**Appendix 1: Literature search**

Pubmed search string:

((("Melanoma"[Mesh] OR "melanoma\*"[tiab] OR "skin cancer"[tiab])) AND ("wellbeing"[tiab] OR "psychosocial"[tiab] OR "psycho-social"[tiab] OR "biopsychosocial"[tiab] OR "quality of life"[Mesh] OR "quality of life"[tiab] OR "life quality"[tiab] OR "QoL"[tiab] OR "happiness"[tiab] OR "resilience, psychological"[Mesh] OR "resilience"[tiab] OR "meaning-making"[tiab] OR "meaning making"[tiab] OR "global meaning"[tiab] OR "situational meaning"[tiab] OR "adaptation, psychological"[Mesh] OR "psychological adaptation"[tiab] OR "coping"[tiab] OR "cope"[tiab] OR "adaptive behavior\*"[tiab] OR "mental adjustment"[tiab] OR "social adjustment"[mesh] OR "social adjustment"[tiab] OR "psychological adjustment"[tiab] OR "posttraumatic growth, psychological"[Mesh] OR "post-traumatic growth"[tiab] OR "posttraumatic growth"[tiab] OR "positive growth"[tiab])) AND (("2000/01/01"[Date - Publication]: "3000/01/01"[Date - Publication]))

CINAHL search string:

(((MH "Melanoma") OR (TI "melanoma\*") OR AB ("melanoma\*) OR (TI "skin cancer") OR (AB "skin cancer")) AND ((MH "Psychological Well-Being") OR (MH "Potential for Enhanced Spiritual Well Being (NANDA)") OR (MH "Well-Being (Iowa NOC)") OR (MH "Spiritual Well-Being (Iowa NOC)") OR (MH "Psychological Well-Being (Iowa NOC)") OR (TI "wellbeing") OR (AB "wellbeing") OR (TI "psychosocial") OR (AB "psychosocial") OR (TI "psycho-social") OR (AB "psycho-social") OR (TI "biopsychosocial") OR (AB "biopsychosocial") OR (MH "Quality of Life") OR (MH "Quality of Life (Iowa NOC)") OR (MH "Health and Life Quality (Iowa NOC)") OR (TI "quality of life") OR (AB "quality of life" OR (TI "life quality" OR (AB "life quality") OR (TI "QoL") OR (AB "QoL") OR (TI "happiness") OR (AB "happiness") OR (TI "resilience") OR (AB "resilience") OR (TI "meaning-making") OR (AB "meaning-making") OR (TI "meaning making") OR (AB "meaning making") OR (TI "global meaning") OR (AB "global meaning") OR (TI "situational meaning") OR (AB "situational meaning") OR (MH "Adaptation, Physiological") OR (TI "psychological adaptation") OR (AB "psychological adaptation") OR (TI "coping") OR (AB "coping") OR (TI "cope") OR (AB "cope") OR (TI "adaptive behavior\*") OR (AB "adaptive behavior\*") OR (TI "mental adjustment") OR (AB "mental adjustment") OR (TI "psychological adjustment") OR (AB "psychological adjustment") OR (MH "Social Adjustment") OR (TI "social adjustment") OR (AB "social adjustment") (MH "Posttraumatic Growth, Psychological") OR (TI "post-traumatic growth") OR (AB "post-traumatic growth") OR (TI "posttraumatic growth") OR (AB "posttraumatic growth") OR (TI "positive growth") OR (AB "positive growth")))

