

Depression, Hope and Social support Among Older People with Cancer: A Comparison of Muslim Palestinian and Jewish Israeli Cancer Patients

Gil Goldzweig (✉ giligold@mta.ac.il)

The Academic College of tel Aviv Yaffo <https://orcid.org/0000-0003-2295-1627>

Lea Baider

Assuta Medical Center

Jeremy M. Jacobs

Hadassah Medical Center

Ibtisam M Ghrayeb

Makassed Hospital

Eli Sapir

Samson Assuta Ashdod University Hospital

Yakir Rottenberg

Hadassah University Hospital: Hadassah Medical Center

Research Article

Keywords: Cancer patients, Old age, Muslim Palestinians, Jewish Israelis, Hope, Depression, Perceived social support

Posted Date: April 19th, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-327509/v1>

License: © ⓘ This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Abstract

Objectives: Studies concerning the psychosocial aspects of cancer diagnosis and treatment among older Muslim patients are scarce. The goal of this research was to compare depression, hope, and perceived social support between older Muslim Palestinians and Jewish Israelis diagnosed with cancer.

Design: The study sample included 149 Muslim Palestinian and 122 Jewish Israeli cancer patients.

Outcome measures: Self-administered measures of depression (5-Item Geriatric Depression Scale) and perceived social support (Cancer Perceived Agents of Social Support Questionnaire). Hope was measured via Snyder's Adult Hope Scale and 6 specific hope items.

Results: General hope was significantly higher among Muslim patients, specific hope items were significantly higher among Jewish patients, and depression was significantly higher among Muslim patients. Hope was the most significant predictor of depression in both samples, particularly among Jewish patients, with higher hope relating to lower depression.

Conclusion: Healthcare providers should show cultural sensitivity and incorporate the perspectives of older cancer patients and their families in order to improve patients' psychological well-being. The inclusion of the concept and language of hope within the therapeutic dialogue may improve psychological wellbeing and synchronize the needs and expectations of patients, caregivers, and health care professionals, resulting in more equitable and value-oriented care.

Introduction

The global number of older people diagnosed with cancer is estimated to increase rapidly in the next decade [1]. While general research concerning the psychosocial aspects of cancer diagnosis and treatment among older people is not extensive [2], the literature is particularly sparse regarding older Muslim patients, both in Muslim majority and minority countries [3,4].

The goal of this research was to examine psychosocial variables (hope, perceived social support, and depression) relating to cancer among older Muslim Palestinians and Jewish Israelis diagnosed with cancer. The crude incidence of cancer mortality in the West Bank is 49.2 and in Gaza 32.7 (rate per 100, above). About 30% of new cancer cases in the Palestinian territories are among people aged 65 and over [5]. Palliative care in the Palestinian Authority is an emerging specialty, with no organized formal program at present [6]. In Israel, cancer is the leading cause of mortality (26% among Jews) [7]. Depression rates among Muslim Palestinians are 1.5 (men) and 1.7 (women) times higher than among Jewish Israelis [8].

Cultural differences are pivotal concepts for identifying, understanding, and delivering appropriate cancer healthcare, especially in countries where diverse populations embrace strong and pervasive religious beliefs [9]. In comparison to contemporary Jewish culture in Israel, Muslim culture tends toward more traditional family and religious values. The Muslim belief system is generally considered more deterministic and collective oriented than the Jewish belief system [10,11] which emphasizes obligation

within duty-based ethics [12,13]. In addition, Palestinian social attitudes often demonstrate greater conservatism, and typical Palestinian households tend to comprise more members than Jewish Israeli households [14,15].

Regarding healthcare, Muslim tradition provides the extended family collective with the medical responsibility for disclosing information and treatment decisions and tasks them with protecting the patient from the emotional and physical anguish of directly addressing the diagnosis and prognosis of cancer. Palestinian patients may, therefore, know much less than their families about their own medical condition [16] in comparison to the average Israeli patient.

The current study examined differences between Muslim and Jews in external factor (perceived social support), and internal factor (hope), and their relation to depression among older patients diagnosed with cancer in the two groups. Perceived social support was conceptualized as related to the agent of support, i.e., spouse, family, friends, and beliefs, and the type of support, i.e., emotional, cognitive, behavioral [17]. Hope was measured as both an overall general orientation and directed toward specific issues. The former was based on Snyder et al.'s [18] conceptualization of hope, according to which hope consists of the perceived ability to find routes to reach one's goals – pathways – and the determination to progress toward and preserve these goals – agency. We also examined more specific aspects of hope through six specific items which target the contents of hopes that occupy older patients: for example, the hope to be with one's family.

According to their religious beliefs, Muslims may feel that they have fewer barriers preventing individuals from achieving their goals, which may, in turn, result in higher levels of general hope and lower levels of specific hope [19]. Accordingly, the first hypothesis of this study was that higher levels of general hope would be reported by Muslim patients (in the Palestinian territories) than by Jewish patients (in Israel).

Our second hypothesis was that lower levels of specific hope would be found among Muslims in comparison to Jews. Third, we expected higher levels of perceived social support to be reported among the Muslim patients than among the Jewish patients due to traditional social values, the family structure, and the high number of family members in each household. Finally, we hypothesized that higher levels of general hope would be related to lower levels of depression in both cultures.

