nurses were unfamiliar with home care programs. Thus, some of them did not complete the questionnaires. Furthermore, some of them showed resistance to the subject and had opposite viewpoints. Home care services are not developed in hospitals; therefore, it takes time to determine the challenges of pediatric home care.

## Conclusion

Based on the results, it can be considered that the challenges of home care for children have barriers and facilitators that must be addressed and implemented with appropriate thinking and policies by the Ministry of Health and Medical Education. It is important to consider crises

such as COVID-19 to implement the pediatric home care program.

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### Conflicts of interest

Nothing to declare.

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