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Disparities in Mental Health between Rural and Nonrural Cancer Survivors: A Preliminary Study

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Abstract

Objective—While much research has sought to identify disparities in cancer incidence, survival, and treatment, little research has sought to identify disparities in mental health outcomes among cancer survivors. The present study aimed to identify disparities in mental health outcomes between rural and nonrural cancer survivors.

Methods—Cancer survivors who met eligibility criteria were identified through the Kentucky SEER Cancer Registry. Rural status was determined by 2003 USDA Rural-Urban Continuum Codes. 116 (n = 54 rural, 62 nonrural) survivors with diagnoses of breast (n=42), hematologic (n=39) or colorectal (n=35) cancer completed mail-back questionnaires and/or a telephone interview.

Results—Rural cancer survivors reported poorer mental health functioning (Effect size; ES = .45 SD), greater symptoms of anxiety (ES = .70) and depression (ES = .47), greater distress (ES = .41), and more emotional problems (ES = .47) than nonrural cancer survivors. Rural and nonrural cancer survivors did not differ consistently in regard to positive mental health outcomes, such as benefit finding. The pattern of results was maintained when adjusted for education and physical functioning.

Conclusions—Clinically important disparities in mental health outcomes were evident between rural and nonrural cancer survivors. Interventions aimed at raising access and utilization of mental health services may be indicated for cancer survivors in rural areas.

Keywords

cancer; oncology; healthcare disparities; mental health; rural health

Cancer disparity research has focused primarily on identifying population-based characteristics linked to cancer incidence, survival, and treatment [1–4]. While the mental health (MH) of cancer survivors is of great significance [5–6], little research has examined the link between population-based characteristics and MH outcomes among cancer survivors. In particular, there is scant research examining whether geographic residence, that is whether an individual resides in a rural or nonrural area, has significant bearing on an individual's MH following cancer diagnosis. Since over 10 million cancer survivors live in the United States (U.S.) [7], and roughly 20% of the population resides in rural areas, one can estimate the presence of approximately 2 million rural cancer survivors. With such a large number of rural cancer survivors, it is important to consider whether rural residence might be an important predictor of MH in cancer survivors.

There are several reasons to believe residing in a rural area, characterized by low population density and geographic isolation [8–9], might influence adjustment after cancer diagnosis. First, disparate rates of comorbidity [9] and variation in cancer treatment received by rural and nonrural residents [10–11], may place rural cancer survivors at risk for poor physical functioning, which might have negative implications for MH. Second, few MH professionals (e.g., psychologists, psychiatrists), long travel distances to healthcare providers, low rates of insurance, and little anonymity for those seeking treatment from MH professionals in rural areas [8–9,12–13], could contribute to rural residents consuming less MH treatment than nonrural residents [14–16]. Third, geographic isolation can make it difficult for rural cancer survivors to participate in cancer support groups and access information that could be helpful in coping with illness-related distress [17]. Fourth, a cancer diagnosis might be more difficult to discuss in rural areas [18–19] due to social norms regarding disclosure of one's emotional or psychological problems to other individuals [19], including MH professionals [20]. In sum, unique aspects of rural residence may interact with the experience of cancer diagnosis, treatment, and recovery, such that rural cancer survivors experience poorer MH outcomes than nonrural cancer survivors.

Despite the likelihood and potential importance of MH disparities between rural and nonrural cancer survivors, few studies have directly compared the MH of rural and nonrural cancer survivors [21–24]. In a sample of 191 female long-term cancer survivors, Kurtz and colleagues [21] found geographic residence was not a significant predictor of quality of life (QOL) outcomes, including “psychological state.” In contrast, in a study of 60 recently diagnosed breast and cervical cancer survivors, Lyons and Shelton [22] found rural survivors reported poorer QOL than nonrural survivors, despite no differences in the severity of depressive symptoms. Lancee and colleagues [23] reported rural residence was unrelated to the experience of distress among a sample of 1309 cancer survivors, the majority of whom were diagnosed with breast and genitourinary cancers. Finally, rural cancer survivors were not more likely than nonrural cancer survivors to report need for psychological assistance [24].

While these studies provide some information, they all evidence methodological limitations, including small sample sizes [22], not being designed to test for differences between rural and nonrural survivors [21,23–24], examination of only 1 or 2 indices of MH [21–23], lack of any objective criterion for determining rural residence [21–23], and inclusion of only female participants [21–22,24], most of whom were diagnosed with breast cancer. It could even be argued that some participants in Lyons and Shelton's [22] sample are not cancer “survivors” per se, as many were still undergoing treatment. Considering all of the above, it is clear that no well-designed study of MH disparities between rural and nonrural cancer survivors currently exists.

