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Article

Translation and Cultural Adaptation of an e-Health Program to Promote Positive Mental Health Among Family Caregivers

Sandra Carreira [1,2,*], Núria Albacar-Riobóo [3], Carme Ferré-Grau [3], Carlos Sequeira [4,5] and Carmen Andrade [5,6] Odete Araújo [1,7,8]

[1] Health Sciences Research Unit: Nursing (UICISA: E), Nursing School of Coimbra (ESEnfC), 3045-043 Coimbra, Portugal
[2] ICBAS, University of Porto, 4050-313 Porto, Portugal
[3] University of Rovira i Virgili (URV), Faculty of Nursing
[4] Nursing School of Porto, 4200-072 Porto, Portugal
[5] CINTESIS@RISE, Nursing School of Porto (ESEP), 4200-450 Porto, Portugal
[6] Department of Nursing, Family and Community Health, School of Health, University of the Azores, 9500-321 Ponta Delgada, Portugal
[7] School of Nursing, University of Minho, 4710-057 Braga, Portugal
[8] Nursing Research Centre, University of Minho, 4710-057 Braga, Portugal
* Correspondence: sandracarreira30@gmail.com

Abstract: Introduction: The available knowledge regarding the issue of Family Caregivers is consensual in recognizing that providing care to a dependent person, especially for an extended period, involves significant strain, with consequences for the caregivers' health. The exhaustion of dealing with various tasks and responsibilities can lead to states of anxiety, depression, panic, and loneliness which will ultimately impact the physical, mental, emotional, social, and economic aspects not only of Family Caregivers but also of the person being cared for. E-health applications are an effective intervention in helping family carers that emerged to promote positive mental health among those who took care of chronic patients by empowering them and, consequently, by achieving an enhancement in their biopsychosocial health status through online interventions for positive mental health. This increase in Positive Mental Health (MH+) will have effect impact on problem-solving skills, autonomy, personal satisfaction, interpersonal relationships, self-control, and prosocial attitude. Methods: This study aimed to translate and culturally adapt the Spanish version of the "Program to Promote Positive Mental Health through ´Cuidadoras Crónicos manual" into the Portuguese context, this manual will support an telephone app. The translation and back-translation process was carried out by two native experts and, secondly, through a Focus Group with 8 participants. In addition, this study respected the Consolidated Criteria for Reporting Qualitative Research (COREQ). Results: From the translation and back translation process emerged several changes that were taken into account for the Focus group (FG) session. Additionally, the following thematic emerged concerning FG 3: (i) theme 1- conceptual and semantic equivalence; (ii) theme 2 – optimization of content; (iii) theme 3 - relevance and timeliness of the manual. Conclusions: The Spanish version of the manual to promote positive mental health in family caregivers was translated and culturally adapted into European Portuguese and subsequently validated by experts in a Focus Group approach. This is the first version of the manual for the Portuguese context that uses SM+ models aimed at caregivers of people with chronic diseases.

Keywords: mental health; caregivers; chronic disease; health program; health literacy

1. Introduction

Many European countries and other regions worldwide are poised to confront the challenge of an ageing population in the forthcoming decades. In the last five decades, the number of older people aged 65 and over has doubled, escalating from less than one million to over two million in 2022 (2,424,122) [1–3]. The ageing process is often associated with the onset of chronic illnesses, many of which are deemed incapacitating and impose limitations on activities of daily living. Under the

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scenario where the global prevalence of disabilities and diseases remains stable, the growth in the number of older adults alone is expected to increase demands for healthcare beyond the capacity of healthcare systems [4].

Informal and unpaid caregiving is an important part of long-term care services in some countries such as Portugal, where nearly 12.5% of the population was identified as caregivers. Portugal has the highest percentage of co-resident caregivers over 50 [5]. Many individuals provide care for a spouse, a family member, a friend or even a neighbor who needs help with running the household or personal care. However, providing such care can be very demanding and lead to physical strain, fatigue, or stress[6]. Family caregivers have to provide complex, continuous and intensive care which requires specific knowledge, skills, and physical effort. This entails that they make personal and professional [7].

