INPLASY PROTOCOL

To cite: Ma et al. Association between Frailty and Oral Function in Community-Dwelling Elderly Adults. Inplasy protocol 202330029. doi: 10.37766/inplasy2023.3.0029

Received: 08 March 2023

Published: 08 March 2023

Corresponding author:
Ma hongmei

hmma@alu.suda.edu.cn

Author Affiliation:
Department of Neurology, Qinghai Provincial People's Hospital.

Support: **Qinghai Kunlun Talent Training Program.**

Review Stage at time of this submission: **Preliminary searches.**

Conflicts of interest:
None declared.

Association between Frailty and Oral Function in Community-Dwelling Elderly Adults

Ma, HM[1]; Tang, ZX[2]; Dong, YF[3]; Li, CX[4].

Review question / Objective: **Which is the relationship between frailty and oral function in community-dwelling older adults?**
Condition being studied: **The increased prevalence of oral diseases and fewer teeth in older people are likely to have a significant impact on systemic health. Recently, declines in oral functions, such as chewing and swallowing, have been recognized as an important oral health problem in older adults.In recent years, various cross-sectional and longitudinal studies have shown that frailty in community-dwelling older people is associated with decreases in oral functions such as occlusal force,tongue pressure and masticatory function. The association of oral hypofunction or a combination of decreased oral functions with frailty is also not clear.Given the above, the objective of the current study was to estimate the prevalence and synthesize diverse evidence about the relationship between frailty and decreased oral function in community-dwelling older adults.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 08 March 2023 and was last updated on 08 March 2023 (registration number INPLASY202330029).

INTRODUCTION

Review question / Objective: **Which is the relationship between frailty and oral function in community-dwelling older adults?**

Condition being studied: **The increased prevalence of oral diseases and fewer teeth in older people are likely to have a significant impact on systemic health. Recently, declines in oral functions, such as chewing and swallowing, have been recognized as an important oral health problem in older adults.In recent years, various cross-sectional and longitudinal studies have shown that frailty in community-dwelling older people is**

associated with decreases in oral functions such as occlusal force,tongue pressure and masticatory function. The association of oral hypofunction or a combination of decreased oral functions with frailty is also not clear.Given the above, the objective of the current study was to estimate the prevalence and synthesize diverse evidence about the relationship between frailty and decreased oral function in community-dwelling older adults.

METHODS

Participant or population: The subjects were elderly people ≥ 60 years old in the community people over 60 years of age who were able to move autonomously,

Intervention: No.

Comparator: No.

Study designs to be included: Observational studies, including prospective and retrospective cohort, case-control and cross-sectionalstudies; presence of the variables of interest: "frailty"and "oral function"; involving older adults aged ≥ 60 years old; and published in anylanguage with no limitation regarding publication date.

Eligibility criteria: Elderly people ≥60 years old in the community, who have the ability of independent activities and have no serious diseases, excluding elderly people in hospital, The exclusion criteria for the studies were as follows: notcategorizing patients as frail and non-frail, case reports,letters to the editor, abstracts in conference proceedings,dissertations, theses and monographs.

Information sources: Systematic searches were performed in multiple literature databases, including Medline, Medline ePubs/In-process citations, Embase, APA (American Psychological Association) PsycInfo, Ovid Emcare Nursing (all via the Ovid platform), Cumulative Indexto Nursing and Allied Health Literature (CINAHL) EbscoHost, the Web of Science (Clarivate Analytics)and Scopus (Elsevier). If more data were required or if information was unclear, study authors were contacted for clarification.

Main outcome(s): Assessing oral function(Oral hygiene,Oral dryness,Occlusal force,Masticatory function,Swallowing function),Assessing frailty

Additional outcome(s): Trophic state, complication, mortality rate.

Quality assessment / Risk of bias analysis: The eligible studies were critically evaluated by two independent reviewers regarding their methodological quality by resorting to the Joanna Briggs Institute (JBI) scale. Any and all disagreements were solved by means of a discussion with a third reviewer. On a scale consisting of nine criteria, studies that met from zero to three criteria were considered to be of low quality, those that met from four to six criteria were considered to be of medium quality, and from seven or more were considered to be of high methodological quality. The evaluation scores in relation to the methodological quality showed that most of the articles are of average to high quality.Heterogeneity across the studies was tested by means of the I 2 test, considering it significant when $p<0.05$. The alternative hypothesis of the heterogeneity test is that variability/heterogeneity is significant; therefore, fixed or random effects models were chosen based on acceptance or rejection of the null hypothesis. All the analyses were performed in the stata14.0.

Strategy of data synthesis: The abstracts evaluated were returned to the main researcher, who made all articles available in full-text format to the reviewers for evaluation of the eligibility criteria. To minimize a possible bias in selection of the studies, a refinement procedure was performed by two independent reviewers seeking 100% agreement, and a third reviewer evaluated the possible divergences that occurred in the selection of abstracts to make a final decision on their inclusion or exclusion.The data

analyzed for the meta-analysis were the following: total number of patients, number of frail and non-frail patients, number of patients with oral dysfunction and their combined effects. The meta-analysis model estimated the relative risk corresponding to the prevalence of frailty and oral dysfunction. The "pooled effects" were estimated using the inverse variance method of proportions to estimate prevalence values and relative risk for the binary outcomes, with 95% confidence interval, and representedin Forest plots.

Subgroup analysis: Subgroup analysis was used when heterogeneity occurred,the included original studies were grouped according to a factor, and the combined effect size was calculated within each subgroup to see if the differences in the combined effect size between subgroups were statistically significant. Therefore, whether there is interaction between grouping factors and combined effect size can be judged.There are two ways to determine the results of subgroup analysis: (1) Quantitative judgment, to observe whether there is overlap between the 95%CI of the combined effect size of each subgroup. If there is no overlap, the difference between the two groups is statistically significant; (2) Quantitative judgment, according to the sample size, effect size and 95%CI of each subgroup, calculated the difference test P value.

Sensitivity analysis: According to the research characteristics of the included studies, some studies with low quality or with different efficacy evaluation criteria and exclusion criteria were excluded, and then combined analysis was conducted to compare with the combined effect size before exclusion, so as to explore the impact of excluded studies on the combined effect size. When specific studies (low-quality studies, studies with different exclusion standards, etc.) were excluded, There was no significant change in the combined effect size before and after the meta-analysis, indicating that the results of meta-analysis were stable. If large differences or even opposite conclusions are found, it suggests that the stability of meta-analysis results is poor, and caution should be taken when interpreting results and drawing conclusions.

Country(ies) involved: China mainland.

Keywords: Oral dysfunction;Frailty; correlation.

Contributions of each author:

Author 1 - Ma hongmei.
Email: hmma@alu.suda.edu.cn
Author 2 - Tang zaixiang.
Author 3 - Dong yongfei.
Author 4 - Li caixia.

Ma,HM, Tang,zx , and Dong,yf: conceived the idea . Ma,HH, : designed, conducted the study and drafted the manuscript. Dong,yf: with screening, data extraction, study quality assessment, data analysis Tang,zx and Li,CX: provided feedback; devised the protocol, resolved the disagreements.