Methods

Study Population

The study population is part of an ongoing cross-sectional study on distress, coping, and hope among patients aged ≥ 65 years diagnosed with cancer and their informal caregivers [20,21]. The current study included a Muslim group and a Jewish group. The inclusion criterion for both groups was patients diagnosed with cancer, aged ≥ 65 years, who had concluded a course of treatment within six months of the date of enrollment. Patients with non-metastatic cancer who were >2 years following diagnosis were considered survivors and not included in the study.

Muslim Group

The Muslim patients were recruited from the outpatient oncology clinic in the Makassed Hospital in East Jerusalem which provides tertiary care to the Palestinian population of East Jerusalem, the West Bank, and the Gaza Strip. A total of 153 eligible patients were identified and all gave their consent to participate in the study. Three of the caregivers refused to sign the formal informed consent document, and one patient was excluded after failing to meet the active disease criterion. The final sample thus included 149 patients.

Jewish Group

The Jewish patients were recruited from the outpatient clinics of three major cancer centers in Israel. The Jewish patients sample included 350 patients with a substantially larger group of oldest old (aged >85 years) patients. In order to ensure a similar age and sex distribution within the two samples, the Jewish participants were randomly selected according to sex, age, cancer stage (metastatic vs. non-metastatic), and time from diagnosis matching (age tolerance for matching was ± 4 years and time from diagnosis tolerance for matching was ± 6 months). The final sample of Jewish participants included 122 participants randomly selected to match 122 Muslim participants. It was difficult to find a matching Jewish participant for every Muslim participant since the latter were generally younger with a shorter time from diagnosis; therefore, 27 Muslim participants could not be matched with a corresponding Jewish participant.

Patients' Characteristics

Table 1 presents the patients' sociodemographic and medical data by study group. The mean age was 73 for Muslims and 74 for Jews, with 55% of the Muslim sample and 45% of the Jewish sample being men. 78% of the Patients in the Jewish sample have completed more than 12 years of schooling in comparison to 22% of the patients in the Muslim sample ($p < 0.0001$). All the Muslim participants except four defined themselves as religious or traditional in comparison to only 46% of the Jewish participants. Common cancer types in both samples included lung, colorectal, prostate, and breast. Functional levels were similar between the two samples (63.5% of the Muslim participants and 64% of the Jewish participants had no symptoms or low levels of symptoms). 32% patients in each group had metastatic cancer. Muslim patients had more comorbidities than Jewish patients (mean of 1.19 vs. 0.8 respectively, $p < 0.01$). Mean time from diagnosis was 5.06 months among Muslim patients and 5.5 months among Jewish patients.

Ethical Approval and Procedure

The study protocol was approved by the Medical Ethics Review Committees of Hadassah-Hebrew University Medical Center, Sheba Medical Center, Assuta Ashdod University Hospital and the Medical Ethics Review Committee of Makassed Hospital. After obtaining the permission of the attending physicians, patients were approached during routine medical visits to the outpatient clinics or during chemotherapy sessions. Each participant signed an informed consent form. Data were collected between May 2013 and June 2020 (Jewish participants) and December 2019 and June 2020 (Muslim participants).

Measures

Background Data

Sociodemographic data were collected directly from the patients. Data regarding the patients' diagnosis, treatment, cancer stage, Eastern Cooperative Oncology Group (ECOG) performance status [22], and Charlson Comorbidity Index (CCI) [23] were obtained from the medical records.

Depression

Depression was measured using the five-item version of the Geriatric Depression Scale (5-item GDS). This is a shorter version of the 15-item Geriatric Depression Scale, which has proven to be as effective as the longer validated version (Weeks et al., 2003). The scale consists of five binary items (i.e., "Are you basically satisfied with your life?") with each individual item scoring 0–1 and the five items thus scoring in a range of 0–5. The English and Hebrew versions were reported as valid and reliable [24, 25] as has the longer Arabic version [26]. For the current study, we used the five relevant items from the longer validated Hebrew version and a professional translation of the English version into Arabic (as required by the Helsinki Committee). The recommended cutoff score ≥ 2 is the clinical cutoff for susceptibility to depression [27].

Perceived Social Support

Caregivers' support was assessed using the Cancer Perceived Agents of Social Support [17], which is a 12-item questionnaire (i.e., "To what extent do you feel you receive helpful information from your spouse?"), with each item scoring in a range of 1–5. The scale combines two theoretical content facets of social support: agent of support and type of support. The current research uses the aggregated score of the agents (spouse, family, friends, beliefs), each based on the mean of three items (instrumental, cognitive, and emotional support). The Hebrew version of the scale was previously proven to be valid and reliable for Jewish patients and their spouses in Israel [17]. For the Muslim sample we used a professional translation of the Hebrew version into Arabic. Internal reliabilities (Cronbach's alpha values) were as follows: Muslim group, Cronbach's alpha = 0.78, 0.77, 0.62, and 0.845 (spouse, family, friends,

beliefs, respectively); Jewish group, Cronbach's alpha = 0.75, 0.845, 0.89, and 0.97 (spouse, family, friends, beliefs, respectively).

