REVIEW PAPER

Prevalence of Depression in Cancer Patients: A Review on the Comparison Between Different Regions

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Abstract

Introduction: Depression is the most common psychological sequelae in cancer patients. It is challenging to diagnose depression in cancer patients. Furthermore, the presentation is influenced by the patients’ cultural background. Objectives: This literature review aims to determine the prevalence of depression in cancer patients across regions of different cultural background. Methods: A literature search was undertaken by using Pubmed electronic database. Studies were included in this review if they (a) examined the prevalence of depression in cancer patients and (b) published in English peer-review journal between 2000 and 2009. Results: A total of 59 studies from 21 countries were reviewed and summarised. The prevalence of depression in cancer patients ranged from 3% to 72%. Studies from Asia reported the lowest prevalence (3-39%) and Europe reported the highest prevalence (7-72%). Conclusion: Cultural influence may play a role in the prevalent difference of depression in cancer patients. Somatization and stigmatization are suggested as the possible reasons of lower prevalence of depression in Asia region. The biopsychiatric model of mental illness and western psychologization explain the higher prevalence in Western region. Future research on the cross-cultural variability in the presentation of depression in cancer patients is recommended.

Keywords: Prevalence, Depression, Cancer, Cultural Influence

Introduction

Depression is a syndrome but not a disease. It manifests in a spectrum ranges from normal sadness to a variety of mood disturbances and clinical presentations. It is challenging to differentiate or separate clinical depression from “normal” emotional distress in cancer patients. The two core symptoms of depression as stated in Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM IV) are depressed mood and a marked loss of interest or pleasure in most or all activities. A patient must experience at least one of the two symptoms for a minimal period of two weeks, together with four other depressive symptoms stated in the manual. Unfortunately, the somatic symptoms such as fatigue, loss of appetite or weight, sleep
difficulties, poor memory and concentration may mirror the physiological symptoms caused by cancer or its treatment. It raises the barrier in studying depression in cancer patients. Despites the difficulties in evaluating depression in patients confronted by cancer, many studies looking into the prevalence of depression in cancer were conducted in the past decades. The prevalence reported varies significantly because of the varying diagnostic criteria, measurements or rating scales used and differences in the study populations.

There are a few frequently cited prevalent studies on this topic. One of them is by Derogaties et al (1983). The study involved 215 patients who were newly admitted to 3 collaborating centers. DSM III diagnostic criteria were used and 47% of the patients were having psychiatric diagnosis. 13% of the 47% had major depression. In other words, it was about 6.1% met the criteria for Major Depression.

The result is similar to the finding of a study by Kathol et al. Four sets of criteria were used in the study. 808 patients were screened using Hamilton Rating scale and/or Beck Depression Inventory. 19% of the patients reported symptoms of depression. Out of the 19%, about one third met the criteria for Major Depressive Disorder according to one or more of the four diagnostic criteria (DSM III (38%), DSM III R (30%), the Research Diagnostic Criteria (25%) and the Edincott criteria (36%)). It was about 6.3% of the total patients studied met the criteria for Major Depression.

Based on a review article by Mc Daniel et al, the prevalence for Major Depression found to be ranged from 4.8% to 9.2%. The result was based on studies using standardized diagnostic interviews on cancer outpatients. The figures were higher for the cancer in patients which is 8% for Major Depression and 15% to 36% for all depressive disorders.

This prevalent range is comparable with the report by Massie and Holland. Massie and Holland found that at least 25% of the hospitalized cancer patients were likely to meet criteria for Major Depression or Adjustment Disorder with Depressed Mood. According to Massie on the literature search between 1965 and 2002, the prevalence of Major Depression ranged from 0 to 38% and depressive spectrum syndrome ranged from 0% to 58%. It varies significantly because of the differences in depression definition, illness severity or categories, cancer treatment and patients’ characteristics in the studies.

Despites of the large amount of studies on the topic, there is limited attention on the cultural influence in the prevalence of depression in cancer patients. As mentioned by Bailey et al, cultural values influence the manner in which a person perceives his mental health. Their form of expression is often linked to their cultural belief. Hence, the prevalence variation in different region or culture required additional attention. This current literature review aims to summarize the current knowledge of studies on depression in cancer patients by emphasizing on the prevalent difference in regions of different culture. This will enhance the understanding of cultural influence in the psychological expression in cancer patients.

Methods

Search strategies
A literature search using Pubmed was conducted. Search terms such as
“prevalence”, “cancer” and “depression” were used. All abstracts were retrieved and read. Papers which contain relevant material were extracted and review in full.

**Inclusion criteria**

Studies were included in this review if they (a) examined and reported the prevalence of depression in cancer patients (specific or all types of cancer) (b) were published in English peer-review journal and (c) were published between the year 2000 and 2009.

