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Caseness rates and risk factors for depression among Vietnamese cancer patients

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Abstract

Objective—Research suggests that rates of depression among general population samples in Asia may be significantly lower than in much of the rest of the world. However, whether this applies to depression among cancer patients is unclear, which is important to determine in order to identify depression treatment needs among cancer patients in this region. The purpose of the present study was to assess caseness rates of serious depression among general cancer patients in the Southeast Asian nation of Viet Nam.

Method—A total of 695 adult cancer patients from three hospitals in Da Nang, Viet Nam served as study participants. They were assessed at one time point for (a) demographic and (b) cancer characteristics, and (c) depression symptoms.

Results—The overall caseness rate for serious depression was 28%. Although rates of depression in general population samples usually are significantly higher in women than men, rates of depression among men and women did not differ significantly among our cancer patients. Higher levels of depressive symptoms were found, however, as a function of lower patient income and education, occupation, cancer stage, and type of cancer, but not marital status or age.

Conclusions—Caseness rates of depression are significantly elevated by a factor of 10–15 among Vietnamese cancer patients relative to general population epidemiological studies in the same region. Although a number of studies have found that rates of depression tend to be lower in Asian as compared to Western general population samples, depression rates among our Vietnamese cancer patients were similar to those reported among Western cancer patients. This suggests that whatever factors are responsible for the relatively low rates of depression observed in

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Contributors

NTKY & LTT designed and implemented the study, with NTKY having primary responsibility. NTKY was responsible for a Vietnamese language report of the study, her unpublished research thesis for Level II Medical Specialization. BW was responsible for data analysis and for the writing and conceptualization of this English language report. All authors reviewed and approved the final version of this manuscript.

Conflict of interest

All authors declare they have no conflict of interest.

Asian general population samples may not be operating in regards to cancer-related depression. Overall, the value of these findings are not only that they provide information for policy makers in Viet Nam to support depression treatment among cancer patients, but also that they suggest that despite the apparent relatively low overall rates of depression it may be useful for cancer and mental health researchers in the region to conduct similar assessments for their policy makers.

Keywords

Depression; Cancer; Oncology; Vietnam; Gender rates of depression

1. Introduction

Depression is one of the largest contributors to the global burden of disease (Ferrari et al., 2013). It is a complex illness, with a range of psychological and social factors as well as genetic and neurobiological factors influencing its development. It can be secondary to physical illnesses such as cancer, with research often indicating elevated rates of depression among cancer patients (Krebber et al., 2014). Depression in turn can impact on cancer, complicating and potentially decreasing the effectiveness of cancer treatment, by reducing treatment compliance and immune system functioning, and by increasing health risk behaviors such as smoking, etc. (Pinquart and Duberstein, 2010; Reiche et al., 2005). It thus is important for policymakers and administrators to have information regarding depression rates and risk factors in their regions, so that depression's effects on cancer can be minimized through appropriate policy and culturally-tailored programs.

However, the large majority of studies assessing relations between cancer and depression have been conducted in high income, Western countries (Krebber et al., 2014), and the generalizability of these studies to the rest of the world, in particular Asia which is the world's most populous continent, is not clear. There are in fact reasons to hypothesize that rates of depression among cancer patients may vary globally and may be significantly lower in Asia than suggested by cancer studies in Western countries. Arthur Kleinman (1977) was one of the first researchers to note low rates of depression and depressive symptoms among Asian populations, as compared to Western groups. Although other reasons than true prevalence differences have been suggested for these apparent low rates of depression in Asia (e.g., help-seeking behavior; Weiss et al., 2009), a recent meta-analysis (Ferrari et al., 2013) found that among general population samples, rates of depression were approximately 2.5 times lower in East Asia (e.g., China) as well as Southeast Asia (Vietnam) as compared to the rest of the world more generally.

