

**Appendix 1****Search date: 20/04/2022****[Search strategy for MEDLINE / EMBASE / PsycINFO/ CINAHL via OvidSP]**

1. exp Frailty/
2. frailty.mp.
3. exp Frail Elderly/
4. Frail Elderly.sh,kf.
5. Frail Older People.mp.
6. Frailty syndrome.mp.
7. (Frailty adj2 syndrome).mp.
8. (Frail\* or geriatric syndrome\* or geriatric disorder\*).ti,ab.
9. ((elder\* or old\* or senior\* or geriatric\*) adj4 function\* adj4 (declin\* or impair\*)).af.
10. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9
11. exp Advance Care Planning/
12. (advance\* care adj plan\*).tw.
13. (advance\* adj (medical plan\* or statement\*)).tw.
14. acp.tw.
15. Statement of wishes.tw.
16. Terminal Care/
17. terminal care.tw.
18. ((end of life or EOL) adj5 (care or discuss\* or decision\* or plan\* or preference\*)).tw.
19. Living Wills/
20. living will\*.tw.
21. 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20
22. 10 and 21
23. limit 22 to (english language and yr="2003 - 2022" and "all aged (50 and over)")

**PubMed**

((Frail Elderly[MeSH Terms]) OR (Elderly, Frail[Title/Abstract] OR Frail Elders[Title/Abstract] OR Elder, Frail[Title/Abstract] OR Elders, Frail[Title/Abstract] OR Frail Elder[Title/Abstract] OR Functionally-Impaired Elderly[Title/Abstract] OR Elderly, Functionally-Impaired[Title/Abstract] OR Functionally Impaired Elderly[Title/Abstract] OR Frail Older Adults[Title/Abstract] OR Adult, Frail Older[Title/Abstract] OR Adults, Frail Older[Title/Abstract] OR Frail Older Adult[Title/Abstract] OR Older Adult, Frail[Title/Abstract] OR Older Adults, Frail[Title/Abstract])) AND (Advance Care Planning[MeSH Terms]) OR (Advance Health Care Planning[Title/Abstract] OR Advance Medical Planning[Title/Abstract] OR Medical Planning, Advance[Title/Abstract] OR Planning, Advance Medical[Title/Abstract] OR Advance Directives[Title/Abstract] OR Living Wills[Title/Abstract] OR Terminal Care[Title/Abstract]) AND ((aged[Filter]) AND (2003:2022[pdat]))

**Cochrane library**

- #1 (advance care planning):ti,ab,kw OR (Advance Directive):ti,ab,kw OR (Living will):ti,ab,kw OR (advance\* NEAR/3 plan\*):ti,ab,kw OR (future care planning):ti,ab,kw
- #2 (Anticipatory care plan\*):ti,ab,kw OR (end of life NEXT (discuss\* or conversation\* or decision\* or plan\* or preference\*)):ti,ab,kw OR (Medical treatment order):ti,ab,kw OR (Statement of wishes):ti,ab,kw OR (Medical directive):ti,ab,kw
- #3 (advance\* NEXT (medical plan\* or statement\*)):ti,ab,kw
- #4 advance care planning
- #5 Advance Directive
- #6 Living will
- #7 (Frail Elderly):ti,ab,kw OR (Frail):ti,ab,kw OR (Elderly):ti,ab,kw OR (Frailty syndrome):ti,ab,kw
- #8 #1 or #2 or #3 or #4 or #5 or #6

#9 #8 and #7

**CINAHL complete**

S1 "advance\* care plan\*"  
S2 "Anticipatory care plan\*"  
S3 "future care planning"  
S4 (MH "Advance Care Planning")  
S5 "Advance Care Planning"  
S6 "Living Wills"  
S7 (MH "Advance Directives+") OR (MH "Living Wills")  
S8 "Advance Directives"  
S9 "Resuscitation Orders"  
S10 "Medical treatment order"  
S11 "Statement of wishes"  
S12 "Medical directive"  
S13 "end of life discuss\*"  
S14 "end of life conversation\*"  
S15 "end of life decision\*"  
S16 "end of life plan\*"  
S17 "end of life preference\*"  
S18 "advance\* medical plan\*"  
S19 "advance\* statement\*"  
S20 S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11 OR S12 OR S13 OR  
S14 OR S15 OR S16 OR S17 OR S18 OR S19  
S21 (MH "Frailty") OR (MH "Frail Elderly")  
S22 " frailty"  
S23 "Frailty syndrome"  
S24 "Frail Older People"  
S25 S21 OR S22 OR S23 OR S24  
S26 S20 AND S25  
S27 (AG "50 and over") AND (DT "2003 - 2022") AND (ZL "English")  
S28 S26 AND S27

