The association between having assistive devices and activities of daily living ability and health-related quality of life

An exploratory cross-sectional study among people with advanced cancer

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Published in:
European Journal of Cancer Care

DOI:
10.1111/ecc.13002

Publication date:
2019

Document version
Accepted manuscript

Citation for published version (APA):

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Download date: 26. Sep. 2020
The association between having assistive devices and activities of daily living ability and health-related quality of life: An exploratory cross-sectional study of people with advanced cancer

Abstract

Assistive devices may contribute to enabling activities of daily living (ADL) ability and health-related quality of life (HRQoL) for people with advanced cancer. The aim of this study was to explore the association between having assistive devices and ADL ability and HRQoL, respectively, among people with advanced cancer. A cross-sectional study of 164 participants with advanced cancer was conducted. Self-reported ADL ability was assessed using the ADL–Interview, and HRQoL was assessed using the European Organization for Research Treatment of Cancer Quality of Life Questionnaire Core 30. Data regarding assistive devices was collected using a study-specific questionnaire. Data was collected in the homes of the participants and analysed using multiple linear regression. The regression coefficients ($B$) were presented in crude form and adjusted for potential confounding variables (age, gender, cohabiting, receiving help, physical functioning, fatigue and pain). $P$-values ($P$) $<0.05$ were considered statistically significant. The results revealed that participants with assistive devices had the same HRQoL but lower ADL ability ability ($B = -0.923, P = <0.0001$ than participants without assistive devices. However, the low ADL ability was probably related to low physical functioning and not the assistive device. No significant association was found between having assistive devices and HRQoL.
Keywords

Neoplasms, Self-Help Devices, Activities of Daily Living, Quality of Life, Occupational Therapy, Cross-Sectional Studies.

Introduction

The survival time of people living with advanced cancer is increasing due, at least partly, to more effective treatment (Coleman et al., 2008). This prolonged survival may result in more people living with symptoms and side effects of the treatment for an extended period of time (Esbensen, Osterlind, & Hallberg, 2007). People with advanced cancer commonly suffer from symptoms such as pain, fatigue, nausea, shortness of breath and difficulty sleeping (Johnsen, Petersen, Pedersen, & Groenvold, 2009). Furthermore, studies indicate that they have an increased risk of reduced physical functioning (Esbensen et al., 2007; Johansson, Axelsson, & Danielson, 2006; Johnsen et al., 2009; Johnsen, Petersen, Pedersen, Houmann, & Groenvold, 2013). This may affect their ability to perform activities of daily living (ADL) and their health-related quality of life (HRQoL) (Esbensen et al., 2007; K. D. Lyons, 2006; M. Lyons, Orozovic, Davis, & Newman, 2002; Peoples, Brandt, Wæhrens, & la Cour, 2017; Vrkljan & Miller-Polgar, 2001).

According to the World Health Organization (WHO) (Worldwide Palliative Care Alliance & World Health Organization, 2014) and the Danish Health Authorities, (Sundhedsstyrelsen, 2011) both ADL ability and HRQoL are important aims in the treatment and care of people with cancer. In addition, the Danish Health Authorities recommend compensatory interventions such as assistive devices to improve ADL ability and HRQoL in palliative stages (Sundhedsstyrelsen, 2011). Studies on people with cancer have found that participation in ADL is important to maintain HRQoL (Esbensen et al., 2007; Fangel, Panobianco, Kebbe, de Almeida, & Gozzo, 2013; Johansson et al., 2006; Peoples et al., 2017), and a qualitative study on people with advanced cancer found that the use of assistive devices, for instance, may facilitate ADL performance and lead to savings of energy, which can be used to engage in more meaningful activities (Peoples et al., 2017).
According to Cheville (Cheville, 2001) and Morello et al. (Morello, Giordano, Falci, & Monfardini, 2009), it is recommended to provide appropriate assistive devices to people with cancer to enhance ADL ability and HRQoL. However, research on the use of assistive devices among people with advanced cancer is limited. Most research recommending the use of assistive devices tends to focus on people with other chronic conditions (Abdulla et al., 2013; Arbesman & Sheard, 2014; Siegel, Tencza, Apodaca, & Poole, 2017). A systematic review on occupational therapy for community dwelling elderly people (Steultjens et al., 2004) presents strong evidence of the efficacy of giving advice on relevant assistive devices. Another systematic review on older adults (Marasinghe, 2016) presents evidence that assistive devices increase the user’s independence and contribute to reducing caregiver burden. Furthermore, research suggests that the use of assistive devices may lead to increased satisfaction with ADL performance (Brandt, 2005; Mortenson et al., 2013; Pettersson, Tornquist, & Ahlstrom, 2006) and higher HRQoL (Devitt, Chau, & Jutai, 2004; Jensen, 2014; McMillen & Söderberg, 2002).

