

Reflection Article/Essay

# Telematic intervention in occupational therapy for people with Alzheimer

*Intervención telemática en terapia ocupacional para personas con Alzheimer*

*Intervenção telemática na terapia ocupacional para pessoas com Alzheimer*

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## Abstract

**Introduction:** Due to the new challenges and current life circumstances, we are faced with the need to innovate new interventions that can be carried out electronically. Occupational Therapy, either face-to-face or at a distance through information and communication technologies, can offer services to all those who are in isolation or a location without free sources. **Objective:** The purpose of this study is to identify interventional strategies that can be carried out telematically with people suffering from Alzheimer's and their families from Occupational Therapy. **Method:** A bibliographic search was performed in the Scopus databases and Google academic, in which publications such as guides and articles were included. **Results:** Four areas of telematics practice of occupational therapy for people suffering from Alzheimer and their families are highlighted: Intervention in occupational routines, advice on technologies and support products, advice on stimulation exercises, and advice on motor exercises. **Conclusion:** From occupational therapy, a telematics approach can be performed for people suffering from Alzheimer's, but more scientific studies are needed to demonstrate this.

**Keywords:** Telemedicine, Occupational Therapy, Alzheimer Disease.

## Resumen

**Introducción:** Debido a los nuevos retos y circunstancias de vida actual, estamos ante la necesidad de innovar en nuevas intervenciones que se puedan realizar de manera telemática. La terapia ocupacional, sea presencial o a distancia a través de las tecnologías de la información y la comunicación puede ofrecer servicios a todas aquellas personas que se encuentren en aislamiento o en una ubicación sin recursos. **Objetivo:** El propósito de este estudio es identificar estrategias de intervención que de

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manera telemática se puedan llevar a cabo con las personas con Alzheimer y sus familiares desde la Terapia Ocupacional. **Método:** Se realizó una búsqueda bibliográfica en las bases de datos Scopus y en Google académico, en la que se incluyeron publicaciones como guías y artículos. **Resultados:** Se destacan cuatro áreas de práctica telemática de terapia ocupacional para personas con Alzheimer: Intervención en las rutinas ocupacionales, asesoramiento en tecnologías y productos de apoyo, asesoramiento en ejercicios de estimulación y asesoramiento en ejercicios motrices. **Conclusión:** Desde terapia ocupacional se puede realizar un abordaje telemático para personas con Alzheimer, pero se necesita de más estudios científicos que lo demuestren.

**Palabras-clave:** Telemedicina, Terapia Ocupacional, Enfermedad de Alzheimer.

### Resumo

**Introdução:** Devido aos novos desafios e às circunstâncias atuais da vida, somos confrontados com a necessidade de inovar em novas intervenções que podem ser realizadas eletronicamente. A terapia ocupacional, pessoalmente ou à distância, através das tecnologias da informação e comunicação, pode oferecer serviços a todos aqueles que estão isolados ou em um local sem recursos. **Objetivo:** O objetivo deste estudo é identificar estratégias de intervenção que possam ser realizadas telematicamente com pessoas com Alzheimer e suas famílias da Terapia Ocupacional. **Método:** Foi realizada uma pesquisa bibliográfica nas bases de dados Scopus e no Google Academic, nas quais foram incluídas publicações como guias e artigos. **Resultados:** Quatro áreas da prática telemática de terapia ocupacional para pessoas com Alzheimer são destacadas: Intervenção em rotinas ocupacionais, aconselhamento sobre tecnologias e produtos de apoio, aconselhamento sobre exercícios de estimulação e aconselhamento sobre exercícios motores. **Conclusão:** A partir da terapia ocupacional, uma abordagem telemática pode ser realizada para pessoas com Alzheimer, mas são necessários mais estudos científicos para demonstrar isso.

**Palavras-chave:** Telemedicina, Terapia Ocupacional, Doença de Alzheimer.

## Introduction

### Introduction to Telematic Intervention

The term telematics refers in this article to the prescription of intervention and counseling services in occupational therapy in remote social health contexts and, therefore, mediated through information and communication technologies.

