

Factors associated with failure to discharge in the context of home care

Fatores associados a não efetivação da alta na assistência domiciliar

Factores asociados a la falta de concreción del alta en la atención domiciliar

Vânia de Souza¹

Érika Guimarães Lage¹

Fernanda Penido Matozinhos¹

Mery Natali Silva Abreu¹

Keywords

Home nursing; Comprehensive health care; Home care services; Health services; Epidemiology

Descritores

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Corresponding author

Vânia de Souza

<https://orcid.org/0000-0002-7808-8079>

E-mail: vaniaxsouza@yahoo.com.br

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Abstract

Objective: Our aim was to analyze the factors associated with failure to discharge users of the home care service to primary healthcare.

Methods: This was a cross-sectional study conducted at the home care service of the metropolitan region in the state of Minas Gerais, Brazil. Data from the records of 157 users assisted by the home care teams in 2016, including those that remained throughout 2017, were collected. The socio-demographic, economic, health, and behavioral data were analyzed, in addition to data regarding access to the home care service and the socio-demographic variables of the caregivers. Poisson regression was used to determine the factors associated with failure to discharge from the home care service to primary healthcare, considering $p < 0.05$ as significant.

Results: The percentage of failure to discharge to primary healthcare was 22.29%. The increase in age and frequency of home visits were associated with failure to discharge. Income of $> \$780.00$ increased by 2.55 times the percentage of failure to discharge from the home care service to primary healthcare compared with users whose income was $< \$260.00$.

Being referred from the emergency care unit decreased the percentage of failure to discharge when controlling for the remaining variables of the model.

Conclusion: The results demonstrated the existence of users for whom the home care service has difficulties in discharging to primary healthcare; discharge was also associated with the type of access to the service. This study presented contributions to the subject.

Resumo

Objetivo: Analisar os fatores associados a não efetivação da alta dos usuários assistidos no Serviço de Atenção Domiciliar para a Atenção Primária à Saúde.

Métodos: Estudo de delineamento transversal realizado no Serviço de Atenção Domiciliar da região metropolitana do Estado de Minas Gerais, Brasil. Dados provenientes de 157 prontuários das pessoas assistidas (usuários) pelas Equipes de Atenção Domiciliar em 2016, incluindo os que permaneciam atendidos em 2017. Análises das características sociodemográficas, econômicas, de saúde, comportamentais e de acesso ao Serviço de Atenção Domiciliar e as variáveis sociodemográficas dos cuidadores para os usuários. Utilizou-se regressão de Poisson para determinar os fatores associados a não efetivação da alta do Serviço de Atenção Domiciliar para a Atenção Primária à Saúde, considerando $p < 0,05$.

Resultados: A frequência de alta não efetivada para a APS foi 22,29%. O aumento da idade e da frequência de visitas recebidas pelos usuários associaram-se a não efetivação da alta. Ter renda superior a $\$780,00$ aumentou em 2,55 vezes a prevalência de não efetivação da alta do Serviço de Atenção Domiciliar para a Atenção Primária à Saúde em relação aos usuários de renda até $\$260,00$. Ser proveniente da Unidade de Pronto Atendimento diminuiu a prevalência de não efetivação da alta quando controlada pelas demais variáveis presentes no modelo.

Conclusão: Os resultados apontaram a existência de usuários nos quais o Serviço de Atenção Domiciliar tem dificuldades de efetivação da alta para a Atenção Primária, estando a alta também vinculada ao tipo de acesso ao serviço; tendo o estudo revelado contribuições para a área.

Resumen

Objetivo: Analizar los factores asociados a la falta de concreción del alta de los usuarios que reciben Servicio de Atención Domiciliar para la Atención Primaria de Salud.

