

HEALTH TECHNOLOGIES USED AS TOOLS TO MITIGATE VIOLENCE AGAINST THE ELDERLY: AN INTEGRATIVE REVIEW

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Abstract: Goal: to discuss strategies for the use of telecare in the prevention of violence and abuse against the elderly. **Methodology:** this is an integrative literature review, based on the use of Health Descriptors: Elderly, Violence, Technology, Mobile Applications and Caregiver. Através das bases de dados *Scientific Electronic Library Online* (SciELO), *National Library of Medicine* PubMed, *Medical Literature Analysis and Retrieval System Online* (MEDLINE) and Latin American and Caribbean Literature in Health Sciences. Including original articles in full, published in Portuguese, English and Spanish, between 2017 and 2021. **Results:** The final sample pointed out that although there are technologies such as applications and *software*, aimed at the elderly population, no specific studies were found aimed at preventing violence against the elderly. **Discussion:** The analysis showed that aging is permeated by physical, cognitive, emotional and social changes, which are eventually associated with violent acts, most often caused by the family caregiver. Regarding the apps, despite the non-specificity with the theme, they must be based on accessibility, considering the cognitive, emotional and physical changes of aging. And the main way to minimize violent acts is to strengthen the work of support networks, both family, social and health. **Final considerations:** reinforces the need for new research that brings diversification in the development of technologies focused on the prevention of abuse and violence against the elderly.

Keywords: Elderly. Violence. Technology. Mobile Applications. Caregiver.

INTRODUCTION

At the present time, humanity is witnessing an important demographic change, with an increase in population aging and a drop in the birth rate. This modification is associated

with increased urbanization, higher schooling and medical-scientific advances (Poltronieri, Souza & Ribeiro, 2019).

And the significant increase in the Brazilian elderly population is one of the greatest challenges today, since the aging process, most of the time, is accompanied by the presence of comorbidities, with emphasis on dementia, causing an impact on the family structure and society, since are related to growing health and socioeconomic demand (Paranhos Amorin, Sampaio, Carvalho & Vilaça, 2018).

With the changes that come with age, the elderly person often needs help to carry out activities of daily living (ADL), and in Brazil, most elderly people live with their family, one of the members being the main caregiver of the elderly person. Associated with this context, the elderly become more vulnerable to violence as they need greater physical care or are physically or mentally dependent, as stressful family life aggravates this situation (Oliveira et al., 2018).

As Poltronieri, Souza & Ribeiro, (2019) complement, care in the family environment is the most common, and is even recommended because it causes less social impact on the lives and daily lives of the elderly. However, it must be noted that family caregivers are overloaded with work, physical and emotional exhaustion, greater family economic constraints, factors that can contribute to a context that facilitates domestic violence.

And with the increasing life expectancy and the complexity of the health status of elderly individuals, technology becomes an ally of health professionals, as an extension of care, also reaching the home environment (Santana et al., 2020a; Santana et al., 2020b).

Thus, with regard to the caregiver's health, Santana et al. (2020b) add that, in addition to the burden, deficiencies in the health system are factors that increase family tension and stress, in addition to this view, due to the

difficulties encountered in transporting the elderly to the health unit and scheduling appointments.

Due to these facts, the use of assisted technologies, such as telecare, can be a promising and viable alternative with regard to monitoring the elderly and their caregivers, with a focus on mitigating violent acts in the family environment (Santana et al., 2020a; Santana et al, 2020b).

In this context, the following question is asked: How can the use of innovative technologies help in the care of the caregiver and prevent the occurrence of violence against the elderly? And the Goal of the present study is to discuss strategies for the use of telecare in the prevention of violence and abuse against the elderly.

METHODOLOGY

The process of conducting a review begins with the presentation of an Goal idea, independent of the study design. Furthermore, the well-formulated research question involves extreme specificity and precision, bearing in mind the identification of the variables and population of interest.

This study was elaborated, following the steps: (1) determination of the Goal and selection of the research question; (2) establishment of inclusion and exclusion criteria; (3) definition of the information to be extracted from the selected articles; (4) analysis of results; (5) discussion and presentation of results. (Whittemore; Knafl, 2005). Based on the research Goals, an attempt was made to answer the following question “How can the use of innovative technologies help in the care of the caregiver and prevent the occurrence of violence against the elderly?”

In order to guide the formulation of the research question, it is agreed to structure it according to the components of the acronym PICO, where each letter represents a

component of the question, as shown in Chart 1.