The present study aimed to identify the nature and magnitude of differences in MH outcomes in cancer survivors as a function of rural residence. Indices of both psychological distress and well-being were included to allow for a comprehensive assessment of participants' MH functioning. It was hypothesized that rural cancer survivors would report poorer MH (i.e., greater psychological distress and less well-being) than nonrural cancer survivors.

Methods

Procedure

Eligibility Criteria—To be eligible for study participation a person must have: (a) been between 25 and 75 years of age; (b) been 1 to 5 years post-cancer diagnosis; (c) been previously diagnosed with female breast cancer, colorectal cancer, or hematologic cancer

(i.e., leukemia, lymphoma, Hodgkin's disease); (d) no documented psychiatric or neurological disorder that would interfere with study participation; (e) been able to read, write, and understand English; and (f) provided written informed consent for study participation. These criteria were largely chosen to insure the study sample reflected the following: (a) individuals diagnosed in adulthood, (b) individuals, for whom, the experience of MH problems may still be pervasive, and (c) individuals representative of some of the more commonly diagnosed cancers in the U.S.

Study Recruitment—Cancer survivors meeting eligibility criteria were recruited from the statewide, population-based Kentucky SEER Cancer Registry (KCR). After identifying individuals meeting eligibility criteria, KCR staff mailed a letter to the physician of record notifying him or her that a patient was eligible for study participation. The physician could then withdraw a patient from further consideration. If there was no objection from the physician of record, then KCR staff mailed a letter notifying the cancer survivor of the potential for study participation; so that cancer survivors could notify KCR of their interest or disinterest in study participation, a stamped, pre-addressed postcard was included with this letter. If necessary, up to seven phone calls were made to a cancer survivor by KCR staff in an effort to assess interest in study participation. The name and contact information for all individuals who expressed interest in study participation, whether by phone or mail, were then forwarded to study staff.

Data Collection—Once contact information was obtained from the KCR, study staff mailed an invitation letter, contact information form, and two copies of a consent form to potential study participants. A stamped, pre-addressed envelope was included with these materials so interested persons could return completed contact information and consent forms. Those uninterested in participation indicated this by marking the appropriate box on the contact information form. Within a week of receiving a signed consent form, participants were contacted and a telephone interview was scheduled. A questionnaire packet was also mailed to participants; again, a stamped, pre-addressed envelope was provided for its return. If participants failed to return any study materials within a month, up to four follow-up phone calls were made to the individual's place of residence. Up to three copies of the consent form and questionnaire packet were provided to participants who may have lost or misplaced study materials.

Altogether, data collection consisted of completion of a telephone interview and the return of a questionnaire packet. Study measures were divided such that completion of the telephone interview and questionnaire packet required approximately 15 to 20 minutes each. Participants were paid \$20 for completion of both the interview and questionnaire packet. All research procedures were approved by the University of Kentucky Institutional Review Board.

Determination of Rural Status—The rural-nonrural distinction was defined by objective, geographic and population-based criteria: 2003 United States Department of Agriculture (USDA) Rural-Urban Continuum (RUC) Codes [25]. RUC codes (range 1–9) distinguish metropolitan counties (RUC codes 1–3) by the population size of their metropolitan area, and nonmetropolitan counties (RUC codes 4–9) by population size and proximity to a metropolitan area. Consistent with prior research [14–15,26], survivors living in counties with RUC codes 7–9 were considered “rural” and those living in counties with RUC codes 1–6 were “nonrural.”

Measures

Demographic and Clinical Information—Information was obtained regarding date of birth, racial and ethnic background, annual income, years of education, and partner status. Clinical information was obtained from the routine, computerized database maintained by the KCR.

Measures of Psychological Distress—*Medical Outcomes Study 12-Item Short Form Health Survey* [SF-12; 27]. The SF-12 is a measure of current physical and mental health status. Like the longer, parent version [SF-36; 28], the SF-12 yields 2 component scores and various subscale scores [27]. The SF-12 has been used extensively in both diseased and healthy populations, and has demonstrated good psychometric properties [27]. Only the mental and physical functioning subscales were used here.