Quality assessment of each article was not conducted in this review, although it is a common process in most systematic reviews. This is to prevent excluding poor quality research from certain regions and limit the loss of meaningful and insightful information as suggested by previous review. Inclusion of studies from all regions is crucial in this review, in view of the aim to examine the prevalent difference of depression in cancer patients due to cultural influence. Review articles were included in this review as far as the study population was confined to the region of the study.

Studies that fulfilled the inclusion criteria were categorized according to the region of origin where the studies were done were Asia (20.3%, n=12), Middle East (5.1%, n=3), Europe (35.6%, n=21), North America (30.5%, n=18) and Australia (8.5%, n=5) (Table 2).

In regard to the countries of origin, these studies were undertaken in China (5.1%, n=3), Japan (10.1%, n=6), Korea (1.7%, n=1), India (1.7%, n=1), Pakistan (1.7%, n=1), Iran (3.4%, n=2), Jordan (1.7%, n=1), UK (8.5%, n=5), Denmark (3.4%, n=2), Germany (1.7%, n=1), Netherlands (3.4%, n=2), Turkey (3.4%, n=2), Scotland (3.4%, n=2), Finland (1.7%, n=1), Norway (1.7%, n=1), Slovenia (1.7%, n=1), Ireland (1.7%, n=1), Italy (3.4%, n=2), USA (25.4%, n=15), Canada (5.1%, n=3) and Australia (8.5%, n=5). In total, these studies involved 21 countries. 2 reviews articles were included in the current review. One of them was from Japan and another from Denmark (Table 2).

Several measurement tools and structured interviews were used to determine depression in cancer patients. The most commonly used self rated questionnaire was Hospital Anxiety and Depression Scale (HADS) (39.0%, n=23), followed by Beck Depression Inventory (BDI) (15.3%, n=9) and Center for Epidemiologic Studies Depression Scale (CES-D) (10.2%, n=6). The other self rated questionnaires used were Zung Depression Rating Scale (1.7%, n=1), Mood Evaluation Questionnaire (MEQ) (1.7%, n=1), Beck Youth Inventory II (BYII) (1.7%, n=1), Hamilton Depression Rating Scale (HAMD) (3.4%, n=2), Edmonton Symptom Assessment Scale (ESAS) (1.7%, n=1), Patient Health Questionnaire (PHQ) (6.8%, n=4) and Montgomery-Asberg Depression Rating Scale (MADRS) (1.7%, n=1). Brief Case-Find for Depression (BCD) which is a clinician administered instrument was used in a study (1.7%, n=1). The most frequently
used structured interview was Structured Clinical Interview according to Diagnostic and Statistical Manual (SCID-DSM) (42.4%, n=25). The other structured interviews and diagnostic criteria used were Composite International Diagnostic Interview (CIDI) (1.7%, n=1), Research Diagnostic Criteria using the Schedule for Affective Disorders and Schizophrenia (RDC-SADS) (1.7%, n=1) and Edincott criteria (1.7%, n=1).

Table 1. Prevalence of depression in cancer patients according to region

<table>
<thead>
<tr>
<th>Region</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Asia</td>
<td>3-39%</td>
</tr>
<tr>
<td>2. Middle East</td>
<td>0-57%</td>
</tr>
<tr>
<td>3. Europe</td>
<td>7-72%</td>
</tr>
<tr>
<td>4. North America</td>
<td>6-51%</td>
</tr>
<tr>
<td>5. Australia</td>
<td>4-43%</td>
</tr>
</tbody>
</table>
### Table 2. Prevalence Studies Using Various Depression Diagnostic Criteria and Measurement Tools

