Symposium

DemiCare+ project: Uniting disciplines in application development to increase resilience of informal carers N. E. Stolwijk (Convener). *Gerontechnology* 25(s)

Participants: K. M. Piskorska (Austria), W. Kratky (Austria), M. Ciumageanu (Romania), A. Salceanu (Romania), Raluca Sfetcu (Romania), N. E. Stolwijk (The Netherlands), S. Ipakchian Askari (The Netherlands). **ISSUE** Informal caregivers of people living with dementia (ICGD, PwD) represent a high-risk group [1,2]. Currently, there is a scarcity of evidence-based prevention programs available to this group within health- and care systems [3]. Research shows that depression among ICGD compromises caregivers' physical health, reduces their ability to cope with daily life, and often leads to an inability to maintain their caregiving role, resulting in a need for professional support. The European DemiCare+ project aims to implement an integrated solution for preventing depression in ICGD. This project is a collaboration between partners in Austria, Romania, and the Netherlands. It builds on the personalized information and training offered by the existing DemiCare application [4] — a fully automated self-help preventive intervention that already provides guidance on managing behavioral problems in PwD and improving caregiving competencies (Figure 1). By analyzing each country's healthcare landscape and identifying the challenges of ICGD we aim to develop a unified application that can be personalized to meet this range of diverse needs. **CONTENT** In the first year of the project, we conducted co-design sessions and interviews with ICGD to gain insight into their needs and preferences regarding such an application, and to understand the challenges they face in caring for PwD. We also mapped the regional services available in each participating country. Additionally, a review was carried out to identify existing micro-interventions that can be integrated into the DemiCare application. During this symposium, we will share initial insights gathered from these studies. **CONCLUSION** The session will explore the theme of increasing resilience of ICGD from multiple perspectives in Austria, Romania and The Netherlands: user needs and barriers, coping strategies, micro-interventions and available regional services for ICGD. We will reflect on how these aspects are being united in this project. Following this, there will be an interactive session where participants will receive inspiring examples of how to identify both latent and conscious user needs through creative and engaging formats, using DemiCare+ as a case study. Participants will rethink their current approaches to data collection and application of results. In addition, we will provide examples of how ethical and social considerations for applications similar to DemiCare+ can be addressed during these sessions.

References
1. García-Alberca JM, Lara JP, Berthier ML. Anxiety and depression in caregivers are associated with patient and caregiver characteristics in Alzheimer's disease. Int J Psychiatry Med. 2011;41(1):57-69. doi:10.2190/PM.41.1.f.
2. Liu S, Li C, Shi Z, Wang X, Zhou Y, Liu S, et al. Caregiver burden and prevalence of depression, anxiety and sleep disturbances in Alzheimer's disease caregivers in China. J Clin Nurs. 2017;26(9-10):1291-1300. doi:10.1111/jocn.13601.
3. Ying J, Yap P, Gandhi M, Liew TM. Iterating a framework for the prevention of caregiver depression in dementia: a multi-method approach. Int Psychogeriatr. 2018;30(8):1119-1130. doi:10.1017/S1041610217002629.
4. Available from: https://demicare.app/nl/
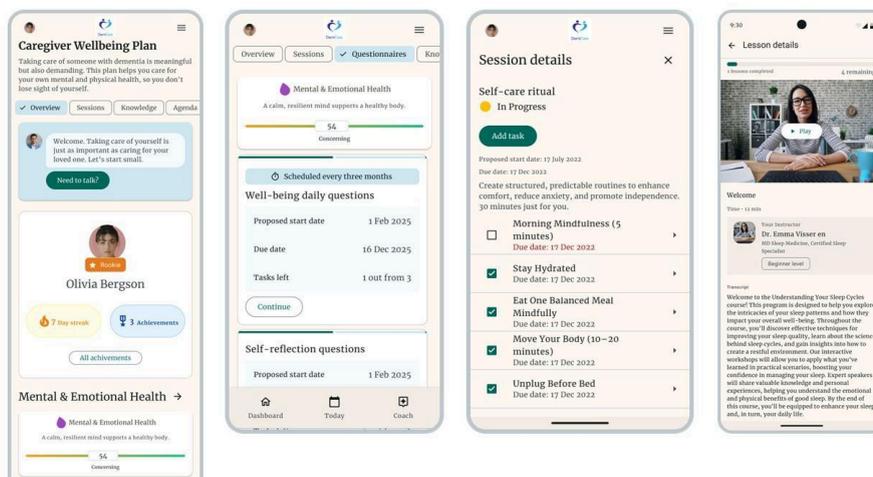
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Figure 1. Provisional designs for the DemiCare application for caregiver wellbeing plans, questionnaires, micro interventions and online education.

