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Psychological Wellbeing and Mental Health Screening among Cancer Patients

Wing Hoe Wong, Sidek Mohd Noah and Asmah Ismail

Faculty of Educational Studies, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia

Abstract

The study examined the cancer patients' psychological wellbeing and the need for mental health screening among cancer patients undergoing cancer related treatments. This research was conducted on 240 cancer patients (120 male and 120 female) from the Department of Radiotherapy and Oncology, Hospital Kuala Lumpur. This study used the Depression, Anxiety, and Stress Scale (DASS) as an instrument for mental health screening and data collection. Both descriptive and statistical analyses were performed on the data using mean, frequency, percentage, and independent sample t tests. Findings show that female participants recorded higher prevalence rates of symptoms related to depression, anxiety, and stress. Statistical analyses indicate there are significant differences in mean scores of depression, anxiety, and stress between genders. Implications of the research and suggestions for further study are also discussed.

Keywords: Cancer Patients, Anxiety, Depression, Mental Health Screening, Stress

Introduction

The International Agency for Research on Cancer's GLOBOCAN Project 2012 estimated 37,426 new incidences of cancer and 21,678 cancer mortality in Malaysia, with one in four Malaysians estimated to be diagnosed with cancer before reaching the age of 75 (International Agency for Research on Cancer, 2012a, 2012b). According to the recent Health Facts 2015 published by Ministry of Health (MoH) Malaysia, cancer registered as the top 10 principal causes of hospitalisation and top five principal causes of mortality in both MoH and private hospitals within Malaysia. The significant fact is that cancer has outdistanced heart diseases as one of the top five killers in Malaysia (MoH Malaysia, 2015). According to MoH Malaysia, cancer has contributed 13.02% of deaths in MoH hospitals and 25.53% of deaths in private hospitals across Malaysia (MoH Malaysia, 2015).

Predominantly, cancer related treatments such as chemotherapy, radiotherapy, brachytherapy, and surgery may render patients to various risks including threats of infirmity or even loss of life. Cancer related treatments may also bring various physical side effects to the patient such as nausea, loss of hair, fatigue, diarrhoea, painful bowel movement, loss of appetite, incontinence, reduced saliva and dryness of mouth, painful and trouble swallowing, less interest in sex, and insomnia (Ruhlmann et al., 2015; Sprod et al., 2015). Besides that, some

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drug-specific physical side effects have also been identified in cancer treatments. For example, Gehdoo (2009) has identified the use of chemotherapy drug such as anthracyclines may lead to toxicity that affects the heart, while the use of bleomycin may lead to lung toxicity or lung damage. In view of these, the occurrence of physical side effects from cancer related treatments may potentially exert substantial psychological burden on the patients.

Besides physical side effects of cancer related treatments, cancer patients might also experience various non-physical symptoms. Ruhlmann et al. (2015) studied various side effects associated with chemo-radiotherapy treatment in a multinational cohort of 167 participants of cervical, and head and neck cancer patients from four countries (Denmark, Australia, Normay, and Germany). This study revealed that 'apprehensions about long term side effects', 'worries about going for treatment', 'concerns about the extent and timespan of treatment (chemotherapy)', 'worrisome', and 'concerns about the span of treatment (radiotherapy)' as the five most bothersome non-physical symptoms among cancer patients. The tremendous addition of non-physical symptoms associated with cancer related treatments may have direct impact on the patients' day-to-day living, making it possible that these non-physical symptoms impose substantial stress on the patients.

Physical side effects and non-physical symptoms associated with cancer and cancer related treatments might potentially lead to functional deterioration, which can be damaging to the psychological wellbeing of cancer patients (Sprod et al., 2015). Many studies have exhibited the prevalence of psychological distress such as depression, anxiety, and stress among cancer patients (Clinton-McHarg et al., 2014; Richardson, Morton, & Broadbent, 2016). Psychological distress, when left unattended, may lead to long term detrimental consequences. Incorporating mental health services, including psychological counselling is a vital approach for a complete end-to-end integration in the health care system. The understanding of the prevalence of psychological distress will provide significant information in integrating formal psychological help services into the management of psychological issues that comorbid with chronic diseases such as cancer. This is in line with the WHO goal to develop a collaborative care approach within the health care setting in improving the management of psychological issues that coexist with chronic diseases (WHO, 2014). The objective of the collaborative care approach is to increase the standard of care and quality of life of patients suffering from chronic physical illnesses. Therefore, it is imperative for mental health screening to be carried out among cancer patients so appropriate professional psychological help can be rendered to patients who are showing symptom of psychological distress.