Hope

Hope was assessed by the Adult Hope Scale (AHS) [18] and by six single items targeting specific hope content. The AHS is a 12-item measure (4-point Likert-type scale) comprising two components: agency (goal-directed determination) and pathways (routes to achieving goals). The AHS contains eight hope items and four fillers. For the Jewish sample we used a translation of the English version into Hebrew [28]; for the Muslim sample we used a professional translation of the English version into Arabic. Cronbach's alphas for the aggregate measure of the eight hope items were 0.85 for Muslim patients and 0.895 Jewish patients. We also included six single items targeting specific hope content and measuring the extent to which the patients hope to: 1. stay alive; 2. have no pain; 3. be with their family; 4. be more active and less tired; 5. die without pain; and 6. be cured. Each item was rated on a Likert-type scale of 1–5.

Statistical Analysis

Matching

The two samples were matched for sex, age, cancer stage, and time from diagnosis. Nevertheless, based on the basic characteristics of the samples (Muslims vs. Jews), the samples were treated as independent (non-paired).

Missing Value Analysis

All variables (study variables and background variables) were screened for missing values. None of the missing values exceeded 2% except ECOG (3.7%) and treatment (7.4%). The data were found to match a “missing completely at random” (MCAR) pattern (Little's MCAR test $\chi^2(83)=93.78, P=0.196$ N.S), hence no further steps were taken to complete the missing data.

Validity and Reliability of Hope Items

Prior to the analyses, validity and reliability of the single hope items was assessed (separately for each sample) In the Muslim sample, Pearson correlations between the aggregate measure of the AHS and the single hope items were all significant; correlations ranged between $r=0.20, p<0.012$ (hope to be cured) and $r=0.55, p<0.0001$ (hope to feel no pain). In the Jewish sample, all single items except the item “I hope to feel no pain when I die” were significantly correlated to the aggregate measure of the AHS; correlations ranged from $r=0.46, p<0.0001$ (hope to feel no pain) to $r=0.76, p<0.001$ (hope to stay alive). Internal

correlations between the single hope items were all significant in the Muslim sample and ranged from $r=0.30$, $p<0.01$ (between hope to stay alive and hope to be cured) to $r=0.68$, $p<0.01$ (between hope to stay alive and hope to feel no pain). Pearson correlations between the items in the Jewish sample were all significant except correlations to the item “hope to feel no pain when I die” and ranged from $r=0.45$, $p<0.0001$ (between hope to stay alive and hope to feel no pain) to $r=0.74$, $p<0.0001$ (between hope to stay alive and hope to be less tired). The internal reliability (Cronbach’s alpha) was 0.84 in the Muslim sample and 0.79 in the Jewish sample (or 0.83 not including the item “hope to feel no pain when I die”).

Comparisons Between Study Groups

A two-way MANOVA (ethnicity by gender) was used to compare reported levels of depression, levels of hope, and perceived social support between the study groups. These comparisons were conducted while controlled for (using as covariates) all background variables except cancer type since there were too many types with low frequencies that were included in the “other” category. Religiosity was also not included as a covariate since almost all the Muslims declared themselves religious or traditional.

Predicting Depression

A separate regression model was calculated for each of the study groups. The predicted variable was depression and the predictors were perceived social support, hope (AHS), and all the background variables. In order to examine the role of the single hope items in predicting depression, we calculated a separate regression model for each of the study groups including the single hope items as predictors of depression. The data were analyzed using IBM SPSS Statistics (Version 25) predictive and analytic software.

Results

Comparison of Study Variables Between Ethnic and Gender Groups

A two-way MANOVA (ethnicity by gender) including all covariates (depression, hope, single hope items, and social support) revealed significant main effects and interaction effects for 1) ethnicity – Wilks’ Lambda=0.18, $F(12,229)=84.66$, $p<0.0001$; and 2) gender– Wilks’ Lambda=0.12, $F(12,229)=2.53$, $p<0.004$; interaction- Wilks’ Lambda=0.12, $F(12,229)=2.64$, $p<0.003$.

Ethnicity

Table 2 presents the univariate ethnicity statistics. As expected, the general hope score (AHS) was significantly higher among the Muslim patients than the Jewish patients. All the single specific hope

items were significantly higher among the Jewish patients. Contrary to our initial hypotheses, levels of depression were significantly higher among the Muslim patients and perceived social support (by spouse and family) was significantly higher among the Jewish patients.

Gender

Table 3 presents univariate gender statistics. Depression was significantly higher among women in comparison to men, and hope and perceived spouse support were significantly higher among men in comparison to women. The hope items “to stay alive,” “to be less tired” and “to be cured” were higher among men in comparison to women.

Interaction

Interaction was significant only for the hope item “to stay alive” ($F(1,240)=2.18, p<0.034$). In the Muslim group, there was almost no difference between men and women, while in the Jewish group, the hope to stay alive was higher among men. A similar borderline effect ($p<0.054$) was found for perceived spouse support: there was no difference between Muslim men and women in perceived spouse support, while Jewish men reported higher levels of perceived spouse support than women.

Predicting Depression

Depression was predicted separately in each group (Jews and Muslims). Both regression models were found to be significant (Muslims: Adjusted $R^2=0.155, F(13,129)=3.00, p<0.001$; Jews: Adjusted $R^2=0.62, F(13,96)=14.87, p<0.001$). The significant predictors of depression among Muslim patients were age and hope: older age predicted higher levels of depression ($b=0.033, \text{Beta}=0.16, t=2.02, p<0.046$), while higher levels of hope predicted lower levels of depression ($b=-0.41, \text{Beta}=-0.32, t=-3.83, p<0.0001$). Among the Jewish patients, the significant predictors of depression were education and hope: higher levels of education were related to lower levels of depression: ($b=-0.60, \text{Beta}=-0.18, t=-2.73, p<0.008$), while higher levels of hope were related to lower levels of depression ($b=-1.25, \text{Beta}=-0.61, t=-7.795, p<0.0001$).