While research suggests that the use of assistive devices might be effective when aiming to enhance ADL ability and HRQoL, it is still unknown if this applies to people with advanced cancer. This study, therefore, aims to explore the associations of having assistive devices with both self-reported ADL ability and self-reported HRQoL among people with advanced cancer.

**Methods**

**Design**

The study was conducted with an exploratory cross-sectional design and data was drawn from the cross-sectional study of the “Activity, Advanced Cancer and Quality of life at Home” project (ACQ project) (Wæhrens, Brandt, Peoples, & la Cour). The ACQ project addressed everyday activities, such as self-care (also termed personal ADL, PADL), household (also termed instrumental ADL, IADL), leisure and work (Brandt et al., 2016). The present study aimed to explore the sub-categories PADL and IADL. PADL concerns
self-care tasks such as eating, grooming, bathing, dressing and toileting, which most people need to perform. IADL is defined as tasks essential for living an independent life in society and includes transportation, shopping, cooking, cleaning and doing laundry (Wæhrens, 2010).

**Participants and Setting**

The study participants were patients with advanced cancer recruited from Aarhus University Hospital (AUH) and Odense University Hospital (OUH) in Denmark with the assistance of on-site contact nurses. Patients were included in the study if they fulfilled the following inclusion criteria: 18 years or older, diagnosed with incurable cancer by the responsible oncologist, expected minimum survival time of one month, living in a private home or sheltered living, living on the island of Funen or within a maximum radius of 60 km from AUH and a WHO performance status score of 1-3. Furthermore, the participants had to be able to participate in interviews and complete a questionnaire.

**Data Collection**

Data was collected from February 2013 to May 2014 and participant consent was obtained in connection with the recruitment. A questionnaire regarding participant characteristics and HRQoL was filled out by the participants prior to a home visit conducted by a project occupational therapist (P-OT). During the home visit, the questionnaire was checked for completion. Furthermore, the participants were interviewed about their ADL ability, and the possession of assistive devices was registered. Five P-OTs collected the data after having received one day of training in the procedures.

**Instrumentation**
**Demographic data.** The questionnaire concerning participant characteristics included data about age, gender, cohabitants and help received. The questionnaire was pilot tested before use.

**Assistive devices.** The participant registered possession of any assistive devices in cooperation with the P-OT by means of a study-specific questionnaire. The questionnaire was pilot tested before use.

**Self-reported activities of daily living ability.** The Activities of Daily Living - Interview (ADL-I) (Wæhrens, 2010) was used to evaluate self-reported ADL ability. The ADL-I is interview-based and consists of 47 ADL tasks: 31 tasks related to PADL and 16 tasks related to IADL. The participants rated their ability to perform and the quality of their task performance using seven response categories reflecting efficiency, effort/fatigue, safety and independence. To create an overall measure of self-reported ADL ability the categories were collapsed into a 4-point ordinal scale reflecting levels of ADL ability (competent, minimal inefficient, moderately inefficient and deficient). These ordinal scores were converted into an overall linear measure of self-reported ADL ability using Rasch analysis. A high measure indicates a higher self-reported ADL ability. The ADL-I is a validated instrument for people with conditions and symptoms similar to cancer (Wæhrens, 2010).

