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Collaborative care connection: continuous and interprofessional care for elderly in situations of vulnerability

EXPERIENCE REPORT

Conexão cuidado colaborativo: cuidado contínuo e interprofissional para idosos em situação de vulnerabilidade

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ABSTRACT

This article is an experience report on the project Connection Care Collaborative, developed with 94 elderly and their families, linked to the Geriatric Outpatient Clinic of Faculdade Ciências Médicas de Minas Gerais (FCMMG) during the year 2021. This project aimed to promote continuous care for the elderly in vulnerable situations through the interdisciplinary team training to recognize those at risk of functional decline and frailty. The project took place in different stages: 1) interdisciplinary telemonitoring, 2) outpatient and home evaluation of the Frailty phenotype, and 3) structured interventions. The team was composed of Medicine, Nursing, and Physiotherapy students with professors guiding them. During the Covid-19 pandemic in the 2021 social isolation period, 66 participants were monitored, of which 57.6% were at risk of functional decline and vulnerability, and 53.0% were classified as frail elderly. Telemonitoring showed adequate for the continuous care of the elderly with multimorbidities, dementia syndromes, and impairment of intrinsic capacity, and frailty in this period. It also allowed students to broaden their citizenship training while improving academic and interdisciplinary technical training in Geriatrics and Gerontology.

Keywords: Fragility, Functionality, Covid-19, Telemonitoring, Elderly.

RESUMO

Este artigo trata-se de um relato de experiência sobre o projeto Conexão Cuidado Colaborativo, desenvolvido junto a 94 idosos e suas famílias, vinculados ao Ambulatório de Geriatria da Faculdade Ciências Médicas de Minas Gerais (FCMMG), durante o ano de 2021. O objetivo do projeto foi promover cuidado contínuo a idosos em situação de vulnerabilidade por meio de capacitação e treinamento da equipe interdisciplinar para o reconhecimento daqueles em situação de risco de declínio funcional e fragilidade. O projeto aconteceu em diferentes etapas: 1) telemonitoramento interdisciplinar; 2) avaliação ambulatorial e domiciliar do fenótipo de Fragilidade e 3) intervenções estruturadas. A equipe foi composta por estudantes de Medicina, Enfermagem e Fisioterapia junto às professoras orientadoras. Durante o período de isolamento social pela pandemia do Covid-19 no ano de 2021, 66 participantes foram monitorados, dos quais 57,6% apresentavam risco de declínio funcional e vulnerabilidade e 53,0% foram classificados como idosos frágeis. O telemonitoramento mostrou-se adequado ao cuidado contínuo de idosos portadores de multimorbidades, síndromes demenciais, comprometimento da capacidade intrínseca e fragilidade neste período. Permitiu, ainda, que os estudantes ampliassem sua formação cidadã concomitantemente ao aprimoramento da formação acadêmica e técnica interdisciplinar em Geriatria e Gerontologia.

Palavras-chave: Fragilidade, Funcionalidade, Covid-19, Telemonitoramento, Idosos.

INTRODUCTION

Ensuring access to quality healthcare and promoting well-being for everyone, at all ages, is one of the 17 Sustainable Development objectives in Brazil pro-

posed in the United Nations 2030 Schedule. The elderly, mainly the frail ones, constitute a priority group for actions aimed at achieving this goal, which became even more challenging during the rise of the Covid-19 pandemic, a disease caused by the new coronavirus in 2020 and 2021.[1]

Health measures to contain the spread of Covid-19 resulted in a temporary interruption of outpatient care, and many elderly care services did not guarantee continuity of care during the pandemic.[2,3] In addition to being the most affected by the morbidity and mortality of Covid-19, it is believed that the elderly will still have chronic health conditions aggravated by the fragmentation of care and limitations in socialization, also health promotion activities.[4]

The need for social support increases with aging due to the growing number of elderly people with frailty syndrome, a condition of special interest in this scenario, and the intense impairment of functional capacity associated with it. To Fried *et al* [5] frailty is a geriatric syndrome characterized by increased vulnerability and reduced capacity for homeostasis, also it is related to adverse health events, worsening quality of life, higher incidence of falls, loss of independence, lower response to disease-directed therapies, faster recovery prolonged illness, unfavorable results in surgeries, greater morbidity and, consequently, greater mortality6, as shown in Figure 1.

FIGURE 1. PHENOTYPE OF FRAILTY SYNDROME. SOURCE: FRIED *ET AL.*, 2012.