Being responsible for caregiving demands a sense of responsibility and the ability to handle various tasks and efforts that can exceed the family caregiver's capabilities, significantly altering their daily life and priorities. Family caregivers can reach a point where they forget to "take care of themselves, becoming more vulnerable to emotional, physical, and psychological strain" [8]. There is a consensus that providing care for a dependent person, especially for a prolonged period, involves a significant burden, with consequences for their health. The exhaustion of having to deal with various tasks and responsibilities can lead to states of anxiety, depression, panic and loneliness, which end up having a physical, mental, emotional, social and economic impact on the lives of both the family caregiver and the person being cared for (9). Evidence suggests that family caregivers show higher levels of psychiatric morbidity than the rest of the population, related to the little attention they pay to their mental health (10). The degree of exhaustion and the impact on the family caregivers' health depends on their coping strategies and adaptation to the situation (11).

The exhaustion of having to deal with various tasks and responsibilities can lead to states of anxiety, depression, panic, and loneliness, which end up having a physical, mental, emotional, social, an

The negative effects of caregiving are likely to increase due to the rising prevalence of neurocognitive diseases among older individuals, as well as the societal challenges imposed on caregivers of those with chronic illnesses. Future challenges are not vastly different from the current ones and are related to difficulties in managing one's own life alongside the caregiving role and handling emotions in many situations associated with role reversal and clinical manifestations of the disease [2].

Future challenges should focus on a salutogenic perspective of aging and informal caregiving. Developing strategies to promote mental health among family caregivers represents a shift from a less remedial paradigm to a more anticipatory approach, based on structured interventions [9,10] and the use of application-based solutions, the implementation of which has been accelerated after the COVID-19 [11].

The knowledge and use of these strategies depend on the level of Mental Health Literacy (MHL), i.e. the higher the level, the greater the knowledge and ability to respond appropriately to the challenges and difficulties related to caring for a dependent person. People with higher levels of Positive Mental Health Literacy (PMHL+) are more committed to their health and tend to be involved in finding better resources in the family and community through complementary care structures. Health professionals, particularly nurses, must integrate in their intervention how individual, social, and contextual factors influence LSM+, which can improve/potentiate motivation and competence in accessing, understanding, evaluating, and applying knowledge. This increase in LSM+ will affect increasing Positive Mental Health (PMH+), in terms of problem-solving skills, autonomy, personal satisfaction, interpersonal relationships, self-control, and a pro-social attitude [9]. Therefore, empowering the family caregiver involves preparing them with the skills to mobilize technical and scientific knowledge and making them capable of making the best decisions about their physical and mental health which, in turn, will provide better care with less physical and mental strain [9,12]. A context with new health needs is proposed: on the one hand, the transformation of the healthcare

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system and, on the other, an orientation towards a more comprehensive care that focuses on the person and the value of life expectancy in good health [13].

The WHO [14]defines the use of information and communication technologies (internet or mobile applications) for health purposes as e-health. This reflects the transformation of traditional healthcare models driven by the growing trend of internet usage. Existing interventions have played an important role in supporting families caring for dependent individuals, and this support can be enhanced by leveraging technological innovations. The evidence also suggests that technological resources do not replace the family caregiver in their activities as such, but those can be an excellent resource to promote their mental health and develop strategies, based on mental health literacy, to first take care of their health and, secondly, to promote quality of increasingly complex and prolonged care [13]. Ferré-Grau and collaborators have developed intervention programs based on problem-solving techniques aimed at preventing anxiety and depression [13].

As previously reported, some authors have already presented innovative proposals that include giving support to caregivers based on new technologies. The study conducted by McKechnie et al [15] evaluated a total of 14 empirical studies of computer-mediated interventions for informal caregivers of people with dementia. As a result of this systematic review, the authors support the provision of computer-mediated intervention for caregivers of people with dementia. However, they highlight that future interventions need to be under a study protocol involving a clinical trial with a control group.