The impact of the use of information and communication technologies (ICT) has made them increasingly present in our daily lives. Currently, 64.3% of the Spanish population between 16 and 74 years old uses the Internet daily, which has led to a change in our way of communicating in society and a beginning in new forms of health research and provision of social and health services (Ramos, 2007).

Although most telematic interventions are initially carried out by telephone or email, in recent years many interventions have been carried out by other means, such as

videoconferencing, smartphones, and web programs with protocols applied to each person. Technological and internet development evolve rapidly, which allows better possibilities for intervention (Buitrón et al., 2016).

Currently, there are multiple terms to describe interventions directed to health through the Internet. The terms Teletherapy, Telerehabilitation, Telehealth, Telemedicine are common. Despite the terminological heterogeneity mentioned, the term most used by occupational therapists is Telerehabilitation. Telerehabilitation consists of performing rehabilitative therapy remotely (without a physical presence in the rehabilitation center) and without face-to-face assistance from a health professional (Rosen, 1999).

It is important to consider that telematic intervention is an area in full development and expansion and there are specific aspects that do not have enough evidence to assess them as advantages or disadvantages. There is some evidence of telematic occupational therapy interventions, although each intervention being different may require considerations to obtain the expected benefits.

### **Alzheimer disease**

Alzheimer's disease (AD) is the leading cause of dementia among older adults. It is a degenerative brain disease that is characterized from the anatomical point of view by the loss of neurons and synapses. Clinically, it is insidious and slowly progressive onset dementia that begins with memory loss and ends in situations of total dependence (Sperling et al., 2011).

Dementia increases its prevalence and incidence exponentially after 60 years old, doubling approximately every five years and with a predominance of women (5.2% compared to 2.3% in the general population) since they have a greater hope of life (Barnes & Yaffe, 2011).

Symptoms include progressive deterioration in concentration, recent and remote memory, orientation, praxis, language function (aphasias), agnosia, psychomotor performance, and specific changes in activities of daily living (Reisberg et al., 1987).

Research on telemedicine and dementia from Occupational Therapy has mainly focused on supporting family caregivers. Few papers have studied interventions for people diagnosed with Alzheimer's, although research in this area has begun to emerge. Dal Bello-Haas et al. (2014) have shown that videoconferencing is a possible method for people with dementia type Alzheimer's disease. These kinds of examples of successful remote interventions for people with dementia suggest that telerehabilitation might be feasible.

### **Observation**

This is a single reference. "Multiple authors" does not apply.

Dal Bello-Haas et al. (2014) have shown that videoconferencing is a possible method for people with dementia type Alzheimer's disease. These kinds of examples of successful remote interventions for people with dementia suggest that telerehabilitation might be feasible.

## Advantages and disadvantages of Telematic Intervention in Occupational Therapy

Currently, the technological development of online communication provides the opportunity for telematic interventions. The telematic intervention of occupational therapy has advantages and disadvantages. However, the therapeutic benefits are so important that we cannot rule out treatments from a distance. The current challenge is to be able to identify the conditions that an Occupational Therapy intervention can be carried out with the guarantee of quality and professional ethics. Table 1 highlights the advantages and disadvantages that a telematic intervention can present, observed in different pieces of evidence from health professionals who work online (Koch, 2006).

**Table 1.** Advantages and Disadvantages of the Telematics intervention in Occupational Therapy.

ADVANTAGES	DISADVANTAGES
They facilitate access to people who cannot go to the occupational therapy service	Technologies are not used by many people
They reduce travel time and expenses	They require a higher initial cost to have the necessary technology
Possibility of maintaining regular and continuous contact	There is ignorance about the legal regulations and ethical recommendations in telematic interventions
They allow a greater exchange of information among professionals	Risks in the protection of the information of the person to be treated
Ease of starting therapy or counseling with the person or their family member	Little professional training for a telematic intervention
There is a growing number of investigations that support telematic intervention	More empirical evidence is required

**Source:** Elaborated by the authors.

Although it seems clear that telematic intervention is already part of occupational therapy care, the professionals need to be fully involved in the continuous improvement of online practices (World Federation of Occupational Therapists, 2014).