The study intended to identify the prevalence of depression, anxiety, and stress among cancer patients and their psychological wellbeing. And, to observe whether there was gender differences in mean scores of depression, anxiety, and stress among the patients. In order to do that, three hypotheses have been identified which were:

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$H_0{}^a$: There is no significant difference in mean score of depression between genders among
cancer patients in Hospital Kuala Lumpur.

$H_0{}^b$: There is no significant difference in mean score of anxiety between genders among
cancer patients in Hospital Kuala Lumpur.

$H_0{}^c$: There is no significant difference in mean score of stress between genders among
cancer patients in Hospital Kuala Lumpur.

Methodology

In order to examine the prevalence of depression, anxiety, and stress symptoms among cancer patients to depict psychological their wellbeing and the need for mental health screening this research employed the descriptive research methodology. In view of the robust gender influence stated in the literature pertaining to the prevalence of depression, anxiety, and stress (Kalkidan Hassen Abate, 2013; Zhao et al., 2014; Voidermaier et al., 2011), individual exploratory analyses were conducted to ascertain if there is significant difference between genders by using independent sample *t* tests.

Publically available freeware, G-Power Version 3.1.9.2 was used to compute the minimum required sample size for this research. In order to achieve an optimum assessment of the hypotheses, *a priori* power analysis was used to ascertain the number of respondents required for the present research. A minimum sample size of 128 was estimated using the G-Power analysis. This minimum sample size was estimated at statistical significance of 0.05 and statistical power rejecting the null hypothesis at 0.80 with an effect size of .50 for a two-tail analysis. Ary et al. (2010) recommended that a minimum of 75% return rate of questionnaires to be considered adequate to conduct statistical analysis. Taking this into consideration, a target sample size of 252 consisting of 126 male patients and 126 female patients was set. Of these numbers, 120 sets of questionnaires from each gender were found to be completed and usable for the analyses, making the sample size as 240 (n = 240).

The instrument for this study consisted of two parts, (a) demographic information, and (b) the Depression, Anxiety, and Stress Scale (DASS). The demographic section included information about gender, age, race, religion, level of education, profession/occupation, marital status, an indication on whether the respondent has ever been to see a professional counsellor, an indication on the type of counselling received if the respondent has ever seen a counsellor, and the type of cancer treatment undergoing during the survey. DASS is a self-report instrument that has been widely used for assessing the level of depression, anxiety, and stress in adults (Lovibond & Lovibond, 1995). The 21-item DASS containing 21 items has been broadly used in the mental health related researches worldwide (Nur Azma Amin et al., 2014).

DASS has shown sufficient convergent and discriminant validity in it is early development using a student sample (Lovibond & Lovibond, 1995). In Malaysia, the Malay language version of the 21-item DASS which was used in the present research involving a Malaysian population has

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been translated by Ramli Musa, Mohd Ariff Fadzil, and Zaini Zain (2007), where the psychometric properties were studied subsequently with a sample of 263 patients obtained randomly from three government health clinics in the Klang Valley. The instrument reported encouraging factor loading values for most of the items ranging from .39 to .73. The correlations among subscales were between .54 and .68. It was therefore concluded that the 21-item Malay language version of the DASS was accurately and sufficiently translated to the Malay language with high validity.

Results and Findings

The participants were 120 male and 120 female of cancer patients. From the 240 respondents, 50.8% identified themselves as Malay, 34.6% as Chinese, and 14.6% as Indian. Descriptive and inferential statistical analyses were performed on the data to answer the relevant research questions.

Level of Depression, Anxiety and Stress between Genders

The present research on male cancer patients in the Department of Radiotherapy and Oncology, Hospital Kuala Lumpur recorded 16.7% mild symptom of depression, 8.3% moderate symptom of depression, and both 2.5% each for severe and extremely severe symptom of depression. The findings also indicate that majority of male patients (70.0%) are in the normal range. This shows a 30.0% prevalence rate of depressive symptoms among 20 male patients.

