

# **Meaning in life as a mediator between physical impairment and the wish to hasten death in patients with advanced cancer**

## **INTRODUCTION**

In recent decades both researchers and clinicians have shown a growing interest in the study of existential distress (1–3). A particular focus of this work concerns the important role that meaning in life (MiL) plays among patients with advanced disease, including its possible clinical implications (4–8).

According to Viktor Frankl, the Viennese psychiatrist and Holocaust survivor, finding MiL is a mission for everyone (9). He puts it as follows: “man should not ask what the meaning of his life is, but rather he must recognize that it is he who is asked” (9). As such, the meaning ascribed to life will vary from one individual to another, and it may also change over time and in response to a person’s circumstances at a given moment. In the clinical context, various studies have shown that MiL is a key factor in terms of ensuring spiritual wellbeing (6,10) and quality of life among patients with life-threatening illnesses (4,5,11). It appears that those patients who, despite their illness, believe life still has meaning are able to consider it as worth living (12) and, consequently, are better able to cope with their illness (13,14) and to tolerate their physical symptoms (15).

The wish to hasten death (WTHD) is a complex phenomenon that may emerge in patients with advanced disease (16–18). It is associated with several factors (19,20) and it has recently been described as a response to the multidimensional suffering that such patients may experience (21). However, it has also been noted that the expression of a WTHD by advanced patients does not always reflect a genuine desire to hasten death, and that its meaning may vary from one patient to another; for example, it may signify a wish to live but not in this way, or the desire to put an end to suffering or to take control of one’s situation (22). In this context, several issues have been linked to the WTHD. On the one hand there are physical factors (23–26), such as poor symptom control, including pain, along with physical deterioration and the loss of bodily functions. These factors are considered less likely to

trigger a WTHD if they are properly managed (24). Then there are the psychological and/or emotional factors, such as depression, hopelessness (21,25,27), the feeling of being a burden or of no use (28), the feelings associated with loss of control over body functions (29), role loss, a perceived loss of dignity (29–35) and a fear of the dying process (22). Spiritual and/or existential aspects, such as impaired spiritual well-being and loss of MiL, have also been related to the WTHD (11,21,36).

The studies by Meier et al. (8) and Morita et al. (37) were the first to highlight the role that a lack of MiL can play in relation to the WTHD. These researchers surveyed, respectively, a sample of physicians and family caregivers of cancer patients, with both sets of results suggesting that a loss of MiL was one of the main reasons that led advanced patients to experience a WTHD. A more recent qualitative study of patients' own perspective on the WTHD likewise documented the importance of MiL, it being reported that physical impairment and loss of autonomy (experienced as a loss of dignity) led some patients to feel a loss of meaning and, consequently, a WTHD (22). For their part, Breitbart et al. (38), in a pilot randomized controlled trial, assessed the impact of 'meaning-centred group psychotherapy' in a population of outpatients with solid tumours (stage 3-4), with one of the secondary outcomes being to explore the WTHD. Their results showed a decrease in such wishes following the intervention.

In a recent cross-sectional study of outpatients with cancer, Rodin et al. (25) used structural equation modelling (SEM) to analyse the mediator effect of different psychological variables in relation to the emergence of a WTHD (25). They found that depression and hopelessness were the strongest determinants of a WTHD in these patients. Their model also identified the antecedents of both these factors: the disease burden had a direct impact on levels of depression, whereas greater MiL protected against hopelessness. In another cross-sectional study of terminally-ill cancer patients, Wang et al. (39) likewise observed a partial mediator effect of spiritual well-being (the measure of which included a meaning subscale) on the relationship between symptom severity and the WTHD.

Building on this previous research the aims of the present study were to analyse the relationship between the WTHD and physical impairment, MiL and depression, and to propose a theoretical model of functional relationships between these factors.

## METHOD

**Subjects:** The study procedure has been described in detail elsewhere (16). Briefly, the patients who agreed to participate were recruited  $\geq 48$  hours after their admission to the palliative care unit of an oncology centre in Barcelona (Spain). The inclusion criteria were as follows: a) patients admitted to the palliative care unit, b) fluency in Spanish, c) clinical situation compatible with being interviewed, and d) signing of informed consent. Exclusion criteria were a Short Portable Mental Status Questionnaire (SPMSQ) score  $> 5$ , and having a disorder of a psychotic nature and/or a physical or psychological status that was deemed by clinical opinion to be too delicate to allow inclusion.