Métodos: Estudio de delineamiento transversal realizado en el Servicio de Atención Domiciliar de la región metropolitana del estado de Minas Gerais, Brasil. Datos provenientes de 157 historias clínicas de personas que recibieron atención (usuarios) del equipo de Atención Domiciliar en 2016, que incluyó a los que permanecieron atendidos en 2017. Se analizaron las características sociodemográficas, económicas, de salud, comportamentales y de acceso al Servicio de Atención Domiciliar y las variables sociodemográficas de los cuidadores de los usuarios. Se utilizó regresión de Poisson para determinar los factores asociados a la falta de concreción del alta del Servicio de Atención Domiciliar para la Atención Primaria de Salud, considerando $p < 0,05$.

Resultados: La frecuencia de alta sin concretizar de APS fue de 22,29%. El aumento de la edad y de la frecuencia de visitas recibidas por los usuarios se asociaron a la falta de concreción del alta. Tener ingresos superiores a $\$780,00$ aumentó 2,55 veces la prevalencia de la falta de concreción del alta del Servicio de Atención Domiciliar para la Atención Primaria de Salud con relación a los usuarios con ingresos de hasta $\$260,00$. Ser proveniente de la Unidad de Pronto Atención redujo la prevalencia de la falta de concreción del alta cuando estaba controlada por las demás variables presentes en el modelo.

Conclusión: Los resultados señalan la existencia de usuarios en los que el Servicio de Atención Domiciliar tiene dificultades de concretizar el alta para la Atención Primaria, que también está relacionada con el tipo de acceso al servicio. El estudio reveló contribuciones para el área.

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¹Escola de Enfermagem, Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brazil.
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Introduction

In Brazil, home care (HC) service in an organized manner began in the 1960s; since 1990, it has gained importance.⁽¹⁾ The service is regulated by Administrative Rule 825/2016, which defines HC in the Brazilian Unified Health System [Sistema Único de Saúde(SUS)] and describes the teams qualified for HC.⁽²⁾ HC is a healthcare modality integrated to the Health Care Network [Rede de Atenção à Saúde (RAS)]. It is characterized by prevention, treatment, rehabilitation, palliative care, and health promotion actions provided at home, ensuring assistance to individuals who require clinical care,⁽²⁾ without the need for hospitalization.

HC is a strategy of dehospitalization, which releases hospital beds, leading to cost reduction and providing a more humanized, integral, and user-centered care by breaking away from the hospital-centered model.⁽³⁾ For service users and their caregivers, this form of care allows them to overcome barriers to access other RAS services, especially diagnostic exams and specialized consultations, allowing different care than that provided to other users of the SUS.⁽⁴⁾

It is organized into three methods: home care 1, 2, and 3 (HC1, HC2, and HC3), which are differentiated by the specific care needs, periodicity of home visits, intensity of multi-professional care, and use of equipment.⁽²⁾ In HC1, care is provided by the primary health-care (PHC) teams, with less frequent visits and multiprofessional interventions, based on the assumption that caregivers are stable and provide satisfactory care.⁽²⁾ The home care service (HCS) is responsible for HC2 and HC3 modalities, meeting the demand of hospitals, emergency care units (ECUs), and the PHC. These patients require intense, continuous, and multi-professional care, with at least one weekly visit, and the use of equipment or more complex procedures, such as mechanical ventilation.⁽²⁾

The multiprofessional home care team (MHCT) is formed by a nurse, a physician, a nursing technician, and a physical therapist or social worker.

MHCTs are classified as type 1 and 2, according to the workload of medical and nursing professionals. In MHCT 1, there is a 40 hour-weekly workload for both professionals. In MHCT 2, the minimal workload is of 20 hours for the physician and 30 hours for the nurse.⁽²⁾

HCS should be organized on a territorial basis and interact with the RAS, especially with the PHC.⁽²⁾ In stable cases and in those in which an improvement in clinical status is observed, the patients should be discharged to the PHC. Cases of acute exacerbation are referred to hospitals or ECUs.⁽⁵⁾

The process of integrating the HCS with the RAS, and particularly with the PHC, is challenging, presenting issues related to the mechanism of entry and continuity of PHC care after discharge from the HCS. This transposition of users to the PHC is a concern among HCS professionals,⁽¹⁾ and may generate delays in discharge owing to the uncertainty regarding the continuity of care at the PHC level.⁽⁶⁾ The coordination between HCS and PHC teams is important to facilitate the process of transfer to the HC1 modality in a timely manner,⁽²⁾ allowing more effective care.