On the other hand, female patients recorded a higher rate of depressive symptoms with a prevalence rate of 53.3%. Only 46.7% of them were in the normal range. The findings also indicated that female patients experienced symptoms of depression with 15.0% reported mild depressive symptom, 35.8% moderate, 1.7% severe, and 0.8% extremely severe. Female patients recorded the highest number in the moderate depressive symptom range with 43 patients. Results are shown in Table 4.1.

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Table 4.1: Level of Depression, Anxiety and Stress between Genders

Gender	Level	Depression		Anxiety		Stress	
		Frequency	Percentage (%)	Frequency	Percentage (%)	Frequency	Percentage (%)
Male	Normal	84	70.0	67	55.8	90	75.0
	Mild	20	16.7	14	11.7	19	15.8
	Moderate	10	8.3	29	24.2	7	5.8
	Severe	3	2.5	6	5.0	4	3.4
	Extremely Severe	3	2.5	4	3.3	0	0.0
	Total	**120**	**100.0**	**120**	**100.0**	**120**	**100.0**
Female	Normal	56	46.7	41	34.2	67	55.8
	Mild	18	15.0	29	24.2	9	7.5
	Moderate	43	35.8	38	31.6	40	33.3
	Severe	2	1.7	6	5.0	4	3.4
	Extremely Severe	1	0.8	6	5.0	0	0.0
	Total	**120**	**100.0**	**120**	**100.0**	**120**	**100.0**

The level of anxiety between genders revealed that majority of male patients did not show symptoms of anxiety, with more than half found to be in the normal range (55.8%). A total of 44.2% of the male patients reported symptoms of anxiety with 11.7% experiencing mild, 24.2% moderate, 5.0% severe, and 3.3% extremely severe, respectively. The prevalence rate of anxiety symptoms in male participants were recorded at 44.2%.

On the other hand, female patients recorded higher prevalence rate (65.8%) of anxiety symptoms. Only 34.2% of the female participants were in the normal range, followed by 31.6% and 24.2% in the moderate and mild ranges. About 5.0% were in the severe and extremely severe ranges. The findings indicated that there is a huge difference between the prevalence of anxiety symptoms between male and female patients, with the prevalence rate among female participants recorded higher by 21.6%.

The levels of stress between genders show that the majority of male patients (75.0%) are in the normal range. Only 25.0% experienced stress symptoms with 15.8% reported a mild level of

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stress followed by moderate (5.8%), and severe (3.4%). No male participant reported having extremely severe stress symptoms.

As for the prevalence of stress symptoms, female patients showed higher level of stress compared to male patients. About 55.8% of female participants were in the normal range compared to 75.0% of male. Majority of female participants reported experiencing moderate (33.3%), mild (7.5%) and severe level (3.4%) of stress symptoms respectively. No female patient is having extremely severe level of stress.

In term of hypothesis testing, all the three null hypotheses are rejected. The relevant results are shown in Table 4.2. Result for the first hypothesis indicated that there is a significant difference in mean scores of depression between genders among cancer patients, t (238) = -2.162, $p < .05$. Female cancer patients in Hospital Kuala Lumpur have significantly higher mean score of depression than male.

As for the second hypothesis, result shows significant difference in mean scores of anxiety between genders. A significant result is indicated by t (238) = -2.198, $p < .05$. Female rather than male cancer patients reported significantly higher mean score of anxiety symptoms.

Table 4.2: Independent Samples t test for Means Difference between Genders for DASS Depression

Depression Scores

Gender	N	Mean	SD	df	t	p
Male	120	4.13	3.266	238	-2.162	.032 *
Female	120	5.13	3.928			

Anxiety Scores

Gender	N	Mean	SD	df	t	p
Male	120	4.35	2.441	238	-2.198	.029 *
Female	120	5.08	2.664			

Stress Scores

Gender	N	Mean	SD	df	t	p
Male	120	5.75	3.104	238	-2.158	.032 *
Female	120	6.79	4.280			

Note: * significant at the .05 level (2-tailed)

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In testing for the third hypothesis, the result revealed a significant difference in mean score of stress between genders among cancer patients, indicated by t (238) = -2.158, p < .05. Therefore, the null hypothesis (H_0^g) was rejected. Female cancer patients in Hospital Kuala Lumpur have significantly higher mean score of stress.