In addition to its importance in the management of chronic degenerative diseases, the recognition and characterization of frail elderly people also represents a strategy for combating infectious diseases such as Covid-19. Specific actions for geriatric and gerontological care are urgently needed in order to minimize injuries and impacts of the pandemic in this highly vulnerable population.

Functional capacity is determined by intrinsic capacity, made up of all physical and mental capabilities of an individual, the environment and the interactions between them.[7]

The restructuring of the elderly care model has been discussed in Brazil and around the world. The effec-

tive implementation of resolute and comprehensive lines of care requires the formation of a multi- and interdisciplinary work team that, acting collaboratively and incorporating the patient, family and community as team members, is capable of responding to the health needs of this population.[8]

According to Brummel *et al.* [9] person-centered care is an approach to improving the quality and coordination of care, therefore it must take into account individual preferences, ethnic and cultural backgrounds, spiritual beliefs and health literacy of older adults and their caregivers. Attentive listening and valuing the cultural background highlight the resilience and adaptive strategies displayed by elderly people and their caregivers when dealing with common aging problems, which has great value in the shared decision-making process.

Aligned with the Sustainable Development Goals in Brazil[1], the Collaborative Care Extension Project was developed, whose proposal is to provide integrated care for frail and pre-frail elderly people, family members and caregivers assisted at the Geriatrics Outpatient Clinic at *Faculdade de Ciências Médicas de Minas Gerais (FCMMG*). The project involves stages of recognition and characterization of frailty, incorporation of technologies for telemonitoring and collaborative and interdisciplinary care, seeking to optimize the transition of care, to guarantee comprehensiveness and promote the dissemination of concepts such as frailty, sarcopenia and end-of-life care for this population. It aims to develop interdisciplinary care plans based on the best evidence and patient- and family-centered care goals. Furthermore, it aims to incorporate elderly people, family and caregivers as team members, increasing the importance of these agents' participation in the shared decision-making process based on health education actions.

METHOD

The project has collaborative and interdisciplinary practice at its core. From March 2021, two students from the Nursing course, two from Physiotherapy and six students from the Medicine course participated in the project, including scholarship holders and volunteers (monthly workload of 20 hours each) and a postgraduate student, author of this Project, together with the guiding professor. The students were continuously assessed regarding the acquisition of skills, such as leadership, communication, interdisciplinary teamwork, ability to manage frail elderly people and understanding the expectations of patients and caregivers.

The target audience for the actions in 2021 were elderly people and their families connected to the FCMMG Geriatrics Outpatient Clinic and assisted by the Internship in Elderly Health discipline team residing in Belo Horizonte, and who agreed to participate after reading and signing the Term of Free and Informed Consent (TCLE).

The project is structured around five axes or "5 Ms" (Table 1): Mobility, Mind, Medicines, Multicomplexity and More important for me [10] (Table 1).

TABLE 1. PROJECT ACTIONS BY AXES "5 MS".

Multicomplexity	Dissemination of the concept of multicomplexity and the importance of an interdisciplinary team in its management.
Medicines	Clarification on polypharmacy management, prescribing and warnings about inappropriate medications for the elderly.
Mobility	Rehabilitation, sarcopenia interventions and alternatives to reduce physical inactivity, risks of falls and fractures
Mind	Clarification on the recognition of dementia and associated behavioral changes, depression, *delirium.*
More important for me	Participation of the elderly and their family in the shared decision-making process, desired priorities and dissemination of palliative care.

SOURCE: MOLNAR & FRANK 2019. ADAPTED.

Furthermore, the project covers the main national and international curricular competencies for teaching Geriatrics and Gerontology in line with high-quality, integrated, accessible care focused on the needs and rights of elderly people proposed in Integrated Care for the Elderly (ICOPE), developed by the World Health Organization (WHO)[11] (Figure 2).

In order to recognize, characterize and guide health education actions for frail elderly people, action research was performed using the *Prisma* 7 questionnaire[12] to assess the risk of functional decline and the Frail scale–BR[13] to define frailty status (classifying them as robust, pre-frail and frail elderly). Furthermore, a semi-structured questionnaire was developed by the authors with the purpose of evaluating lifestyle changes, Covid-19 in-