“Mastery over Dementia” is an example of this. The authors of this Internet-based intervention focused on caregivers of patients with dementia. They designed and published the protocol of Blom et al. [16] an Internet-based course that includes eight sessions and a booster session over a maximum period of 6 months guided by a psychologist. The results [17] of this study showed that, with a sample of 149 caregivers, the intervention was acceptable. Another example is a web-based program for informal caregivers of persons with Alzheimer's by Cristancho-Lacroix et al. [18]. However, their results show that it is desirable to create a more dynamic, personalized, and social intervention instead of a web-based intervention [18].

Therefore, it is crucial at present to implement effective online educational tools and programs aimed at supporting family caregivers of older adults, with or without dementia. Based on this evidence, this study proposes to answer the needs set out so far. Based on a previous project in which an app for caregivers was developed, a protocol to develop and evaluate a smartphone app-based intervention to promote the positive mental health of family caregivers is presented.

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In this sense, more programs are needed to support this group of people, especially those that bring health professionals closer to family caregivers and, at the same time, take care of their mental health. Some of the available evidence highlights the advantages and challenges for the decade of 2020-30, namely aging in place and the use of digital solutions, through e-health interventions [20].

2. Methods

Aim

This study aimed to translate and culturally adapt the Spanish version of the “Program to promote positive mental health through the *´Cuidadoras Crónicos´* App” into a Portuguese context. The research question in this study was focused on how feasible the individuals items of the Spanish program manual are among focus group participants.

Design

This study is a qualitative, descriptive, and exploratory design based, firstly, on translation and back translation approach and, secondly, on focus group interviews [21].

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Procedures

The process of translation and back-translation followed the methodological assumptions by Frey (2018) [22] The first step preceding this stage was requesting authorization for the manual from the team that developed the original program in the Spanish context. After obtaining authorization through a written agreement, we proceeded to the second stage, which involved translating the manual from the original language (Spanish) to European Portuguese. This stage was carried out by two bilingual nurses whose native language is Portuguese and who were not familiar with the manual and the study objectives. Next, the Portuguese version was back-translated into the original language by two translators whose native language is Spanish, aiming to validate agreement with the original Spanish version.

After this phase and considering the qualitative nature of this study, we opted for the application of a focus group technique to encourage participants to explore and clarify perceptions and perspectives about the main topic of the research study, based on collective and group interaction [21]. In addition, this study respected the Consolidated Criteria for Reporting Qualitative Research (COREQ) [23].

The planning phase of this study began with the definitions of the general objectives and the homogeneity of the focus group, the number of members, and the intentional non-probabilistic sampling techniques [24] The session aimed primarily to assess the agreement and adequacy of concepts in the Portuguese context. Subsequently, the session was developed with general questions outlined. An interview guide for the session was developed. General questions were outlined, followed by progressively more specific ones [25].

Participants

The potential participants were invited via email, two weeks before the session they were informed about the nature of the study, its objectives, the participation rules, the lack of funding for participants, and the expected duration, at the same time was sent by email the manual in Spanish and Portuguese version.

All participants, aged over 18 years old, met the following eligibility criteria: 1) be a nurse with clinical experience; 2) be a specialist nurse; 3) have expertise in the field of mental health and/or family caregivers. For this focus group, the research team invited 12 nurses that respected the eligibility criteria explained above. 8 nurses participated, according to their availability once they fulfilled the theoretical assumptions of Krueger & Casey (2015).

According to the authors mentioned previously, the focus group technique should include 4 to 12 participants, although it is considered ideal to comprise 5 to 8 participants. Since there is no certainty that all invited individuals participate, it is recommended to have an over-recruitment of 10 to 25% to avoid potential vacancies that may compromise the minimum number of participants in the focus group [26]

In this study all potential participants were invited personally by the principal investigator following the criteria mentioned previously. Furthermore, confidentiality of information was ensured to all of them, as well as the fact that participation would be on a voluntary basis [24]. It is worth mentioning that one session was conducted online using the ZOOM platform.