If the results of the Ferrari et al. (2013) general population sample meta-analysis do apply to depression among cancer patients, then the actual need in oncological hospitals in East Asia and Southeast Asia would be much lower than suggested by the cancer and depression studies conducted in Western countries (Krebber et al., 2014). Thus, studies of depression among cancer patients are important in these regions. However, only a small number of depression cancer prevalence studies have been conducted in Asia. This literature is further limited by the fact that most of these studies in Asia have focused on specific types of cancer (e.g., breast cancer; Qiu et al., 2012), which provides policymakers and administrators with

somewhat limited information since rates of depression appear to vary as a function of type of cancer (Hinz et al., 2016; Krebber et al., 2014). Within Southeast Asia, to the best of our knowledge there have been only two prevalence studies of depression among cancer patients, the first in Malaysia (Priscilla et al., 2011) and the second in Singapore (Tan et al., 2014). Although both provide important information, Priscilla et al. (2011) is limited for public policy and planning purposes in that it focused on hematological rather than general cancer patients, and the generalizability of Tan et al. (2014) results may be somewhat limited because in contrast to most other Southeast Asian countries, Singapore is an HIC (high income country) rather than an LMIC (low or middle income country) like most of the rest of Southeast Asia. The purpose of the present study was to conduct a study of depression caseness rates among cancer patients in Viet Nam, a Southeast Asian LMIC and the world's 15th most populous nation in the world. In order to support increased efficiency in targeted screening and intervention, the study assessed the effects of a several risk factors for depression.

2. Methods

2.1. Study site, participants, and sampling

Study participants were recruited from the three primary hospitals providing cancer care in Da Nang, the 4th largest city (with a population of slightly less than 1 million) in Viet Nam. Hospitals included: (a) the Da Nang General Hospital, (b) the Da Nang Oncology Hospital, (c) the Da Nang Women's Hospital (the primary site for treatment of breast and gynecological cancer in Da Nang). All inpatients admitted between September 2014 to November 2014 were eligible for the study. Inclusion criteria included (a) a confirmed diagnosis of cancer; (b) age 18 years or older; (c) patient consent. Exclusion criteria included (a) psychotic symptoms, intellectual disability, or vision or hearing impairment potentially affecting the patient's cognitive functioning, and/or ability to consent to and participate in the study; (b) substance addiction.

As is typical in Viet Nam, all patients who receive cancer treatment at these hospitals receive in-patient treatment, in order for the hospital to monitor potential side-effects of their chemotherapy, radiation therapy, etc. Patients were recruited for the study immediately prior to discharge for their first visit during the three month study period (September 2014 to November 2014), by having a nurse uninvolved in their health care describe the study to them, answer questions about the study, and then obtain signed consent from patients interested in participating. A total of 818 patients met the inclusion criteria, and 123 patients met the exclusion criteria. As sometimes occurs in this region (e.g., Priscilla et al., 2011), all patients approached (695) agreed to participate in the study. Table 1 reports the demographic characteristics of the sample. The study was approved by the Da Nang Psychiatric Hospital's US FWA IRB (#00011251).

2.2. Measures and procedures

Data collection, which typically required about 20 min, occurred immediately prior to the patient's discharge. Data collectors included five bachelor's-level psychologists from the Da Nang Psychiatric Hospital who received one day of training for the study. Clinical data

regarding the patients' cancer status were extracted from patient charts by research assistants blind to the patients' psychiatric, etc. status. Study participants were volunteers and received no monetary compensation for their participation. Measures included:

Demographics, which assessed patient background characteristics (e.g., age, occupation).

Cancer status, which recorded characteristics of the patient's cancer (e.g., type of cancer; cancer stage) and cancer treatment. As part of the consent process, patients provided permission for the project to extract this information from their medical records.

Depression, Anxiety, Stress Scale (DASS-21; Henry and Crawford, 2005) was used to assess depression. The DASS-21 contains 21 items self-rated on a 4 point Likert scale ranging from 0 to 3, measuring the extent to which the item (e.g., "I felt that life was meaningless") was applicable to the patient over the past week. It categorizes scores for its three scales (depression, anxiety, stress) into five levels: (1) normal; (2) mild; (3) moderate; (4) severe; (5) very severe. Because self-report measures of depression may tend to produce increased rates of false positives (Tan et al., 2014), we estimated rates of depression caseness conservatively using levels 4 and 5 (as above) as cut-offs.