**Health-related quality of life, physical functioning, fatigue and pain.** The EORTC QLQ-C30 (Aaronson et al., 1993) was used to assess HRQoL, physical functioning, fatigue and pain. The global health status/QoL consisting of two items ranging from 1 to 7 constituted the summary measure of HRQoL. The three multi-item scales – physical functioning, fatigue and pain – ranging from 1 to 4 were applied in the study to describe the participants and chosen as potential confounding variables. All the scales from the EORTC QLQ-C30 result in a continuous score from 0 to 100 computed on the basis of the EORTC QLQ-C30 Scoring Manual. A high score represents a high HRQoL or level of physical
functioning or a high level of symptomatology (Fayers et al., 2001). The EORTC QLQ-C30 has been developed for and found to be valid in measuring HRQoL in patients with cancer (Groenvold, Klee, Sprangers, & Aaronson, 1997; Kaasa et al., 1995).

Data Analysis

Normally distributed interval-scale data was described by means and standard deviation. Data used as possible confounding variables, which was not normally distributed, were categorised and described in terms of frequencies and percentages like other categorical data.

Multiple linear regression analyses were used to explore whether having assistive devices was associated with HRQoL and ADL ability, respectively. The association is presented both in crude form and with adjustments for the selected potential confounding variables. The potential confounding variables were selected on the basis of the literature: age (Kjøller, Juel, Kamper-Jørgensen, & Statens Institut for, 2007; Mor, Guadagnoli, & Wool, 1987), gender (Kjøller et al., 2007; Mor et al., 1987), cohabiting (Mor et al., 1987), help from family/friends/home care (Mor et al., 1987), physical functioning (Cheville, 2001; Morello et al., 2009; Vermeulen, Neyens, van Rossum, Spreeuwenberg, & de Witte, 2011), fatigue (Johansson et al., 2006; Morello et al., 2009) and pain (Johansson et al., 2006; Morello et al., 2009). Coefficients with 95% confidence intervals and P-values were calculated for both the crude and the adjusted analyses. P-values <0.05 were considered statistically significant. The independent variable, assistive devices, was dichotomised into participants having one or more assistive devices and participants not having any assistive device. The dependent variables, HRQoL and ADL ability, were continuous. Of the selected potential confounding variables, age, physical functioning, pain and fatigue were kept continuous. Gender was dichotomised into men/women, and cohabiting and help from family/friends/home care were dichotomised into yes/no. Before the analyses were performed, model assumptions were tested and found fulfilled by means of QQ-plots, histograms and inspection of data. Missing values in relation to the dependent variable
HRQoL were imputed by the mean values of the other items on the global health status/QoL scale if half of the items were answered (Fayers et al., 2001). The analyses were computed using Stata software version 15.0.

**Ethics and Permission**

All participants received verbal and written information about the study procedures and both verbal and written consent were obtained.

According to The Regional Committee on Health Research Ethics for Southern Denmark, the ACQ project was not notifiable (Project ID S-20122000-96-CKH/csf). The project was carried out in accordance with the Helsinki Declaration (Williams, 2008). Originally, permission to collect and store data was obtained from the Danish Data Protection Agency (J.nr. 2012-41-1404). Subsequently the permission was transferred to the umbrella/joint notification of Southern Denmark from the Danish Data Protection Agency of University (J.nr. 2015-54-0984). The ACQ project has authorisation to use the EORTC QLQ-C30.

**Results**

Overall, n=285 patients met the inclusion criteria. Of these n=164 (57.5%) participated in the project; n=84 (51%) participants were included from OUH. The main reason for non-participation was lack of energy or other issues related to the patients’ condition. Data regarding assistive devices was unavailable for five participants. Thus, n=159 (97.0%) participants were included in the present study. See table 1 for participant characteristics.

“[insert Table 1]"
The mean age of the study sample was 67.4 years and 49.7% were men. One-hundred (62.9%) of the participants were in possession of one or more assistive devices. The mean measure of self-reported ADL ability among participants with one or more assistive devices was 1.7 logits and among participants without assistive devices the mean ADL ability measure was 2.6 logits. The crude results of the multiple linear regression showed that having assistive devices was statistically significantly associated with lower ADL ability ($P = <0.0001$). However, this association was not statistically significant after adjusting for the selected potential confounding variables (Table 2).