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| --- | --- | --- | --- | --- |
| **Study** | **Instrument**  | **Measures:** | **Domains/subscales relevant for psychosocial wellbeing** | **Interpretation** |
| Boesen et al1 | Dealing With Illness Inventory–Revised\* (DWI-R)2*\*revised for patients with melanoma, however not validated.*  | cognitive and behavioural means of dealing with serious illness | Three general coping methods: the active-behavioural method, the active-cognitive method and avoidance method.  | High scores indicate greater use of the coping strategy. |
| Profile of Mood States (POMS)3 | psychological distress on six mood or affective states | Tension-anxiety, depression-dejection, anger-hostility, vigour-activity, fatigue-inertia, and confusion-bewilderment. The results are summed up to a total mood disturbance (TMD) score, vigour is a positive outcome so it will be subtracted from the total sum. | TMD scale ranges from -32 to 200. A higher score indicates a higher degree of mood disturbance.  |
| Bottomley et al4, Bottomley et al5Coens et al6 | European Organization for Research and Treatment for Cancer Quality of Life Questionnaire (EORTC QLQ-C30) 7 | the health related quality of life of cancer patients participating in international clinical trials | Emotional functioning and social functioning  | A statistical difference is marked with p<0.01, a clinical relevant difference is marked as >10 points difference in subscale score. |
| Holterhues et al8 | 36-Item Short-Form Health Survey (SF-36) 9 | patient reported health status | Social functioning, role-emotional and mental health subscale. Of these scales mental health (Mental Component Score) can be calculated. | Scales range from 0-100. Higher scores indicate better functioning.  |
| The Impact of Cancer scale (IOC) 10 | wellbeing of long-term cancer survivors and their adjustment to changes | Psychological: positive self-evaluation (+), negative self-evaluation (-), Existential: positive outlook (+), negative outlook (-), Social: value of relationships (+), meaning of cancer (+), life interferences (-), health worry (-). Positive and negative subscales are included to calculate respectively a higher-order positive scale and higher-order negative scale.  | Scales range from 0-5. A higher score on the higher-order positive scale indicates a more positive impact of cancer, a higher score on the higher-order negative scale indicates a more negative impact of cancer. |
| Molassiotis et al11 | Functional Assessment of Cancer Therapy-Melanoma (FACT-M) 12 | quality of life in patients with melanoma | Social wellbeing and emotional wellbeing. | Higher scores indicate a better quality of life. |
| Supportive Care Needs Survey- Short Form 34 (SCNS-SF34) 13 | perceived unmet needs | Psychological and melanoma-specific needs.  | Scales range from 1 (no need/not applicable) to 5 (high need). Scores of 2-5 were defined as ‘having some needs’.  |
| Rogers et al14 | Melanoma-related-worry 14 | worry or confidence regarding the future  | Melanoma-related worry, assessed by using a single item; ‘How do you feel about the future with respect to the melanoma?’  | Patients were defined as worried when they chose one of these answers: ‘I don’t know’, ‘I feel quite worried’ or ‘I feel very worried’ and were defined confident when they chose: Very positive indeed’ or ‘Quite confident’. |
| Stamataki et al15 | Qualitative semi-structured interview | participants reflections on the issues that were important to them | 14 open-ended questions to explore physical and emotional wellbeing, the site of melanoma, relationships, work, services assessed and needs. | Since this study population consisted of stage I, II and III, and only quotes of the qualitative analysis are linked to a patient with according stage, we limited our data extraction to merely quotes from patients with stage III melanoma. |
| Tan et al16 | Qualitative semi-structured interview | the experience and impact of having melanoma and coping responses | 5 open-ended questions to explore the experience and impact of having melanoma and coping responses. | 23 themes were identified. Prevalence of the themes in the data is represented by the percentage of participants mentioning the according theme. |

*Table 5 Methods used to assess patients experience*

**Appendix 2: Methods used to assess patients experiences**

**Appendix 3: Critical appraisal conform MMAT**

|  |  |  |
| --- | --- | --- |
| **Qualitative studies** | **Stamataki et al15** | **Tan et al16** |
| 1.1. Is the qualitative approach appropriate to answer the research question? | Yes | Yes |
| 1.2. Are the qualitative data collection methods adequate to address the research question? | Yes | Yes |
| 1.3. Are the findings adequately derived from the data? | Yes | Yes |
| 1.4. Is the interpretation of results sufficiently substantiated by data? | Yes1 | Yes |
| 1.5. Is there coherence between qualitative data sources, collection, analysis and interpretation? | Yes | Yes |