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Diverse realities and needs: Understanding resilience in informal caregivers of people with dementia. K. M. Piskorska. *Gerontechnology* 25(s*)*

Purpose Informal caregivers of people with dementia experience significant psychological strain and burden, yet they are often overlooked by national healthcare systems [1]. To inform the development of digital interventions for this vulnerable group, we constructed a resilience model which incorporates the factors that enable informal caregivers to maintain psychological well-being. These factors will subsequently guide the design of targeted support solutions. The focus of this study is the employed methodological framework, with particular emphasis on diversity and social-justice considerations. The aim was to derive good-practice recommendations for conducting requirements analysis that accurately represents the diverse circumstances and needs of informal caregivers. **Method** A socio-ecological approach to resilience was adopted, defining resilience as dynamic, not just a state or a trait – it is shaped by individual attributes, interpersonal relationships, resources and broader socio-structural conditions [2]. Within this framework, resilience is considered a protective factor against depression in informal caregivers [3]. Strengthening resilience through digital interventions requires a comprehensive understanding of the factors involved. To examine them, a three-stage research design was implemented. First, systematic literature review synthesized existing evidence on resilience-related factors in caregivers of people with dementia. Second, focus groups with informal caregivers were conducted in three European countries (Austria, the Netherlands, Romania), with 18 participants in total. A guide was prepared for the focus group sessions, facilitating sharing personal experiences on different aspects of resilience, stressors and coping strategies. Third, expert interviews were undertaken in all three countries to validate and refine the emerging resilience model. The recruitment of experts deliberately targeted diversity specialists and national dementia care strategy experts. Throughout the process, the effects of characteristics such as gender, age, socioeconomic status, place of residence (urban/rural), and ethnic background were considered to ensure inclusivity on all stages as well as in the final guidelines. **Results and discussion** The methodology of combining literature-based information, first-hand caregiver accounts, and expert perspectives proved effective for constructing a comprehensive and contextually sensitive resilience model. It will be used in the development process of the DemiCare+ app. Although cultural and healthcare system differences across countries emerged, a set of cross-nationally consistent resilience factors could be shaped. Notably, caregivers frequently expressed surprise at being asked about their own needs rather than those of the person with dementia, highlighting the marginalization of caregiver well-being in research and practice. Several focus groups evolved into peer-support interactions, showing both the emotional burden experienced by the caregivers and the value of creating supportive, participant-empowering environments through research. The resulting methodological recommendations emphasize the necessity of diversity-oriented recruitment strategies and participatory research that center caregivers' lived experiences. These guidelines provide a foundation for developing technological solutions that effectively strengthen resilience among informal caregivers.

References
1. Collins RN, Kishita N. Prevalence of depression and burden among informal care-givers of people with dementia: a meta-analysis. Ageing and Society. 2019 Jun 6;40(11):1–38.doi:10.1017/s0144686x19000527
2. Ungar M, Theron L. Resilience and mental health: how multisystemic processes contribute to positive outcomes. The Lancet Psychiatry. 2020 Dec;7(5).doi:10.1016/S2215-0366(19)30434-1
3. Vázquez FL, Blanco V, Andrade E, Otero P, Bueno AM, Simón MA, et al. Resilience as a protective factor against depression in informal caregivers. Frontiers in Psychology. 2024 Jul 10;15.doi:10.3389/fpsyg.2024.1370863

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Online Services for informal caregivers of people with dementia W. Kratky. *Gerontechnology* 25(s*)*