2.3. Statistical analyses and hypotheses

In risk factor analyses, continuous scores from the DASS were used as the dependent variables rather than DASS categories, in order to avoid loss of information associated with data categorization. Regression analyses with standardized beta were used for continuous risk factors (e.g., age) and ANOVA were used for categorical risk factors (e.g., occupation). All analyses were conducted with SAS (9.4) Proc GLM. In general, we hypothesized that levels of depressive symptoms would be higher among patients with fewer resources with which to cope with their cancer. Specifically, we hypothesized that levels of depressive symptoms would be higher among patients who (a) were not married (because they would have less social support), (b) were older (because they generally would have less health resources available for coping), (c) had lower income (because cancer treatment would be relatively more threatening for the family's financial status), and (d) at higher cancer stages (because the disease itself would be more threatening and stressful).

3. Results

3.1. Descriptive statistics

Table 1 provides demographic information regarding the sample. The sample was approximately evenly split by gender, with age ranging from 18 to 89 years and a mean age of about 55 years. Table 1 also provides information regarding the participants' clinical characteristics. Slightly over 1/3 of the sample had Stage 3 or 4 cancer.

3.2. Primary analyses

Table 2 reports caseness rates for depression, and rates across the five levels of DASS depression scores. Using our conservative cutoffs for caseness of DASS Depression 4 (severe) and 5 (very severe), the caseness rate was 28%. As reported in Table 3, two of the continuous risk factors were significant, with both income and education showing a negative relation with level of depressive symptoms (standardized beta of -0.13 , -0.15 , respectively). Among the categorical risk factors, occupation was significant with office workers having the lowest levels of depression (5.31), significantly so as compared to farmers (8.72) who had the highest levels of symptoms. Cancer stage also was significant, with Stage 4 cancer patients having significantly higher levels of depressive symptoms than all other stages. Finally, type of cancer had a significant effect on depression levels, with lung cancer patients reporting the highest levels of depressive symptoms (8.82) which was significantly higher than patients with lymph node cancer, who reported the lowest levels of depressive symptoms (5.74) (Table 4).

4. Discussion

In a recent general population sample in this same region of central Vietnam, Pollack et al. (2016) found a depression caseness rate of about 2%. In contrast, the depression caseness rate among cancer patients in the present sample was 10–15 times higher. One possible methodological explanation is that the studies sampled different populations. However, the Pollack et al. (2016) study had similar demographics as the present study with, for instance, participants having similar education and income demographic characteristics (e.g., the median number of years of education in the Pollack et al., 2016 sample was 8). Demographic characteristics of the present sample also were similar to the random general population sample in this region assessed by Weiss et al. (2014) who had, for instance, less than 40% of adult study participants graduating from high school, and a median monthly income of \$103. Thus, the high levels of depression in our sample do not appear to be due simply to atypical background demographic characteristics.

Our overall caseness rate is similar to that reported by Krebber et al. (2014) whose meta-analysis found a rate of 27% for depression caseness assessed during cancer treatment and as defined by self-report instruments. This suggests that whatever factors are responsible for the relatively low rates of depression in Asia identified in the Ferrari et al. (2013) meta-analysis, they do not appear to be operating in regards to cancer-related depression. It is also interesting that although rates of depression across the world among women are generally twice the rates of men (e.g., Kessler et al., 1993), in our sample of cancer patients rates of depression among women and men did not differ significantly.

We did however find several statistically significant risk factors, which overall followed our hypothesized pattern that risk factors reflecting availability of fewer resources would be associated with higher levels of depressive symptoms. For instance, lower income and education level were significantly associated with higher levels of depressive symptoms. However, although these effects were statistically significant, the effects were relatively small with, for instance, $\beta = -0.13$ and $\beta = -0.15$ for the relation between income and education (respectively) and depressive symptoms. Thus, the elevated levels of depressive symptoms

observed in our sample were relatively consistent across various demographic characteristics. Similarly, although the overall effect of Type of Cancer on level of depression was statistically significant, only lung cancer differed significantly from lymph node cancer, with the other six types of cancer differing significantly from none of the other forms of cancer.