Post Hoc Analysis of Ethnicity as a Moderator of the Relationship Between Hope and Depression

Since the effect of hope on depression was larger among the Jewish patients than the Muslim patients ($\text{Beta}=-0.41, \text{Beta}=-0.61$, respectively), we examined the moderating effect of ethnicity (Muslims vs. Jews) on the relationship between hope and depression. We used the PROCESS SPSS macro (Hayes, 2017) for the analyses. All covariates were included in the model. The interaction between hope and ethnicity was found significant ($F(1,244)=29.64, p<0.0001$), implying that the relation between hope and depression

(higher levels of hope are related to lower levels of depression) was stronger in the Jewish group. Figure 1 presents the predicted levels of depression for Muslim and Jewish patients at the 16th, 50th, and 84th percentiles of hope (percentiles calculated from the overall sample).

Predicting Depression by the Single Specific Hope Items

In order to examine the role of the single hope items as predictors of depression within the study groups, we examined separate regression models including all six single hope items as predictors of depression for each study group (Table 4). The only significant predictor of depression among the Muslim patients was the hope to stay alive (higher levels of hope were related to lower levels of depression); among Jewish patients the hope to stay alive and the hope to be cured predicted depression (higher levels of hope were related to lower levels of depression).

Discussion

The goal of this research was to examine hope, perceived social support, and depression among older Muslim Palestinians and Jewish Israelis who were diagnosed with cancer. In concordance with the hypotheses, levels of the general measure of hope among Muslims patients were significantly higher than among Israeli patients. Similarly, as expected, specific single hopes (such as the hope to stay alive or to be with one's family) were higher among the Jewish patients. Higher levels of hope were found to be significantly related to lower levels of depression in both samples but stronger among the Jewish patients. In contrast to our hypothesis, levels of depression were found to be significantly higher among Muslim patients than among Jewish patients.

The higher levels of general hope among the Muslims patients can be partially explained by their high levels of religiosity and the known positive relations between hope (as defined by Snyder) and religiosity among Muslims in general [29]. It can also be suggested that the more deterministic nature of Muslim belief and their faith in God's protection are perhaps expressed in high levels of generalized hope while refraining from expressing more specific or concrete hopes that may reflect a doubt in God's will. [30]. Accordingly, levels of hope among Muslim cancer patients may reflect not necessarily a positive psychological state but rather a general belief in the power of God. This also corresponds with the finding that high generalized hope in the Muslim group had far less impact on depression than in the Jewish group.

Surprisingly, Muslim cancer patients reported higher levels of depression than Jewish patients. This finding was even more surprising given the strong family values in Muslim culture. It may be cautiously speculated that Muslims perceive cancer as terminal and, therefore, in some way as a divine death sentence [26]. Consequently, a cancer diagnosis may, at least in some cases, carry a social stigma and be characterized by secrecy and shame [16,31,32].

The higher levels of depression among the Muslim patients may be also related to the tendency of religious Muslims not to seek psychological support in case of psychological distress and depression [33]. It should also be noted that 78% of the Jewish patients had 12 years of education or more in comparison to only 22% of the Muslim patients. Education is considered a resource which can, to some extent, protect against depression in general and among cancer patients in particular [34].

Limitations

Detailed data regarding specific systemic treatments, their results, and expected prognosis, which might have affected the patient's perceived prognosis and depression, were not available. Second, due to the cross-sectional template of the study, it was difficult to establish causality. Finally, the external validation of these results to other societies needs some consideration. Further studies are therefore needed in order to validate these results in other diverse Muslim and non-Muslim societies.

Conclusion

Significantly higher levels of hope were found to be highly related to lower levels of depression among both samples (although this relation was significantly higher among the Jewish patients). Given the central role of hope and its relevance to religious beliefs, healthcare professionals should consider hope enhancing interventions as a therapeutic tool aimed at decreasing levels of depression. Recognizing that hope correlates with a higher quality of life and lower levels of depression is an important first step toward achieving the potential dividends of integrating factors that modify the oncology team's approach to hope [35]. Furthermore, alongside its medical and health ramifications, hope also needs to be considered within the framework of religious beliefs. Thus, it is crucial that healthcare personnel adapt the language they use with patients of different faiths and cultures [36-38]. Understanding different religious beliefs about cancer, suffering, and distress gives health practitioners insight into their patients and allows them to provide culturally competent care [39,40]. By viewing the illness from the perspectives of the patients, their families, and their societies, the well-being of cancer patients can be significantly upgraded [33]. The inclusion of the concept and language of hope within this dialogue may help synchronize the needs and expectations of patients, caregivers, and health care professionals and thus lead to more equitable and value-oriented care.

Declarations

Funding

This research was supported by grant #20201212 from the Israeli Cancer Society (ICS).

Conflicts of interest/Competing interests

The authors declare that they have no conflicts of interest or competing interests.

Availability of data and material

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Code availability

n. a.

