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Long-term care and innovation: Case Experience from Germany

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Long-term care and innovation – Digitalization, alternative care settings and workforce

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I. The challenge ahead

- **Demographic ageing inevitably leads to an increasing number of people in need of long-term care. For Germany we expect an increase from 4.9 million care-dependent people today to 7.5 million by 2050** (Barmer Pflegereport 2021)
- **The major challenge is to**
  a) provide sufficient financing, and
  b) find sufficient formal and informal care-givers.
- **It is necessary to support informal care-givers and mobilise civil society and support formal care-givers.**
- **Digital technology could support care-givers and increase possibilities of participation.**

II. The way forward

1. Alternative care arrangements
2. New staffing patterns for nursing homes
3. Digital Technology

II.1 Alternative Care Arrangements

- **In Germany, as of today 80% of care-dependents are cared for by families and friends, in two thirds of this cases without professional support.**
- **Traditionally, family care is continued until it is now longer possible and then a nursing home is chosen.**
- **Future care arrangements should rather be mixed arrangements with formal and informal care – even in highly institutionalised settings (aka nursing homes**
- **The strict fragmentation and segmentation must be overcome: we need care arrangements beyond sectors** (“sektorfrei”)
- **The long-term care insurance must provide benefits irrespective of where people live.**

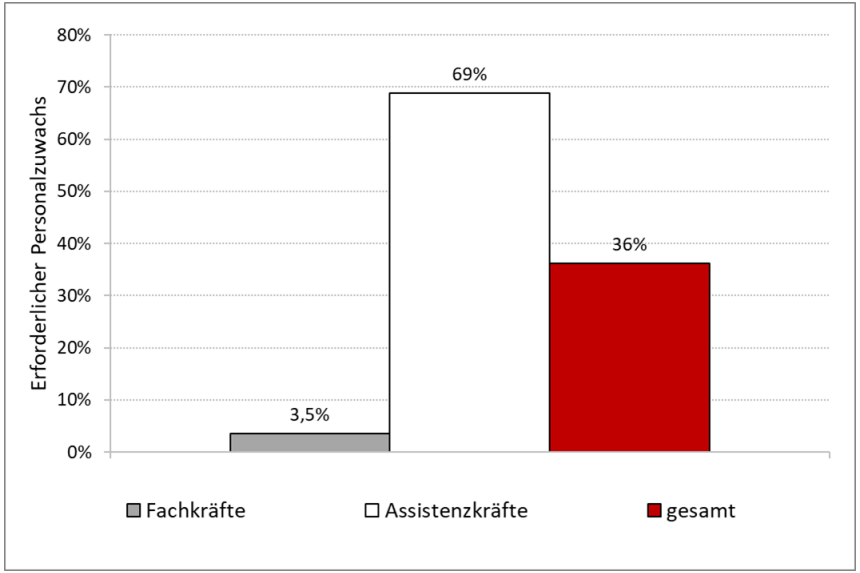
II.2 Staffing of nursing homes (I)

Recent developments in Germany:

- **From 2017 to 2020 a new formula was developed by means of an observational study with one-to-one shadowing of all nurses:**
  - in 64 nursing homes,
  - 1,380 residents were observed for 5 days each (including weekends and nights)
  - by 241 trained geriatric nurses shadowing nurses in their daily work routines.
- **Due to care planning and a detailed description on how and by whom interventions should be performed, observed data could be transformed into target values.**
- **The results of this study are going to be implemented stepwise.**

II.2 Staffing of nursing homes (II)

- The new formula yields an overall increase in nursing post in nursing homes by about 36%.
- While the number of fully trained (geriatric) nurses increases by only 3.5%, the growth rate for nurse assistants is 69%.
- All in all, an additional 115,000 posts are required on top of the 320,000 posts that already exist to care for about 750.000 residents.



II.2 Staffing of nursing homes (III)

- The 1st implementation step from January 2021 has allowed for an additional 20,000 nurses with 1 to 2 years training
- From July 2023 onwards a 2nd step will finance up to 25,000 additional post.
- The 3rd implementation step is planned for 2025.
- Last week an implementation project was commissioned to test the full implementation in about 10 nursing homes and analyse how the additional staff can be used to increase both quality of care and job satisfaction.
- Once fully implemented, the new staffing scheme might increase the attractiveness of the profession and so help to recruit more nurses in the future and prevent early retirement.

II.3 Digital Technology

Chances

- In Germany, today, planning and documentation is often still done on a paper and pencil base or digitised but not digitalised.
- Using digital technologies is a prerequisite for data-based planning and evaluation processes.
- Sensor-based technologies might reduce the necessity to monitor care-dependent people in person and thus e.g. improve night rest for carers and cared-for.
- Digital communication tools, which allow to keep contact with families and friends are helpful to prevent loneliness.