**Measures:** In addition to gathering sociodemographic data, we evaluated the following aspects:

- The WTHD was assessed using the Spanish adaptation (16) of the *Schedule of Attitudes towards Hastened Death* (SAHD) (40). This is a 20-item true/false scale, with possible scores ranging between 0 and 20. Higher scores represent a stronger WTHD.
- Physical impairment was rated using three different instruments: 1) The *Karnofsky Performance Status* (KPS) (41), which describes a patient's physical impairment by means of a comprehensive 11-point scale correlating to percentage values ranging from 100 (no evidence of disease, no symptoms) to 0 (death); 2) the Spanish version of the *Barthel Index* (BI) (42), which assesses the degree of independence in activities of daily living. The BI comprises 10 items and yields a total score ranging between 0 and 100, with higher scores indicating a greater degree of independence. 3) Item 12 of the Spanish form (43) of the *Palliative Care Outcome Scale* (POS) (17), (equivalent to the *Eastern Cooperative Oncology Group Performance Status* (ECOG-PS)) (44), classifying cancer patients according to their level of functioning.

In order to enable statistical analysis and comparison we classified patients' physical impairment on one of five levels (0 to 4, with 4 reflecting the greatest impairment). Scores on the BI and ECOG were classified as suggested by the scales' authors (42,44). The KPS was classified as follows: 0 = score of 100-80; 1 = 79-60; 2 = 59-40; 3 = 39-21; 4 = 20-0.

- Psychological distress was assessed using the Spanish version (45) of the *Hospital Anxiety and Depression Scale* (HADS) (46). This is a 14-item self-report scale that uses a four-point Likert-type response format (0-3); higher scores (range: 0-42) indicate higher levels of anxiety and depression. The HADS provides separate scores for anxiety (HADS-A) and depression (HADS-D). Scores are interpreted as follows: 0-7, no depression or anxiety; 8-10, mild anxiety and/or depression; and 11-21, significant levels of depression and/or anxiety that require professional assessment.

- Palliative care needs were assessed through the Spanish form (43) of the *Palliative Care Outcome Scale* (POS) (17). The POS contains 12 items that are scored on a five-point Likert-type scale (0-4). The total score ranges between 0 and 44, with higher scores indicating greater palliative care needs.

- Meaning in life was assessed through item 7 of the Spanish form (43) of the *Palliative Care Outcome Scale* (POS). This item (*Over the past three days, have you felt that life was worthwhile?*) is scored from 0 (*Yes, all the time*) to 4 (*No, not at all*), such that a higher score is suggestive of less MiL.

**Procedure:** A total of 124 patients agreed to participate in the study and to respond to a set of questionnaires in the context of a clinical interview. Of these, 101 patients completed the study. In 25 cases, two sessions were required to complete the measures. A single investigator (a physician from the palliative care unit) collected all the data. Patients were proposed for participation in the study by their physician at the unit. The research protocol was approved by the corresponding research ethics committee and all participants provided written informed consent.

**Statistical analysis:** Descriptive statistics (means and frequencies) were used to describe the demographic and clinical characteristics of the sample. Non-parametric tests were used because the distribution of SAHD scores was skewed. Spearman's correlation coefficients were computed to assess

the bivariate relationship between SAHD and MiL scores and other variables, while Mann-Whitney U tests were used to assess whether SAHD scores differed across gender and other categorical variables. The Kruskal-Wallis test was used to examine differences in mean SAHD scores across subgroups created according to the degree of patients' physical impairment. This test was also used to analyse differences in mean MiL scores (item 7, POS) across subgroups of patients created according to their scores on the SAHD (low, moderate and high, the levels suggested by the scale's author (47)).

Finally, in order to assess the mediator effect of MiL, the methodology suggested by Baron and Kenny (48) was adopted and performed as described by Bernardo et al. (49) and Petnji et al. (50), who used SEM instead of regression analysis. Preacher and Hayes (51) recommended the use of SEM for assessing mediation because it offers a reasonable way of controlling for measurement error as well as some interesting alternative ways of exploring the mediation effect. Accordingly, a path analysis model was developed to assess the antecedents of SAHD. The research model is shown in Figure 1, where the effect of physical impairment (KPS) on SAHD score is mediated through two different variables: depression ( $a*e$  in Figure 1) and MiL ( $d*c$  in Figure 1). Additionally, a second order mediation is tested, through the way that first passes through depression and then through MiL ( $a*b*c$  in Figure 1).