Ethics approval

The study protocol was approved by the Medical Ethics Review Committees of Al-Makassed Hospital, East Jerusalem, Israel.

Consent to participate

All participants provided written informed consent prior to study participation.

Consent for publication

n. a.

Authors' contributions:

conceptualization and methodology – Lea Baider, Gil Goldzweig, Yakir Rottenberg; data curation and acquisition - Lea baider, Gil Goldzweig, Yakir Rottenberg, Ibtisam Ghrayeb; formal data analysis – Gil Goldzweig; data interpretation – all authors; original draft preparation, review and editing – all authors. All authors read and approved the final manuscript.

All co-authors have seen and agree with the contents of the manuscript.

References

1. Fitzmaurice C, Allen C, Barber RM, Barregard L, Bhutta ZA, Brenner H, Dicker DJ, Chimed-Orchir O, Dandona R, Dandona L (2017) Global, regional, and national cancer incidence, mortality, years of life

- lost, years lived with disability, and disability-adjusted life-years for 32 cancer groups, 1990 to 2015: a systematic analysis for the global burden of disease study. *JAMA oncology* 3 (4):524-548
2. Goldzweig G, Baider L, Rottenberg Y, Andritsch E, Jacobs JM (2018) Is age a risk factor for depression among the oldest old with cancer? *J Geriatr Oncol* 9 (5):476-481.
doi:10.1016/j.jgo.2018.03.011
 3. Abdullah R, Guo P, Harding R (2020) Preferences and experiences of Muslim patients and their families in Muslim-majority countries for end-of-life care: a systematic review and thematic analysis. *Journal of pain and symptom management*
 4. Gustafson C, Lazenby M (2019) Assessing the unique experiences and needs of Muslim oncology patients receiving palliative and end-of-life care: an integrative review. *Journal of palliative care* 34 (1):52-61
 5. Halahleh K, Gale RP (2018) Cancer care in the Palestinian territories. *The Lancet Oncology* 19 (7):e359-e364
 6. Abu-Rmeileh NM, Gianicolo EAL, Bruni A, Mitwali S, Portaluri M, Bitar J, Hamad M, Giacaman R, Vigotti MA (2016) Cancer mortality in the West Bank, occupied Palestinian territory. *BMC public health* 16 (1):76
 7. Israel Central Bureau of Statistics (2020) Statistical Abstract of Israel - No.71.
<https://www.cbs.gov.il/he/publications/DocLib/2020/Shnaton71.pdf>. Accessed December 28 2020
 8. Kaplan G, Glasser S, Murad H, Atamna A, Alpert G, Goldbourt U, Kalter-Leibovici O (2010) Depression among Arabs and Jews in Israel: a population-based study. *Social Psychiatry and Psychiatric Epidemiology* 45 (10):931-939
 9. Cain CL, Surbone A, Elk R, Kagawa-Singer M (2018) Culture and palliative care: preferences, communication, meaning, and mutual decision making. *Journal of pain and symptom management* 55 (5):1408-1419
 10. Schultz M, Baddarni K, Bar-Sela G (2012) Reflections on palliative care from the Jewish and Islamic tradition. *Evidence-Based Complementary and Alternative Medicine* 2012
 11. Weaver TP, Gillespie JD, Al-Jarbawi A (1985) What Palestinians Believe: A Systematic Analysis of Belief Systems in the West Bank and Gaza. *Journal of Palestine Studies* 14 (3):110-126
 12. Cover RM (1987) Obligation: a Jewish jurisprudence of the social order. *JL & religion* 5:65
 13. Jotkowitz AB, Agbaria R, Glick SM (2017) Medical ethics in Israel—bridging religious and secular values. *The Lancet* 389 (10088):2584-2586
 14. Baider L (2012) Cultural diversity: family path through terminal illness. *Annals of Oncology* 23 (suppl_3):62-65
 15. Moore RE (2014) Religious practices and considerations for cancer treatment of Christian, Jewish, Islamic, and Buddhist Patients.
 16. Mobeireek A, Al-Kassimi F, Al-Zahrani K, Al-Shimemeri A, Al-Damegh S, Al-Amoudi O, Al-Eithan S, Al-Ghamdi B, Gamal-Eldin M (2008) Information disclosure and decision-making: the Middle East