To carry out the second stage of this research, data selection took place in the second half of 2021, using the Controlled Descriptions and synonyms to improve the sensitivity of the searches carried out in each electronic database using terms (DeCS/MeSH): “Elderly”; “Violence”, “Technology”, “Mobile Applications” and “Caregiver”. Through the databases *Scientific Electronic Library Online* (SciELO), *National Library of Medicine PubMed*, *Medical Literature Analysis and Retrieval System Online* (MEDLINE) and *Latin American and Caribbean Health Sciences Literature* (LILACS) and The Boolean operator AND and OUR was used to cross the descriptors, thus obtaining a greater number of articles that answered the guiding question. Table 2.

This step resulted in a survey of 96 studies, which underwent a pre-selection by reading titles and abstracts, in order to select studies that answered the guiding question. In addition, manual search can be useful in identifying eligible articles that may not have been retrieved by the search strategy. In this review, four more articles were identified in this category.

Therefore, full original articles were included, available online in the selected databases and published in Portuguese, English and Spanish, with a time frame from 2017 to 2021. Theses, dissertations, non-scientific materials or articles that did not have relation to the theme and those that were duplicated in the databases. In order to guarantee rigor in conducting the flowchart, to explain the way of selecting the studies. Flowchart 1.

RESULTS

Following this investigation, 10 studies made up the final sample of the review. For

	<i>Population / Problem (P)</i>	<i>Intervention (I)</i>	<i>Comparison (C)</i>	<i>Outcomes Outcome (O)</i>
1	Elderly	Use of technology to mitigate violence against the elderly	Not applicable	Identify how the use of new technologies can prevent elder abuse
Question: How can the use of innovative technologies help in the care of the caregiver and prevent the occurrence of violence against the elderly?				

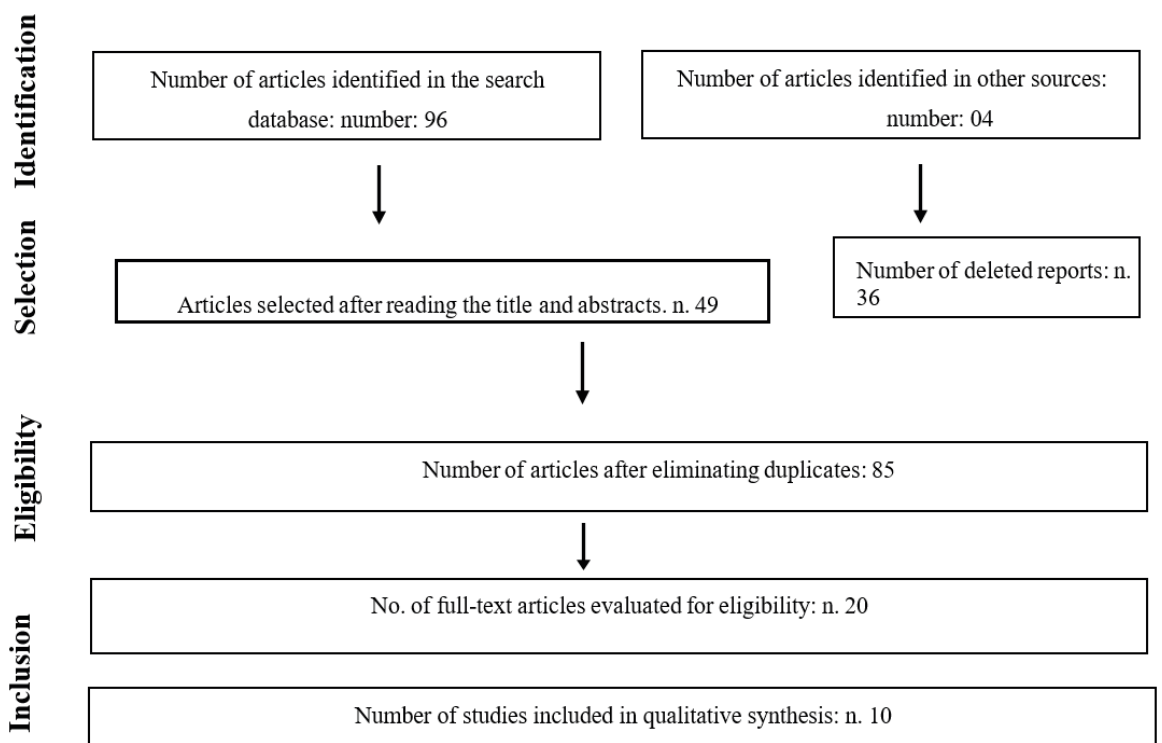
Table 01. Research question according to the PICO strategy. Jaguariúna, (2022).

