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Exercise effects on quality of life and fatigue in patients living with and beyond cancer with low or clinically elevated symptoms of anxiety or depression: A pooled analysis of individual patient data of 30 RCTs

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Background: Psychological symptoms, including anxiety and depression are prevalent among patients living with and beyond cancer. Limited research suggests that exercise effects might differ between patients with low or elevated symptoms of anxiety or depression. However, single randomized controlled trials (RCTs) are often underpowered to detect moderation effects. Hence, drawing on individual patient data (IPD) across multiple exercise-oncology RCTs, we investigated whether the effects of exercise on quality of life (QoL) and fatigue in patients living with and beyond cancer differ between those with low or clinically elevated symptoms of anxiety or depression.

Methods: Data from 30 RCTs (N=4104), available via the POLARIS database, were pooled and analysed using a one-stage IPD meta-analytical approach. Linear mixed models, adjusted for baseline outcome values and random intercept, were used to assess exercise effects on standardized post-intervention outcomes (Z-scores) of QoL and fatigue in patients with low or clinically elevated symptoms of anxiety or depression (categorized based on evidence-based cut-off scores).

Results: At baseline, 22.2% and 32.4% of all participants reported clinically elevated symptoms of anxiety and depression, respectively. Participants with elevated symptoms of anxiety showed greater benefits of exercise on QoL ($\beta=0.25$, 95%CI=0.10;0.40) and fatigue ($\beta=-0.27$, 95%CI=-0.42;-0.13) compared to those with less symptoms (QoL: $\beta=0.15$, 95%CI=0.07;0.22; fatigue: $\beta=-0.15$, 95%CI=-0.22;0.07). Similarly, participants with elevated symptoms of depression showed greater improvements in QoL ($\beta=0.18$, 95%CI=0.09;0.28) and fatigue ($\beta=-0.24$, 95%CI=-0.34;-0.14), compared to those with less symptoms (QoL $\beta=0.15$, 95%CI=0.08;0.22, fatigue $\beta=-0.13$, 95%CI=-0.20;-0.06).

Conclusion: This pooled analysis of IPD data showed greater improvements in QoL and fatigue among patients living with and beyond cancer with clinically elevated symptoms of anxiety or depression. These findings may suggest that these patients could benefit more from exercise interventions than patients with low symptoms and that exercise may need to be given higher priority within their individual care.

Keywords

Individual patient data, anxiety and depression, quality of life, fatigue

Conflict of Interest & Ethical Approval

yes

Abstract submitters declaration

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