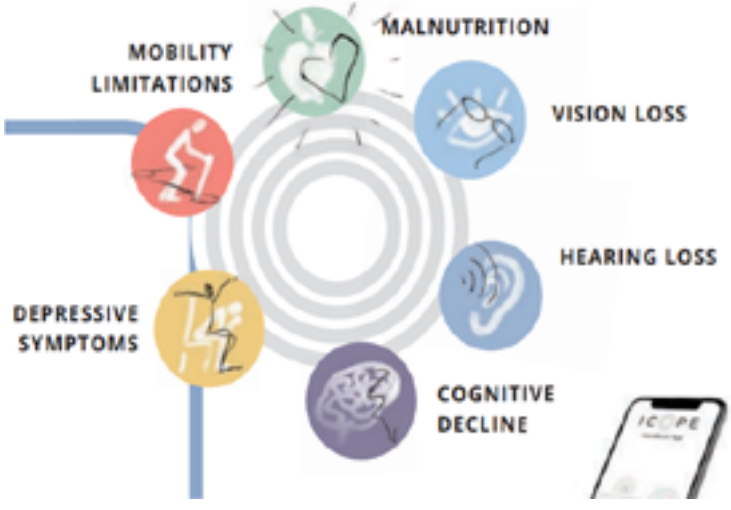

FIGURE 2. ASSESSMENT OF INTRINSIC CAPACITY. SOURCE: WORLD HEALTH ORGANIZATION, 2021.

fection, and impairment of intrinsic capacity, mood and strategies adopted to mitigate the impacts of the pandemic. The associations of variables with the FRAIL-BR scale classification were analyzed using the Chi-square test. Analyzes were carried out using the R software version 4.0.3 and a significance level of 5% was considered.

The students participated in weekly meetings to plan activities, present the methodology and discuss ethical aspects, the particularities of telemonitoring elderly people and leadership development and the challenges of caring for highly complex elderly people using the platform *Collaborate* from FCMMG.

Telemonitoring using audio and video resources, in addition to identifying elderly people at risk, aimed to prevent health problems, support patients and family members in relation to adherence to treatment and guide the participant within the network service (navigation) (Figure 3).

FIGURE 3. TEAM AND PARTICIPANTS IN TELEMONITORING. SOURCE: AUTHORS' PERSONAL COLLECTION. AUTHORIZED, 2022.

Clinical consultations were performed with the Comprehensive Geriatric Assessment (AGA) at the FCMMG Geriatrics Outpatient Clinic with the Elderly Health Internship team during the periods authorized for face-to-face consultations by the municipal health authorities. (March to July of 2021) (Figure 4).

FIGURE 4: TEAM AND PARTICIPANTS AT THE FCMMG GERIATRICS OUTPATIENT CLINIC.

For some students, this was their first contact with cognitive and functional assessments carried out based on tests and scales validated for the Brazilian elderly population, such as the Mini-Mental State Examination (MMSE)[14], verbal fluency test[15], picture memory test[16], Pfeffer functional activities questionnaire [17] and Geriatric Depression Scale[18].

Home visits in this project aim to ensure continuity of care for fragile patients who are unable to attend the outpatient clinic. There were limitations to carrying out this activity due to the vaccination status of participants and project members and the health measures adopted in the city of Belo Horizonte. Some students were able to participate in the enriching experience of home care provided by an interdisciplinary team that was shared with all members, exploring the environment as a determinant of health (Figure 5).

FIGURE 5. INTERACTION OF STUDENTS PROVIDING HOME CARE TO A PARTICIPANT.
SOURCE: AUTHORS' PERSONAL COLLECTION. AUTHORIZED, 2022.

Based on the demands presented by the participants, weekly publications were created on social media covering the 5 axes of the project: Mobility, Mind, Medicines, Multicomplexity and More Important for me. From searching for references to editing texts and images, everything was constructed by the students and reviewed by the two supervising teachers, paying special attention to the adequacy of the language used to ensure understanding by family members and caregivers, in addition to the academic community. Project approved by the Research Ethics Committee of the *Faculdade de Ciências Médicas de Minas Gerais* - CAAE 125991 19.3.0000.5134.

RESULTS

For better understanding, the results are divided into two topics: technical action for social transformation and academic training.

Technical action for social transformation

Among the 94 elderly people participating in the Frailty Syndrome study, the target audience for the project's actions, 14 patients died from various causes within a period of one year 19. In 2021, 66 participants underwent telemonitoring and some of them underwent an in-person outpatient or home reassessment. 38 (57.6%) elderly people were identified at risk of functional decline and vulnerability; 35 (53.0%) were classified as frail - a rate above that found in the

period prior to social isolation due to the pandemic (37,2%) - 16 (22,7%) pre-fragile and 15 (22,7%) robust (Tabela 1).