Source: Authors (2022).

Data base	D writers	Results
LILACS	"Elderly" AND "Violence" AND "Caregiver" AND "Mobile Applications" OUR "Technology"	08
MEDILINE		78
BDENF		01
Scielo		09
RESULTS		96

Table 2. Study selection process. Jaguariúna, (2022).

Source: Authors (2022).



Flowchart 1. Sample composition flowchart. (2022).

Source: based in: The PRISMA 2020 statement: an updated guideline for reporting systematic reviews.

data extraction, a table was prepared with the characterization of the studies, which identifies: year of publication, title of the study, journal and authors' considerations. Table 3.

In this review, it was observed that from the initial search (n.96), only 10 publications made up the final sample, that is (10.41%), pointing out that despite the existence of technologies such as applications and *software*, aimed at the elderly population. No specific studies were found on the use of these devices to prevent violence against the elderly.

A gap in knowledge regarding the object of this study is then perceived, so that, due to the scarcity of studies on the subject, publications were chosen that linked technologies aimed at caring for the elderly.

DISCUSSION

VIOLENCE AGAINST THE ELDERLY AND ASSOCIATED FACTORS

Life expectancy in recent years has been increasing exponentially, and in Brazil the elderly population is growing more significantly than the total population. And population aging, combined with the stress of modernity, aggravates individual and family problems and conflicts in collective life. When these problems accumulate, they can be expressed in the form of violence. Because the aging process makes the individual vulnerable, due to physiological, psychological and socioeconomic issues (Karbeyaza & Çelikelb, 2017; Sales, Souza & Sales, 2019).

And when it comes to abuse and neglect of the elderly, Lin (2010) suggests the involvement of actions or lack thereof, by the caregiver, in a way that can harm the well-being of the elderly person, somehow involving some relationship confidence in this care.

Regarding violence against the elderly, Karbeyaza & Çelikelb (2017) consider that physical and economic dependence, advanced age, being widowed, physical or mental

illnesses are risk factors in terms of violence. In addition to the culture regarding the elderly as socially dispensable, which corroborates numerous situations of violence.

In agreement, the authors Pabón-Poches (2019), point out that the aging process brings with it individual changes shaped by gains and losses; however, the negative image of old age and discrimination based on age, age attitudes, intergenerational violence and the violent culture that prevails in society, make the loss more evident than the gain and facilitate the appearance of phenomena such as abuse. As risk factors associated with abuse: presence of physical and cognitive deterioration and behavioral changes, depression, low self-esteem and emotional or financial dependence.

Adding to the theme, elder abuse is related to: alcohol consumption, gender, degree of dependence and reduced abilities; presence of dementia, economic difficulties, family resentment, mental health problems and stress level, as well as the fact that they are cared for by a single person (Nuñez, Fajardo, & Henao 2020; Wettstein, 2020).

Not forgetting to mention that it is extremely relevant to understand that not only individuals unprepared to provide care, or elderly people with comorbidities, such as dementia, are related to the occurrence of abuse. Lin (2020, p. 18) understands that to understand the complexity of care, one must identify the different ways in which abuse is manifested and sustained. Being an important point, the negligence in communication, a path to emotional abuse, causing the elderly to become isolated. Avoiding communication involves negative emotions, such as anger and hostility, and thus causing harm, passively or actively harming the other individual. "These negative emotions can lead them to lash out, that is, when caregivers communicate, they do so in a destructive way (for example, ridicule,

Year of publication	Study Title	Periodic	Study Considerations
2017	The elder physical abuse reflected in judicial authorities in Eskisehir	Archives of Gerontology and Geriatrics	In Eskisehir, a city in Turkey, the study found that cases of violence are most often caused by the victim's acquaintances. And mainly, that only investigation procedures are completed, but there is no protection and rehabilitation program issued.

Table 3. Characterization of the sample, of publications on “the use of applications/technology as a tool to mitigate violence against the elderly. Jaguariúna (2022).

Source: Authors (2022).

