THE USE OF NEW TECHNOLOGIES IN THE ELDERLY IN THE NORTH OF PORTUGAL

Vitor RODRIGUES[1], Marta GONÇALVES[2], Arsénio REIS[3], Carlos TORRES[4], Maria João MONTEIRO[5], João BARROSO[6], Tiago RODRIGUES[7], Hugo PAREDES[8], Vitor FILIPE[9], Rui XAVIER[10]

[1]University of Trás-os-Montes and Alto Douro, School of Health, Portugal
vmcpr@utad.pt
[2]University of Trás-os-Montes and Alto Douro, School of Health, Portugal
marta_16_sofia@hotmail.com
[3]University of Trás-os-Montes and Alto Douro, School of Science and Technology, Portugal
ars@utad.pt
[4]University of Trás-os-Montes and Alto Douro, School of Health, Portugal
calmeida@utad.pt
[5]University of Trás-os-Montes and Alto Douro, School of Health, Portugal
mjmonteiro@utad.pt
[6]University of Trás-os-Montes and Alto Douro, School of Science and Technology, Portugal
jbarroso@utad.pt
[7]University of Trás-os-Montes and Alto Douro, School of Science and Technology, Portugal
tffr@hotmail.com
[8]University of Trás-os-Montes and Alto Douro, School of Science and Technology, Portugal
hparedes@utad.pt
[9]University of Trás-os-Montes and Alto Douro, School of Science and Technology, Portugal
vfilipe@utad.pt
[10]University of Trás-os-Montes and Alto Douro, School of Science and Technology, Portugal
ruimjxavier@gmail.com

Abstract: The elderly, especially those living in institutions, tend to have many health limitations, such as reduced vision, hearing and locomotion, which necessarily implies the risk of loneliness. An exploratory and cross-sectional study was carried out. Data collection took place between February and May 2018, in 5 residential structures for the elderly in the north of Portugal. The study included 130 elderly people, 68,5% female and 31,5% male, with an average age of 82,43 years and an average stay in the institution of 4,5 years and 57,7% are widowers. 43,1% of the elderly would see a robot that interacted with them as interesting and very interesting. The data found in this study shows that it is essential to provide the elderly with new forms of social relationships with the help of new technologies in order to avoid loneliness and to contribute to a better quality of life.
Keywords: New Technologies, Elderly, Robots

Introduction

The elderly, many of them without family support, with several chronic diseases, characteristic of aging, as well as various health limitations, such as decreased visual, auditory and locomotion acuity, also due to the normal aging process, live in residential structures for the elderly (Conselho Económico e Social, 2013).

In Portugal, between 2015 and 2080, the number of elderly people will increase from 2.1 to 2.8 million and the aging rate goes from 147 to 317 elderly people per 100 young people in 2080 (INE, 2017).

Aging is a natural and biological process that necessarily introduces some limitations, which implies effects on the person's lifestyle and well-being, introduces changes in their social relations, and increases the risk of isolation and loneliness (Reis, et al, 2017).

It is necessary that the elderly in these institutions do not feel changes in their social role, their routines, and their involvement in stimulating activities (Dillin, Gottschling, Nyström, 2014). Given the quality of life of the elderly, social and family interactions, the decreasing risk of loneliness in the institutionalized elderly, the challenge is placed on the development of technological and communication resources, such as solutions based on social robotics that ensure this challenge (Reis, et al, 2017[b]).

Recently, several technologies have emerged with the aim to provide innovative and efficient ways to help the elderly in their daily lives and reduce the cost of health care (Khosravia, Ghapanchia, 2016).

The increase of the life expectancy of the elderly comes to settle in the health area, through the use of social robotics, namely, with the so-called telepresence robots. These are already used in telemedicine, whether in hospitals or in nursing homes, and mobile telepresence robots add an added value to the activities of daily living that people have to perform (Laniel, et al, 2017).

Telepresence robots can be a significant help in promoting a life with as much independence as possible in the elderly, helping the most fragile and reducing loneliness (Pripfl et al, 2016), and because more and more attention is given to the aging of the population, as well as to new forms of social relationship (Bedaf, Marti, Amirabdollahian, Luc de Witte, 2017).

In 2016, through a systematic review of the literature made between 2000 and 2014 on assistive technologies used in care of the elderly, it was recorded that support technologies are a reality and can be applied to improve the quality of life, especially, of the older ones (Khosravia, Ghapanchia, 2016).
In this perspective, a study was developed with the objective of identifying the appetence of the elderly for the use of new technologies.

Materials and Methods

An exploratory and cross-sectional study was carried out, using a form consisting of socio-demographic characteristics, clinical antecedents and issues related to the use of new technologies. Data collection took place between February and May 2018, in 5 residential structures for the elderly in the north of Portugal.

The data was collected in the Institutions by 2 properly trained research scholarship students and oriented to the project objectives. The collection of data was always done in a way that did not interfere with the activities of the Institution.

The elderly who participated in the study were aged 65 or over, oriented in time and space and gave their informed consent.

Also note that all institutions authorized the data collection and the UTAD - Ethics Committee, gave a favorable opinion to carry out the study.

Results and Discussion

The study included 130 elderly people, 68,5% are female and 31,5% are male, with an average age of 82,43 years and an average stay in the institution of 4,5 years. 57,7% of elderly are widowers.

The institutionalization happened on 23,8% because the family did not have time to take care of them, on 20% there was worsening of health status, and on 19,2% of the elderly lived alone, see (Table 1).

