

# Digital Health Interventions for Psychological Outcomes among Adolescents and Young Adults with Cancer: A Systematic Review and Meta-analysis

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## ■ Background

- Adolescents and young adults with cancer (AYAs, diagnosed between 15 and 39 years old) face distinct psychosocial challenges that significantly impacts their psychological well-being.
- Studies have shown that AYAs endorse high interest in digital health interventions (DHIs). Currently, there is little pooled evidence on the quantitative benefits of DHIs among AYAs.

## ■ Objectives

This systematic review and meta-analysis aims to

- describe the characteristics of DHIs;
- examine the efficacy of DHIs on psychological outcomes of AYAs during and after cancer treatment through randomized controlled trials (RCTs).

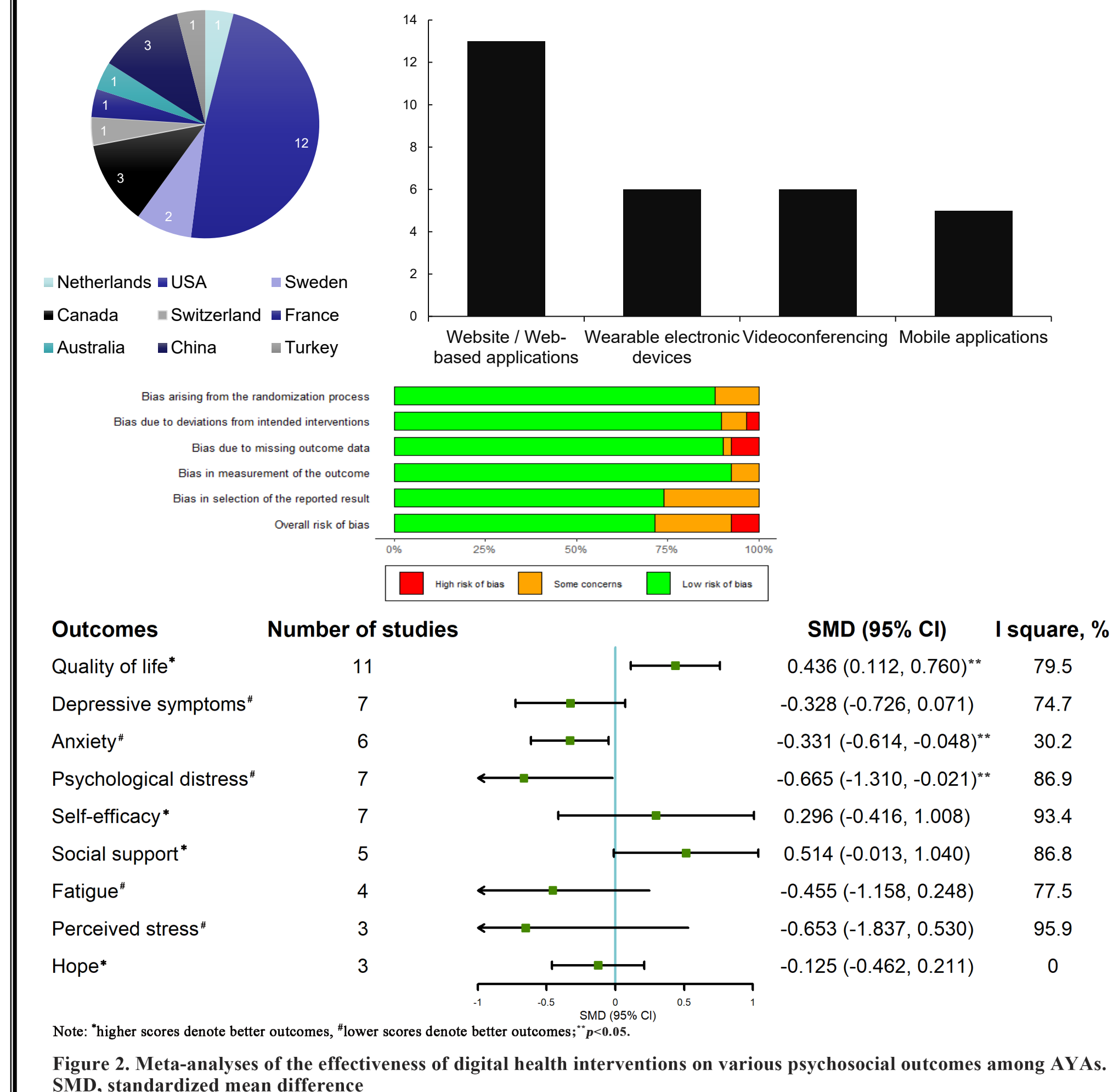
## ■ Methods

- **Databases:** PubMed, Embase, The Cochrane Library, CINAHL, PsycINFO, ProQuest
- **Time period:** From inception to January 5, 2025
- **Inclusion criteria:** studies (1) involved DHIs on patients with cancer aged between 15 and 39 (±5) years old at the time of diagnosis and intervention during or after active cancer treatment; (2) measured any of the four domains of psychological function<sup>1</sup> (i.e., emotional health, health behavior, social functioning, cancer-related cognitive impairment [CRCI]); (3) were RCTs.
- **Exclusion criteria:** protocols, duplicate publications, conference abstracts or dissertations, studies focused on outcomes assessment or cancer screening, studies not in English.
- **Risk of bias assessment:** Cochrane Risk of Bias 2 Tool
- **Data analysis:** meta-analysis, meta-regression

### Reference:

[1] McGrady ME, Willard VW, Williams AM, et al. Psychological Outcomes in Adolescent and Young Adult Cancer Survivors. J Clin Oncol. 2024;42(6):707-716.

## ■ Results



## ■ Conclusions

- DHIs are associated with significant effects on quality of life, anxiety and psychological distress among AYAs, suggesting its potential to be integrated into routine cancer care.
- Healthcare professionals may have an important role in creating supporting environment for conducting DHIs.
- Future RCTs with cognitive impairment as a primary outcome should be conducted among AYAs.

- A total of **25 unique studies** (1,905 patients) were included, with the sample size within studies ranging from 17 to 371.
- Intervention period: 1 month – 5 months
- Characteristics of DHIs:
  - Multicomponent
  - Promoting self-management
  - Interactive
- Risk of bias: Low (n=13, 52%), some concerns (n=9, 36%), high (n=3, 12%). Three studies were assessed having high risk of bias due to **high attrition**.
- AYAs received **instructor-based DHIs** reported decreased anxiety or depressive symptoms than those received self-guided DHIs (p=0.001).
- No RCT measuring CRCI as an outcome was identified.