“[insert Table 2]"

Among participants having one or more assistive devices the mean HRQoL score was 50.8, and among participants without assistive devices the mean HRQoL score was 54.9 (Table 1). The results of the multiple linear regression analysis showed that having assistive devices was not statistically significantly associated with HRQoL. Neither in the crude model nor when adjusted for the selected potential confounding variables (Table 3).

“[insert Table 3]"

The potential confounding variable physical functioning was positively significantly associated with higher self-reported ADL ability ($P = <0.0001$) (Table 2). A high level of fatigue ($P = <0.0001$) and pain ($P = 0.010$) proved to have a statistically significant association with low HRQoL (Table 3).
Discussion

The aim of this study was to explore the associations between having assistive devices and ADL ability and HRQoL, respectively, among people with advanced cancer. Our findings showed that participants having assistive devices had the same level of HRQoL, but a lower ADL ability than participants without assistive devices. However, the differences in ADL ability among participants having assistive devices and participants without assistive devices was probably not related to their use of assistive devices. Our findings suggest that among people with advanced cancer using assistive devices, a reduced ADL ability may be related to low physical functioning, and low HRQoL among people with advanced cancer is probably related with high levels of fatigue and pain.

Several studies underline the importance of assistive devices when aiming to enhance ADL ability (Brandt, 2005; Mortenson et al., 2013; Pettersson et al., 2006) and HRQoL (Devitt et al., 2004; Jensen, 2014; McMillen & Söderberg, 2002). Since we do not know the level of ADL ability and HRQoL if none of the participants had assistive devices, we cannot rule out the possibility that the use of assistive devices might have an effect on both ADL ability and HRQoL. A study on people applying for a new mobility device found that assistive devices appeared to be effective and that satisfaction with activity performance was high (Jedeloo, De Witte, & Schrijvers, 2002). Jensen (Jensen, 2014) found that people applying for assistive devices considered the use of assistive devices to be of great importance in relation to their HRQoL. In addition, the finding of a randomized controlled trial on frail elderly (Mann, Ottenbacher, Fraas, Tomita, & Granger, 1999) proved that the use of assistive devices promotes independence and reduces health care costs. The lower level of ADL ability among participants having assistive devices, in our study, probably was due to the fact that they were in a worse medical condition and had a lower physical functioning and not because they were in possession of assistive devices. Similar findings have been reported by Gosman-Hedström et al. (Gosman-Hedström & Blomstrand, 2003). The positive association between physical functioning and ADL ability is in line with previous studies: a systematic review on community dwelling elderly people presents evidence that physical frailty indicators such as lower extremity function, balance
and muscle strength are predictors of future ADL disability (Vermeulen et al., 2011). This result suggests that it might be important to maintain or improve the physical function of people with advanced cancer, when aiming to enhance their ADL ability.

The association between high levels of pain or fatigue and low HRQoL also proved to be in line with previous studies (Johansson et al., 2006; Morello et al., 2009). A cross-sectional study on patients with advanced prostate cancer (Charalambous & Kouta, 2016) found that cancer related fatigue affects HRQoL in various ways, such as increased dependency on others, loss of power over decision making, and daily living disruption. Another study on people with head and neck cancer (Oliveira et al., 2014) found that the severity of pain is statistically related to advanced stages of cancer and that it directly affects HRQoL. These results indicate that compensation for or reduction of the level of fatigue and pain might be of importance when aiming to enhance HRQoL of people with advanced cancer.

**Strengths and Limitations**

Considering the progressed stage of disease of people with advanced cancer (Johnsen et al., 2009) the study population was relatively large. In addition, the majority of data was collected in the participants’ homes, which is unique and may contribute to improving the reliability of data, since people tends to relax more in settings that feel natural to them (Green & Thorogood, 2014). Several limitations should, however, be kept in mind when interpreting the results. First, data was limited by variables available for analysis. I.e. no information was available on comorbidity, which might affect both ADL ability and HRQoL (Kurtz, Kurtz, Stommel, Given, & Given, 1999; Smith et al., 2008). No information was available on satisfaction with the assistive devices and how frequently they were used. This information is important since the effect of an assistive device depends on it being used and to what extent it fits the needs of the user (Scherer, 1996). Besides satisfaction with the device, factors associated with usage included satisfaction with the related services (de Boer et al., 2009). However, information on how the participant came
into possession of the assistive device, or if the participants were satisfied with the process was neither available.