Hospital Anxiety and Depression Scale [HADS; 29]. The HADS is a 14-item measure of the severity of anxiety and depressive symptoms in the preceding week [29]. A total score and two subscale (depression and anxiety) scores are calculated. Subscale scores ≥ 11 suggest cases of clinically important anxiety and depressive symptoms [30].

Distress Thermometer [DT; 31]. The DT is a 1 item measure of global distress. Participants rate the level of distress experienced in the past week on a scale from 0 (no distress) to 10 (extreme). Participants also indicate which of 35 specific problems (e.g., fears, dealing with children) they experienced in the past week. The DT has been proposed as a screening tool in the oncology setting; global distress rating ≥ 5 indicates clinically significant distress [31].

Measures of Psychological Well-being—*Satisfaction with Life Scale* [SWLS; 32]. The SWLS is a widely-used 5-item measure of subjective well-being [32]. On a scale of 1 (strongly disagree) to 7 (strongly agree) participants indicate which response best describes their current feelings.

Benefit Finding Questionnaire [BFQ; 33]. The BFQ is a 17-item measure of perceived benefits derived from cancer diagnosis and treatment [32]. Using a 5-point Likert scale, participants indicate the extent to which each statement corresponds to their current feelings and experiences. The stem for each item is “My experience with cancer...” and each item describes a potential benefit from cancer. A total score is calculated by summing responses on the 17 items.

Quality of Life – Cancer Survivors Scale [QOL-CS; 34]. The QOL-CS is a 41-item measure of QOL [34]. The QOL-CS measures four QOL domains, including psychological, physical, social and spiritual well-being. Only Spiritual Well-Being subscale scores were used.

Data Analysis—All statistical analyses were performed using the Statistical Package for the Social Sciences, Release 15.0. The criterion for statistical significance was set at $p \leq .05$.

Chi-square analyses and independent samples t-tests were used to identify any significant group differences (rural versus nonrural) on demographic and clinical variables. Independent samples t-test analyses were used to test group differences on the following MH outcomes: mental functioning (SF-12), anxiety and depression symptoms (HADS), global distress (DT), number of emotional problems (DT), benefit-finding (BFQ), spiritual well-being (QOL-CS), and subjective well-being (SWLS). Logistic regression analyses tested group differences in reports of a clinical level of anxiety symptoms (HADS), depressive symptoms (HADS), and global distress (DT). In addition, analyses of covariance and logistic regression analyses (controlling for education level and physical functioning) were

conducted when evaluating differences in continuous and categorical MH outcomes, respectively. Effect size (ES) was calculated as the difference between group means divided by the standard deviation in the entire sample.

Results

Participant Accrual

A total of 365 potential study participants were identified from KCR records. Of these, 16 (4%) were found to be deceased and no attempt was made to contact 5 (1%) due to lack of physician consent. Of the remaining 344 survivors that KCR attempted to recruit, 28 (8%) were unable to be located or did not respond to KCR's repeated attempts to contact them and 143 (39%) refused study participation. The remaining 173 (50% of those KCR attempted to recruit) survivors consented to contact by study staff. Of these 173 individuals, 117 ultimately (68%) provided written informed consent for study participation, 39 (23%) declined study participation, and 17 (10%) did not respond despite repeated mail and telephone attempts to contact them. Of the 117 individuals who provided informed consent for study participation, 116 provided some data: 109 completed both the telephone interview and questionnaire, 5 completed only the telephone interview, and 2 completed only the questionnaire. This yielded a net accrual rate of 34% (117/344) based on individuals for whom KCR initiated recruitment efforts. Demographic and clinical characteristics of the 117 individuals who consented to study participation and the remaining 227 individuals KCR attempted to recruit were compared. Results indicated these two groups did not differ significantly on type of cancer diagnosis ($p = .16$), stage at diagnosis ($p = .67$), age at diagnosis ($p = .50$), current age ($p = .89$), race ($p = .97$), or sex ($p = .08$). Rural survivors were significantly more likely to participate than nonrural survivors ($p = .01$).