There are several limitations of the study that should be considered. First, in order to feasibly assess a large number of patients under LMIC low resource conditions, a screening measure was used rather than a diagnostic assessment. Thus, our “rate” of depression reflects caseness based on a screening measure cutoff rather than the prevalence rate for a diagnosis. However, we used a relatively high caseness cutoff, and in any case our goal was to identify for planning and policy purposes cancer patients with significant depressive symptoms, rather than to identify those meeting formal diagnostic criteria. A second limitation was that participants were assessed during or immediately at the end of their treatment. There is some research that suggests that rates of depression among cancer patients decrease across time from treatment (e.g., Krebber et al., 2014), and thus the depression of some patients meeting our caseness criterion may decrease across time in the future. However, because depression may influence the success of cancer treatment itself (Pinquart and Duberstein, 2010; Reiche et al., 2005), and because cancer treatment is often a process that can extend for months or even years (e.g., reducing health risk behaviors such as smoking), it is important to identify and treat depression during treatment, immediately and as it extends, to avoid these negative effects on treatment.

In conclusion, the results of this study suggest a strong need for some form depression treatment for cancer patients in this geographic region. To most fully demonstrate this need, future research should follow this or similar samples across time to see the effects of depression on cancer recurrence and mortality. In addition, it may be useful to develop forms of depression care specifically adapted for cancer patients (e.g., Ell et al., 2011).

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Table 1

Demographic and oncological characteristics of sample.

Characteristics	Rate/level
Mean age in years (SD. Min, Max)	55.9 (14.2. 18, 89)
Gender (% male)	52%
Education (% high school graduate)	33%
Patient's monthly income in US dollars equivalent (SD)	\$142 (\$137)
Marital status (%)	
Married	81%
Not yet/never married	6%
Divorced/widowed	13%
Occupation (%)	
Farmer	35%
Work at home	13%
Office worker	7%
Laborer	8%
Store/market sales	19%
Retired	16%
Other	2%
Type of cancer (%)	
Breast	9%
Digestive tract	13%
Gynecological (excluding breast cancer)	9%
Liver	7%
Lung	18%
Lymph nodes	5%
Otolaryngological	16%
Skin	7%
Other ^I	16%
Cancer stage (%)	
Stage 1	22%
Stage 2	42%
Stage 3	27%
Stage 4	9%

Notes:

^I = Cancer types with < 5% were included in the Other category.

Table 2

Depression in sample.

DASS-Depression categories	%
Normal	28.1%
Mild	14.0%
Moderate	29.8%
Severe	15.7%
Very severe	12.5%
Depression caseness rate (%)	28.2%

Table 3

Risk factors (continuous) for depression symptoms.

Risk factor	Test results
Age	$F[1,693] = 0.71, \beta = 0.03$
Income	$F[1,688] = 11.62^{***}, \beta = -0.13$
Education	$F[1,688] = 15.92^{***}, \beta = -0.15$

p < 0.0001.

Table 4

Risk factors (categorical) for levels of depression symptoms.

Risk factor/level	F ¹ /means ²
Gender	F[1,693] = 2.05
Marital status	F[2,692] = 2.29
Occupation	F[6,688] = 4.79****
Farming	8.72 ^a
Work at home	7.82 ^{ab}
Office worker	5.31 ^b
Retired	6.87 ^{ab}
Sales (market, store)	7.54 ^{ab}
Laborer	6.76 ^{ab}
Other	7.58 ^{ab}
Cancer stage	F[3,691] = 9.23****
Stage 1	7.44 ^b
Stage 2	6.96 ^b
Stage 3	8.05 ^b
Stage 4	10.33 ^a
Cancer type³	F[7,571] = 3.26**
Breast	6.40 ^{ab}
Digestive tract	7.56 ^{ab}
Gynaecologic	8.03 ^{ab}
Liver	6.61 ^{ab}
Lung	8.82 ^a
Lymph nodes	5.74 ^b
Otolaryngological	8.25 ^{ab}
Skin	7.07 ^{ab}

¹*= p < 0.05; ** = p < 0.01; *** = p < 0.001; **** = p < 0.0001.

²Means with different superscripts differ significantly. Means are on the DASS subscale, ranging from 0 (minimum depression) to 21 (maximum depression).

³Cancer types with < 5% in the sample were combined into the "Other" category, but not included in this analysis because of heterogeneity of the Other category.