Data Collection

In this study and in addition to the translation and back-translation process of the manual to Portuguese, which took place between June 2023 and February 2024, a focus group session was conducted on May 2nd, 2024, in European Portuguese as it was the native language of the researchers and the participants who voluntarily agreed to join the study. The research team, specifically the principal investigator, received prior training in conducting the focus group session. Similarly, data collection procedures were harmonized, a script for conducting the focus session was developed, and pre-session training was conducted three days earlier, including only the research team members, to harmonize procedures, including the duration of sessions and the control of any unforeseen circumstances. Regarding the questions script, the following steps were followed: (i) Welcome and

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thanks to all participants; team introduction; (ii) Presentation of the study and its objectives; (iii) Clarification of the roles of the researchers involved: the principal investigator would moderate and conduct the session together with 2 researchers who would be present as observers and would take notes during each session and who would manage session recordings; (iv) Presentation of some rules and requests, including participants' consent to record the session. The participants, who were reassured about the compliance with all ethical assumptions inherent in a research study involving humans, were asked not to interrupt the session and to express their opinions as the moderator gave them the floor; likewise, they were informed that they could withdraw from the session at any time without prejudice; (v) No participant would have to pay to participate in the session, nor would they receive any compensation for participating in the research.

Participants were requested to respond to certain questions, which were organized into 4 main topics/themes:

1. Based on the original version and considering the translation/adaptation of the manual, do you consider it to be in line with the original version?
2. What are the main linguistic/semantic aspects of the program/manual that you consider necessary to change to better meet the needs of Portuguese family caregivers? In other words, is the language of the program understandable? Is it appropriate for Portuguese family caregivers?
3. In your perspective, does this program address the dimensions of positive mental health of family caregivers, considering the original model of promoting positive mental health?
4. Considering that the program was developed approximately a decade ago, do you think its content is still current? What changes would you suggest?

The meeting lasted for 60 minutes, which respected the international recommendations for conducting focus group (less than 150 minutes) [21]. The session recording was transcribed using *Transcribe*. It included codes to identify all participants, ensuring their anonymity (P1- Participant 1; P2-Participant 2,… P8, Participant 8).

Data Analysis

After the focus group session, all data were analyzed systematically and rigorously [21]. The content of the session was transcribed by one researcher in the native language (European Portuguese). Subsequently, and after full transcription, two researchers carried out the thematic analysis according to the assumptions of [27,28] organized into six steps: "(i) Familiarizing yourself with your data: Transcribing data (if necessary), reading and re-reading the data, noting down initial ideas; (ii) Generating initial codes: coding interesting features of the data systematically across the entire data set, collating data relevant to each code. (iii) Searching for themes: collating codes into potential themes, gathering all data relevant to each potential theme. (iv) Reviewing themes: checking if the themes work in relation to the coded extracts (Level 1) and the entire data set (Level 2), generating a thematic 'map' of the analysis; (v) Defining and naming themes: ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells, generating clear definitions and names for each theme; (vi) Producing the report: the final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of the analysis" [28]

Data analysis was initially carried out as a team using Microsoft 365. Within this package, the transcription functionality of Microsoft Word was used. This process aimed to familiarize the team with the findings obtained from the focus group sessions and to ensure consistency in the naming of codes. The initial coding and development of themes were conducted in such a way as to leave room for reflective thematic analysis [27] This method encourages reflection to achieve more depth and connection with the themes. The themes developed after the initial sessions were brought back to the group for further classification, refinement and harmonization about the themes and codes identified by the research team.

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Ethical Considerations

Permission to conduct the study was obtained from the *Comissão de Ética da Sociedade Portuguesa de Enfermagem de Saúde Mental* (Reference CEASPESM_4/2023). Before the data collection and after explaining the objectives of the study, all eligible participants returned an informed written consent, and all ethical assumptions of confidentiality and voluntary participation were respected following the Declaration of Helsinki (59th amendment) and the Oviedo Convention for conducting research in humans.