II.3 Digital Technology

International Journal of
Environmental Research and Public Health

MDPI

Article

Social Health among German Nursing Home Residents with Dementia during the COVID-19 Pandemic, and the Role of Technology to Promote Social Participation

Viktoria Hoel [1,2,*], Kathrin Seibert [1,2], Dominik Domhoff [1,2], Benedikt Preuß [3], Franziska Heinze [3], Heinz Rothgang [2,3] and Karin Wolf-Ostermann [1,2]

II.3 Digital Technology

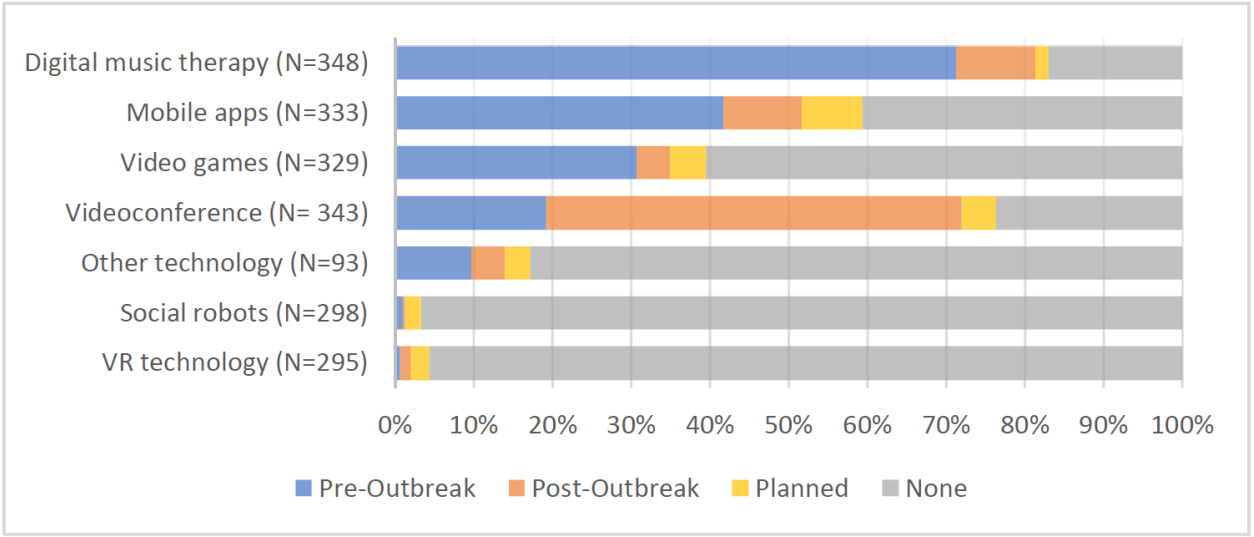


Figure 1. Utilization of digital devices to facilitate social participation for residents with dementia. Outlined are the relative frequencies of responses received per category. The pre-outbreak category includes the usage of post-outbreak ("Technology in use, even before the outbreak").

II.3 Digital Technology

Obstacles

- Evidence on effectiveness and efficiency of digital technologies is still scarce due to a lack of high-quality evaluations.

II.3 Digital Technology

Journal of Multidisciplinary Healthcare

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REVIEW

Effectiveness of Digital Technologies to Support Nursing Care: Results of a Scoping Review

This article was published in the following Dove Press journal:
Journal of Multidisciplinary Healthcare

Kai Huter[1,2]
Tobias Krick[1,2]
Dominik Domhoff[2,3]
Kathrin Seibert[2,3]
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Background: The field of digital technologies being developed or applied to support nursing care is extensive. The aim of this scoping review is to provide an overview on technologies for which results on positive or negative effects on persons in need of care, caregivers or care institutions are available and to appraise the reliability of these results.

Methods: A scoping review design has been used to identify studies focussing on the effectiveness of digital technologies in nursing care for persons in need of care, caregivers or care institutions. The screening process included 19,510 scientific publications from 9 databases.

Results: A total of 123 single studies and 31 reviews were subjected to the analysis. The included technologies comprise nursing and health information technologies, such as assistive devices, information and communication technologies, sensors and robotics. The results show that there are many studies that demonstrate positive effects, but the level of evidence

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https://doi.org/10.1186/s12913-019-4238-3

BMC Health Services Research

RESEARCH ARTICLE Open Access

Digital technology and nursing care: a scoping review on acceptance, effectiveness and efficiency studies of informal and formal care technologies

Tobias Krick[1,3*], Kai Huter[1,3], Dominik Domhoff[2,3], Annika Schmidt[2,3], Heinz Rothgang[1,3] and Karin Wolf-Ostermann[2,3]

Abstract

Background: The existence, usage and benefits of digital technologies in nursing care are relevant topics in the light of the current discussion on technologies as possible solutions to problems such as the shortage of skilled workers and the increasing demand for long-term care. A lack of good empirical overviews of existing technologies in the present literature prompted us to conduct this review. Its purpose was to map the field of digital technologies for informal and formal care that have already been explored in terms of acceptance, effectiveness and efficiency (AEE), and to show the scope of the used methods, target settings, target groups and fields of support.