- versus the Far East and the West. *Journal of medical ethics* 34 (4):225-229
17. Goldzweig G, Hasson-Ohayon I, Meirovitz A, Braun M, Hubert A, Baider L (2010) Agents of support: psychometric properties of the Cancer Perceived Agents of Social Support (CPASS) questionnaire. *Psychooncology* 19 (11):1179-1186. doi:10.1002/pon.1668
 18. Snyder CR, Harris C, Anderson JR, Holleran SA, Irving LM, Sigmon ST, Yoshinobu L, Gibb J, Langelle C, Harney P (1991) The will and the ways: development and validation of an individual-differences measure of hope. *Journal of personality and social psychology* 60 (4):570
 19. Fadardi JS, Azadi Z (2017) The relationship between trust-in-God, positive and negative affect, and hope. *Journal of religion and health* 56 (3):796-806
 20. Goldzweig G, Baider L, Andritsch E, Pfeffer R, Rottenberg Y (2016) A Dialogue of Depression and Hope: Elderly Patients Diagnosed with Cancer and Their Spousal Caregivers. *J Cancer Educ.* doi:10.1007/s13187-015-0975-0
 21. Goldzweig G, Schapira L, Baider L, Jacobs JM, Andritsch E, Rottenberg Y (2019) Who will care for the caregiver? Distress and depression among spousal caregivers of older patients undergoing treatment for cancer. *Support Care Cancer* 27 (11):4221-4227. doi:10.1007/s00520-019-04711-6
 22. Oken MM, Creech RH, Tormey DC, Horton J, Davis TE, McFadden ET, Carbone PP (1982) Toxicity and response criteria of the Eastern Cooperative Oncology Group. *Am J Clin Oncol* 5 (6):649-655
 23. Charlson ME, Pompei P, Ales KL, MacKenzie CR (1987) A new method of classifying prognostic comorbidity in longitudinal studies: development and validation. *Journal of chronic diseases* 40 (5):373-383
 24. Weeks SK, McGann PE, Michaels TK, Penninx BW (2003) Comparing various short-form Geriatric Depression Scales leads to the GDS-5/15. *Journal of nursing scholarship : an official publication of Sigma Theta Tau International Honor Society of Nursing* 35 (2):133-137
 25. Zalsman G, Weizman A, Carel CA, Aizenberg D (2001) Geriatric Depression Scale (GDS-15): a sensitive and convenient instrument for measuring depression in young anorexic patients. *The Journal of Nervous and Mental Disease* 189 (5):338-339
 26. Hassankhani H, Eghtedar S, Rahmani A, Ebrahimi H, Whitehead B (2019) A Qualitative Study on Cancer Care Burden: Experiences of Iranian Family Caregivers. *Holistic nursing practice* 33 (1):17-26
 27. Hoyl MT, Alessi CA, Harker JO, Josephson KR, Pietruszka FM, Koelfgen M, Mervis JR, Fitten LJ, Rubenstein LZ (1999) Development and testing of a five-item version of the Geriatric Depression Scale. *Journal of the American Geriatrics Society* 47 (7):873-878
 28. Drach-Zahavy A (1996) Difficult goals: A challenge or a threat? : The effects of situational conditions: goal setting and stress, and personal disposition. Technion Israel Institute of Technology, Haifa, Israel,
 29. Abdel-Khalek A, Snyder C (2007) Correlates and predictors of an Arabic translation of the Snyder Hope Scale. *The Journal of Positive Psychology* 2 (4):228-235
 30. Souiden N, Jabeur Y (2015) The impact of Islamic beliefs on consumers' attitudes and purchase intentions of life insurance. *International Journal of Bank Marketing*

31. Albarghouthi SI, Klempe SH (2019) "Al-Khabith"—The malignant cunning disease: Sociocultural complexity and social representations of cancer in the occupied Palestinian territory. *Culture & Psychology* 25 (1):99-131
32. Alzahrani AS, Alqahtani A, Alhazmi M, Gaafar R, Bajabir D, Alharbi IM, Alharbi AM, Kheshaifaty G, Alzahrani A (2018) Attitudes of cancer patients and their families toward disclosure of cancer diagnosis in Saudi Arabia: a Middle Eastern population example. *Patient preference and adherence* 12:1659
33. Al-Krenawi A, Graham JR, Dean YZ, Eltaiba N (2004) Cross-national study of attitudes towards seeking professional help: Jordan, United Arab Emirates (UAE) and Arabs in Israel. *International journal of social psychiatry* 50 (2):102-114
34. Friberg AS, Rask Moustsen I, Benzon Larsen S, Hartung T, Wreford Andersen E, Halgren Olsen M, Tjønneland A, Kjaer SK, Johansen C, Brasso K (2019) Educational level and the risk of depression after prostate cancer. *Acta Oncologica* 58 (5):722-729
35. Long KN, Kim ES, Chen Y, Wilson MF, Worthington Jr EL, VanderWeele TJ (2020) The role of Hope in subsequent health and well-being for older adults: An outcome-wide longitudinal approach. *Global Epidemiology* 2:100018
36. Puchalski C, Ferrell B, Virani R, Otis-Green S, Baird P, Bull J, Chochinov H, Handzo G, Nelson-Becker H, Prince-Paul M (2009) Improving the quality of spiritual care as a dimension of palliative care: the report of the Consensus Conference. *Journal of palliative medicine* 12 (10):885-904
37. Farooqi B, Modi A, Hussaini MO, Markham MJ, Duff JM (2018) Principles for the Oncologist in Caring for Muslim Patients. *American Society of Clinical Oncology*,
38. Borneman T, Bluman OF, Klein L, Thomas J, Ferrell B (2013) Spiritual care for Jewish patients facing a life-threatening illness. *Journal of palliative care* 29 (1):58-62
39. Ezenkwele UA, Roodsari GS (2013) Cultural competencies in emergency medicine: caring for Muslim-American patients from the Middle East. *The Journal of Emergency Medicine* 45 (2):168-174
40. Aboul-Enein BH, AHOUL-ENEIN FH (2010) The cultural gap delivering health care services to Arab American populations in the United States. *Journal of cultural diversity* 17 (1)