<table>
<thead>
<tr>
<th>Reference</th>
<th>N</th>
<th>City/Country</th>
<th>Patients</th>
<th>Cancer site</th>
<th>% depressed</th>
<th>Method</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ASIA</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Chen, 2009</td>
<td>1400</td>
<td>Shanghai, China</td>
<td>Women with stage 0-IV cancer</td>
<td>Breast</td>
<td>26%</td>
<td>CES-D</td>
<td>Low income, marital status and comorbidity were predictors of depression</td>
</tr>
<tr>
<td>2. So, 2009</td>
<td>215</td>
<td>Hong Kong, China</td>
<td>Female patient on chemotherapy or radiotherapy</td>
<td>Breast</td>
<td>36%</td>
<td>HADS</td>
<td>There was clustering of depression, anxiety and fatigue.</td>
</tr>
<tr>
<td>3. Akeshi, 2009</td>
<td>5431</td>
<td>Nagoya, Japan</td>
<td>Patients referred for psychiatric consultation</td>
<td>All</td>
<td>12.8%</td>
<td>DSM IV</td>
<td>Alternative criteria for diagnosing depression was suggested</td>
</tr>
<tr>
<td>4. Kim, 2008</td>
<td>1933</td>
<td>Gyeoggi, Korea</td>
<td>Cancer survivor</td>
<td>Breast</td>
<td>24.9%</td>
<td>BDI</td>
<td>Fatigue and depression influenced by socio-demographic, comorbidity and symptoms characteristics</td>
</tr>
<tr>
<td>5. Mishra, 2006</td>
<td>38</td>
<td>Orissa, India</td>
<td>Patients on anticancer treatment</td>
<td>All</td>
<td>39%</td>
<td>Questionnaire (DSM IV)</td>
<td>Previous psychiatric disorders as predictor</td>
</tr>
<tr>
<td>6. Iqbal, 2004</td>
<td>365</td>
<td>Lahore, Pakistan</td>
<td>Newly diagnosed patients</td>
<td>All</td>
<td>17.8%</td>
<td>SCID-DSM IV</td>
<td>Age, gender, education, home atmosphere, family support associated with mental disorders</td>
</tr>
<tr>
<td>7. Yan, 2004</td>
<td>146</td>
<td>Shanghai, China</td>
<td>Newly diagnosed patients</td>
<td>GIT</td>
<td>28%</td>
<td>BDI-13 (Chinese version)</td>
<td>Depression, distress and social support had impact on QoL</td>
</tr>
<tr>
<td>8. Akechi, 2004</td>
<td>209</td>
<td>Chiba,</td>
<td>Terminally ill</td>
<td>All</td>
<td>6.7-11.8%</td>
<td>HADS</td>
<td>Low performance status,</td>
</tr>
<tr>
<td></td>
<td>Study (Year, Location)</td>
<td>Patients</td>
<td>Diagnosis</td>
<td>Stage</td>
<td>Screening Tool</td>
<td>Findings</td>
<td></td>
</tr>
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</tr>
<tr>
<td>9.</td>
<td>Akechi, 2001&lt;sup&gt;23&lt;/sup&gt; Chiba, Japan</td>
<td>129</td>
<td>Newly diagnosed patients</td>
<td>NSCLC</td>
<td>3-5%</td>
<td>SCID-DSM III</td>
<td>Younger age and pain were associated with psychiatric disorders</td>
</tr>
<tr>
<td>10.</td>
<td>Akechi, 2001&lt;sup&gt;24&lt;/sup&gt; Chiba, Japan</td>
<td>1721</td>
<td>Database of National Cancer Centre</td>
<td>All</td>
<td>18%</td>
<td>-</td>
<td>Psychiatric disorders in Japan is similar with Western countries</td>
</tr>
<tr>
<td>11.</td>
<td>Kugaya, 2000&lt;sup&gt;25&lt;/sup&gt; Chiba, Japan</td>
<td>107</td>
<td>Newly diagnosed and hospitalized patients</td>
<td>Head &amp; Neck</td>
<td>3.7%</td>
<td>SCID-DSM IIIR, HADS</td>
<td>HADS is a useful screening tool</td>
</tr>
<tr>
<td>12.</td>
<td>Uchitomi, 2000&lt;sup&gt;26&lt;/sup&gt; Chiba, Japan</td>
<td>233</td>
<td>Patient underwent surgery</td>
<td>NSCLC</td>
<td>14.8%</td>
<td>SCID-DSM III</td>
<td>Pain, performance status, social support and satisfaction with confidant before surgery are associated with depression</td>
</tr>
</tbody>
</table>

**Middle East**

<table>
<thead>
<tr>
<th></th>
<th>Study (Year, Location)</th>
<th>Patients</th>
<th>Diagnosis</th>
<th>Stage</th>
<th>Screening Tool</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.</td>
<td>Mhaidat, 2009&lt;sup&gt;27&lt;/sup&gt; Irbid, Jordan</td>
<td>208</td>
<td>Inpatients and outpatients</td>
<td>All</td>
<td>51.9%</td>
<td>HADS</td>
</tr>
<tr>
<td>14.</td>
<td>Tavoli, 2007&lt;sup&gt;28&lt;/sup&gt; Tehran, Iran</td>
<td>142</td>
<td>Patients attending cancer institute</td>
<td>GIT</td>
<td>57%</td>
<td>HADS</td>
</tr>
<tr>
<td>15.</td>
<td>Montazeri, 2001&lt;sup&gt;29&lt;/sup&gt; Tehran, Iran</td>
<td>56</td>
<td>Cancer support group members</td>
<td>Breast</td>
<td>0-14%</td>
<td>HADS</td>
</tr>
</tbody>
</table>