Variables	n (%)
FRAIL-BR	
Fragile	35 (53,0%)
Pre-fragile	16 (24,2%)
Robust	15 (22,7%)
PRISMA	
<4	28 (42,4%)
≥4	38 (57,6%)

TABLE 1 – DISTRIBUTION OF PARTICIPANTS BY FRAILTY STATUS (FRAIL-BR) AND RISK OF FUNCTIONAL DECLINE (PRISMA-7).

There was a significant association between having a score equal to or greater than 4 on the PRISMA scale and being classified as frail or pre-frail on the FRAIL-BR scale (p 0,002) (Table 2).

	PRISMA Scale		
	<4 pontos	**≥4 pontos**	**Value-p[Q]**
FRAIL-BR Scale			0,002
Fragile e pre-fragile	16 (57,1)	35 (92,1)	
Robust	12 (42,9)	3 (7,9)	

[Q] Chi-square test

TABLE 2. ASSOCIATION BETWEEN HAVING A SCORE EQUAL TO OR GREATER THAN 4 ON THE PRISMA SCALE AND BEING CLASSIFIED AS FRAIL OR PRE-FRAIL ON THE FRAIL-BR SCALE.

A small portion of participants (10.6%) had Covid-19, but 57.1% required hospitalization, which reflects the greater vulnerability of this population to severe forms and complications of the disease. The percentage of family members who live in the same residence and had Covid-19 was 37.9%.

The found gender distribution was 43 (65.2%) females and 23 (34.8%) males, the average age was 81.5 (75 to 86 years), the average education was 4 years, 32 (48.5%) were widows. The average number of self-reported comorbidities was three, the most prevalent being systemic arterial hypertension (69.7%), 48 (72.7%) used five or more medications. Sociodemographic data were summarized in Table 3.

Regarding support for the elderly, 61 (92.4%) participants reported being able to count on someone close to them and only 5 (7.6%) said they could not count on anyone's help, living alone.

As for other impacts of the pandemic, 36 (54.5%) reported feeling more weakness in their legs compared to the pre-pandemic period and 26 (40.6%) reported worsening anxiety during the pandemic.

Regarding continuity of care, 29 participants (55.8%) reported having had consultations in primary care (UBS), 21 (40.4%) in the Geriatric Outpatient Clinic and 32 (48.5%) sought emergency services in the pandemic period.

In this sample, a significant number of elderly people with symptoms suggestive of mood disorders were found during the period (58.1%) who were welcomed by the interdisciplinary team.

Variable	N (%)
Sex	
Female	43 (65,2%)
Male	23 (34,8%)
Age (average ± DP)	80,9 ± 8,4 years
Marital Status	
Single	8 (12,1)
Married	23 (34,8)
Divorced or separated	3 (4,5)
Widow/Widower	32 (48,5)
Education (in years	4,5 ± 3,8 4,0 (1,0 – 7,5)
Number of comorbidities	3,2 ± 1,2 3,0 (2,0 – 4,0)
Comorbidities	
HAS	46 (69,7)
Diabetes	20 (30,3)
Insanity	37 (56,1)
Stroke	13 (19,7)
Osteoarticular diseases	38 (57,6)
Heart diseases	17 (25,8)
Chronic respiratory diseases	5 (7,6)
Kidney diseases	3 (4,5)
Number of medications in use (self-report)	
Up to 5	18 (27,3)
5 or more	48 (72,7)

The offer of telemonitoring and the development of educational material to disseminate knowledge among patients, family members and caregivers about aging and health, palliative care, frailty and advance directives ensured continuity of care even during periods of interruption of in-person care (outpatient or in person).

In this way, the project contributed to social transformation through the care actions proposed for patients in situations of physical, social and psychological vulnerability, so severely impacted by the Covid-19 pandemic.

Academic education

As they participated in telemonitoring and navigation of frail elderly people, Nursing, Medicine and Physiotherapy students experimented with the management of multimorbidities and polypharmacy, they proposed measures to increase adherence to proposed treatments – such as adjusting dosage and medication intake times – preventing and caring for skin lesions. They also experienced the implementation of sarcopenia interventions and alternatives to reduce physical inactivity, beyond the risks of falls and fractures through guidance on the practice of resistance exercises consistent with the frailty status of the elderly participant. The use of video resources in telemonitoring made it possible to identify specific risks and barriers to the safety of the elderly, including falls.

TABLE 3. SOCIODEMOGRAPHIC CHARACTERISTICS OF THE PARTICIPANTS

In this way, the scope of the project was expanded by contributing to the training of professionals and citizens capable of recognizing specificities of care for the geriatric population and capable of replicating the principles of collaborative care for the elderly in the most diverse scenarios. In this regard, a Medicine student commented: "Empathy, effective communication, understanding, attention, patience and resignation were other skills that I was able to exercise by participating in the project".