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*Insert Figure 1 about here*

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## RESULTS

### Sample characteristics and descriptive statistics

A total of 62 men and 39 women completed the study; mean age = 61.7 years ( $SD = 11$ ), range 33-84. Demographic and clinical characteristics of the sample are described elsewhere (16).

Table 1 shows the mean scores obtained by men and women for each of the study variables. The overall mean score on the SAHD was  $M = 4.99$  ( $SD = 5.32$ ). Women scored significantly higher than men on the SAHD, on the HADS-Total and HADS-Depression, and on MiL.

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*Insert Table 1 about here*

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Table 2 shows the Spearman's rho coefficients between SAHD score and the measures of physical impairment, palliative care needs and psychological factors. Significant correlations ( $p < .01$ ) were found between the three indicators of physical impairment (KPS, BI, ECOG) and the SAHD score. A positive and significant correlation was also observed between SAHD score and the total score on the POS ( $r = .436, p < .01$ ). Significant correlations ( $p < .01$ ) were likewise obtained between SAHD score and three of the four indicators of psychological functioning: SAHD with item 7 of the POS (where a higher score indicates less MiL),  $r = .601$ ; SAHD with HADS-Total,  $r = .332$ ; and SAHD with HADS-Depression,  $r = .397$ . Conversely, the SAHD score did not show a significant correlation with HADS-Anxiety ( $r = .148, p > .05$ ). The highest correlation coefficient obtained was that between item 7 of the POS (MiL) and the WTHD (SAHD score).

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*Insert Table 2 about here*

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Table 3 shows the mean SAHD score for subgroups of patients created according to their degree of physical impairment, as measured by scores on the BI, ECOG and KPS. The Kruskal-Wallis test indicated statistically significant differences ( $p < .05$ ) between the subgroups for each of the three indicators used.

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*Insert Table 3 about here*

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Figure 2 plots SAHD score against the three indicators of physical impairment. It can be seen that the SAHD score initially increases in line with the degree of physical impairment, but then begins to decrease once the level of impairment becomes more extreme.

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*Insert Figure 2 about here*

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Significant correlations ( $p < .01$ ) were also found between the MiL score (item 7, POS) and the three indicators of physical impairment (KPS, BI, ECOG). A negative and significant correlation was obtained between MiL and both the KPS ( $r = -.548$ ) and the BI ( $r = -.486$ ). A positive and significant correlation was observed between MiL and the ECOG-PS ( $r = .420$ ).

Table 4 shows the mean MiL score and standard deviation for subgroups of patients created according to their score level on the SAHD (low,  $\leq 3$ ; moderate,  $> 3$  and  $< 10$ ; high,  $\geq 10$ , these being the cut-offs suggested by the scale's author (47)). The Kruskal-Wallis test indicated statistically significant differences ( $p < .01$ ) between MiL and the three SAHD subgroups.

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*Insert Table 4 about here*

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### **Mediation model hypothesis**

The model was estimated by applying the robust maximum likelihood method to the asymptotic variance-covariance matrix. To assess data fitness the following indices were calculated: the Satorra-Bentler  $\chi^2$  was 12.88, with 6 degrees of freedom and a  $p$ -value of 0.045; the RMSEA (Root mean square error of approximation) was 0.107 and its 95% confidence interval was 0.015-0.187; the CFI (Comparative fit index) was 0.943; and the BB-NFI (Bentler-Bonett normed fit index) was 0.905 (38,39). Taking into account the significance of the robust  $\chi^2$  statistic, and given the values of the global indicators, the overall fit of the model was acceptable.