3. Results

After the process of translating the manual, we proceeded with the back-translation of the manual with the help of 2 experts who are native speakers of the manual's original language. The results from the first expert showed 20 semantic changes, and from the second expert, 6 semantic changes. Examples of some expressions can be analyzed in European Portuguese (Table 1). After back translation we compare the back-translated version with the original text to identify differences or deviations in mean. Then evaluate the semantic equivalence between the two versions, ensuring that the meaning, context, and intent of the original text have been preserved. In the final review we make the necessary corrections to the translation based on the discussions, aiming to ensure that the final text is faithful to the original and comprehensible in the new language.

Table 1. Semantic changes of back translation.

Translation version	Back translation version	Final translation version	Expert (E) Code
Assumem	Asumen	acarretam	E1
oferecer	ofrecer	prestar	E1
uma atenção	una atención	cuidados	E1
Atenção primária	Atención primaria	Cuidados de Saúde Primários	E1
coletivo	colectivo	Grupo profissional	E1
paciente	paciente	utente	E1; E2
condições	condiciones	situações	E1
cotidiano	cotidiano	quotidiano	E1; E2
seguinte	siguiente	feito	E1
tela	tela	ecrã	E1; E2
pôr	poner	colocar	E1
desfrutar	disfrutar	aproveitar	E1
a TIVA	la TIVA	TIVA	E1
tónicos	tónicos	sentidos	E1
adicionalmente	adicionalmente	além disso	E1
diante	delante	perante	E1
tomar	tomar	ter	E1
Enfermeira	Enfermera	Enfermeira/enfermeiro	E1
Médico	Médico	Médica/médico	E1
Cuidadores	Cuidadores	Cuidadores crónicos	E1
óptimo	óptimo	ótimo	E2
sentimientos	sentimientos	sentimentos	E2
desconectar	desconectar	desligar	E2

The results from the socio-demographic characterization focus group are presented in Table 2. The sample consisted of eight nurses, all female with expertise in mental health and informal care. Seven of them had been working as nurses for more than 10 years, and one had been working for

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over 30 years. All participants had a post-graduation, three were holders of a master's degree and five held a doctoral degree (Table 2).

Table 2. Socio-demographic characterization.

Variáveis		Nº
Sex	**Female**	8
	Male	0
Age	**30-40**	1
	40-50	6
	50-60	1
Time work as a nurse	**0-10**	0
	10-20	7
	20-30	0
	30-40	1
Area of expertise	**Mental health**	6
	Informal Care	2
Academic Degree	**Master**	3
	Doctor (PhD)	5

Three themes emerged from the question in the focus group (Table 3).

Table 3. Themes, categories, and codes.

Theme	Definition	Categories	Codes
Theme 1	**Conceptual and Semantic Equivalence**	Standardization of Language	Primary care- Primary healthcare Title - chronic caregivers Woman Caregiver - caregiver Woman Nurse - nurse Patient - person Great – good
Theme 2	**Optimization of content/activities**	Updating of activities and linguistic reformulation	Alternative answers and less reductive options for caregivers
		Cultural habits, customs, and traditions	Portuguese music
		Suitability of symbolism/image	Onion - plant/star
		Boosting the activities	Sharing groups/thinkers Writing/sharing something by the caregiver Positive reinforcement of the caregiver's role Self-management of emotions Post-caregiving period

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Theme 3	**Relevance and timeline of the program/manual**	Digital health literacy Adoption of new technologies Pertinence of the topic/ease of use Positive mental health