Purpose The DemiCare+ project aims to integrate existing formal care services into the service ecosystem of the DemiCare application [1]. As the number of people affected by dementia continues to rise, many families find themselves in caregiving roles without prior experience or adequate preparation. Providing accessible, high-quality educational materials is therefore essential to help caregivers navigate the emotional, physical, and practical challenges associated with dementia care. Traditional in-person training sessions can be difficult to attend due to time constraints, mobility issues, or geographical distance. Therefore, this project aims to design and implement a comprehensive series of online training videos to support informal caregivers of people with dementia. Online training videos offer a flexible, user-friendly solution that empowers caregivers to learn at their own pace while gaining reliable, evidence-based information. **Method** The implementation of the project involves several key steps. First, a multidisciplinary team—comprising dementia specialists, psychologists and UX designers—collaborates to identify the most relevant topics, such as basics about dementia, managing challenging behaviors, daily care routines, technical aids in the home environment, and self-care for caregivers. The videos are then selected from existing video content, translated in several languages using AI and then integrated into an online platform that allows caregivers to access the modules anytime and from any device. Additional resources, including checklists, short summaries, and interactive reflection questions, complement the video content. **Results and discussion** In a pilot study involving approx. 300 caregivers in three countries, these online resources are then tested on their efficacy to relieve psychological burden and depression risk of informal caregivers. By combining expert knowledge with accessible digital formats, the project provides meaningful, scalable support that strengthens caregivers' confidence and improves the quality of care for people with dementia.

References
1. Available from: https://demicare.app/nl/
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Micro-Interventions for Preventing Depression in Informal Caregivers of People With Dementia M. Ciumageanu, A. Salceanu, M. Stroilescu, R. Sfetcu. *Gerontechnology* 25(s)

Purpose Informal caregivers of people with dementia (ICGD) experience disproportionately high levels of depressive symptoms. Studies consistently report that ICGD often have elevated prevalence and significant associated burden [1,2]. Depression in this population is linked to impaired functioning, poorer physical health, and increased risk of suicidality [3]. These findings underscore the need for scalable preventive strategies grounded in the key risk and protective factors identified in caregiver depression frameworks [4]. Micro-interventions (brief, targeted psychological practices) offer a promising opportunity to strengthen resilience and reduce early depressive symptoms. **Methods** Within the DemiCare+ project, micro-interventions will be used for ICGD. These micro-interventions will be based on Positive Psychology and Cognitive Behavioural Therapy and will target mechanisms such as self-efficacy, emotion regulation, and cognitive reframing. Self-efficacy is a particularly important protective factor, moderating the relationship between behavioral problems of the care recipient and caregiver depression [5]. In our presentation, we will describe the systematic selection, refinement, and adaptation of these micro-interventions to be used in the Demicare application. **Results and discussion** DemiCare+ aims to develop a set of 42 micro-interventions organized into weekly themes (Settle the Body, Pleasant Activities, Cognitive Reframes, Self-Compassion, Connection, and Relapse Prevention). Each micro-intervention will provide a rationale, concise steps, timing cues, variations, and reflective prompts. Based on prior evidence showing that psychological and digital interventions can effectively reduce depressive symptoms and prevent onset [1,6–8], we expect these micro-interventions to be feasible, acceptable, and supportive in reducing early depressive symptoms while enhancing caregiver resilience.

