

INPLASY PROTOCOL

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Corresponding author:
Lili Ma

535714099@qq.com

Author Affiliation:
Henan University of Science and Technology

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There is no conflict of interest exists in the submission of this paper.

Effectiveness of telephone-based intervention on the family caregivers of patients living with dementia: A systematic review and meta-analysis

Ma, L¹; Wang, W²; Feng, H³.

Review question / Objective: P: family caregivers of the patients with dementia; I: telephone-based intervention or support were provided as the primary technology for the caregivers; C: usual care, general controls, route follow-up, the use of health education materials and so on; O: at least one of the outcomes were reported in the studies, such as depression, anxiety, caregiving burden, bother, self-efficacy and so on; S: RCT.

Condition being studied: Dementia is an irreversible disease and couldn't be cured fundamentally. With the progression of disease, patients' cognitive abilities and the abilities of daily life activities would gradually decrease. Studies found that since the caregivers have to put up with serious physical fatigue, mental stress, caregiving burden and economic burden, they have a high risk of suffering from depression, stress and other psychological and physical problems, which might affect the quality of life and longevity of dementia patients. Telephone-based intervention could serve as an effective and convenient way to provide support and education for the caregivers of patients living with dementia.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 20 April 2020 and was last updated on 20 April 2020 (registration number INPLASY202040122).

INTRODUCTION

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METHODS

Search strategy: (((("Telephone"[Mesh] OR telephone* OR cellphone* OR "cell phone*" OR smartphone* OR "smart phone*" OR mobilephone* OR "mobile phone*" OR telephone intervention OR phone* OR call* OR "cellular phone*" OR "cellular telephone*" OR "portable cellular phone*" OR "mobile telephone*")) AND (((("Dementia"[Mesh] OR dementia* OR amentia* OR "Alzheimer Disease"[Mesh] OR alzheimer OR alzheimers OR Alzheimer Disease OR "cognitive disorder" OR "cognitive impairment" OR "memory loss")) AND ("Caregivers"[Mesh] OR carer OR carers OR caregivers OR caregiver OR care giver OR care givers OR "care givers" OR "care giver" OR caregiving OR caregiver burden OR caregiver support))).

Participant or population: Family caregivers of the patients with dementia.

Intervention: Telephone-based intervention or support were provided as the primary technology for the caregivers.

Comparator: Usual care, general controls, route follow-up, the use of health education materials and so on.

Study designs to be included: Only RCT.

Eligibility criteria: (1) Family caregivers of the patients with dementia, Alzheimer's disease or other related types of dementia; (2) telephone-based intervention or support were provided as the primary technology

for the caregivers; (3) Interventions aiming at improving the psychological or physical health of caregivers; (4) all the studies included in this systematic review compared telephone-based intervention with usual care, general controls, route follow-up, the use of health education materials and so on. (5) at least one of the outcomes were reported in the studies, such as depression, anxiety, caregiving burden, bother, self-efficacy and so on; (6) All the studies were published in English-language or Chinese-language journals

Information sources: PubMed, Cochrane Library, Cumulative Index of Nursing and Allied Health Literature (CINAHL), Embase, Web of Science, China National Knowledge Infrastructure (CNKI), Wanfang and Chinese biomedical literature service system (SinoMed) will be used. In addition, Google Scholar and other search engines are used to search the relevant literature and gray literature on the Internet. Citation search, author search and references of relevant articles would also be performed.

Main outcome(s): Depression, self-efficacy, burden, quality of life. We plan to extract the outcomes at baseline and post-intervention.

Data management: 2 reviewers will extract independently and check the data with each other, any inconsistencies will be discussed and resolved with a third reviewer. The following data will be extracted for analysis: the country of studies, sample size of the participants in each group, the intervention description of both groups and intervention duration, the measurement of outcomes and measurement time. Review Manager 5.3 provided by Cochrane Library will be used for all the analyses.

Quality assessment / Risk of bias analysis: The Cochrane bias risk assessment tool in the Cochrane Handbook of Systematic Reviews of Interventions will be used to assess the bias of the studies included in this systematic review by 2 reviewers. The disagreements between the 2 researchers

would be discussed and addressed by a third researcher. The following aspects were assessed: selection bias; performance bias; detection bias; attrition bias; reporting bias and other biases.

Strategy of data synthesis: Standard mean difference (SMD) and 95% CIs will be used to indicate the summary results for the studies that measured the outcomes using different measurement tools. For the results of the studies, the changes between baseline and post-intervention would be more effective than the comparison based on post-intervention value. I² was used to indicate the heterogeneity of included studies. Fewer than 40% showed low heterogeneity and we should use the fixed model. Additionally, greater than 60% indicated high heterogeneity and we need to use the random model.

Subgroup analysis: Of all these studies included in our review, we found several kinds of intervention, they are professional education, professional support and information, professional education and treatment, professional group support and professional group support combined with information and education. These types of studies will be included in each group.

Sensibility analysis: If there will be no statistically significant heterogeneity between the studies, we would use fixed model to analyze the overall effect. However, if there will be statistically heterogeneity between studies included, we would use random model to analyze.

Language: English and Chinese.

Country(ies) involved: mainland China.

Keywords: Telephone-based; education; caregivers; dementia.