Table 1: Reasons for Institutionalization

	N	%
The family lives in a distant geographical area	10	7,7
The family did not have time to take care of him	31	23,8
Worsening of health status	26	20,0
Weak housing conditions in the face of needs	2	1,5
Physical dependence	7	5,4
Difficulty performing tasks of daily living	8	6,2
Death of spouse	7	5,4
Loss of autonomy	8	6,2
Lived alone	25	19,2
Other	1	,8
Total	125	96,2
Missing	5	3,8
Total	130	100,0

95,4% of the elderly reported having health problems, 98,5% take medication and 86,9% suffer from some disability, see (Table 2), namely 22,3% in hearing, 59,2% in mobility and 50% in vision, see (Table 3).

Table 2: Health problems, disabilities and medication

Variables		N	%
Health problems	Yes	124	95,4
	No	6	4,6
Does medication	Yes	128	98,5
	No	2	1,5
Have any disability	Yes	113	86,9
	No	17	13,1

Table 3: Presence of disabilities

Variables		N	%
Hearing	Yes	29	22,3
	No	84	64,6
	Missing	17	13,1
Mobility	Yes	77	59,2
	No	36	27,7
	Missing	17	13,1
Vision	Yes	65	50,0
	No	48	36,9
	Missing	17	13,1

Probably one of the reasons for the existence of 46,9% of the 130 elderly people interviewed, reported already having had falls in the institution, is due to the fact that the majority of the elderly presents limitations in mobility and vision.

Only 37,7% of the elderly use the mobile phone and only 2,3% use a computer, see (Table 4). In this context it should be noted that for 40,8% of the elderly, contact with family, friends and former co-workers has decreased.

Table 4: Phone and computer use

Variables		N	%
Mobile phone	Yes	49	37,7
	No	81	62,3
Computer	Yes	3	2,3
	No	127	97,7

81,5% of the elderly, would like to have more frequent contact with the family, and 70,8% with friends, see (Table 5). 50,8% of the elderly do not contact family, friends and former co-workers more frequently because of lack of resources.

Table 5: Most frequent contacts with

Variables		N	%
Family	Yes	106	81,5
	No	24	18,5
Friends	Yes	92	70,8
	No	38	29,2
Former co-workers	Yes	82	63,1
	No	48	36,9

43,1% of the elderly would see a robot, that interacted with them as interesting and very interesting, 53% of the elderly would see a robot, that would make it easier to do some activities and daily tasks as interesting and very interesting and 39,2% of the elderly would see a robot, who proposed playful activities as interesting and very interesting. However, it should be noted that the majority of the elderly have no interest or did not respond (70%) to the robot's help in reading the emails, as well as 65,4% of the elderly, the robot has no interest to divulge activities of your family members on social networks, see (Table 6).

Table 6: How do you see a robot

Variables		N	%
To interact with you by proposing you some social activities according to your state of mind through the voice	No interest	30	23,1
	Little Interesting	23	17,7
	I would like to try	21	16,2
	Interesting	35	26,9
	Very interesting	21	16,2
That would make it easier for you to do some daily activities and tasks, such as taking medication correctly	No interest	34	26,2
	Little Interesting	17	13,1
	I would like to try	10	7,7
	Interesting	51	39,2
	Very interesting	18	13,8
That could manage your e-mail, for example read your messages	No interest	52	40,0
	Little Interesting	8	6,2
	I would like to try	5	3,8
	Interesting	16	12,3
	Very interesting	10	7,7
	Missing	39	30,0
That gives you information about the activities of your family members on social networks, such as presenting the new publications and photos of your family on facebook on a daily basis	No interest	48	36,9
	Little Interesting	12	9,2
	I would like to try	6	4,6
	Interesting	19	14,6
	Very interesting	8	6,2
	Missing	37	28,5
To propose playful activities, such as a card game	No interest	38	29,2
	Little Interesting	23	17,7
	I would like to try	18	13,8
	Interesting	29	22,3
	Very interesting	22	16,9

With regard to the use of robots in the elderly, in Austria a study was carried out with 7 elderly people over 75 years old living alone (Pripfl et al, 2016). The results showed that the elderly value the robot enough to have lifted objects off the ground and transported them. However, these seniors felt that the robot had not been able to increase their own independence and their sense of security at home.

In the Netherlands, a study was carried out with 10 elderly people, with an average age of 79.3 years with the objective to report the experience of living at home with a robot. The elderly considered the robot very limited and reported that it should perform more complex tasks (Bedaf, Marti, Amirabdollahian, Luc de Witte, 2017)

Conclusion

The data found in this study indicate that it is essential to provide the elderly with new forms of social relationships with the help of new technologies in order to avoid loneliness and contribute to a better quality of life (Ministério da Saúde, 2018; Pripfl, Körtner, Batko-Klein, Hebesberger, Weninger, Gisinger, 2016).

Technologies to aid the elderly have a positive impact not only on the elderly, but also on those who work with them, as they promote a more independent life, increased security, increased social connectivity and advances in mobility (Khosravia, Ghapanchia, 2016).

Robots should be able to perform more complex tasks and related to the limitations of the elderly, as well as perform preferential tasks for each one of the elderly (Bedaf, Marti, Amirabdollahian, Luc de Witte, 2017).

On the other hand, it is fundamental that the new information and communication technologies, real scenarios of the 21st century, do not exclude the elderly and can create appropriate interfaces for their use (Tavares, Souza, 2012).

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