

Mediating role of emotional symptoms on assessment of health-related quality of life of adult survivors of childhood cancer: A report from the childhood cancer survivor study.

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Background: Factors that may mediate or influence how cancer survivors endorse health-related quality of life (HRQOL) items are not well studied. This study compared HRQOL between adult survivors of childhood cancer and siblings by accounting for the mediating effect and measurement non-invariance related to emotional symptoms.

Methods: 7,103 cancer survivors and 390 siblings in the Childhood Cancer Survivor Study completed the SF-36 measuring eight domains of HRQOL. Symptoms of anxiety, depression and somatization were measured using the Brief Symptom Inventory-18. Multiple Indicators & Multiple Causes model was used to identify measurement non-invariance related to emotional symptoms in the SF-36 items. Structural equation modeling was performed to test direct and indirect effects of cancer experience on HRQOL accounting for the mediating role of emotional symptoms. **Results:** 10, 12, and 14 items of the SF-36 were identified with measurement non-invariance related to anxiety, somatization and depression, respectively. Survivors reported poorer HRQOL in all domains than siblings did (all p 's <0.05), except for pain ($p>0.05$). Poorer physical functioning was significantly explained by direct effect of cancer experience ($p<0.05$) and indirect effect of cancer experience through emotional symptoms ($p<0.05$). However, poorer HRQOL in other domains was greatly explained by the mediating role of emotional symptoms, indicating indirect effect ($p<0.05$) rather than direct effect ($p>0.05$). Indirect effects explained 40-70% of total effects in the association of cancer experience and HRQOL. Adjusting for measurement non-invariance for the SF-36 items did not change the association of cancer experience with HRQOL compared to not adjusting for non-invariance. **Conclusions:** Childhood cancer survivors reported poorer HRQOL than siblings. The differences appear due, in part, to measurement non-invariance related to emotional symptoms that influence perceptions of HRQOL, and the mediating effect of emotional symptoms on HRQOL. Evaluating emotional health is an important component in survivorship care toward improving their HRQOL.