Study Sample

Sixty-nine percent ($n = 80$) of participants were females, and the mean age was 56.9 years (standard deviation; $SD = 9.3$, range = 32.1–74.0 years). Most participants (78.9%, $n = 90$) had completed ≥ 12 years of education (mean = 14.1, $SD = 3.5$, range = 7–20 years). Participants lived in the following RUC codes: 1 (24.1%; $n = 28$), 2 (5.2%; $n = 6$), 3 (6.0%; $n = 7$), 4 (3.4%; $n = 4$), 5 (5.2%; $n = 6$), 6 (9.5%; $n = 11$), 7 (33.6%; $n = 39$), 8 (5.2%; $n = 6$), and 9 (7.8%; $n = 9$). Fifty-four survivors (46.6%) were identified as living in a rural area. Racial/ethnic background of participants was: 90.4% ($n = 103$) White/Caucasian, 5.3% ($n = 6$) Black/African American, 1.8% ($n = 2$) Asian, 0.9% ($n = 1$), American Indian/Alaskan Native, and 1.8% ($n = 2$) multi-racial. Ninety-eight percent ($n = 113$) of participants were non-Hispanic. Most participants reported being in a relationship ("partnered"), whether married or living together (77.6%, $n = 90$).

Of the sample, 36.2% ($n = 42$) had been diagnosed with breast cancer, 33.6% ($n = 39$) with hematologic cancer, and 30.2% ($n = 35$) had been diagnosed with colorectal cancer. Participants' SEER stage at diagnosis was as follows: 9.7% ($n = 11$) in situ, 42.5% ($n = 48$) localized, 29.2% ($n = 33$) regional, and 18.6% ($n = 21$) distant metastasis. Mean time between cancer diagnosis and study participation was 2.7 years ($SD = 1.1$). Details of participants' cancer treatment are shown in Table 1.

Rural and nonrural participants were similar on most demographic and clinical variables (see Table 1). However, as expected, rural survivors reported significantly less education ($p = .03$) and poorer physical functioning ($p = .01$) than nonrural participants.

Differences on MH Outcomes between Rural and Nonrural Participants

On multiple measures of psychological distress, rural participants reported poorer outcomes than nonrural participants. Specifically, rural participants reported significantly poorer functioning on all five continuous measures of distress shown in Table 2: MOS mental functioning ($p = .02$; $ES = .45$); DT global distress ($p = .04$; $ES = .41$) and # of emotional problems ($p = .02$; $ES = .47$); and HADS anxiety ($p = .01$; $ES = .70$) and depressive ($p = .02$; $ES = .47$) symptoms. Mean ES for these five outcome measures was .50 SD indicating rural survivors scored $\frac{1}{2}$ SD poorer, on average, than rural survivors on this set of distress outcomes. In addition, significantly more rural participants (46.2%) met the cut-off score on the DT for a clinical level of distress compared to nonrural participants (27.4%; $OR = 2.27$; $p = .04$) (see Table 3). While the proportion of rural participants meeting criteria for clinical significance for HADS anxiety (24%) and depression subscale (13%) scores exceeded the proportion of nonrural participants meeting criteria (13% and 3%, respectively), these results only approached statistical significance (p 's ranging from .07 to .12).

Only 1 of the 3 comparisons of rural and nonrural survivors on measures of well-being was significant (see Table 2). Consistent with our results for distress outcomes, rural survivors reported less subjective well-being on the SWLS than nonrural survivors ($p = .05$; $ES = .37$).

Given significant differences between rural and nonrural survivors in regard to education and physical functioning, "sensitivity" analyses were conducted to determine whether controlling for these variables altered the direction and/or magnitude of differences in MH outcomes described above. Adjusting for education and physical functioning did not change the pattern of study findings – rural survivors still reported poorer MH than nonrural survivors on each of our 5 continuous distress measures (Table 2). However, the size of the difference between rural and nonrural survivors decreased a bit. In the unadjusted analyses, ES's ranged from .41 to .70 SD (mean = .50 SD). When adjusted for education, ES's ranged from .35 to .45 SD (mean = .39 SD) and when adjusted for physical functioning, ES's ranged from .26 to .37 SD (mean = .31 SD). Similarly, for our dichotomous distress outcome measures (Table 3), adjustment for education and physical function did not change the pattern of findings – rural survivors were more likely to meet criteria for clinical levels of distress – but the size of the odds ratios decreased a bit.

Discussion

The purpose of this study was to test whether a complex, objectively defined variable – rural residence – is a risk factor for poor MH following cancer diagnosis. Results of this preliminary study suggest rural cancer survivors may evidence poorer MH than nonrural cancer survivors. Reports of greater anxiety and depressive symptoms, distress, emotional problems, and poorer mental functioning were all documented among rural as compared to nonrural participants. Rural participants also reported significantly less life satisfaction than nonrural participants. All of the above provide support for our hypothesis that rural cancer survivors would evidence more distress and less well-being than their nonrural counterparts.