Few studies have assessed the difficulties faced by the HCS to discharge its users to the PHC (namely those who remained in the HCS despite meeting the criteria for HC1). Discharge is defined here as that performed from the HCS to the PHC, for users who met the eligibility criteria for the HC1 modality. The literature features studies that focus on the care barriers to home visits in PHC, on strategies to improve the coordination between HCS and hospital care, on the organization of the HCS, and on the preparation of the population for long-term care.⁽⁷⁻¹²⁾

The authors believe that deepening the research on the transition process from the HCS to the PHC can contribute to the coordination between these two services. This would allow planning of integrated care actions for users who no longer require care in HC2 or HC3 modalities.

This study aimed to analyze the factors associated with failure to discharge users assisted in the HCS to primary healthcare.

Materials and Methods

This was a cross-sectional study that collected data from the medical records of four teams from an HCS of the metropolitan region of the state of Minas Gerais, Brazil. The service has six MHCTs, all classified as type 1, which provide care in the HC2 and HC3 modalities. Four are Clinic MHCTs, one is a Pediatric MHCT, and the other is an Orthopedic MHCT; the latter two are differentiated by their specialties. All of them are linked to a care center, whether an ECU or a municipal hospital.

The sample included 157 records of users assisted in the HCS in 2016 and their respective caregivers. The inclusion criteria for users were as follows: care provided by one of the Clinic MHCTs and discharge from HC2/HC3 modalities to HC1 in 2016 or until data collection in 2017. Only the first admission of the user was considered, even if they were later readmitted, to avoid data duplication.

The exclusion criteria were: care provided by a specialized MHCT; transfer to ECUs, hospitals, and specialized consultation centers; administrative discharge, such as that caused by the user moving to another city; admission owing to surgical risk, given the short period of hospitalization (usually one day); and death.

The inclusion criterion for caregivers was having their name listed in the medical record as the user's primary caregiver.

The data collection instrument was constructed from the forms that compose the medical records of the service, having been previously applied to the manager of another HC service, a nurse researcher in HC, and five professionals from the assessed HCS; the instrument was amended as needed until a final version was settled upon.

The outcome was defined as failure to discharge from the HCS when the user was classified as HC1; the variable was measured as 0 or 1, where 0 corresponds to users who were discharged when they met the HC1 classification and 1 corresponds to those who were not discharged to the PHC when meeting the HC1 classification and remained in the HCS.

STATA[®] 14.0 was used for statistical analysis, which included prevalence estimates (%). For the numerical variables was used the Shapiro–Wilk normality test. The results were presented as means and standard deviations or medians and interquartile ranges (IQRs), respectively.

Univariate and multivariate analysis was performed using Poisson regression models with robust variances. The dependent variable was failure to discharge to the PHC; the socio-demographic, economic, health, and behavioral data of the individuals as well as data on access to HCS were considered as explanatory variables. The model also factored in the socio-demographic variables of caregivers.

Variables with $p < 0.20$ were included in the multivariate model. Theoretical criteria were also used to include variables in the model. To exclude variables, the backward method was used, with significance level of 5% for the permanence of the variables in the final model.

The goodness of fit deviance test was used. The prevalence ratio (PR), with a 95% confidence interval (95% CI), was used as an effect measure. In all statistical tests, a 5% significance level was adopted.

The research was approved by the Ethics Committee on Research Involving Human Beings under opinion No. 2,096,262.

Results

The median age of the 157 users was 66.86 years; the majority were male (51.59%), living with a partner (59.09%), with income ranging from USD 260.00 to USD 780.00 (88.53%), and without health insurance (95.23%). The main reason for HCS follow-up was antibiotic therapy (34.41%). Regarding health and behavioral characteristics, hypertension was predominant (70.86%), and users had access to the HCS through ECU (48.38%; Table 1).

With regard to the characteristics of the caregivers, there was a predominance of women (76.77%), with a mean age of 48.65 years, and most caregivers (41.93%) were children of users (Table 1).