Tables

Table 1

Patients sociodemographic and medical data by study groups

	Muslims (N=149)	Jews (N=122)	Differences
Age (years) mean ± SD	73.07 ± 6.44	74.39 ± 7.13	t(259)=1.6; N.S
range	65 - 92	64 - 91	
Gender: Male n (%)	82 (55%)	67 (45%)	Chi ² (1)=0.63, N.S
Education: >=12 year n (%)	32 (22%)	115 (78%)	Chi ² (1)=60.26,p<0.0001**
Number of persons in household			t(266)=6.58, p<0.0001**
mean ± SD	3.95 ± 2.53	2.34 ± 1.02	
range			
Religiosity: traditional or religious	145 (97%)	56 (46%)	Chi ² (1)=92.79,p<0.0001**
Cancer type n (%)			Chi ² (7)=118.04, p<0.0001**
Breast	05 (3%)	19 (16%)	
Colorectal	16 (11%)	08 (7.0%)	
Lung	25 (17%)	21 (17%)	
Melanoma	0 (0.0%)	6 (5.0%)	
Prostate	11 (7.0%)	10 (8.0%)	
Brain	15 (10%)	00 (0.0%)	
Bladder	18 (12%)	00 (0.0%)	
Other	59 (40%)	58 (47.5%)	
ECOG n (%)	94 (63.5%)	72 (64%)	Chi ² (1)=0.001, N.S
0-1	54 (36.5%)	41 (36%)	
2-3			
Cancer stage n(%)			Chi ² (1)=0.002, N.S
1-3	101 (68%)	83 (68%)	
4	48 (32%)	39 (32%)	
CCI mean ± SD	1.19 ± 1.24	0.77 ± 0.89	t (267)=3.11, p<.002**
Time from diagnosis	5.06 ± 6.10	5.54 ± 3.67	t (269)=0.76, N.S

mean ± SD (months)

ECOG=The Eastern Cooperative Oncology Group performance status (0=fully active; 1= symptomatic but completely ambulatory; 2= symptomatic, <50% in bed during the day;3= symptomatic, capable of only limited self-care);CCI=Charlson Comorbidity Index; Stage data was missing for one patient.

Table 2

Comparison of depression, hope, and social support between Muslims and Jews

	Muslims (N=141) mean ± std. error	Jews (N=110) mean ± std. error	F(1,240) =	P<
Depression	3.19 ± 0.12	1.35 ± 0.14	85.71	0.0001**
Hope (AHS)	5.01 ± 0.08	2.99 ± 0.09	231.47	0.0001**
Perceived spouse support	3.79 ± 0.06	4.64 ± 0.07	62.86	0.0001**
Perceived family support	3.91 ± 0.07	4.33 ± 0.08	14.26	0.0001**
Perceived friends support	3.04 ± 0.08	3.2 ± 0.1	1.32	0.252, N.S
Perceived faith support	2.58 ± 0.11	2.58 ± 0.13	0.00	0.996, N.S
Hope to stay alive	3.72 ± 0.07	4.33 ± 0.08	30.17	0.0001**
Hope to feel no pain	3.49 ± 0.06	4.52 ± 0.07	119.28	0.0001**
Hope to be with the family	3.74 ± 0.04	4.75 ± 0.05	202.68	0.0001**
Hope to be less tired	3.29 ± 0.07	4.17 ± 0.09	50.03	0.0001**
Hope to die with no pain	3.33 ± 0.08	4.48 ± 0.09	71.68	0.0001**
Hope to be cured	3.11 ± 0.08	4.23 ± 0.09	68.87	0.0001**

* p<0.05; **p<0.01.; AHS=Adult Hope Scale; Means are estimated marginal corrected for covariates included in the model (age, number of persons in household, education, ECOG – performance status, time from diagnosis, CCI – comorbidities); Number of participants is smaller than the original sample due to missing values.

Table 3**Comparison of depression, hope, and social support between men and women**

	Men (N=144) mean \pm std. error	Women (N=107) mean \pm std. error	F(1,240) =	P<
Depression	2.08 \pm 0.11	2.47 \pm 0.11	5.83	0.0165*
Hope (AHS)	4.2 \pm 0.07	3.8 \pm 0.07	13.71	0.0003**
Perceived spouse support	4.31 \pm 0.06	4.13 \pm 0.06	4.31	0.0389**
Perceived family support	4.13 \pm 0.06	4.11 \pm 0.06	0.03	0.8528, N.S
Perceived friends support	3.06 \pm 0.07	3.17 \pm 0.07	0.93	0.3367, N.S
Perceived faith support	2.73 \pm 0.1	2.44 \pm 0.1	3.52	0.0619, N.S
Hope to stay alive	4.14 \pm 0.06	3.91 \pm 0.06	6.11	0.0141*
Hope to feel no pain	4.03 \pm 0.05	3.98 \pm 0.05	0.44	0.5093, N.S
Hope to be with the family	4.3 \pm 0.04	4.2 \pm 0.04	3.07	0.0811, N.S
Hope to be less tired	3.86 \pm 0.07	3.6 \pm 0.07	6.38	0.0122*
Hope to die with no pain	4.01 \pm 0.07	3.8 \pm 0.07	3.38	0.0671, N.S
Hope to be cured	3.84 \pm 0.07	3.51 \pm 0.07	8.88	0.0032*

* p<0.05; **p<0.01.; AHS=Adult Hope Scale; Means are estimated marginal corrected for covariates included in the model (age, number of persons in household, education, ECOG – performance status, time from diagnosis, CCI – comorbidities); Number of participants is smaller than the original sample due to missing values.