*Table 6 Critical appraisal of included qualitative studies*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Quantitative randomized controlled trials** | **Boesen et al1** | **Bottomley et al4** | **Bottomley et al5** | **Coens et al6** |
| 2.1. Is randomization appropriately performed? | Yes | Yes | Yes | Yes |
| 2.2. Are the groups comparable at baseline? | Yes | Yes | Yes | Yes |
| 2.3. Are there complete outcome data?  | Can’t tell | No4 | Yes4 | Yes4 |
| 2.4. Are outcome assessors blinded to the intervention provided? | Yes2 | Can’t tell | Yes | Yes |
| 2.5 Did the participants adhere to the assigned intervention?  | Yes3 | No5 | Yes5 | No5 |

*Table 7 Critical appraisal of included randomized controlled trials*

|  |  |  |  |
| --- | --- | --- | --- |
| **3. Quantitative descriptive** | **Rogers et al14** | **Holterhues et al8** | **Molassiotis et al11**  |
| 3.1. Is the sampling strategy relevant to address the research question? | Yes | Yes | Yes |
| 3.2. Is the sample representative of the target population? | Yes6 | Yes | Yes |
| 3.3. Are the measurements appropriate? | Yes | No7 | Yes |
| 3.4. Is the risk of nonresponse bias low?8 | No | No | Can’t tell |
| 3.5. Is the statistical analysis appropriate to answer the research question? 9 | Yes | Yes | Yes |

*Table 8 Critical appraisal of included quantitative descriptive studies*

**Comments:**

1 A thematic analysis was performed for all included patients with stage I-III melanoma, displaying disease stage only for reported quotes of patients. Therefore, this review only included data from the quotes that can be traced back to patients with stage III melanoma.

2 Confirmed by professor Johansen, author of the article.

3 Boesen et al1 reported a 12% drop-out rate (7% of the patients dropped out before the psychosocial intervention started and another 5% of the patients after one session), which is in line with the drop-out rates of psychosocial interventions for cancer patients in research in the last 25 years (ranging from 11% to 25%) 17. Reasons for drop-out of the intervention group were mostly not feeling the need for a psychosocial intervention; or not having time. Drop-out in the control group was mostly due to disappointment because of control status and wanting to seek help elsewhere 17, which is comparable to the reasons given in Boesen et al1

4 Compliance of HRQOL questionnaires in cancer clinical trials was most of the time above 80% at baseline and was qualified as high when it was above 85% 18. A compliance rate of 80% was therefore used as a standard for complete outcome data in this critical appraisal. Bottomley et al4 reported a baseline compliance of 82.9% of the patients which dropped to 30% after 60 weeks. Coens et al6 presented a baseline compliance of 94%; after 60 weeks follow-up was 67% complete. Bottomley et al5 had a baseline compliance of 93,6% and after 96 weeks the follow-up was 60% complete.

5 Not enough patients adhered to the assigned intervention. Bottomley et al4 reported that 31% of the patients discontinued because of adverse events. Coens et al6 reported that 52% of the patients stopped with ipilimumab treatment because of adverse events. Bottomley and Aaronson18 reported that 14,7% of the patients in the pembrolizumab group had treatment-related adverse events of grade 3 or worse and discontinued treatment, which was considered reasonable to meet the quality criteria.

6 Rogers et al14 included 2088 patients of which 13,5% was diagnosed with melanoma stage III and 0,5% with melanoma stage IV. Patients with melanoma stage III and IV were included in the same subgroup. Due to the small percentage, we considered the impact of including patients with melanoma stage IV as negligible and the target population as representable.

7 Holterhues et al8 used the SF-36 9 and IOC questionnaire 10, which were both not validated for melanoma patients. Additional melanoma specific questions were used, however these results have only been compared between men and women and not between disease stages.

 8 The risk of non-response bias was judged by comparing characteristics of respondents and non-respondents and by availability of reasons for non-responding 19. Rogers et al14 did not clarify why patients did not participate and non-respondents were significantly older. Holterhues et al8 gave reasons for not participating, however non-respondents were significantly younger and had also longer survival times. Molassiotis et al11 did not meet either criteria.

9 Holterhues et al8 and Molassiotis et al11 performed no adjustment for confounding in contrast to Rogers et al14. However, the MMAT reached consensus that adjusting for confounders is not mandatory, because it is mainly applicable for analytical cross-sectional studies 19.

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