Of the 157 discharges from the HCS to the PHC, 35 (22.29%) were not effective. Among these users, the median age was 64.19 years (IQR = 54.76–71.38), with a median of 19 home visits (IQR = 8–40), and with higher frequency of women (25.00% of the total sample) and of individuals living with a partner (30.77%) and with income higher than USD 780 (75.00%). Furthermore, 25% did not have health insurance (data not shown).

Dressings were the main reason for failure to discharge (36.73%). A higher percentage of failure to discharge patients was observed among those with diabetes mellitus (32.73%) and those who did not report hospitalization in the last 12 months (42.86%). Most cases of failure to discharge involved users referred by the PHC (39.47%). With regard to the caregivers of users who were not discharged, the mean age was 48.26 years; most were male (25.00%) and nieces/nephews of the users (33.33%).

In the univariate analysis, being attended to by the HCS owing to antibiotic therapy was associated with a lower probability (PR = 0.154, 95% CI = 0.05–0.49) of failure to discharge than those who were attended to owing to dressing. A higher frequency of visits was associated with a higher probability of not being discharged (PR = 1.01; 95% CI = 1.01–1.03). Being referred from an ECU was associated with a lower probability of failure to discharge (PR = 0.27, 95% CI = 0.12–0.58) than referrals from the Basic Health Unit (BHU) or Family Health Strategy Program (FHS; Table 2).

In the adjusted model (Table 3), it was observed that an increase in age and frequency of visits received by the user was associated with a higher probability of failure to discharge (PR = 1.02 and 1.01, respectively). Moreover, income higher than USD 780.00 increased by 2.55 times the prevalence of failure to discharge from the HCS to the PHC when compared with users whose income was less than USD 260.00. Being referred from the ECU decreased the prevalence of failure to discharge when compared to users who were referred from the BHU or FHS (PR = 0.36).

Table 1. Profile of users attended to at the home care service—metropolitan region of Minas Gerais

Characteristics of users	n (%)	
Socio-demographic and economic factors		
Age	n = 157	66.86 ^c
Sex	n = 157	
Male	81 (51.59)	
Female		76 (48.4)
Marital status	n = 110	
With a partner ^a	65 (59.09)	
Without a partner ^b		45 (40.9)
Income	n = 157	
Less than USD 260.00		14 (8.91)
USD 260.00–USD 780.00	139 (88.53)	
Greater than USD 780.00		4 (2.54)
Health Insurance	n = 84	
Yes		4 (4.76)
No	80 (95.23)	
Reason for admission to the HCS	n = 154	
Dressing	49 (31.81)	
Antibiotic therapy	53 (34.41)	
Clinical support	47 (30.51)	
Home rehabilitation		5 (3.24)
Number of visits received	n = 157	10 ^c
Health and behavioral factors	n = 127	
Systemic hypertension		
No	37 (29.13)	
Yes	90 (70.86)	
Diabetes mellitus	n = 125	
No	70 (56)	
Yes	55(44)	
Hospitalization in the last 12 months	n = 132	
No	7	
Yes	125 (5.30)	
Access to HCS	n = 155	94,69
Referred from		
BHU + FHS	38 (24.51)	
Hospital	42 (27.09)	
ECU	75 (48.38)	
Characteristics of caregivers		
Socio-demographic factors		
Age	n = 148	48,65 ^d
Sex	n = 155	
Male	36 (23.22)	
Female	119 (76.77)	
Relationship with user	n = 155	
Spouse/partner	38 (24.51)	
Children/stepchildren	65 (41.93)	
Father/mother	13 (8.38)	
Brother/sister	15 (9.67)	
Nephew/niece	9 (5.8)	
Others	15 (9.67)	

BHU – Basic Health Unit; FHS – Family Health Strategy; HCS – home care service; ECU – emergency care unit ^a married + stable union; ^b single + widow + separated + divorced; ^c median; ^dmean.