Table 5 shows the decomposition of the total effects of the model. Age was used as a control variable and was found to be non-significant. The main finding is that no significant direct effect exists between physical impairment (measured by the KPS) and the WTHD (measured by the SAHD). However, the analysis shows a significant total effect, due to the mediation of depression and MiL. The impact of physical impairment on WTHD is indirect. The main indirect effect is mediated by MiL ( $d^*c$  in Figure 1 and Table 5), with this mediation accounting for half of the effect. In concrete terms, the lower the KPS (indicating greater physical impairment), the higher the MiL score (indicating less MiL) and, in turn, the stronger the WTHD (higher level on the SAHD). The second indirect effect is due to the second-order mediation through depression and MiL ( $a^*b^*c$  in Figure 2 and Table 5). These results highlight the importance of assessing the mediation effect of MiL, since it plays an important role in these two indirect effects. The third and less important component of the indirect effect is the mediation of depression ( $a^*e$  in Figure 2 and Table 5). Overall, the mediation model shows that MiL is of

paramount importance when seeking to understand the relationship between physical impairment and a WTHD in advanced patients. It should also be noted that the model has high explanatory power: the  $r^2$  for the SAHD is 0.589, and  $r^2$  for MiL is 0.431. By contrast, the other dependent variable in the model (depression) has an associated  $r^2$  of 0.267.

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*Insert Table 5 about here*

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At a second level of conclusions, anxiety was not found to be correlated with physical impairment, although it did impact significantly on depression.

## **DISCUSSION**

To the best of our knowledge this is the first study to confirm a strong and explanatory functional relationship between the WTHD and MiL in patients with far-advanced cancer admitted to a palliative care unit. The results support the hypothesized theoretical model in which MiL and depression act as significant mediators of the relationship between physical impairment and the WTHD in these patients. More specifically, mediation analysis showed that MiL accounts for 76.5% of the effect of physical impairment on the WTHD, and that a loss of MiL and, to a lesser extent, depression play a key role in the emergence of a WTHD in patients with advanced cancer.

To date, the WTHD has been considered to be closely linked to serious physical impairment, dependence and loss of autonomy (16,25,47). However, our study, in line with the work of other authors (21,36,52), reports a weak correlation (although significant,  $p < .01$ ) between physical impairment and the WTHD. We also found the correlations between the WTHD and psychological factors such as anxiety and depression to be weak (Spearman's rho coefficient  $< .4$ ), although once again significant. The highest correlation coefficient with respect to the WTHD was that obtained for MiL (rho = .601,  $p < .01$ ), reflecting the mediating role of this variable in the relationship between physical impairment and the WTHD. Our proposed model is consistent with the empirical findings of Breitbart et al. (38), who found that an intervention designed to promote a sense of meaning among advanced cancer patients led to improvements as regard the WTHD. Similar results were reported by



Wang et al. (10), who found that MiL (measured using the meaning subscale of the Functional Assessment Chronic Illness Therapy-Spiritual Wellbeing (FACIT-SP)) yielded the highest negative correlation with the WTHD in a sample of advanced cancer patients.

Despite the importance ascribed to functional status, our results suggest that physical impairment in these patients is not the sole driver of a WTHD, and that it is also necessary to consider the role played by other factors such as depression and, especially, MiL. Our study model indicates that physical impairment is not in itself an antecedent of the WTHD, although its presence is a necessary prerequisite for the emergence of other factors in the psychological-spiritual-existential domain. However, both MiL (in the sense of a diminished sense of meaningfulness) and depression mediated the relationship between physical impairment and the WTHD, and these two variables were found to be antecedents of the WTHD (with MiL being the variable that accounted for the largest proportion of the mediating effect).

Our analysis of the relationship between SAHD score (as a measure of the WTHD) and physical impairment (assessed by the KPS) showed that the former tended to increase as patients became more impaired. The exception to this trend was the group of most severely impaired patients, among whom SAHD scores were slightly lower ( $p < .01$ ). This suggests that the WTHD does not intensify once patients reach a more extreme level of physical impairment, perhaps because they sense that death is now imminent.

In line with other studies (53–55) we found that depression was also a relevant variable with respect to the emergence of a WTHD in this population. A study by Breitbart et al. (21) concluded that patients with depression were four times more likely to experience a WTHD. Similarly, Rodin et al. (25) found that depression and hopelessness were the strongest determinants of the WTHD. The results of the present study show that a loss of MiL and depression are key elements in the emergence of a WTHD. As our model did not consider the variable hopelessness we are unable to draw any conclusions regarding its potential role.

Another finding worthy of mention is the observed association between higher scores on the measure of MiL (indicative of diminished MiL) and greater physical impairment in our patients. Higher scores on the MiL measure (i.e. less MiL) were also associated with higher scores on the SAHD (i.e. a more intense WTHD). These findings, alongside the observed mediator effect of MiL on the relationship between physical impairment and the WTHD, confirm that MiL is a central issue for patients at the end of life. As such, our results are consistent with the vision of Frankl (9), namely that people are better able to cope with life's circumstances when they have a reason to go on living (i.e. when their life has meaning).

