**Factors correlated with demoralization among cancer patients：a systematic review and meta-analysis**

**Supplementary Material**

**Appendix A.** Supplementary Table

**Appendix B.** Forest Plots

**Appendix C.** Egger Test Plots

**Appendix A** Supplementary Table

**Table S1** **Search strategy**

|  |  |  |
| --- | --- | --- |
| **Source** | **Search** | **Search strategy** |
| **PubMed** | #1 | Neoplasms [Mesh] |
|  | #2 | (tumor\*[Title/Abstract] OR neoplas\*[Title/Abstract] OR cancer\*[Title/Abstract] OR onco\*[Title/Abstract] OR malignan\*[Title/Abstract] OR carcinoma [Title/Abstract]) |
| #3 | #1 OR #2 |
| #4 | Demoralization [Mesh] OR demoralization [Title/Abstract] |
| #5 | #3 And #4 |
| **Web of science** | #1 | Demoralization OR demorali\* [TS] |
|  | #2 | Neoplasms OR tumor\* OR neoplas\* OR cancer\* OR onco\*OR carcinoma OR malignan\* [TS] |
|  | #1 AND #2 |
| **CINAHL** | #1 | SU Neoplasms [SU] |
|  | #2 | Neoplasms OR tumor\* OR neoplas\* OR cancer\* OR onco\*OR carcinoma OR malignan\* |
|  | #3 | #1 OR #2 |
|  | #4 | Demoralization [SU] |
|  | #5 | Demorali\* |
|  | #6 | #4 OR #5 |
|  | #7 | #3 AND #6 |
| **Embase** | #1 | 'neoplasms'/exp OR neoplasms OR tumor\*:ab,ti,kw OR neoplas\*:ab,ti,kw OR cancer\*:ab,ti,kw OR onco\*:ab,ti,kw OR 'carcinoma'/exp OR carcinoma OR ：ab,ti,kw OR malignan\*:ab,ti,kw |
|  | #2 | demoralization:ab,ti,kw OR demorali\*:ab,ti,kw OR 'demoralization syndrome':ab,ti,kw |
| #3 | #1 AND #2 |
| **Cochrane library** | #1 | Neoplasms OR tumor\* OR neoplas\* OR cancer\* OR onco\*OR carcinoma OR malignan\*[Title Abstract Keyword] |
|  | #2 | demoralization OR demorali\*[Title Abstract Keyword] |
| #3 | #1 AND #2 |
| **PsycINFO** | #1 | Neoplasms OR tumor\* OR neoplas\* OR cancer\* OR onco\*OR carcinoma OR malignan\* [Title] |
|  | #2 | Neoplasms OR tumor\* OR neoplas\* OR cancer\* OR onco\*OR carcinoma OR malignan\* [abstract] |
|  | #3 | Neoplasms OR tumor\* OR neoplas\* OR cancer\* OR onco\*OR carcinoma OR malignan\* [Keyword] |
|  | #4 | #1 OR #2 OR #3 |
|  | #5 | Demoralization OR demorali\*[Title] |
|  | #6 | Demoralization OR demorali\*[abstract] |
|  | #7 | Demoralization OR demorali\*[Keyword] |
|  | #8 | #5 OR #6 OR #7 |
|  | #9 | #4 AND #8 |