## Appendix 2

Table 2a. Methodological quality of included randomized controlled trial

	Rebecca L et al, 2018	Anouk Overbeek et al, 2019	Li-Hwa Lin et al, 2021	Hillary D. Lum et al, 2020
1. Was true randomization used for assignment of participants to treatment groups?	Yes	Yes	Yes	Yes
2. Was allocation to treatment groups concealed?	Yes	No	Unclear	Unclear
3. Were treatment groups similar at the baseline?	Yes	Yes	Yes	Yes
4. Were participants blind to treatment assignment?	No	No	Unclear	No
5. Were those delivering treatment blind to treatment assignment?	Yes	No	Unclear	No
6. Were outcomes assessors blind to treatment assignment?	Yes	No	Unclear	No
7. Were treatment groups treated identically other than the intervention of interest?	Yes	Yes	Yes	Yes
8. Was follow up complete and if not, were differences between groups in terms of their follow up adequately described and analyzed?	Yes	Yes	Yes	Yes
9. Were participants analyzed in the groups to which they were randomized?	Yes	Yes	Yes	Yes
10. Were outcomes measured in the same way for treatment groups?	Yes	Yes	Yes	Yes
11. Were outcomes measured in a reliable way?	Yes	Yes	Yes	Yes
12. Was appropriate statistical analysis used?	Yes	Yes	Yes	Yes
13. Was the trial design appropriate, and any deviations from the standard RCT design (individual randomization, parallel groups) accounted for in the conduct and analysis of the trial?	Yes	Yes	Yes	Yes
Overall quality	Moderate	Low	Low	Low

Table 2b. Critical appraisal results for included quasi-experimental studies or mixed methods studies or no randomized controlled trial

	Huei-Chuan Sung et al, 2019	Wallace Chi Ho Chan et al, 2021	Renli Deng et al, 2020	Debra K.Litzelman et al, 2017	Hiroko Okada et al, 2022
1. Is it clear in the study what is the 'cause' and what is the 'effect' (i.e. there is no confusion about which variable comes first)?	Yes	Yes	Yes	Yes	Yes
2. Were the participants included in any comparisons similar?	Yes	Yes	Yes	Yes	Yes
3. Were the participants included in any comparisons receiving similar treatment/care, other than the exposure or intervention of interest?	No	No	No	No	No
4. Was there a control group?	Yes	Yes	Yes	No	No
5. Were there multiple measurements of the outcome both pre and post the intervention/exposure?	Yes	Yes	Yes	No	No

6. Was follow up complete and if not, were differences between groups in terms of their follow up adequately described and analyzed?	Yes	Yes	No	Unclear	Yes
7. Were the outcomes of participants included in any comparisons measured in the same way?	Yes	Yes	Yes	Yes	Yes
8. Were outcomes measured in a reliable way?	Yes	Yes	Yes	Yes	Yes
9. Was appropriate statistical analysis used?	Yes	Yes	Yes	Yes	Yes
Overall quality	Moderate	Moderate	Moderate	Low	Low

**Table 2c. Critical appraisal results for included qualitative studies**

	Francesca Ingravallo et al, 2018	Sheng - Yu Fan et al, 2019	Sarah Combes et al, 2021	Carrie Bernard et al, 2020	Sok Shin Yap et al, 2021	Jeanine Yonashiro-Cho et al, 2016	Jolien J. Glaudemans et al, 2020	Debra K.Litzelman et al, 2017
1. Is there congruity between the stated philosophical perspective and the research methodology?	Unclear	Unclear	Yes	No	Unclear	Yes	Yes	Yes
2. Is there congruity between the research methodology and the research question or objectives?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3. Is there congruity between the research methodology and the methods used to collect data?	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
4. Is there congruity between the research methodology and the representation and analysis of data?	Yes	Yes	Yes	Unclear	Yes	Yes	Unclear	Yes
5. Is there congruity between the research methodology and the interpretation of results?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
6. Is there a statement locating the researcher culturally or theoretically?	No	No	No	Unclear	No	No	No	No
7. Is the influence of the researcher on the research, and vice- versa, addressed?	Unclear	Yes	Yes	Unclear	Unclear	Unclear	Unclear	Unclear
8. Are participants, and their voices, adequately represented?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

9. Is the research ethical according to current criteria or, for recent studies, and is there evidence of ethical approval by an appropriate body?	Yes	Yes	Yes	Yes	No	Yes	No	Yes
10. Do the conclusions drawn in the research report flow from the analysis, or interpretation, of the data?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Overall quality	Low	Moderate	Moderate	Low	Low	Moderate	Low	Moderate

**Table 2d. Critical appraisal results for included cross sectional studies**

	Helen YL Chan et al, 2007
1. Were the criteria for inclusion in the sample clearly defined?	Yes
2. Were the study subjects and the setting described in detail?	Yes
3. Was the exposure measured in a valid and reliable way?	Yes
4. Were objective, standard criteria used for measurement of the condition?	Yes
5. Were confounding factors identified?	Unclear
6. Were strategies to deal with confounding factors stated?	No
7. Were the outcomes measured in a valid and reliable way?	Yes
8. Was appropriate statistical analysis used?	Yes
Overall quality	Moderate