Theme 1 – Conceptual and Semantic Equivalence

All participants stated that there was consensus on the translation of the Spanish language manual into Portuguese. However, in response to the second question of the semi-structured interview, they pointed out the importance of conceptual and semantic equivalence. They mentioned the importance of standardizing the language and pointed out some conceptual aspects. The first relates to the title: "P3: *But my question that caught my attention was right away the title of the application, chronic caregivers, which doesn't make sense to me, first, because somewhere in the program the term 'caregiver' appears, and in this sense, the title should be caregivers of people with chronic illness*." P4: "As *we are discussing positive mental health, it would be better to give it a title that is not as burdensome as 'chronic caregivers'. So, perhaps we should try for a lighter, more suitable title here. We are here to promote positive mental health."*

They also mentioned that some words, despite having an adequate translation, should be adapted to the Portuguese context, such as primary care replaced by primary health care P1: "*Okay, what I'd like to emphasize is that here in Portugal it's not primary care. It's primary health care," as P3 reinforces: 'And to talk a bit about the more common language, then also the question of primary care."* They also suggested using the word caregiver instead of woman caregiver, nurse instead of woman nurse, as well as person instead of patient, and replacing Genial with good - *P1: "Then I was very, very, very doubtful, why woman caregiver? I understood that there is an explanation for being a woman caregiver, but we must think that maybe here in Portugal we have a lot of caregivers too." P3: "I emphasize this issue of carer versus cared for". P4:"(...) also look here for the scouter person client, but also have a standardization of the term. I don't agree at all that patient and patient much less, so they're not all sick too, are they? They are, in fact, people who need to be empowered to continue their work." P5: 'I think it's great when we're talking about a conversation and I know that in terms of translation, it's completely correct (...) I would change it to good, because when I want to answer the question, how was the conversation, I don't say genial, I say good.'*

Theme 2 – Optimization of Content/Activities

During the discussion, the importance of conceptualizing alternative responses and less directive options for family caregivers was emphasized to foster their participation and promote positive mental health - *P3: "I think our caregivers need a language that is more comprehensive and less directive. My suggestion would be to use phrases throughout the application that are not mandatory but are carefully guiding the behavior and actions we want the caregivers to take." P5: "I agree with the previous colleague that the application is somewhat directive. Besides being a bit directive, I also think we could improve it to make it more welcoming." P8: "Looking at the activities, for example, they vary, with some being more directive. We should start or show some care, nurturing the caregiver, because this is an application."*

To better adapt the content and activities to the Portuguese context, participants highlighted the importance of cultural habits, customs and traditions - *P3: "Adjust it to cultural aspects. For instance, the music suggestions. Everyone will recognize some songs by Mariza that evoke emotions and feelings, giving a Portuguese touch to the cultural adaptation." P4: "Knowing the Portuguese culture, I think we should ensure the application meets the needs of the people." P8: "Regarding the music, I agree with the previous points."*

The symbolism and imagery in the manual were also focused. Many participants felt the current imagery was reductive and did not appeal to positive mental health. They suggested that a plant, tree, or starfish could be used instead - *P1: "I was wondering why an onion? It reminds me of women in the kitchen. For example, a starfish or a plant that grows from a seed, representing mental health growth, would be interesting." P3: "I have seen many positive mental health promotion programs that use flowers." P4: "I thought it was a turnip, not an onion. But I agree that a plant or tree, which grows and takes root, would be better."*

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Participants also suggested that some dynamic activities, such as creating sharing groups or thinkers' groups or allowing caregivers to write and share their thoughts could be carried out - *P3: "Research has shown the benefits of caregiver groups." P4: "We could include a feature for caregivers to write something related to the activity, reflecting on their experiences." P5: "Groups where caregivers share and reflect on their challenges could be very helpful."*

They also highlighted the importance of positive reinforcement for caregivers at the end of each activity - P1: "Expressions that invite continuation, like 'keep going, you're on the right track,' instead of just 'congratulations' or 'well done." P3: "Highlight the excellent care they provide to their family members, enhancing their personal growth and satisfaction." P4: "Encourage caregivers to reflect on their positive experiences and personal growth." P8: "Ensure caregivers understand the overall benefits of the activities, motivating them to continue."