References

1. Huang SS, Lin Y-C, Chiou H-Y, et al. Depression among caregivers of patients with dementia: a systematic review. *BMC Psychiatry.* 2022;22:43. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8783169/
2. Kwon C-Y, Park M, Park H-J. Effects of caregiver burden and depression in dementia caregivers: A systematic review. *Front Psychiatry.* 2021;12:625247. doi:10.3389/fpsyt.2021.625247.
3. Brodaty H, Donkin M. Family caregivers of people with dementia. *Dialogues Clin Neurosci.* 2009;11(2):217–28.
4. Ying J, Yap P, Gandhi M, Liew TM. Iterating a framework for the prevention of caregiver depression in dementia: a multi-method approach. *Int Psychogeriatr.* 2018;30(8):1119–1130. doi:10.1017/S1041610217002629.
5. Rabinowitz YG, Mausbach BT, Gallagher-Thompson D. Self-efficacy as a moderator of the relationship between care recipient memory and behavioral problems and caregiver depression in female dementia caregivers. *Alzheimer Dis Assoc Disord.* 2009;23(4):389–394. doi:10.1097/WAD.0b013e3181b6f74d.
6. Muñoz RF, Pineda BS, Barrera AZ, Bunge E, Leykin Y. Digital tools for prevention and treatment of depression: Lessons from the Institute for International Internet Interventions for Health. *Clín Salud.* 2021;32(1):37–40. doi:10.5093/clysa2021a2.
7. Rigabert A, Motrico E, Moreno-Peral P, et al. Effectiveness of online psychological and psychoeducational interventions to prevent depression: a systematic review and meta-analysis. *Clin Psychol Rev.* 2020;82:101931.
8. Kwon O-Y, Ahn HS, Kim HJ, Park KW. Effectiveness of Cognitive Behavioral Therapy for Caregivers of People with Dementia: A Systematic Review and Meta-Analysis. *J Clin Neurol.* 2017;13(4):394–404. doi:10.3988/jcn.2017.13.4.394.

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Taking care together: co-design with caregivers. Inspiration for creative co-design research methods N. E. Stolwijk and S. Ipakchian Askari. *Gerontechnology* 25(s)

Purpose When designing technologies it is important to take into account the user needs [1]. Often used qualitative methods to collect user input are interviews, observations or focus groups. Although these methods provide valuable insights, they often provide only explicit and observable information and no latent needs end users are unaware of. Creative methods can create an environment in which researchers can uncover deeper levels of knowledge including these latent needs [2]. During this workshop we will present formats that can be used for this purpose, using the example of the DemiCare+ project as case study. Moreover, co-design tends to tilt towards the positive perception of a technology. It is important to weigh positive and negative consequences when designing a technology [3]. Therefore, anticipation of consequences when adding certain features was taken into account in DemiCare+, using a method to explore the values and anticipate risks. **Method** In the DemiCare+ project co-design methods were used to translate the collected data into useful functionalities and interface for an app. For example, by letting participants share their week planner as an informal carer. This activity helps to emphasize with the informal caregivers and give them some handles to reflect on. Besides the researchers used statements to uncover values and risks informal carers perceive when using technological advancements, such as AI functionalities. This method is inspired by laddering, a technique in which explore perspectives and values by repeatedly asking "why is that important" [4]. **Results and discussion** In order to engage a more diverse group of participants than are attracted with traditional methods, creative research methods are being developed in healthcare [5]. We will start by sharing inspiring methods used in DemiCare+ project to uncover latent needs, for example, context mapping, letting participants share their week planner as informal carer. During an exercise participants practice a case the researchers encountered in the design process. They will work on how to integrate physical measurements into an application design Finally, we will present statements used to uncover values for responsible innovation. We will let the participants experience the working elements of it themselves, by letting them engage in this. Inspiring the audience to include this type of creative methods in future co-design sessions formats.

References
1. Sanders EBN, Stappers PJ. Co-creation and the new landscapes of design. Co-Design. 2008;4(1):5-18.
2. Visser FS, Stappers PJ, Van der Lugt R, Sanders EB. Contextmapping: experiences from practice. Co-Design. 2005;1(2):119-149.
3. Lukkien D, Ipakchian Askari S, Stolwijk N, Hofstede B, Nap H, Boon W, Peine A, Moors E, Minkman M. Making co-design more responsible: case study on the development of an AI-based decision support system in dementia care. JMIR Hum Factors. 2024;11:e55961. doi:10.2196/55961.
4. Veludo-de-Oliveira TM, Ikeda AA, Campomar MC. Discussing laddering application by the means-end chain theory. Qual Rep. 2006;11(4):626-642.
5. Phillips OR, Harries C, Leonardi-Bee J, Knight H, Sherar LB, Varela-Mato V, Morling JR. What are the strengths and limitations to utilising creative methods in public and patient involvement in health and social care research? A qualitative systematic review. Res Involv Engagem. 2024;10(1):48.