Table 2. Univariate analysis of the potential user factors associated with failure to discharge from home care

Socio-demographic factors	PR	95% CI	p-value*
Age (continuous)	1.00	0.99–1.01	0.854
Sex			0.433
Male	1.00		
Female	1.26	0.70–2.28	
Marital status			0.476
With a partner	1.00		
Without a partner	0.79	0.42–1.49	
Income			
Less than USD 260.00	1.00		
USD 260.00–USD 780.00	0.54	0.25–1.19	0.127**
Greater than USD 780.00	2.1	0.85–5.19	0.108**
Health insurance			0.199**
Yes	1.00		
No	0.5	0.17–1.44	
Reason for admission to the HCS			
Dressing	1.00		
Antibiotic therapy	0.15	0.05–0.49	0.002**
Clinical support	0.69	0.38–1.28	0.245
Home rehabilitation	0.54	0.09–3.28	0.507
Frequency of visits	1.01	1.01–1.03	0.000**
Health and behavioral factors			
Systemic hypertension			0.159**
No	1.00		
Yes	1.78	0.80–3.98	
Diabetes mellitus			0.222
No	1.00		
Yes	1.43	0.80–2.55	
Stroke			0.601
No	1.00		
Yes	1.24	0.56–2.74	
Hospitalization (last 12 months)			0.125**
No	1.00		
Yes	0.48	0.19–1.22	
Access to HCS			
Referred from			
BHU + FHS	1.00		
Hospital	0.72	0.39–1.35	0.308
ECU	0.27	0.12–0.58	0.001**

PR – prevalence ratio; HCS – home care service; BHU – Basic Health Unit; FHS – Family Health Strategy; ECU – emergency care unit 95% CI - 95% confidence interval; * Poisson univariate regression model with robust variances; ** p-value less than 20% (p < 0.20)

Table 3. Adjusted analysis of the factors associated with failure to discharge from home care service to primary healthcare

Factors	PR	p-value**
Age	1.02	0.024*
Income		
Less than USD 260.00	1	
USD 260.00–USD 780.00	0.85	0.685
Greater than USD 780.00	2.55	0.027*
Referred from		
BHU + FHS	1	
Hospital	0.84	0.582
ECU	0.36	0.025*
Frequency of visits	1.01	0.002*

PR – prevalence ratio; * significant p-value (p-value < 0.05); ** Model adjusted for marital status and reason for admission in the HCS; *** Deviance test - final model fit assessment.

Discussion

Failure to discharge to PHC was associated with elderly users, the requirement of more home visits, and income above USD 780.44.

The association of age above 60 years with the higher demand for HC, also present in the literature, is related to an increase in functional disabilities.⁽¹³⁻¹⁵⁾ The probability of demand for HC is higher in those older than 80 years when compared with the age range of 60–65 years.⁽¹³⁾

This probability was shown to be 10.4 times higher in the elderly who presented functional incapacity to perform activities of daily life than in those who were capable.⁽¹⁵⁾

These data are relevant, considering that the age of users may influence the decision of the HCS manager to postpone discharge to the PHC when they realize that the PHC may not provide continued care for the elderly user, especially in cases in which the caregiver is also elderly.⁽⁶⁾ Furthermore, worldwide population studies indicate an increase in life expectancy for the age group of 60 years or more, from 18.7 years in 2000 to 20.4 years in 2015.⁽¹⁶⁾ This indicates the need to increase HC and its support network. In the context of aging, a study on long-term care in a sample of patients aged 65 years or more showed they preferred the support network provided by family and friends.⁽¹⁷⁾

The association between income and the prevalence of HC has also been shown in other studies.^(15,18) In a Brazilian study that included 1,593 elderly individuals, the probability of receiving HC was 5.2-fold higher among those with a higher income, when compared to those whose income was less than USD 260.00.⁽¹⁵⁾

The justification that individuals with higher incomes have more means to hire the specialized services of a formal caregiver was indicated in a national study with 671 elderly individuals.⁽¹⁸⁾ While this association cannot be generalized to the Brazilian population, 71% of the formal caregivers in the aforementioned study cared for elderly patients in the higher income quartiles.⁽¹⁸⁾ The association between higher incomes and the odds of receiving at least one hour of HC services was also observed in

a survey of 8,815 elderly Americans, being twice as high as that observed in lower-income families.⁽¹⁹⁾