Promoting self-management of emotions was also considered to be crucial in getting caregivers to join the program and cultivate self-awareness. *P4: "Exercises for recognizing and managing emotions should be included, as they are important for self-awareness and emotional regulation." P5: "Self-knowledge and emotion management should be emphasized to enhance the caregivers' overall experience with the application."*

Finally, the importance of addressing the post-caregiving period was mentioned, as this is a significant phase for positive mental health - *P5: "We should consider the post-caregiving period when caregivers need support in adapting to a new phase of life." P8: "It's very important to address the post-caregiving phase."*

Theme 3 – Relevance and Timeline of the Program/Manual

In the final question of the semi-structured interview, participants discussed the relevance and current applicability of the program. Despite being developed a decade ago, the program remains relevant as it is aligned with the digital health literacy of caregivers and promotes the adoption of new technologies. *P4: "The program will be delivered through an application, addressing digital literacy among caregivers." P1: "Our elderly caregivers are quite advanced in digital literacy, especially since they started using WhatsApp during the COVID-19 pandemic."P8: "Many caregivers over 70, some even in their 80s, already use smartphones and social media, which is crucial for digital literacy."*

All participants agreed on the relevance of the theme and its ease of use, highlighting its value in promoting positive mental health for caregivers - *P3: "I think the program meets the six principles of positive mental health promotion." P5: "It aligns with the main principles of positive mental health, though we could improve the engagement aspect." P8: "The program adheres to the positive mental health model, though it may need some updates after ten years." P7: "It fulfills the positive mental health promotion criteria.*

4. Discussion

This study aimed to translate and culturally adapt the Spanish version of the "Program to promote positive mental health through the 'Cuidadoras Crónicos' App" into the Portuguese context. It describes all stages of translation and cultural adaptation, using native language experts for the translation of the manual, and two Spanish natives for the retroversion aiming to validate agreement with the original Spanish version. Both native Spanish researchers have made some suggestions for optimizing the translation of the manual from Spanish to Portuguese. The first researcher suggested 34 changes to words and semantics and the second one made 28 changes. After that, the manual was given to mental health and informal care experts for the cultural adaptation of the manual (focus group).

The experts emphasize the importance of ensuring conceptual and semantic equivalence. Adapting instruments, manuals, or programs is a complex process that requires specialized resources with scientific and technical expertise in both the subject matter and the native language of the program, instrument, or manual being validated [29]. Often, translation is mistakenly perceived as merely converting content from the original language to the target language. However, translation is an act of performance and language use that can be seen as a process of recontextualization. This process not only reshapes the language but also removes it from its original context and places it into

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a new one, where different values are assigned to communicative conventions, genres, and reader expectations [30]. As highlighted in the study, this is not just about translation as it involved a crucial phase of language standardization, activity updating, and linguistic reformulation. Another important issue highlighted was the importance of optimizing content and activities to ensure the integration of cultural habits, customs, and traditions. This includes the suitability of symbolism and imagery, as well as the enhancement of activities.

Equally important was the need to optimize content and activities to ensure the integration of cultural habits, customs, and traditions. This included the suitability of symbolism and imagery, as well as the enhancement of activities.

Nevertheless, one of the biggest challenges in this type of work/research is related to the requirement of the translation process and translating the meaning of the content, rather than translating word-for-word. The initial objective of translation is to preserve the same interpretation of meaning across different cultures, requiring an explanation to the translators involved in the research. From a linguistic point of view, it is necessary to understand the grammar and semantics of the original content, that is, the cultural context of the country and language of origin. The combination of requirements and specificities justified the involvement of various actors. In particular, professionals with deep knowledge (native) in the original language (Spanish) were involved, as well as professionals, namely, nurse experts in mental health nursing and in the field of aging and care for older people with chronic diseases. The panel of experts that comprised the focus group comprised professionals from clinical practice contexts in hospital and community settings, as well as university faculty members with expertise in the field.