**Europe**

<table>
<thead>
<tr>
<th></th>
<th>Study (Year, Location)</th>
<th>Patients</th>
<th>Diagnosis</th>
<th>Stage</th>
<th>Screening Tool</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>16.</td>
<td>Slovacek, 2009&lt;sup&gt;30&lt;/sup&gt; Hardec</td>
<td>64</td>
<td>Female palliative</td>
<td>All</td>
<td>71.8% (12.5%) Zung</td>
<td>Lung, endometrial,</td>
</tr>
<tr>
<td>Study</td>
<td>Year</td>
<td>Population Details</td>
<td>Site</td>
<td>Diagnosis</td>
<td>Depression Rate</td>
<td>Depression Scale</td>
</tr>
<tr>
<td>-------</td>
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</tr>
<tr>
<td>Singer, 2009</td>
<td>689</td>
<td>Inpatients</td>
<td>London, UK</td>
<td>All</td>
<td>11.6% (9.6% MDD, 2% dysthymia)</td>
<td>HADS, DSM-IV</td>
</tr>
<tr>
<td>Dalton, 2009</td>
<td>608591</td>
<td>Danish Registry Cancer</td>
<td>Copenhagen, Denmark</td>
<td>All</td>
<td>0.75% admitted for depression</td>
<td>Danish Psychiatric Centre Registry</td>
</tr>
<tr>
<td>Snoj, 2009</td>
<td>202</td>
<td>Female outpatients</td>
<td>Ljubljana, Slovenia</td>
<td>All</td>
<td>70% breast cancer, 69% other cancers</td>
<td>-</td>
</tr>
<tr>
<td>Christensen, 2009</td>
<td>3343</td>
<td>Female on therapy for early stage invasive cancer</td>
<td>Aarhus, Denmark</td>
<td>Breast</td>
<td>13.7% BDI</td>
<td>Pre-cancer condition were risk factor for depression</td>
</tr>
<tr>
<td>Wedding, 2008</td>
<td>175</td>
<td>Hospitalized patients</td>
<td>Jena, Germany</td>
<td>All</td>
<td>9.1% major depression, 16.6% mild to moderate depression</td>
<td>BDI</td>
</tr>
<tr>
<td>Ozalp, 2008</td>
<td>204</td>
<td>Inpatients</td>
<td>Ankara, Turkey</td>
<td>Breast</td>
<td>8.3%</td>
<td>HADS, SCID</td>
</tr>
<tr>
<td>Walker, 2007</td>
<td>445</td>
<td>Outpatients</td>
<td>Edinburg, Scotland</td>
<td>All</td>
<td>8.3%</td>
<td>HADS, SCID</td>
</tr>
<tr>
<td>Korfage, 2006</td>
<td>299</td>
<td>Diagnosed in 4 hospitals</td>
<td>Rotterdam, Netherlands</td>
<td>Prostate</td>
<td>9-27% CES-D, STAI-state</td>
<td>STAI-state suggested as screening tool</td>
</tr>
<tr>
<td>Mainio, 2005</td>
<td>77</td>
<td>Patients treated surgically</td>
<td>Oulu, Finland</td>
<td>Brain</td>
<td>35%</td>
<td>BDI</td>
</tr>
<tr>
<td></td>
<td>Study Reference</td>
<td>N</td>
<td>Location</td>
<td>Study Group</td>
<td>Diagnosis</td>
<td>Depression</td>
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</tr>
<tr>
<td>26.</td>
<td>Thorsen, 2005</td>
<td>1260</td>
<td>Oslo, Norway</td>
<td>Cancer survivors</td>
<td>Testis</td>
<td>9%</td>
</tr>
<tr>
<td>27.</td>
<td>Burgess, 2005</td>
<td>222</td>
<td>London, UK</td>
<td>Early cancer patients</td>
<td>Breast</td>
<td>50% -1st year, 25%-2nd to 4th year, 15%-5th year</td>
</tr>
<tr>
<td>28.</td>
<td>Grassi, 2004</td>
<td>277</td>
<td>Ferrara, Italy</td>
<td>Outpatients</td>
<td>All</td>
<td>24.9%</td>
</tr>
<tr>
<td>19.</td>
<td>Lloyd-William, 2004</td>
<td>74</td>
<td>Liverpool, UK</td>
<td>Advanced cancer patients</td>
<td>All</td>
<td>27%</td>
</tr>
<tr>
<td>30.</td>
<td>Voogt, 2005</td>
<td>105</td>
<td>Rotterdam, Netherlands</td>
<td>Advanced cancer patients</td>
<td>All</td>
<td>13%</td>
</tr>
<tr>
<td>31.</td>
<td>Atasci, 2004</td>
<td>117</td>
<td>Denizli, Turkey</td>
<td>Patients had undergone chemotherapy</td>
<td>All</td>
<td>45.7%</td>
</tr>
<tr>
<td>32.</td>
<td>Sharpe, 2004</td>
<td>5613</td>
<td>Edinburg, Scotland</td>
<td>Outpatients</td>
<td>All</td>
<td>8%</td>
</tr>
<tr>
<td>34.</td>
<td>Roopharinesingh, 2003[48]</td>
<td>29</td>
<td>Dublin, Ireland</td>
<td>Patients pursue fertility preservation</td>
<td>All</td>
<td>6.9%</td>
</tr>
<tr>
<td>35.</td>
<td>Ciaramella, 2001[49]</td>
<td>100</td>
<td>Florence, Italy</td>
<td>Outpatients in a pain therapy and palliative care unit</td>
<td>All</td>
<td>28-49%</td>
</tr>
<tr>
<td>36.</td>
<td>Hopwood, 2000[50]</td>
<td>987</td>
<td>Manchester, UK</td>
<td>Palliative treatment trial patients</td>
<td>Lung</td>
<td>33-50%</td>
</tr>
<tr>