Methods: A systematic literature search was conducted using Medline, Scopus, CINAHL, Cochrane Library, ACM Digital Library, IEEE Xplore, the Collection of Computer Science Bibliographies, GeroLit and CareLit. In addition, project websites were manually screened for relevant publications.

Results: Seven hundred fifteen papers were included in the review. Effectiveness studies have been most frequently performed for ICT, robots and sensors. Acceptance studies often focussed on ICT, robots and EHR/EMR. Efficiency studies were generally rare. Many studies were found to have a low level of evidence. Experimental designs with small numbers and without control groups were the most common methods used to evaluate acceptance and effectiveness. Study designs with high evidence levels were most commonly found for ICT, robots and e-learning. Technologies evaluated for informal caregivers and children or indicated for formal care at home or in cross-sectoral care were rare.

Conclusion: We recommend producing high-quality evaluations on existing digital technologies for AEE in real-life settings rather than systematic reviews with low-quality studies. More focus should be placed on research into efficiency. Future research should be devoted to a closer examination of the applied AEE evaluation methods. Policymakers should provide funding to enable large-scale, long-term evaluations of technologies in the practice of care, filling the research gaps for technologies, target settings and target groups identified in this review.

Keywords: Technology, Care, Nursing, Scoping Review, Efficiency, Effectiveness, Acceptance, Evaluation, Effect, Digital

II.3 Digital Technology

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- The scoping review includes 123 articles and 31 reviews.
- Most studies have a low level of evidence and small n.
- Effectiveness decreases with higher levels of evidence in the study.
- Studies in nursing homes and on informal caregivers are

➢ **The only tool with convincing evidence on effectiveness is PARO.**

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RESEARCH ARTICLE Open Access

Digital technology and nursing care: a scoping review on acceptance, effectiveness and efficiency studies of informal and formal care technologies

- The scoping review includes 715 articles.
- Most studies are on acceptance, fewer on effectiveness und very few on efficiency.
- Many studies have a low level of evidence.
- Studies with high evidence levels were found for ICT, robots and e-learning.
- Studies on informal caregivers and formal care at home were rare

➢ **We do not know much about the real chances of digital technology yet!**

II.3 Digital Technology

Obstacles

- Evidence on effectiveness and efficiency of digital technologies is still scarce due to a lack of high-quality evaluations.
- Geriatric nurses are perceived as being sceptical about digital innovation.
- However, an online survey and focus group discussions showed that nurses are open if there is a participative approach to the choice of technology and there is support during implementation.

II.3 Digital Technology

Obstacles

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- Geriatric nur
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Innovative Technologien in der ambulanten und stationären Pflege – Ergebnisse einer nationalen Bedarfsanalyse

Kathrin Seibert[1, 3] | Dominik Domhoff[1, 3] | Kai Huter[2, 3] | Tobias Krick[2, 3] | Heinz Rothgang[2, 3] | Karin Wolf-Ostermann[1, 3]

2. Clusterkonferenz Zukunft der Pflege, 16. und 17.09.2019, Berlin

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II.3 Digital Technology

Obstacles

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- Geriatric nurses are perceived as being sceptical on digital innovation.
- However, an online survey and focus group discussions should that nurses are open if there is a participative approach to the choice of technology and there is support during implementation.
- **There is no place for implementation and evaluation in real-life settings.**
  - University of Bremen received funding of 16 Mio. Euros for 9 years to build up “Academic Nursing Facilities” as places for research, teaching and care provision.

III. Conclusions

- “Who cares?” is the most important question for the future of LTC.
- The way forward must include support for all kinds of care arrangements and foster mixed care arrangements. With this in mind, strict definitions of care sectors should be abolished.
- In Germany, the new staffing formulae might prove helpful in increasing the attractiveness of the profession and thus attract more people who want to work in LTC.
- Digital technologies are promising in supporting care-givers, improve planning processes and increase social participation of the cared-for.
- However, knowledge about effectiveness of digital tools is still limited and must be increased. Implementation and evaluation in real-life settingscould be very helpful in achieving this.

Thank you for your attention!

I am looking forward to discussing your questions!

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Q & A

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