Publication Year	Study Title	Periodic	Study Considerations
2017	Identifying elder abuse & neglect among family caregiving dyads: A cross sectional study of psychometric properties of the QualCare scale	International Journal of Nursing Studies	The identification and prevention of abuse and neglect in the elderly is permeated by the lack of evidence of valid and reliable instruments. This study identified through a virtual platform, and interaction with the environment, elderly and caregiver within the case scenario. The scenario was used to analyze the QualCare Scale subscale, in identifying abuse and neglect of the elderly. Concluding that the tool is effective in detecting clinically significant elderly abuse and neglect among elderly people who
2018	Mobile apps for elderly health and care	Reciis – Rev. Eletrôn Comun Inf Inov Saúde	Technological applications can be used as tools for monitoring, information and injuries in the elderly. And the benefits extend to caregivers and professionals linked to care and the elderly.
2019	Risk of mistreatment in older adults: content validation of a scale	Psychogent	The implementation of the scale's content assessment method on the risk of abuse in the elderly has advantages that include favoring freedom of opinion and confidentiality of responses.
2019	Elderly, Apps and Smartphone: an integrative review	Kairos-Gerontology Magazine	It is pointed out that it is essential to develop research on the accessibility of smartphone applications for the elderly public. Contributing to the elderly being able to interact with the smartphone, with comfort, safety, and autonomy, reducing social exclusion.
2020	Mobile Elderly Assistance System (SMAI): perceptions about its use in the care of people with dementia	Magazine Bras. Geriatr. Gerontol.	The study pointed out that interventions using mobile applications can help improve communication and social support in the care of people with dementia.
2020	Violence against the elderly: perceptions of social support network actors	ESPACIOS Magazine	This study pointed out the family environment as the main place for occurrences of abuses and violences
2020	Domestic Violence in Old Age: Prevention and Intervention	Praxis	Risks for elder abuse include unresolved conflicts and a history of domestic violence. Interventions: organization of outpatient care services, and treatment of nocturnal agitation in the elderly.
2020	Communication neglect, caregiver anger and hostility, and perceptions of older care receivers' cognitive status and problem behaviors in explaining elder abuse	J Elder Abuse Negl	The joint effects of communication neglect and caregiver anger and hostility have been shown to intensify the likelihood of committing psychological abuse.
2021	Scientific evidence of the practice of violence against the elderly person: integrative review	Acta Paul Enferm	The study pointed out that the existing social protection devices are still insufficient to face violence.

Table 3. Characterization of the sample, of publications on “the use of applications/technology as a tool to mitigate violence against the elderly. Jaguariúna (2022).

Source: Authors (2022).

threaten to hit or yell at the elderly person)”.

In addition, Lin (2020) confirms that many cases of abuse are not reported because the elderly are reluctant to report the aggressor, or reveal the mistreatment to someone, possibly due to fear of repercussions, or rather, these individuals are afraid that there will be retaliation by the aggressor.

In this scenario, elder abuse emerges as a serious health and human rights problem that can occur among all races and ethnic groups around the world. (Karbeyaza & Çelikelb, 2017).

TECHNOLOGY AS A TOOL TO MITIGATE VIOLENCE

The significant increase in the elderly population entails political, sociocultural and economic impacts and challenges to meet the demands of this growing contingent, making it necessary to reflect on their participation more effectively in society, through activities related to technology, including as tools for prevention or minimization of the occurrence of violence or abuse. Paranhos Amorim, Sampaio, Carvalho & Vilaça (2018).

The aforementioned authors analyze that population aging, associated with increased smartphone use, were factors that drove the creation of several applications aimed at the elderly, aimed at the area of health and care for the elderly, as an important tool for accessing the internet. health of this population.

In this context, Sales, Souza & Sales, (2019), it is essential to carry out research on the interaction of the elderly with information technologies, focusing on the use of the smartphone. So that applications can be based on accessibility, considering the cognitive, emotional and physical changes resulting from aging.

A technology used to indicate the occurrence of violence and abuse against the elderly is the *QualCare Scale*. According

to Pickering, Ridenour, Salaysay, Reyes-Gastelum, & Pierce (2017, p. 44), this scale was designed to provide a quantifiable measure of the quality of care provided by family caregivers. The scale's construct is "quality of care for the elderly", ranging from optimal care to abusive care. It is organized into six dimensions of caregiving responsibilities, including environmental care, physical care, maintaining medical care, psychological care, human rights violations, and financial care.