Knowing this, what kind of telematic interventions could be carried out from Occupational Therapy to people with Alzheimer's?

## Method

We carried out a theoretical review of the relevant multidisciplinary literature and a search in the following databases of scientific publications: Scopus and Google Scholar, using the terms “*Telerehabilitation, occupational therapy, and Alzheimer's*”, and their correlatives in Spanish. We included research evaluating telematics interventions by occupational therapists and other health professionals.

Authors Arksey & O'Malley's five-step process has been used for the scoping review, to provide a map of the available evidence on telematics intervention in occupational therapy for people with Alzheimer's. Arksey & O'Malley describe a step process outline. The five

steps are to identify the research question, identify the relevant studies, select the study, record the data, and collate, summarize, and report the results (Arksey & O'Malley, 2019).

Given the large body of literature related to the use of telemedicine for people with dementia over the past two decades, a scoping review is appropriate to identify the current breadth and depth of the literature supporting the use of telemedicine in occupational therapy (Arksey & O'Malley, 2019)

The first step in the Arksey & O'Malley (2019) scope review process is to define the research question. The process of clearly defining the population of interest (people with Alzheimer's disease), service (within the scope of occupational therapy practice), and method of delivery (telemedicine) was undertaken.

In the second step, we identify relevant studies. This step began with identifying search terms and relevant search engines. We used the terms telemedicine, Alzheimer's, and occupational therapy in the following databases: Scopus and Academic Google, producing 986 manuscripts.

In step three, we selected studies for review. For the selection of articles, the inclusion criteria were that the study had to identify a focus on telemedicine, people with Alzheimer's disease, and occupational therapy, published since 2016.

In the fourth and fifth steps, the criteria established were about the methods used in the studies and the results of the scoping review.

Thanks to the results of the research, a description of the main findings on evidence of the telematic intervention of Occupational Therapy in people with Alzheimer's is made.

## **Results**

### **Interventions, uses and telematic practices of Occupational Therapy in Alzheimer's**

The results of the scoping review provided information on the current use of telemedicine by occupational therapists in Alzheimer's disease. Of the twenty selected articles, only five studies mention the assessments and telematics interventions that occupational therapists could provide to people with Alzheimer's disease.

From the telematic rehabilitative perspective of Occupational Therapy, it is sought to maintain as much autonomy as possible in the activities of daily life with a comprehensive approach to the individual and the family that allows addressing the complex problems of people with Alzheimer's from the mental, physical and social and also environment aspect (Dooley & Hinojosa, 2004). It is possible to differentiate various telematic interventions, highlight the possible uses of telematic intervention and learn about the different practices that can be carried out from occupational therapy in people with Alzheimer's. These practices are focused on Occupational Therapy counseling.

Next, Table 2 describes the types of telematic interventions that can be carried out from Occupational Therapy (Broens et al., 2007). Table 3 highlights the possible uses of telematic intervention (Rolland Harris et al., 2012). Table 4 describes different telematic practices in Occupational Therapy for people with Alzheimer's and their families (Cason, 2012).

**Table 2.** Types of telematic interventions in occupational therapy.

Type of Intervention	Characteristics
Structured interventions on the Web	Structured programs that are developed on a web platform
Counseling and Telematic Intervention of Occupational Therapy	Occupational therapy service through email, telephone, video call, chat, and video conference
Therapeutic software	Interventions using artificial intelligence technologies (virtual environments, adapted smartphone)
Other online activities	Blog, social communication channels, support networks, and similar tools

Source: Elaborated by the authors.

**Table 3.** Use of telematic intervention in Occupational Therapy.

As a complement to a face-to-face therapy	It is possible to make an appointment online or by phone and not lose valuable information; better guidelines, tasks (resource submission), or reminders can be specified via email
As a follow-up to a face-to-face therapy	During the evaluation and treatment phase
As an advisory service	When there is a specific demand, for example for assistive products
As a family support service	Telephone contact for family support

Source: Elaborated by the authors.