Second, non-participants did not differ from participants regarding age or gender. However, the fact that the reasons for non-participation mostly concerned issues related to their condition, indicates that patients with the most aggravated medical conditions did not participate in the study.

Another limitation of this study is that the study and sample size for the original cross-sectional study were not based on calculations of statistical power and thus this was not possible for the present study. This may result in an increased risk of type II errors (Kirkwood & Sterne, 2003), but since the coefficients are close to zero and the confidence intervals are relatively small, the risk of type II errors is unlikely.

**Conclusions**

The findings of this study indicate that people with advanced cancer having assistive devices are a vulnerable group with an ADL ability significantly lower than people with advanced cancer without assistive devices. It is possible that improvement of the physical functioning would enhance the ADL ability, and compensation for or reduction of fatigue and pain would contribute to enhancing HRQoL among people with advanced cancer.

Causality cannot be established due to the cross-sectional nature of the data (Jørgensen & Linneberg, 2016), and since establishment of efficient use of an assistive device is a complex intervention (Brandt, Christensen, & Grünberger, 2015; Craig et al., 2008), more comprehensive and experimental studies are necessary in future research to explore the true effect of assistive devices. Such studies and qualitative studies can provide knowledge about the issues raised in the discussion e.g. how a well-implemented assistive device affects ADL ability and HRQoL, or about the perceived satisfaction with the assistive device, which is another important topic when aiming to successfully implement an assistive device (Brandt et al., 2015; Scherer, 1996). Since the medical condition of non-participants was probably more aggravated, the findings from this study can be considered
representative of relatively well-functioning people with advanced cancer in Denmark, but may also apply to people with advanced cancer in countries with similar health care and assistive technology service systems.

References


### Tables

Table 1. Participant characteristics

<table>
<thead>
<tr>
<th></th>
<th>All participants</th>
<th>Assistive device</th>
<th>No assistive device</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (years)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>67.4 (10.0)</td>
<td>68.4 (9.2)</td>
<td>65.6 (11.0)</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women n (%)</td>
<td>80 (50.3)</td>
<td>54 (54.0)</td>
<td>26 (44.1)</td>
</tr>
<tr>
<td>Men n (%)</td>
<td>79 (49.7)</td>
<td>46 (46.0)</td>
<td>33 (55.9)</td>
</tr>
<tr>
<td><strong>Cohabiting</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes n (%)</td>
<td>111 (76.0)</td>
<td>65 (73.0)</td>
<td>46 (80.7)</td>
</tr>
<tr>
<td>No n (%)</td>
<td>35 (24.0)</td>
<td>24 (27.0)</td>
<td>11 (19.3)</td>
</tr>
<tr>
<td><strong>Receiving help</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes n (%)</td>
<td>73 (47.4)</td>
<td>50 (52.6)</td>
<td>23 (39.0)</td>
</tr>
<tr>
<td>No n (%)</td>
<td>81 (52.6)</td>
<td>45 (47.4)</td>
<td>36 (61.0)</td>
</tr>
<tr>
<td><strong>Physical functioning</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>58.6 (25.3)</td>
<td>50.3 (24.2)</td>
<td>72.0 (21.0)</td>
</tr>
<tr>
<td><strong>Fatigue</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>55.1 (26.2)</td>
<td>57.1 (26.5)</td>
<td>51.9 (25.6)</td>
</tr>
</tbody>
</table>
Table 2. Multiple linear regression analysis of the association between having assistive devices and activities of daily living (ADL) ability.