Overall, the results of this study suggest that interventions to enhance MiL might serve to alleviate not only a person's existential distress (1) and other spiritual dilemmas but also the WTHD, perhaps even preventing its emergence. However, although a number of interventions for promoting MiL in advanced patients have been described, with improvements in the psychological-spiritual-existential dimension being reported, there are as yet no studies that specifically examine the extent to which such interventions might prevent or address the WTHD.

This study does have certain limitations. One of the most important is the cross-sectional design, which prevents us from drawing any conclusions regarding dependent relationships or the direction of causality. Consequently, the proposed model now needs to be tested in longitudinal clinical studies. Another limitation concerns the nature of the study sample, which was highly selective and may not be representative of the palliative care population as a whole, since patients were only included if their clinician considered that participation would not be detrimental to them emotionally. A further limitation relates to the fact that MiL was measured solely by item 7 of the POS (17). Although scales for assessing MiL do exist (56), they are generally too long for administration to such a fragile patient population, and may be difficult to apply and interpret in such contexts (57).

In summary, the results of this study support the proposed model, whereby MiL (specifically in the sense of diminished meaning) and, to a lesser extent, depression have a mediator effect on the

relationship between physical impairment and the WTHD in patients with advanced cancer. As such our findings suggest that interventions to enhance MiL could play a key role in alleviating suffering and, potentially, help to address the WTHD, should such a wish emerge. Further research is now needed to determine whether interventions of this kind can indeed be effective in terms of reducing or even preventing such an outcome in advanced patients. Studies in other populations, such as patients with advanced neurological disorders or other advanced chronic conditions, are also necessary in order to analyse the influence of MiL in these contexts.

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## Tables

**Table 1.** Means, standard deviations and ranges for the Schedule of Attitudes toward Hastened Death (SAHD), the Hospital Anxiety and Depression Scale (HADS-Total), the HADS-Anxiety scale (HADS-A), the HADS-Depression scale (HADS-D), Karnofsky Performance Status (KPS), Barthel Index (BI), Eastern Cooperative Oncology Group Performance Status (ECOG-PS), total score on the Palliative Care Outcome Scale (POS) and MiL (measured by item 7 of the POS, indicating higher values, less meaning in life).

| Measure    | Men (n=62)<br>Mean±SD | Women (n=39)<br>Mean±SD | Range | Mann-Whitney U | Sig.  |
|------------|-----------------------|-------------------------|-------|----------------|-------|
| SAHD       | 4.2±4.8               | 6.2±5.9                 | 0-19  | Z=-2.107       | p<.05 |
| HADS-A     | 5.7±3.4               | 7.1±4.5                 | 0-19  | Z=-1.138       | n.s.  |
| HADS-D     | 6.8±4.0               | 8.8±5.0                 | 1-20  | Z=-2.018       | p<.05 |
| HADS-Total | 12.5±6.2              | 15.9±7.6                | 2-36  | Z=-2.177       | p<.05 |
| KPS        | 57.4±18.4             | 54.3±19.3               | 20-90 | Z=0.433        | n.s.  |
| BI         | 61.6±25.1             | 56.9±26.5               | 5-100 | Z=0.401        | n.s.  |
| ECOG-PS    | 2.11±0.92             | 2.26±0.99               | 0-4   | Z=-1.014       | n.s.  |
| POS-Total  | 12.4±6.0              | 13.7±5.7                | 2-28  | Z=-1.374       | n.s.  |
| MiL        | 0.6±1.1               | 1.1±1.2                 | 0-4   | Z=-2.15        | p<.05 |

**Table 2.** Spearman's rho coefficients between Schedule of Attitudes toward Hastened Death (SAHD) score and the measures of physical impairment, palliative care needs and psychological factors.

|      | Measures of physical impairment and palliative care needs |           |         |           | Psychological factors |         |            |         |
|------|---|-----------|---------|-----------|-----------------------|---------|------------|---------|
|      | BI  | KPS       | ECOG    | POS-TOTAL | HADS-A                | HADS-D  | HADS-Total | MiL     |
| SAHD | -0.324**  | -0.356 ** | 0.276** | 0.436**   | 0.148                 | 0.397** | 0.332**    | 0.601** |