Another technological tool used in elderly care is the Mobile Elderly Assistance System (SMAI), an application via smartphone. Brites et al., (2020, p. 03), explain that the SMAI has features such as: "alerts for the correct time of medication, alarm, patient and caregiver report, sending images, locator system via GPS and an exchange space of messages between caregiver and team". Being an application developed through a partnership between the geriatrics clinic and the Computer Science Laboratory (LCC) of Universidade Estadual do Rio de Janeiro" (UERJ).

Sales, Souza & Sales, (2019), pointed out the importance of applications aimed at the health of the elderly, such as: for monitoring mobility and vital signs, preventing falls and assessing cognitive capacity. In addition, the insertion of new technologies in elderly care is an important facilitator of access for health professionals to the individual and also to the caregiver.

As an educational technology, despite not being included in Brazilian applications, Wettstein (2020), comments that offers of help to overburdened caregivers can help, inhibiting acts of violence or abuse, such as: detailed information about the aging process and the pathology involved in this case, the invitation to participate in training courses, in addition to meetings with other caregivers and events, to share their experiences and difficulties.

Despite the above considerations, it is important to emphasize that despite the increase in internet access and use of technology by the elderly every year, they are still the most digitally excluded population group. Being a point to be faced by professionals, in the implementation of these technologies. Paranhos Amorim et al. (2018).

PREVENTIVE ACTIONS

First, Ribeiro et al. (2021), understand that human aging involves a set of factors that require planning and resources from their family caregivers, which can only be accessed by guaranteeing access to public policies, through effective rights of protection and prevention.

On the other hand, studies point out that there are no specific preventive actions against violence and abuse against the elderly, sufficient to minimize their occurrence. For example, Karbeyaza & Çelikelb (2017), in a study carried out in Turkey, noticed that in the country, elder abuse is not sufficiently discussed, and there are no care centers and shelters for these victims of violence. However, they point out that possible strategies are: informing the elderly and making them aware of abuse, guiding victims on where to seek help and establishing cooperation between institutions to shelter victims when necessary.

A form of prevention against abuse of the elderly, according to Pabón-Poches (2019), is the identification of risk factors for health professionals to act before the abuse is consumed. However, they pointed out that in Colombia, the reports on the occurrences of violence against the elderly are scarce, and there are also few demands in Family Police Stations for the elderly who mentioned psychological abuse, as the most frequent among the complaints.

The SMAI project, described by Brites et al., (2020) brought a favorable note, through the

work with the caregiver, as it was observed that caring for the elderly functional dependence can cause negative effects on the health of caregivers, who in most cases sometimes, it is associated with caregiver burden. And physical issues, social conflicts also emerged as complicating factors in elderly care. So that remote communication with caregivers can facilitate the identification of risk factors for the occurrence of abandonment, abuse or violence.

Another form of protection for the elderly is the role played by family and social support networks. Since this support is decisive in the prevention or generation of abuse to the elderly. Respect, social recognition, inclusion and solidarity must go hand in hand with health actions. Nuñez, Fajardo & Henao (2020).

Therefore, Brites et al. (2020), add that the performance of health professionals, through health interventions carried out at a distance, is a promising path with regard to support in care. And so, it is inferred that they can also be considered as a tool to prevent occurrences of domestic violence against the elderly.

FINAL CONSIDERATIONS

The publications analyzed by this review showed that aging is a process that is increasing worldwide, constituting a new social and health panorama. And this process may be linked to the development of factors of violence against the elderly. Emphasizing frailty, loss of autonomy for activities of daily living, dysfunctional family structure and caregiver burden.

And in this context, the theme sought to point out the use of technology, through applications, as facilitating instruments that can expand the care and protection of the elderly. However, based on the criteria of this bibliographical analysis, it was possible to observe an important limitation in the specific

publications on the use of technology in the preservation of the physical and emotional integrity of the elderly, since the studies were limited to health care for the elderly.

However, as a driving factor for new possibilities, it must be noted that these technologies can be updated, considering the physical and cognitive limitations of the elderly, through analysis and investments in the development of new interfaces in applications, aimed at supporting caregivers and guided by in actions to combat violence.

Therefore, it is understood the need for new research that bring diversification in the development of measures to prevent abuse and violence against the elderly, relying on technology and applications, which can identify the main risk factors for these occurrences, in addition to the possibility of triggering support systems that provide the individual's safety.

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