<table>
<thead>
<tr>
<th></th>
<th>ADL ability†</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Crude</td>
<td>Adjusted</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coefficient (%95CI)</td>
<td>P-value</td>
<td>n</td>
</tr>
<tr>
<td>Assistive devicea</td>
<td>-0.923 (-1.298 - -0.548)</td>
<td>&lt;0.0001</td>
<td>159</td>
</tr>
<tr>
<td>Age</td>
<td>-0.011 (-0.030 - 0.008)</td>
<td>0.241</td>
<td>162</td>
</tr>
<tr>
<td>Genderb</td>
<td>0.131 (-0.254 - 0.516)</td>
<td>0.503</td>
<td>162</td>
</tr>
<tr>
<td>Cohabitinc</td>
<td>0.085 (-0.372 - 0.541)</td>
<td>0.715</td>
<td>148</td>
</tr>
<tr>
<td>Receiving Help††</td>
<td>0.772 (0.401 - 1.143)</td>
<td>&lt;0.0001</td>
<td>156</td>
</tr>
<tr>
<td>Physical functioning††</td>
<td>0.034 (0.028 - 0.039)</td>
<td>&lt;0.0001</td>
<td>156</td>
</tr>
<tr>
<td>Fatigue†††</td>
<td>-0.019 (-0.026 - -0.012)</td>
<td>&lt;0.0001</td>
<td>155</td>
</tr>
<tr>
<td>Pain††††</td>
<td>-0.009 (-0.014 - -0.003)</td>
<td>0.003</td>
<td>156</td>
</tr>
</tbody>
</table>

Significance level: P = < 0.05
Reference groups: a No assistive device; b Women; c No cohabitant; d Receiving help; e <1.5.
† Assessed by the Activities of Daily Living - Interview. A higher score represents a better ADL ability.
†† Receiving help from: family, friends or home care.
††† Assessed by the European Organization for Research Treatment of Cancer Quality of Life Questionnaire Core 30 (EORTC QLQ-C30). A higher score represents a worse level of fatigue and pain.
†††† Assessed by the EORTC QLQ-C30. A higher score represents a worse level of fatigue and pain.

Table 3. Multiple linear regression analysis of the association between having assistive devices and health-related quality of life (HRQoL).

<table>
<thead>
<tr>
<th></th>
<th>HRQoL†</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
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</table>

Reference groups: a No assistive device; b Women; c No cohabitant; d Receiving help; e <1.5.
† Assessed by the European Organization for Research Treatment of Cancer Quality of Life Questionnaire Core 30 (EORTC QLQ-C30). A higher score represents higher HRQoL or better physical functioning.
†† Assessed by the EORTC QLQ-C30. A higher score represents a worse level of fatigue and pain.
††† Assessed by the Activities of Daily Living - Interview. A higher score represents a better ADL ability.
<table>
<thead>
<tr>
<th></th>
<th>Crude</th>
<th>Adjusted (n=143)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient (%95CI)</td>
<td>P - value</td>
</tr>
<tr>
<td>Assistive device(\text{a})</td>
<td>-4.087 (-10.948 - 2.774)</td>
<td>0.241</td>
</tr>
<tr>
<td>Age</td>
<td>0.128 (-0.204 - 0.460)</td>
<td>0.449</td>
</tr>
<tr>
<td>Gender(\text{b})</td>
<td>3.881 (-2.771 - 10.533)</td>
<td>0.251</td>
</tr>
<tr>
<td>Cohabiting(\text{c})</td>
<td>-2.703 (-10.711 - 5.305)</td>
<td>0.506</td>
</tr>
<tr>
<td>Receiving Help(\text{d})</td>
<td>9.827 (3.318 - 16.336)</td>
<td>0.003</td>
</tr>
<tr>
<td>Physical functioning(\text{f})</td>
<td>0.401 (0.284 - 0.517)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Fatigue(\text{g})</td>
<td>-0.486 (-0.587 - -0.385)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Pain(\text{h})</td>
<td>-0.239 (-0.333 - -0.146)</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

Significance level: \(P = < 0.05\)

Reference groups: \(\text{a}\) No assistive device; \(\text{b}\) Women; \(\text{c}\) No cohabitant; \(\text{d}\) Receiving help; \(<\text{1.5}\).

\(\text{f}\) Assessed by the European Organization for Research Treatment of Cancer Quality of Life Questionnaire Core 30 (EORTC QLQ-C30). A higher score represents higher HRQoL or better physical functioning.

\(\text{g}\) Receiving help from: family, friends or home care.

\(\text{h}\) Assessed by the EORTC QLQ-C30. A higher score represents a worse level of fatigue or pain.