\*\*p < .01

**Table 3.** Kruskal-Wallis test results for mean scores (± SD) on the Schedule of Attitudes toward Hastened Death (SAHD) in relation to physical impairment subgroups.

|  | 0                 | 1                 | 2                 | 3                 | 4                 | Chi-square | p-value |
|--|-------------------|-------------------|-------------------|-------------------|-------------------|------------|---------|
| Mean SAHD score (± SD) in relation to ECOG-PS groups | n=2<br>2.0±1      | n=23<br>3.04±2.94 | n=41<br>4.0±4.82  | n=26<br>8.0±6.60  | n=9<br>2.0±1      | 10.79      | p<.05   |
| Mean SAHD score (± SD) in relation to BI groups      | n=5<br>2.20±0.83  | n=56<br>3.68±4.67 | n=17<br>4.12±3.98 | n=14<br>9.43±7.43 | n=9<br>8.22±4.52  | 11.90      | p<.05   |
| Mean SAHD score (± SD) in relation to KPS groups     | n=15<br>2.87±2.97 | n=47<br>3.83±4.72 | n=22<br>6.09±5.92 | n=6<br>10.33±7.55 | n=11<br>7.73±4.94 | 10.41      | p<.05   |

\*ECOG-PS 0 = Fully active; ECOG-PS 1 = Restricted in physically strenuous activity; ECOG-PS 2 = Ambulatory and capable of all self-care but unable to carry out any work activities; ECOG-PS 3 = Capable of only limited self-care; confined to bed or chair more than 50% of waking hours; ECOG-PS 4 = Completely disabled

\*Barthel Index (BI): BI 0 = 90-100; BI 1 = 60-80; BI 2 = 40-55; BI 3 = 20-35; BI 4 = 0-19

\*Karnofsky Performance Status (KPS): KPS 0 = 100-80; KPS 1 = 79-60; KPS 2 = 59-40; KPS 3 = 39-21; KPS 4 = 20-0



**Table 4.** Kruskal-Wallis test results for mean scores ( $\pm$  SD) on Meaning in Life (item 7, POS) in relation to subgroups formed according to score on the Schedule of Attitudes toward Hastened Death (SAHD).

|                        | <b>SAHD score <math>\leq 3</math></b> | <b>SAHD score <math>&gt;3 &lt;10</math></b> | <b>SAHD score <math>\geq 10</math></b> | <b>Chi-Square</b> | <b>p-value</b> |
|------------------------|---------------------------------------|---|--|-------------------|----------------|
| <b>Meaning in Life</b> | 0.30 $\pm$ 1.02                       | 1.0 $\pm$ 1.02                              | 2.41 $\pm$ 1.41                        | 32.90             | <i>p</i> <.01  |

**Table 5.** Decomposition of parameters in the structural equation model.

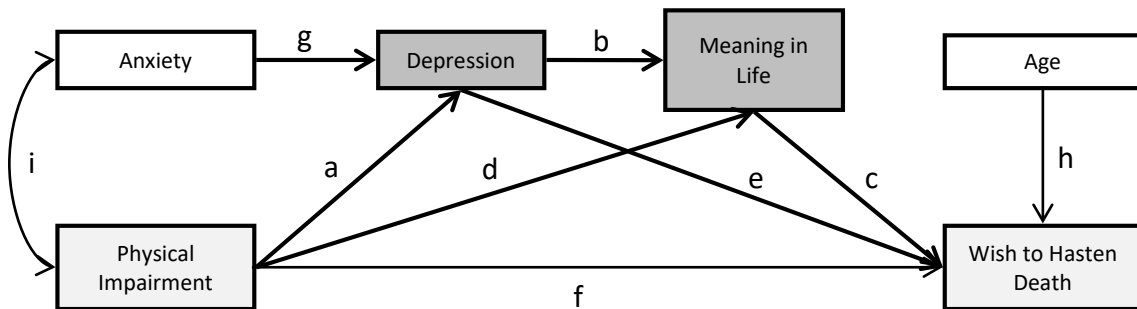
|   | <b>Total effect</b> | <b>Partial indirect effect</b>              | <b>Total indirect effect</b> | <b>Direct effect</b> |
|---|---------------------|---|------------------------------|----------------------|
| Physical impairment → Wish to hasten death          | 0.409 (3.225)       | a*c = 0.067<br>d*c = 0.205<br>a*b*c = 0.108 | 0.380 (4.838) *              | 0.028 (0.351) f      |
| Physical impairment → Depression                    | 0.368 (4.534) *     | -   | -                            | 0.368 (4.534) a *    |
| Depression → MiL                                    | 0.464 (4.777) *     | -   | -                            | 0.464 (4.777) b *    |
| MiL → Wish to hasten death                          | 0.630 (7.224) *     | -   | -                            | 0.630 (7.224) c *    |
| Physical impairment → MiL                           | 0.496 (4.917) *     | a*b = 0.171                                 | 0.171 (3.863) *              | 0.326 (3.891) d *    |
| Depression → Wish to hasten death                   | 0.476 (5.032) *     | b*c = 0.292                                 | 0.292 (3.757) *              | 0.184 (2.535) e *    |
| Anxiety → Depression                                | 0.366 (4.178) *     | -   | -                            | 0.366 (4.178) g *    |
| Age → Wish to hasten death                          | 0.039 (-0.582)      | -   | -                            | 0.039 (-0.582) h     |
| Correlation between Anxiety and Physical impairment | -0.011 (-0.108) (i) |   |                              |                      |