Table 4**Regression: Single hope items as predicting depression**

Muslims						Jews				
Hope to	B	Std. Error	Beta	t	Sig.	B	Std. Error	Beta	t	Sig.
Stay alive	-0.56	0.26	-0.24	-2.17	0.0318*	-0.44	0.15	-0.29	-2.98	0.0035**
Feel no pain	0.09	0.23	0.04	0.37	N.S	-0.20	0.18	-0.09	-1.14	N.S
Be with the family	-0.23	0.24	-0.10	-0.95	N.S	0.02	0.27	0.01	0.07	N.S
Be less tired	-0.30	0.23	-0.15	-1.30	N.S	-0.15	0.15	-0.12	-1.01	N.S
Feel no pain when I die	0.09	0.21	0.05	0.42	N.S	0.14	0.08	0.11	1.72	N.S
Be cured	-0.11	0.16	-0.07	-0.71	N.S	-0.50	0.15	-0.38	-3.28	0.0014**

*p<0.05 **p<0.01 Both models were significant. Muslims: F(6,140)=4.26, p<0.001 adjusted R²=0.12; Jews F(6,115)=26.85, p<0.0001 adjusted R²=0.56

Figures

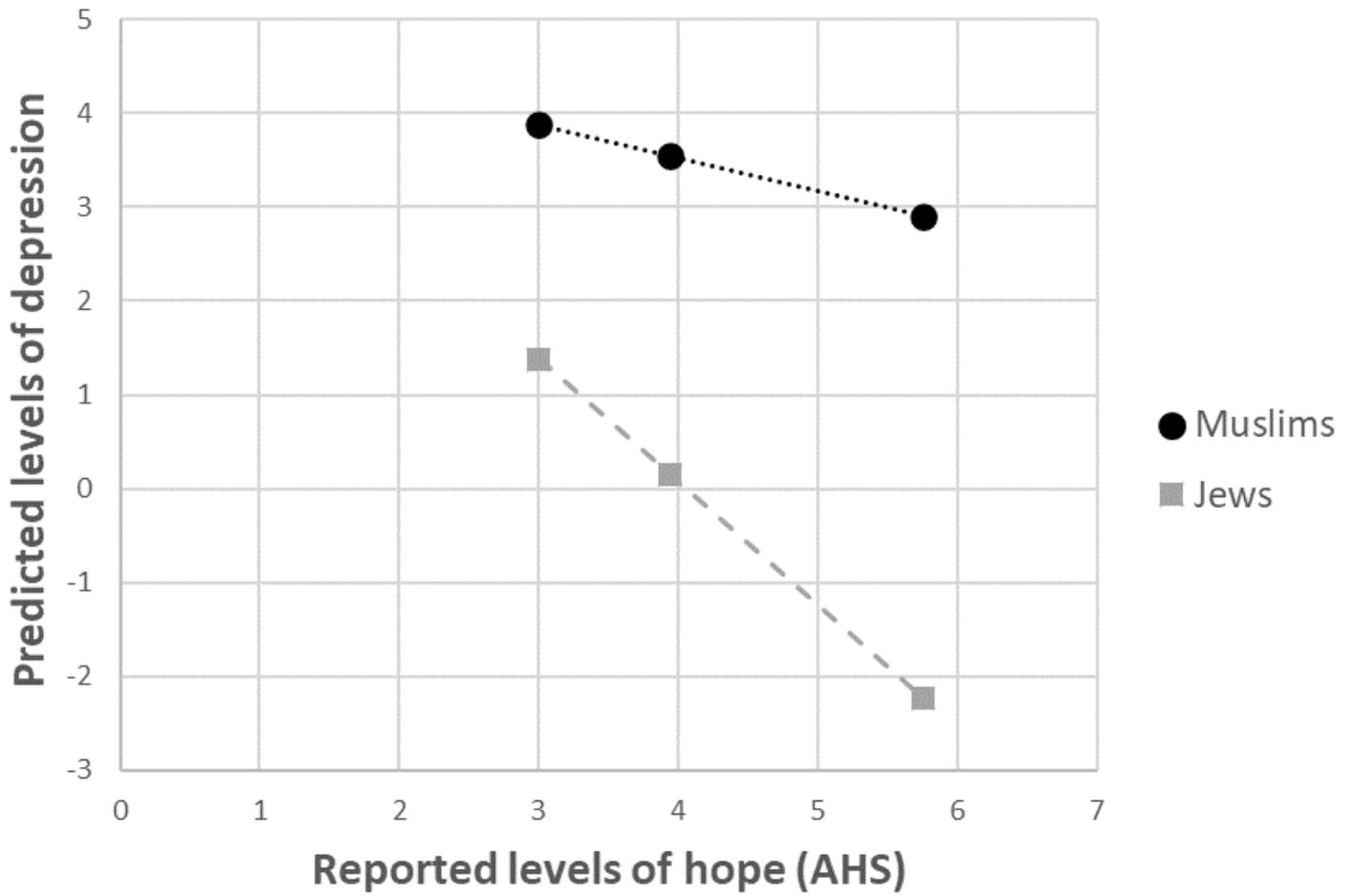


Figure 1

Relations between reported levels of hope (16th, 50th, and 84th percentiles) and predicted levels of depression by study group.