Low education levels and poor physical health are typical characteristics of rural residence [8–9], thus observed rural-nonrural differences in these variables were expected. Sensitivity analyses conducted to examine the extent to which observed rural-nonrural MH differences were due to differences in education and physical functioning suggest that while controlling for these variables reduces the magnitude of observed differences a bit, they do not eliminate these differences. The mean ES for our five continuous distress measures was .38 and .31 when controlling for education and physical functioning, respectively. As an $ES > .33$ is often considered clinically meaningful [35], our data indicate clinically significant differences in MH outcomes are likely to exist between rural and nonrural cancer survivors.

So while education and physical functioning are important factors that might underlie MH differences between rural and nonrural cancer survivors, they are not the only factors to consider. Other factors, such as access to and utilization of MH treatment among cancer survivors, are likely to be important and warrant further consideration. The robust nature of our findings raises the possibility that observed MH differences reflect “cancer health disparities” as defined by the National Cancer Institute [36]. In this way, observed MH differences can be understood as differences in “the burden of cancer” magnified among the U.S. rural population.

It is possible our observed MH differences between rural and nonrural cancer survivors are merely an artifact of differences between rural and nonrural residents in the general population and are not unique to cancer survivors. Without the inclusion of healthy control groups of rural and nonrural residents, it is impossible to rule out this possibility. However, research on MH differences between rural and nonrural residents in the general population has yielded very mixed results. While some studies have favored rural residents on indices of MH [16,37], others have favored nonrural residents [38], and still others have found no differences between rural and nonrural residents [41]. The mixed nature of such findings has led to the conclusion that no consistent differences in MH outcomes exist between rural and nonrural residents in the general population [40–42]. Given the lack of consistent MH differences between rural and nonrural residents in the general population, we suggest the differences in MH outcomes between rural and nonrural cancer survivors evident in this study are not likely a simple reflection of inherent MH differences between rural and nonrural residents. Rather, we suggest they are unique to cancer survivors and result from differences in the experience of cancer between rural and nonrural cancer survivors. Exactly how the cancer experience might differ between rural and nonrural survivors in a fashion that affects MH outcomes would appear to be an important issue for future research to address.

Our study possesses several limitations. In addition to the lack of a healthy control group, the study sample was relatively homogeneous in terms of race/ethnicity and included only breast, colorectal, and hematologic cancer survivors. Although our sample reflected the characteristics of cancer survivors in Kentucky, generalization of study results to cancer survivors of more diverse racial and ethnic backgrounds or other cancer diagnoses is risky. Perhaps the most significant study limitations are its modest sample size of 116 cancer survivors and its net accrual rate of 34%. However, our accrual rate of 34% (conservatively defined as those who never responded to KCR recruitment efforts are included in the denominator) compares favorably to similar studies of psychosocial outcomes in cancer survivors which employed purposive sampling from population-based cancer registries. As examples, an accrual rate of 34% was achieved for survivors of six different cancer diagnoses [43], 41% for survivors of mixed, multiple primaries [44], 42% for breast, colorectal, and prostate cancer survivors [45], 46% for breast cancer survivors [46], and 54% for lymphoma survivors [47].

Conclusions

In contrast to the large body of literature focused upon disparities in cancer incidence, treatment, and survival little research aims to identify disparities in MH among cancer survivors. In particular, little is currently known about potential MH disparities linked to geographic residence. The national health agenda, *Healthy People 2010*, has as one of its two goals the identification and elimination of health disparities [48]. Among other characteristics, geographic residence is specifically mentioned as a population characteristic that might be associated with clinically relevant health disparities. As current study findings suggest rural cancer survivors share a disproportionate burden of MH problems, future

research examining MH differences between rural and nonrural cancer survivors represents a significant area of study and is consistent with the national health agenda.