DISCUSSION

Collaboration and teamwork can be better achieved if interprofessional education begins early for healthcare students[20]. The knowledge generated from telemonitoring and the used action research supported promotional actions which were also disseminated in the academic community, with potential for reproducibility. Raising awareness among the population about frailty, elderly- and family-centered care, along with maintaining intrinsic capacity is important for effective prevention.

The percentage of mortality and the risk of functional decline found in our study corroborate data from the literature that point out to the group of many elderly people as the most affected by the Covid-19 pandemic. The association between Elderly Frailty Syndrome and Covid-19 in relation to mortality in hospitalized patients was established in a recent systematic review, which included 26 studies, and reinforces the importance of priority health strategies for this group during the pandemic, such as proposed in this Project[3].

Frail and pre-frail elderly people were most heavily affected by Covid-19 containment and isolation measures. A reduction in the subjective amount of daily movement, leg muscle strength and daily intake was reported among elderly people with frailty during the Covid-19 pandemic in Japan[21].

The importance of identifying people with SF through telemonitoring was evident, the main activity developed by the project, which guides the management of clinical conditions and educational actions to prevent injuries, such as hospitalizations, *delirium* and falls, with appropriate referrals to outpatient and home care, according to priorities and possibilities during the period.

The number of self-reported comorbidities (lower than that found in the study in the previous year and in the literature for the frailty status of the sample), moreover the difficulties in listing the medication in use point out to the need to improve communication between the healthcare team and patients/caregivers about the health conditions of participants with low education [(19)]. An inadequate level of functional health literacy of 39.4% in the elderly was found in a study that showed an association with the variables gender, age group, education and number of children[22].

The basic health unit (UBS) and secondary care in Geriatrics services remained as references for frail elderly people with multimorbidities and with many health demands. Despite the discontinuation of several secondary care services, in the first half of 2021, 55.8% of participants reported having consultations in primary care (UBS) and 48.5% sought emergency

services during the pandemic period. Association between functional limitation and a greater number of medical consultations, also the occurrence of hospitalizations in the last 12 months was demonstrated in a study that evaluated the use of health services by Brazilian elderly people with and without functional limitations[23].

Despite the challenges encountered regarding technology mastery by frail elderly people in accessing the internet, telemonitoring proved to be important in the continuous care of elderly people with multimorbidities, dementia syndromes, and impairment of intrinsic capacity. It is worth highlighting the important role of the caregiver in intermediating interviews performed with patients with sensory and cognitive deficits. Review study demonstrated that the most common barriers to telehealth were technical literacy 17%, lack of desire 13% and cost 8%. We did not find any resistance or refusal to telemonitoring during this period, only some of elderly ones because they had outdated numbers[24].

Telemonitoring may have positive impacts on the management of anxiety, depression and other mood disorders in patients and family caregivers[25].

In addition to contributing to improving the technical, academic and civic training of students, also providing continuity of care for frail and vulnerable elderly people, the project enabled a dialogical relationship with the external community, by placing the patient and family assisted as members of the team. , involving them in the process of shared decisions for individualized care based on the “More important to me” axis. Understanding the associated factors and the evolution of frailty is fundamental within a patient-centered care strategy, enabling their effective participation in decisions regarding management and the development of their care plan[26].

Assessing the health of the elderly through constructs such as intrinsic capacity, as performed, may allow for a better understanding of the individual’s functional trajectories and vulnerabilities, even during the pandemic[3].

As challenges for the next stages, there is the increase in the number of home visits considering the increase in the percentage of frail elderly people, with compromised functional capacity and unable to travel as frequently as necessary for outpatient follow-up.

CONCLUSION

The appropriate use of digital technologies in a continuous care process, as proposed in the project carried out, enables the democratization of access and may, through telemonitoring, to contribute to health promotion, reduction of injuries and reduction of healthcare costs for fragile and vulnerable older populations, like the sample of elderly people in this study, mainly in pandemic periods with the need for social distancing, as we have experienced in the last two years.

Furthermore, interprofessional and collaborative education, with innovation in teaching practices as proposed, is a way to optimize the performance of future multidisciplinary health teams and improve the experience of patient- and family-centered care, prioritizing their demands and choices. In this way, this

experience contributed to enabling students to detect physical, functional and mental decline and to deliver effective interventions in order to prevent, delay or stop the progression to deficiencies and disabilities.

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