<td>North America</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>37.</td>
<td>Kersun, 2009[51]</td>
<td>41</td>
<td>Philadelphia, USA</td>
<td>Adolescent outpatients on cancer therapy</td>
<td>All</td>
<td>4.9%</td>
</tr>
<tr>
<td>38.</td>
<td>Brintzenhofe Szoc, 2009[52]</td>
<td>8265</td>
<td>New York, USA</td>
<td>Outpatients presented to tertiary centre</td>
<td>All</td>
<td>18.3%-overall depression symptoms, 6%-pure depression</td>
</tr>
<tr>
<td>39.</td>
<td>Pirl, 2009[53]</td>
<td>243</td>
<td>Boston, USA</td>
<td>Adult from National Comorbidity Survey Replication</td>
<td>All</td>
<td>3-15% met MDD criteria</td>
</tr>
<tr>
<td>40.</td>
<td>Dirksen, 2009[54]</td>
<td>51</td>
<td>Phoenix, USA</td>
<td>Adult outpatients</td>
<td>Prostate</td>
<td>51%</td>
</tr>
<tr>
<td>Study</td>
<td>Year</td>
<td>Location</td>
<td>Setting</td>
<td>Measure</td>
<td>Tool</td>
<td>Findings</td>
</tr>
<tr>
<td>-------</td>
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<td>------</td>
<td>----------</td>
</tr>
</tbody>
</table>
| 41. Lydiatt, 2009 | Omaha, USA | Review article | Head & Neck | 15-50% | - | Depression and distress
| 42. Steinberg, 2009 | Montreal, Canada | Newly diagnosed patients | Lung | 5.1%-depression, 13.2%-both depression and nervousness | ESAS | Depression and nervousness correlated with distress score
| 43. Rabkin, 2009 | New York, USA | Terminal cancer patients | All | 9%-depressive symptoms, 7%-MDD | PHQ | Spiritual belief associated with positive mood, hope and better QoL
| 44. Neron, 2007 | Montreal, Canada | Newly diagnosed unresectable cancer patients | Lung | 6-51% | HADS, MADRS | Semi-structured interview is more effective than self-administered questionnaire in identifying depression
| 45. Steel, 2007 | Pittsburg, USA | Hepatobiliary cancer (HBC) patients | HBC | 37% | CES-D | High prevalence of depression and impact on survivor
| 46. Ell, 2007 | Los Angeles, USA | Patients attending oncology clinic | All | 25.4% | PHQ-9 | Intervention aimed at multiple areas of care are more effective
| 47. Kadan-Lottick, 2005 | New Haven, USA | Advanced cancer patients | All | 6.8% | SCID-DSM IV | Advanced cancer patients had lower rate of utilizing mental health service
| 48. Ell, 2005 | Los Angeles, USA | Outpatients | Breast & Gynaecological | 12% | PHQ-9 | Primary diagnosis of cancer, younger age, functional impairment, poor social and family well being, anxiety, fear of treatment side effects were correlated with depression
<table>
<thead>
<tr>
<th>49. Kissane, 2004\textsuperscript{63}</th>
<th>Female patients</th>
<th>New York, USA</th>
<th>Breast</th>
<th>42-45%</th>
<th>Structured interview and self report measure</th>
<th>Fatigue, history of depression and cognitive attitude associated with depression</th>
</tr>
</thead>
<tbody>
<tr>
<td>50. Katz, 2004\textsuperscript{64}</td>
<td>Ambulatory patients</td>
<td>Head &amp; Neck</td>
<td>20%</td>
<td>RDC SADS, BDI, HADS, CES-D</td>
<td>All 5 instruments are accurate in screening for depression</td>
<td></td>
</tr>
<tr>
<td>51. Litofsky, 2004\textsuperscript{65}</td>
<td>Patients underwent surgery</td>
<td>Glioma</td>
<td>15-22%</td>
<td>SF-36, DSM IV</td>
<td>Depression is common immediately after surgery</td>
<td></td>
</tr>
<tr>
<td>52. Pirl, 2002\textsuperscript{66}</td>
<td>Male patients receiving ADT</td>
<td>Prostate</td>
<td>12.8%</td>
<td>SCID-DSM IV, BDI</td>
<td>History of depression associated with current depression</td>
<td></td>
</tr>
<tr>
<td>53. Breitbart, 2000\textsuperscript{67}</td>
<td>Hospitalized terminally ill patients</td>
<td>All</td>
<td>16%</td>
<td>SCID-DSM IV, HAMD</td>
<td>Depression and hopelessness are the strongest predictors of desire for hastened death</td>
<td></td>
</tr>
<tr>
<td>54. Bodurka-Bevers, 2000\textsuperscript{68}</td>
<td>Outpatients</td>
<td>Ovary</td>
<td>21%</td>
<td>CES-D</td>
<td>Depression is high in epithelial ovarian cancer patients</td>
<td></td>
</tr>
</tbody>
</table>