In contrast to these results, a higher probability of HC was reported in poorer classes than in upper class elderly individuals (A and B) in a study with 6,624 elderly individuals from 23 Brazilian states.⁽¹³⁾ In another study on the subject, the reason for the association of HC with lower income was related to the reduction of social inequities through the FHS.⁽¹⁵⁾

In a systematic review of socioeconomic conditions and access to health services among the elderly, the results varied according to the country and type of service used. In Brazil and Canada, HC was more frequent among the poorest, whereas in the United States it was more common among the richest and most educated. In countries where public policies are more equitable, studies indicate a greater frequency of HC among the poorest and least educated.⁽²⁰⁾

With regard to access to HCS, the present study showed that there was a lower frequency of failure to discharge among users referred from the ECU. In this case, it can be inferred that HC services linked to the ECU treat users with acute conditions, often related to infections such as urinary and respiratory tract infections for which hospital admission is indicated but can be avoided with HC-enhanced services.⁽¹⁾ Furthermore, consultations carried out in the PHC may reproduce the clinical practice of emergency services, due to the continuous tension in the balance between the scheduled supply of health services and the spontaneous demand, which hinders user adherence, particularly regarding the control of chronic diseases.⁽²¹⁾ Thus, it is possible that a chronic PHC user, when referred to the HCS, will require more time to be discharged.

The literature highlights the importance of patient engagement in their own care, preserving their autonomy and independence through guidance that contributes to their decision-making regarding their recovery process and not necessarily dependent on the care of a health professional. This autonomy can be enhanced by reducing the gap between scientific knowledge and the user's knowledge, thereby allowing the development of a care plan in which the user can participate more actively in their care process.⁽²²⁾

In a review of the literature on congestive heart failure, the authors emphasized the importance of investing in health education provision by the multidisciplinary team to avoid (re)hospitalization. The use of tools such as videos, booklets, and telephone follow-up helps users understand the guidelines for maintaining care at the time of hospital discharge.⁽²³⁾ In the context of the HCS and the PHC, this strategy can bring benefits to the user and the services, allowing post-discharge care to be more effective.

While HCS fulfills its role by avoiding hospitalizations and meeting the demands from the BHU and PHC, it is important to highlight the need for shared care and the development of collective strategies involving these services, especially the PHC. In a survey carried out with HCS coordinators and managers of municipalities, meetings among the RAS teams were proposed as a way to establish continuous care for the user and the improvement of the interaction between the services.⁽¹¹⁾ This interaction would allow to define the flow of care management in line with the demands of the service and the users. It would also be a way of including the efforts of the SUS to reduce the fragmentation of healthcare actions by strengthening health policies focusing on integrality and equity.⁽²⁴⁾

The identification of factors associated with failure to discharge from the HCS to the PHC also aids in the planning of the discharge process, with the aim of promoting continuous care and the effectively support of families in the promotion of health actions.

The limitations of this study were the size of the sample and the loss of some data, which is expected when data is collected from medical records. Furthermore, its cross-sectional design did not allow the identification of the causality of the associations shown in the results. Finally, some aspects that may be associated with failure to discharge HCS users to the PHC such as the political, organizational, and structural characteristics of the services, were not assessed.

Conclusion

The results of the present study indicated that the frequency of failure to discharge was associated with

the variables age, frequency of visits, higher income, and access to the HCS; discharge was also associated with the type of access to the service. These findings indicate the need for further scientific research in this area to gain insight into the obstacles that affect the discharge from the HCS to the PHC; research and comparison with other national HC services and with other experiences that may have been successful with RAS is recommended. Educational interventions and collective actions to improve the link with RAS are also a necessary contribution to more effective and higher-quality HC.

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Collaborations

Souza V, Lage EG, Matozinhos FP, Abreu MNS contributed to the project design, data analysis and interpretation, article writing, critical review of intellectual content, and final approval of the version to be published.

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