According to [31], for the cross-cultural adaptation of instruments/manuals to be successful, it is necessary to consider all elements to be translated and adapted to the context, including the title, introductory text, target audience, and manual usage procedures. From the perspective of these authors, the adaptation process comprises six steps: (1) Preparation, (2) Translation from the original language to the target language (forward translation), (3) Translation from the target language back to the original language (backward translation), (4) Committee review, (5) Field testing, and (6) Translation review and finalization.

In our perspective, we considered that the translated version of the manual into Portuguese preserved the contents of the original Spanish manual faithfully, and as expected, despite the proximity between the two countries (Portugal and Spain), adjustments had to be made. Specifically, semantic and conceptual changes were made and themes were added to preserve the relevance and timeliness of the study object. Additionally, resources provided by caregivers, Portuguese habits, customs, and traditions were included, as well as changes to the image. The original image depicted the development of an onion, which, according to caregivers, does not reflect the evolution and/or demands of informal care, nor the dimensions of the multidimensional model of positive mental health.

We only succeeded in reaching the final version after including a panel of experts who not only made substantive contributions to cultural adaptation regarding culturally accepted concepts and expressions but also made it possible to include current themes that respond to current societal challenges. Specifically, it was only with the know-how and expertise of those experts that it was possible to include themes centered on post-care (e.g., after the death of the cared person), positive reinforcement of the caregiver's role and self-management of emotions.

The third theme that emerged was the relevance and timeliness of the program/manual. This work is part of a multicenter project aimed at evaluating the effectiveness of a positive mental health promotion program for caregivers of people with chronic illnesses. Additionally, it seeks to promote digital literacy, which has become increasingly relevant and crucial in the post-COVID era.

To carry out the project, it was necessary to conceptually respect several steps, particularly regarding the translation and cultural adaptation of an existing program. Thus, this paper describes the methodology used in the process and aims to develop and adapt an application solution (currently ongoing) To achieve this, usability tests will be necessary to assess the efficiency of the

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interface, the user's (caregiver) adherence and satisfaction, followed by a feasibility study to achieve procedure harmonization.

Supporting caregivers is essential for maintaining the well-being of both the caregiver and the care recipient. By implementing coordinated interventions aimed at addressing caregivers' needs, we can enhance their satisfaction with caregiving and ultimately improve the quality of life for everyone involved. Research highlights the importance of providing adequate support for caregivers to improve the quality of care they provide. Given the emphasis on ensuring that family caregivers are adequately supported, it is crucial to gain a deeper understanding of the types of support that family caregivers want services and organizations to prioritize [32].

This support can range from educational resources and training to care services and emotional support networks. Overall, prioritizing caregiver support can lead to more effective caregiving practices and better outcomes for all parties involved [9]. The World Health Organization (WHO) has defined a long-term strategy for the expansion and use of digital health, emphasizing the positive impact that it can have on healthcare access and provision as well as on the health and well-being of the population and caregivers [33].

Strengths and Limitations

This study presents some strengths as well as some limitations that should be reported. The first strength is related to the fact that the translation and back-translation process methodologically adheres to good practices for validating manuals/instruments. Additionally, concerning accuracy, we opted to conduct a focus group to ensure a true and current cultural adaptation of the manual from the original version to the Portuguese version. As a limitation, we point out that the focus group session was conducted in a virtual context, which may have reduced interaction among participants. However, considering that the experts are from very different institutions geographically distant from the original location (University of Minho), we understand that if the meeting had been face-to-face (presential), the participation would have been lower, or it might not have been possible to conduct the focus group session at all.

5. Conclusions

In this study, the Spanish version of the "to promote positive mental health through the 'Cuidadoras Crónicos' App" program was translated and culturally adapted into European Portuguese, and subsequently validated by experts with expertise in mental health and in the field of aging, particularly in informal care. This is the first validated program for the Portuguese context that uses SM+ models aimed at caregivers of people with chronic illness. This program also represents the first step towards the development of an ongoing application solution, with the work carried out in this article being crucial for its realization.

Abbreviations

COREQ - Consolidated Criteria for Reporting Qualitative Research

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