**Table 4.** Types of Telematic interventions in Occupational Therapy.

Telematics Practice	Objective	Procedure
Intervention in occupational routines	To encourage active aging and promote the independence or autonomy of users in the performance of daily tasks, from the most basic activities related to self-care to the development of communication skills and relationships with other people around them.	To guide routines related to basic, instrumental, and advanced activities that they can do at home and keep track of their performance electronically.
Advice on technical aids and support products	To provide advice and learning of techniques and procedures to know the use and operation of assistive technologies such as hearing aids, walkers, cutlery, or adapted glasses.	To advise on the purchase of technical aids and support products that they may need according to the limitations they present to carry out their daily activities.
Advice on sensory exercises	To allow the development of cognitive, emotional, motor, and psychosocial functions. In addition, it facilitates learning through sensation and perception.	It is done from a family counseling perspective so that the family can work with people with Alzheimer's. Give them presentation prompts for colors, music, and smells.
Advice on motor exercises	To improve self-esteem and relaxation, develop creativity, express emotions, and improve psychomotor skills.	To guide exercises that they can do with a ball, send different graphomotor and dance activities by email and motivate them to carry out gardening or sewing activities at home.

Source: Elaborated by the authors.

The results of this review allow us to better define the telematic intervention of occupational therapy in the treatment of people with Alzheimer's, identifying situations and needs with a clearer relevance for their reference.

### **3.2 Viability and Limitations of the Telematic Intervention of Occupational Therapy in Alzheimer's Disease**

Studies such as from Nissen et al. (2018) show that it is feasible to provide telematic interventions in occupational therapy using a telephone, a tablet, or a computer to improve the perception of the performance of daily activities. Feasibility studies highlight the use of video conferencing software that could be used to administer telematic interventions in occupational therapy requiring a person in charge of managing the technology hardware and software.

Observation: We hardly mention Nissen et al. This is a single reference.

The main drawback of a telematic intervention in Occupational Therapy is that, since there is an exchange of information between the user and the professional, there is a risk that compromises the information and privacy of the users. Also, another great disadvantage is that of not being able to carry out a first-hand functional activity, necessary for certain users who need constant and supervised support. Computer ignorance among users is one of the factors that can most affect the performance of the intervention, highlighting that technology must be available and affordable. The profitability of telematic rehabilitation remains unknown, so future studies should evaluate the organizational and economic effects it (Chi & Demiris, 2017).

Adopting telematics practice in occupational therapy requires organizational changes that can be a challenge for public organizations and private companies. So far, only a few telemedicine interventions in occupational therapy have evolved beyond the pilot phase (Burton & O'Connell, 2018). Currently, there are no strategic plans that promote the implementation of telemedicine in occupational therapy in different countries, although the current situation of COVID-19 will be one of the issues that will be on the table in the coming months.

### **Conclusions**

It is often mentioned that telematic interventions by health professionals have low utility; however, the review presented in this manuscript shows that there are several options for interventions, uses, and telematic practices of occupational therapy that could be a relevant non-pharmacological option in contributing to a better autonomy, independence and quality of life for people with Alzheimer's and their supportive environments.

Telematic intervention through information and communication technologies provides advantages such as accessibility to people who for some reason could not attend face-to-face therapy. However, the use of new tools and the change to an online environment are not without difficulties and vulnerabilities. Likewise, occupational therapists have to know how to modify their practices to adapt them correctly to the telematic context without altering the essence of conventional therapies.

We understand that the future of telematic interventions in occupational therapy is promising. Advances could mark great progress in research results and contribute to greater knowledge of the therapeutic practice. At this time, it is unknown when the telematic practice in occupational therapy will be regulated. What seems clearer is the lack of scientific evidence of telematic practices in occupational therapy and the need for training and education, which today is scarce.

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