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Table 1

Demographic and clinical characteristics for rural and nonrural cancer survivors*

	Rural (n=54)	Nonrural (n=62)	Chi-square test statistic (df[†])	p
Sex [‡]			0.25 (1)	.62
Female	36 (66.7)	44 (71.0)		
Male	18 (33.3)	18 (29.0)		
Ethnicity [‡]			0.85 (1)	.36
Hispanic	0 (0)	1 (0.2)		
Non-Hispanic	52 (100)	61 (98.4)		
Race [‡]			1.66 (1)	.20
White/Caucasian	49 (94.2)	54 (87.1)		
Other	3 (5.5)	8 (12.9)		
Partner status [‡]			0.89 (1)	.34
Partnered	39 (75.0)	51 (82.3)		
Nonpartnered				
Type of cancer [‡]			5.46 (2)	.06
Breast	14 (25.9)	28 (45.2)		
Hematologic	21 (38.9)	14 (22.6)		
Colorectal	19 (35.2)	20 (32.3)		
Stage at diagnosis [‡]			2.31 (3)	.51
In situ	4 (7.5)	7 (11.7)		
Localized	24 (45.3)	24 (40.0)		
Regional	13 (24.5)	20 (33.3)		
Distant metastasis	12 (22.6)	9 (15.0)		
Types of treatment [‡]			14.66 (8)	.07
No definitive treatment	2 (3.8)	2 (3.2)		
Surgery	18 (34.0)	11 (17.7)		
Chemotherapy	6 (11.3)	1 (1.6)		
Surgery and chemotherapy	10 (18.9)	10 (16.1)		
Surgery and radiation	0 (0.0)	3 (4.8)		
Chemotherapy and radiation	1 (1.9)	3 (4.8)		
Chemotherapy and other	2 (3.8)	3 (4.8)		
Surgery, chemo., and radiation	4 (7.5)	12 (19.4)		
Other treatment combinations	10 (18.9)	17 (27.4)		
	Rural (n=54)	Nonrural (n=62)	t-test statistic (df[‡])	p
Education (years completed) [§]	13.3 (3.4)	14.7 (3.4)	-2.26 (1, 112)	.03
Time since diagnosis (years) [§]	2.8 (1.2)	2.7 (1.0)	-0.66 (1, 113)	.51
Age (years) [§]	57.7 (9.6)	56.3 (9.0)	0.76 (1, 112)	.45
Physical functioning (SF-12) [§]	57.2 (35.8)	73.8 (34.3)	-2.52 (1, 112)	.01

* Due to missing data, frequencies presented may not correspond exactly to the sample size

† Degrees of freedom

‡ Data presented are frequencies and percentages

§ Data presented are means and standard deviations

Table 2

Means and standard deviations of rural and nonrural cancer survivors' for distress and well-being indices

	Unadjusted			Adjusted for Education			Adjusted for Physical Functioning					
	Rural (n=54)	Nonrural (n=62)	p	ES* *	Rural (n=52)	Nonrural (n=62)	p	ES	Rural (n=54)	Nonrural (n=62)	p	ES
<u>Distress Indices</u>												
Mental functioning (SF-12)	63.9 (24.1)	74.2 (21.6)	.02	.45	64.8 (22.8)	73.5 (22.8)	.05	.38	65.9 (21.2)	72.6 (21.8)	.11	.31
Anxiety symptoms (HADS)	7.4 (5.3)	4.9 (4.7)	.01	.70	7.2 (5.0)	5.0 (5.0)	.02	.45	7.0 (4.8)	5.2 (4.8)	.06	.37
Depressive symptoms (HADS)	4.4 (4.1)	2.7 (3.2)	.02	.47	4.2 (3.6)	2.9 (3.6)	.06	.37	4.0 (3.2)	3.1 (3.2)	.17	.26
Global distress level (DT)	4.4 (3.3)	3.1 (3.1)	.04	.41	4.3 (3.2)	3.2 (3.5)	.07	.35	4.2 (3.2)	3.2 (3.2)	.11	.31
# emotional problems (DT)	2.1 (2.1)	1.2 (1.7)	.02	.47	2.0 (1.9)	1.3 (1.9)	.05	.38	1.9 (1.8)	1.4 (1.8)	.15	.28
Mean ES				.50				.39				.31
<u>Well-being Indices</u>												
Benefit-finding (BFQ)	57.4 (15.7)	57.5 (18.2)	.96	.00	56.7 (17.2)	58.1 (17.1)	.67	.08	57.0 (17.4)	57.8 (17.4)	.82	.04
Spiritual well-being (QOL-CS)	50.3 (12.7)	48.5 (13.7)	.48	.14	49.9 (13.4)	48.8(13.4)	.65	.09	50.3 (13.5)	48.5 (13.5)	.48	.14
Subjective well-being (SWLS)	21.4 (6.8)	23.9 (6.6)	.05	.37	21.9 (6.6)	23.7 (6.0)	.16	.28	22.1 (6.3)	23.5 (6.5)	.29	.21

* Effect size calculated as the difference between group means divided by the standard deviation in the entire sample

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