# Technology-based counselling in dementia (TeCoDem): a mixed-methods systematic review



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## **Background and objectives**

People with dementia and their informal carers are likely to benefit from individual and timely counselling. Telephone counselling might reduce depressive symptoms experienced by carers of people with dementia [1]. The SARS-CoV-2 pandemic highlighted, that technology-based counselling could be an alternative to personal contact interventions due to better accessibility and convenience. We aimed (i) to identify conditions of successful implementation of technology-based counselling interventions in dementia and (ii) to investigate the effectiveness of these interventions.

# Methods

We used a mixed-methods design and planned to conduct a Qualitative Comparative Analysis (QCA) and a meta-analysis [2]. We performed a comprehensive systematic literature search combining an electronic database search with supplementary search methods. Studies with various designs of telephone-, web-, or mobile-based counselling interventions for people with dementia and/or informal carers were included for the QCA to identify necessary or sufficient conditions for a successful implementation. A meta-analysis was performed according to the Cochrane handbook methodology [3] on our primary outcome depressive symptoms as well as on burden and self-efficacy/mastery. We did not restrict to specific outcomes and performed a narrative synthesis or structured reporting where pooling of data was not possible.

### Results

# **Qualitative Comparative Analysis**

We included 61 reports on 29 technology-based interventions ranging from long-established helplines to theory-based, manualized interventions at different stages of implementation.



The indicators ,acceptabilit ,adoption', ,appropriateness',

,acceptability', ,fidelity', priateness', ,feasibility',

# **Synthesis of results**

We included five RCTs with 880 participants. Telephone or videoconferencing software was used to deliver two to 23 counselling sessions over a period of one to twelve months. Comparisons were educational and resource materials only, standard (helpline) services, non-directive support, and home visits. We rated all outcomes at an overall high risk of bias.

,implementation cost', ,penetration', and ,sustainability' [4] were used for operationalizing the outcome ,successful implementation'. We adjusted the definitions of the indicators according to the study context and used them to inform the extraction of data. A fuzzy-set approach was planned to calibrate the implementation success for each intervention.

Figure 1: QCA as an approach and as an analytic technique [5]

The included publications differed considerably in type, scope, detailedness, and quality of reporting. Details on implementation issues were

insufficiently reported for most interventions. We found no adequate information to assess the degree of implementation success across the interventions.

After intensive discussion in the research team, we concluded not to conduct a QCA due to the lack of a consistent data basis.

The pooled data of two studies with 246 participants revealed nonsignificant lower depression scores experienced by informal carers at six months or twelve months (SMD -0.15; 95% CI -0.40 to 0.10,  $I^2=0\%$ ).



Figure 2: Forest Plot for depressive symptoms experienced by carers of people with dementia

There were also no effects on carers' perceived burden and selfefficacy/mastery. In a variety of different outcomes, only individual studies show effects of technology-based counselling on few outcomes such as carers' reaction to dementia-related behavior or resource use of informal carers.

# Conclusions

Very few technology-based counselling interventions have been evaluated in RCTs or in process evaluation studies. We found no clear evidence for the effectiveness of these interventions in reducing depressive symptoms experienced by informal carers of people with dementia. There was no sufficient data basis to identify conditions for a successful implementation. Consistent reporting and further research is needed to understand how technology-based counseling interventions can be made effective and successfully implemented.

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