**Australia**

<table>
<thead>
<tr>
<th>55. Boyes, 2009\textsuperscript{69}</th>
<th>Adult patients</th>
<th>ALL</th>
<th>4%</th>
<th>HADS</th>
<th>Previous psychiatric illness, invalid pensioner, maladaptive coping behaviour and poor social interaction predicted depression</th>
</tr>
</thead>
<tbody>
<tr>
<td>56. Love, 2004\textsuperscript{70}</td>
<td>Female patients with metastasis</td>
<td>Breast</td>
<td>32.6%</td>
<td>HADS, BDI-SF, DSM IV</td>
<td>BDI-SF is useful in screening for MDD</td>
</tr>
<tr>
<td>57. Jefford, 2004\textsuperscript{71}</td>
<td>Medical oncology/</td>
<td>All</td>
<td>12-43%</td>
<td>BCD, PHQ, BDI, HADS</td>
<td>BCD is a quick, easy to administer screen for</td>
</tr>
<tr>
<td></td>
<td>Study Reference</td>
<td>N</td>
<td>Location</td>
<td>Gender/Type</td>
<td>Diagnosis</td>
</tr>
<tr>
<td>---</td>
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<td>----------</td>
<td>-------------</td>
<td>-----------</td>
</tr>
<tr>
<td>58.</td>
<td>Osborne, 2003</td>
<td>731</td>
<td>Melbourne, Australia</td>
<td>Female patients</td>
<td>Breast</td>
</tr>
<tr>
<td>59.</td>
<td>Pascoe, 2000</td>
<td>504</td>
<td>Sydney, Australia</td>
<td>Oncology outpatients</td>
<td>All</td>
</tr>
</tbody>
</table>

CES-D = Center for Epidemiologic Studies Depression Scale, HADS = Hospital Anxiety and Depression Scale, DSM = Diagnostic and Statistical Manual, BDI = Beck Depression Inventory, SCID = Structured Clinical Interview according DSM, QoL = Quality of Life, STAI = State-Trait Anxiety Inventory, MEQ = Mood Evaluation Questionnaire, HAMD = Hamilton Depression Rating Scale, BYII = Beck Youth Inventory II, CIDI = Composite International Diagnostic Interview, ESAS = Edmonton Symptom Assessment Scale, PHQ = Patient Health Questionnaire, MADRS = Montgomery-Asberg Depression Rating Scale, RDC-SADS = Research Diagnostic Criteria using the Schedule for Affective Disorders and Schizophrenia, BDI-SF = BDI – Short Form, BCD = Brief Case-Find for Depression
The prevalence of depression in cancer patients reported in these studies was summarized in Table 1. In general the prevalence reported in the studies from Asia region was relatively lower (3-39%). Result from Europe region was relatively higher (7-72%). The lowest prevalence was reported in a study from Japan (3-5%) and the highest was from Czech Republic (71.8%).

Discussion

Comparison of the findings between regions based on the result is impossible due to methodological variation in the included studies. The methodological differences were the varying of study population, type of cancer, differences in the diagnostic criteria for depression and measurement tools used in the studies. In general, the prevalence of depression in Asian countries was slightly lower than the Western region. The difference in the prevalence of depression was also observed in general population based on the result from Cross-National Collaboration Group74. The Cross-National Collaboration Group conducted an epidemiological community studies in ten countries. The lifetime prevalence of depression varied widely, with the lowest of 1.5% in Taiwan and the highest of 19% in Beirut. Cultural role is an important factor to be considered in the understanding of this finding. As mentioned by Spinetta, psychology determined by cultural background can make a difference in an individual when confronted by the diagnosis of disease75.

According to Betancourt JR, culture is defined as a pattern of learned beliefs, values and behavior that are shared within a group. It encompassed language, communication styles, practices, customs and views on roles and relationships76. In contrast, Kleinman defined culture as a process by which someone acquires emotional and moral meaning for the ordinary activities. “The cultural processes include embodiment of meaning in habitus and physiological reaction, the understanding of particular situations, the development of interpersonal relationship, religious practice and the cultivation of collective and individual identity”77. Culture found to confound the detection and management of depressed patients from many regions77-81.