Standardized parameter (t-value).

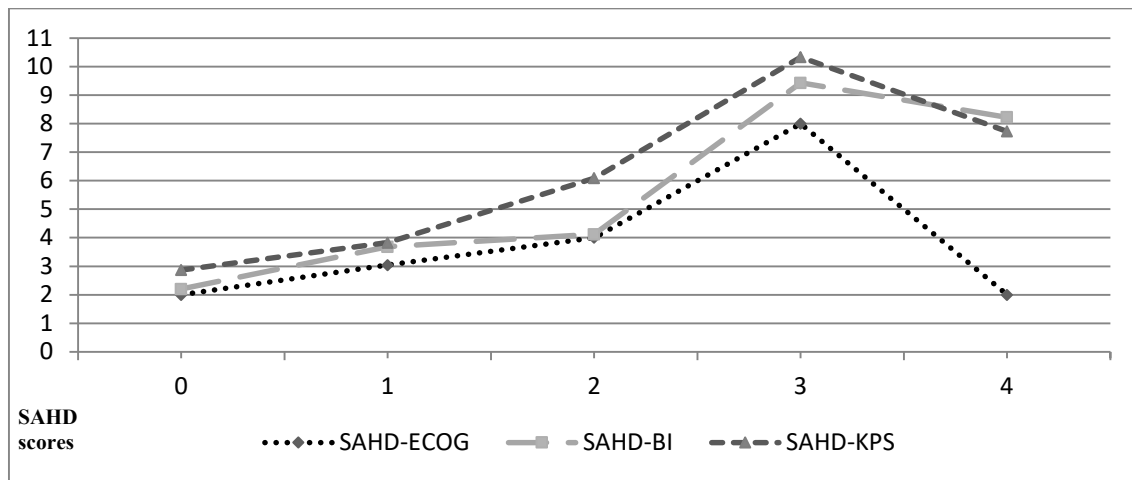
The letters a, b, c, d, e, f, g, h and i correspond to the notation in Figure 1.

(\*) Significant at the .05 level

**Figure 1.** Mediation model linking physical impairment, depression, meaning in life and the wish to hasten death.



**Figure 2.** Mean score on the Schedule of Attitudes toward Hastened Death (SAHD) (measuring wish to hasten death) in each of the physical impairment subgroups defined according to the Karnofsky Performance Status (KPS), the Barthel Index (BI) and the Eastern Cooperative Oncology Group Performance Status (ECOG-PS).



- \* ECOG 0 = Fully active; ECOG 1 = Restricted in physically strenuous activity; ECOG 2 = Ambulatory and capable of all self-care but unable to carry out any work activities; ECOG 3 = Capable of only limited self-care; confined to bed or chair more than 50% of waking hours; ECOG 4 = Completely disabled.
- \* BI 0 = 100 points, total independence; BI 1 = >60 points, slight dependency; BI 2 = 40-55 points, moderate dependency; BI 3 = 20-35 points, severe dependency; BI 4 = <20, total dependency.
- \* KPS 0 = 100-80; KPS 1 = 79-60; KPS 2 = 59-40; KPS 3 = 39-21; KPS 4 = 20-0.