**Table S2 Quality assessment of the included cross-sectional studies**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Study | Define the source of information |  List inclusion and exclusion criteria | Indicate time period used for identifying patients | Indicate whether or not subjects were consecutive if not population-based | Indicate if evaluators of subjective components of study were masked to other aspects of the status of the participants | Describe any assessments undertaken for quality assurance purposes | Explain any patient exclusions from analysis | Describe how confounding was assessed | If applicable, explain how missing data were handled in the analysis | Summarize patient response rates and completeness of data collection | The percentage or number of patients for which incomplete data | Total |
| An et al., 2018 | √ | √ | √ | √ | × | √ | √ | √ | / | / | / | 6 |
| Arvanitou et al., 2023 | √ | √ | √ | √ | × | √ | × | √ | / | √ | / | 7 |
| Belar etal., 2019 | √ | √ | √ | √ | × | √ | × | √ | / | √ | √ | 9 |
| Bovero et al., 2023 | √ | √ | / | √ | × | √ | √ | √ | √ | √ | √ | 9 |
| Bovero et al., 2021 | √ | √ | √ | √ | × | √ | √ | √ | √ | √ | √ | 10 |
| Chang et al., 2022 | √ | √ | √ | √ | × | √ | / | √ | / | / | / | 6 |
| Chang et al., 2022 | √ | √ | √ | √ | / | √ | / | √ | / | √ | √ | 8 |
| Cheng et al., 2019 | √ | √ | √ | √ | / | √ | √ | √ | √ | √ | √ | 10 |
| Chien et al., 2022 | √ | √ | √ | √ | × | √ | √ | √ | / | √ | / | 8 |
| Eggen et al., 2020 | √ | √ | √ | √ | × | √ | √ | √ | √ | √ | √ | 10 |
| Elmasian et al., 2023 | √ | / | √ | × | × | √ | √ | √ | √ | / | / | 6 |
| Garzón et al., 2018 | √ | √ | √ | √ | × | √ | √ | √ | √ | √ | √ | 10 |
| Cai et a., 2022 | √ | √ | √ | √ | × | √ | / | √ | / | / | / | 6 |
| Ghiggia et al., 2021 | √ | √ | √ | √ | × | √ | / | √ | / | / | / | 6 |
| Kang et al., 2023 | √ | √ | / | √ | × | √ | / | √ | / | √ | / | 6 |
| Kim et al., 2021 | √ | √ | / | √ | × | √ | √ | √ | √ | √ | √ | 10 |
| Ko et al., 2018 | √ | √ | √ | √ | × | √ | √ | √ | √ | √ | √ | 10 |
| Liu et al., 2022 | √ | √ | √ | √ | × | √ | / | √ | / | / | / | 6 |
| Lai et al., 2022 | √ | √ | √ | √ | × | √ | √ | √ | √ | √ | √ | 10 |
| Li et al., 2020 | √ | √ | √ | √ | × | √ | √ | √ | √ | √ | √ | 10 |
| Li et al., 2016 | √ | √ | √ | √ | × | √ | / | √ | / | √ | / | 7 |
| Li et al., 2023 | √ | √ | √ | √ | × | √ | / | √ | / | / | / | 6 |
| Lin et al., 2022 | √ | √ | √ | √ | × | √ | / | √ | / | √ | / | 7 |
| Liu et al., 2020 | √ | √ | √ | √ | × | √ | × | √ | × | × | × | 6 |
| Nanni et al., 2018 | √ | √ | √ | √ | × | √ | √ | √ | √ | √ | √ | 10 |
| Peng et al., 2021 | √ | √ | √ | √ | × | √ | √ | √ | √ | √ | √ | 10 |
| Vehling et al., 2014 | √ | √ | / | √ | × | √ | √ | √ | √ | √ | √ | 9 |
| Scandurra et al., 2022 | √ | √ | √ | √ | √ | √ | / | √ | / | √ | / | 8 |
| Shao et al., 2023 | √ | √ | √ | √ | × | √ | √ | √ | / | √ | / | 8 |
| Shapiro et al., 2020 | √ | √ | √ | √ | × | √ | × | √ | × | √ | × | 7 |
| Tang et al., 2020 | √ | √ | √ | √ | × | √ | × | √ | √ | × | × | 7 |
| Wu et al., 2021 | √ | √ | √ | √ | × | √ | × | √ | / | √ | / | 7 |
| Xu et al., 2019 | √ | √ | √ | √ | × | √ | √ | √ | √ | √ | √ | 10 |
| Li et al., 2022 | √ | √ | √ | √ | × | √ | / | √ | / | √ | / | 7 |
| Ou et al., 2021 | √ | √ | √ | √ | × | √ | √ | √ | √ | √ | √ | 10 |
| Zhu et al., 2022 | √ | √ | √ | √ | × | √ | / | √ | / | √ | / | 7 |

Note(Choi et al., 2022):"√" = Yes; "×" = No; "/" = Not clear

**Table S3 Quality assessment of the included longitude studies**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Representativeness of the exposed cohort | Selection of the non-exposed cohort |  Ascertainment of exposure | Demonstration that outcome of interest was not present at start of study | Comparability of cohorts on the basis of the design or analysis | Assessment of outcome | Was follow-up long enough for outcomes to occur | Adequacy of follow up of cohorts | Total  |
| Philipp et al., 2020 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 6 |
| Tang et al., 2022 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 7 |

**Appendix B. Forest Plots**

**Sociodemographic correlates:**

Figure S1 Forest plot of socio-demographic correlates of demoralization

Note: A. religious; B. residence;

**Clinical correlates**

Figure S2 Forest plot of clinical correlates of demoralization

Note: A. functional status; B. clinical stage; C. sleep quality; D. relationship to health care; E. self-perceived burden.

**Psychosocial correlates**

Figure S3 Forest plot of psychological correlates of demoralization

Note: A. death anxiety; B. surrender coping; C. facing coping; D. avoidance coping; E. spiritual interests; F. hopeless; G. self-esteem; H. psychosocial resilience; I. self-efficacy.

**Appendix C. Egger test plot**



Figure S4 Egger test plot of correlates of demoralization

Figure S4 Egger test plot of correlates of demoralization

Note: A. surrender coping; B. avoidance coping; C. functional status; D. hopeless; E. clinical stage; F. self-esteem