Cancer is still not well understood by many people in Asian region. It is remained as one of the most feared illness in most of the countries. The cancer related fear was reflected by the findings in the studies from Middle East where knowledge of cancer caused more impact on the patients and is highly associated with depression27,28. Atesci also found that the awareness of cancer diagnosis is related to the presence of psychiatric disorders among cancer patients45.

Cultural factor always play a role in shaping the manner of person in perceiving mental health. Their form of expression is often linked to cultural belief42. Asian patients are less likely to express their emotional distress to their physician. They focus more on the somatic symptoms, instead of revealing their feeling of depression75,82,83,84.

According to Makeba, communication is more indirect in Eastern culture. Jung divides person into two types: the extraverts and the introverts. The extraverted attitude is characterized by outgoing, sociable, confident, interested in surrounding and keen to share his feelings with others. The introverted type, in contrast, is shy, unsociable, lacks of confidence in relation to people and things, over-concientious,
pessimistic and always keep to himself. The latter is prevailing in the east.\textsuperscript{85}

Somatic symptoms are commonly used as indications of emotional distress for patients from Eastern culture.\textsuperscript{82,83,84} Another explanations regarding the act of somatizing depression in Asian patients is due to the belief that someone only go to the doctor unless they have something physical to mention.\textsuperscript{86} From the psycho-analytic point of view, somatization is a process whereby anxiety arisen from intrapsychic conflict is suppressed and reaches consciousness only through physical expression.\textsuperscript{87} This mind-body dualism definition was rejected by other writers who argues that psychological symptoms will be elicited following a thorough evaluation although somatic emphasis is apparent at the initial assessment.\textsuperscript{88,89} Lastly, somatization was also defined as a strategy of symptom presentation. It represents a specific response style where somatic symptoms are emphasized and psychological symptoms are concealed.\textsuperscript{90}

As commented by Philip Rack, a depressed Indian or Pakistani will usually complain of pain or weakness. One must ask the correct question then only may be able to elicit the depressive symptoms.\textsuperscript{91} Bhugra found that women from North India are more likely to present with “sinking” heart\textsuperscript{92} and Weiss reported that depressed outpatients in Bangalore typically presented with somatic symptoms initially.\textsuperscript{93} Gada et al found that Indian depressed patient somatized more often than the western depressed patients. In his study, 100 depressed patients from Western India were compared with the British depressed patients. Somatic symptoms, hypochondriasis, anxiety and agitation were presenting more frequently among the Indian patients than the British patients. It was attributed to the cultural shaping of the expression of depression.\textsuperscript{83} In India, the symptom expression is governed by the perceived stigma attached to psychiatric problems. Although depression is distressing but it affects the perceived social status of the sufferer. In contrast, somatic symptoms are more socially acceptable. As a result, Indian depressed patient usually complaint of somatic symptoms. A study conducted in South India where 80 psychiatric outpatients were assessed on their psychiatric symptoms and stigma score. It was found that the stigma score were positively related to depressive symptom. Raguram et al concluded that the tendency to report distress in psychological and somatic terms is influenced by various social and cultural factors. It is clearly mentioned by Raguram et al that somatization is a communication act that is woven into the fabric of Indian culture.\textsuperscript{82}

Somatization in Chinese was first studied by Kleinman.\textsuperscript{94} Subsequently, several studies compared the presentation between Chinese and Western depressed patients were published. Parker et al studied two groups of depressed outpatients. One was Malaysian Chinese and one of Australian Caucasian. The patients were asked to nominate their most distressing symptoms. The Chinese were distinctly more likely to nominate somatic symptoms (60\%) compared to the Australian subjects (13\%). Stigmatizing mental illness among Chinese was emphasized by Kleinman. He discovered that Chinese patients refused to talk about their past feelings even that depression was getting better.\textsuperscript{95} Besides, Chinese is generally not strong in expressing their emotion. It was confirmed by the report by several previous studies.\textsuperscript{84,96,97} Cheung et al suggested that the fear of stigma attached to mental illness lead to the suppression of their emotional expression among Chinese
Chinese culture places high value on the harmonious relation with others. As a result, Chinese are extremely cautious in expressing their negative emotion with the worry of disturbing the harmonious equilibrium of interpersonal transaction. Many Asian cultures including Chinese insist on the fundamental relatedness of individual to each other. Instead of expressing the emotion, Chinese suppress their deep feeling with the thinking that it will naturally fade away over time. This negative avoidance coping style was observed in the study conducted by Ho et al. In the study, 139 Chinese female cancer survivors were examined with Courtauld Emotional Control Scale (CECS). It was suggested that cancer survivors with higher emotional control tended to have higher stress, anxiety, depressive levels and lead to adopt negative coping with cancer. Chinese believe that this is the proper way to 'control' the emotional expression.

Middle Easterner also tends to somatize their depression. It is also related to the stigma attached to mental illness. They resist in seeking help from psychiatrist. Mental illness is commonly attributed to evil spirit, head trauma, emotional trauma, sudden fright and hereditary. They are more common in seeking help for “nerves” and consult neurologist for their suppressed emotional expression. Somatic complaint is used as a metaphor as a means of expression. For instance it is mentioned by Philip Rack that in Muslim culture, the heart provides ‘an idiom of expressing emotion’. The symptoms were described as “my heart is sinking or fluttering”, “my heart burn” etc. Hamdi conducted a study in Dubai in an attempt to apply the clinical construct of endogenous depression derived from Western studies to depressed Arab patients. He discovered that somatic metaphors were commonly used to express distress. The Islamic culture also influences the subjects in response to inquiries about guilt, suicide and libido. Hamdi recommended that the variation in the depressive symptom frequencies and mode of expression needed to be taken into consideration for defining it in term appropriate to the Arab culture. In another study, Sulaiman et al also reported that natives of Dubai were more likely than Westerners to associate depression with somatic symptoms.

Similar to other culture in the Eastern region, physical symptoms are more acceptable among the Japanese. They may voice their somatic sensation that accompanying depression more often than the Westerner. A study to explore cancer patients’ concern about emotional disclosure to their physician was conducted by Okuyama et al. It was found that high percentage of the patients had hesitation in disclosing emotion to their physicians. Japanese was presumed to have group-enhancement cultural frame. This type of cultural frame value and enhance the group over the personal self. They value self criticism for the goal of social harmony. Western culture was presumed to have self-enhancement cultural frame where they socialize their member to focus on personal strengths and competencies. A study was conducted by Arnault et al comparing the Japanese and American women looking into the association between negative self description and depression symptomology. It found that positive self description was more valued in American culture with self-enhancement cultural frame. The tendency among Japanese in inhibiting their affect expression was also confirmed by the result from other studies.

In this review, somatization and stigmatization were mostly used to explain the lower psychological depressive manifestation among cancer patients from...
the Eastern culture. The higher prevalence of depression in Western region might be attributed to the conceptual model of depression embedded in the Western culture. Biopsychiatric model of depression is more commonly accepted in the Western societies. They view depression as a disease and more willing to seek professional treatment. In contrast, “situational” model of depression is more accepted in the Eastern region. In this traditional culture, depression is conceptualized as social problems or as emotional reactions to the situations.

Karasz A conducted a study compared the conceptual models of depression between South Asian immigrants and European American in New York City. The result showed that South Asian emphasized more on social and moral terms. The European American subjects interpreted depression more in the terms of biological explanations. Majority of the South Asian felt that the treatment strategies for depressive symptoms involved either solving the problems or avoiding “thinking”.

In addition to the Eastern somatization, Western psychologization is another important cultural influence needed to be taken into consideration. Ryder et al, used three assessment modalities: spontaneous problem report, structured clinical interview and symptoms questionnaire to examine symptoms presentation in Chinese and Euro-Canadian. Euro-Canadian subjects found to report more psychological symptoms on all three assessment methods. The authors concluded that Western psychologization was stronger, more consistent and culturally specific than Chinese somatization. The observed cross-cultural variability for somatization was related to cultural difference in internally versus externally orientated thinking. Chinese was presumed to have externally oriented thinking and tend to not value inner emotional experience. Although they can experience and express their emotion but they do not focus on them. In contrast, Western culture emphasis on the personal experience and focus on interpersonal communication of emotion.

Conclusion

In conclusion, depression is common in cancer patients. Although the prevalence varied, it is recognizable across all regions. In general, the prevalence is lower in the Eastern region. Cultural difference in shaping the belief of mental illness is a crucial factor to be considered when studying depression in cancer patients. Somatization and stigmatization influence the pattern of manifestation of depressive symptoms among cancer patients. Western psychologization lead to the focus in psychological expression among the Western depressed patients. The different conceptual model of mental illness cultivated in the Western and Eastern culture is another important factor influences the willingness to express their emotion or seeking professional treatment. Future research looking into cross-cultural variability in the presentation of depression in cancer patients is recommended.

Limitation

Several limitations concerning this literature review need to be addressed. Firstly, all studies included in this review were published in English peer-review journals. This limited the generalisability of the result. Secondly, the literature search is based on single electronic database (Pubmed). Indeed, a reasonable amount of relevant studies were missed. Thirdly, the quality of individual studies was not examined in this literature.
review. The findings of some studies might be questionable. Lastly, there was no data synthesis in this review. This was attributed to the variation of methodological strategies used in the included studies.

References


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