Discussions, Implications and Recommendations
In the present study, 30.0% of male and 53.3% of female cancer patients showed symptoms of depression. These findings are almost consistent with the prevalence of depression noted in the clinical settings which ranges from 3.9% to 46.6%, and the prevalence of depression in cancer patients in Pakistan's Multan Institute of Nuclear Medicine and Radiotherapy (MINAR), and Nishtar Medical College Hospital (NCMH), where a prevalence rate of 66.0% was recorded (Firdaus Mukhtar & Oei, 2011; Nauman A Jadoon et al., 2010). These findings further reaffirmed that depression is more common among female than male patients. The significant difference between male and female patients may cause females to develop negative emotions than males when they are suffering from physical health condition and needing more emotional support (Clarke et al., 2006).

Anxiety recorded the higest prevalence rate among the three psychological distress studied in the present research. Male participants recorded a total of 44.2% prevalence rate of anxiety symptoms and 65.8% among the female patients. The level of anxiety recorded was relatively higher than previous studies, which reported the prevalence rate ranging from 19.0% to 22.4% (Voidermaier et al., 2010; Linden et al., 2012). The higher prevalence rate of anxiety found may due to patients preferences and satisfaction with information provided with regard to cancer related treatment. As cancer related treatments may bring various side effects, appropriate communication of information, of the associated risks and side effects are essential in lowering the level of anxiety (Liénard et al., 2006).

There is a significant difference found in the mean score of anxiety between genders among cancer patients in the present study. This finding is coherent with the finding of other researches within the population of cancer patients in the United Kingdom (Vodermaier et al., 2011; Linden et al., 2012), Pakistan (Yasmin Nilofer Farooqi & Sidra Ahsan, 2009), and Turkey (Alacacioglu et al., 2013). Married women recorded higher anxiety scores than women of other types of marital status, which may due to worries associated with the needs to provide for family care (Moe, 2012). This may be the case as 75.8% of the female patients participated in the current research are married women.

Cancer patients in this study recorded the lowest prevalence rate of stress. The prevalence rate recorded for male participants is 25.0%, while female patients recorded 44.2%. The prevalence rate of stress recorded was relatively comparable to the rate found in Liu et al. (2015). Apprehension with the identification of psychological symptoms is accentuated by the association between stress and cancer-related symptoms with prevalence rate ranging from 15.2% to 39.3% (Thekdi et al., 2015). Similar to the symptoms of depression and anxiety, there

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is a significant difference found in the mean score of stress between genders among cancer patients. This finding is consistent with findings from various studies, which investigated the occurrence of psychological distress between genders (Sehlen et al., 2003; Wang, Liu, & Wang, 2014; Liu et al., 2015).

One of the accompanying challenges related to the identification of psychological distress in cancer patients is that it is frequently intertwined with other types of psychological distress such as anxiety with depression, stress, and negative thoughts (Kolva et al., 2011). The occurrence of comorbid symptoms of psychological distress has caused the identification of a variegated psychological distress phenotype in cancer patients. These findings demonstrate the multifaceted relationship between psychological distresses and the complexities in investigating psychological distress among cancer patients.

Results of the present research highlighted an important finding pertaining to the high prevalence rate of psychological distress symptoms among cancer patients. It is therefore recommended that routine mental health screening be carried out as part of the regular standard of care for cancer patients. The screenings serve as a basis of reference for the oncology department in the implementation of psychological interventions to meet the needs of the patients. The routine screenings would also ensure cancer patients showing symptom of psychological distress are attended to with the appropriate psychological help. As unattended psychological distress and cognitive deficiency may bring long term mental and medical damaging effects to patients, proper solutions need to be developed to address the lack of interest in psychological counselling services among patients with symptoms of psychological distress.

This study delivers some practical preliminary information about psychological distress among cancer patients in the oncology health care setting. However, numerous questions remain unanswered pertaining to the predictors of attitudes toward seeking psychological help among cancer patients. Therefore, it is recommended that further studies be conducted in the following areas: (1) understanding the psychosocial needs of patients who may be showing symptom of psychological distress but skeptical about accessing psychological help services; (2) underlying factors contributing to the possible obstacles to patients in accessing psychological help; and (3) the efficacy of psychological intervention programmes in meeting the needs of specific group of patients, such as men, patients with specific type of cancer, and patients with diverse levels of education. In a nutshell, future studies should examine the practicality, effectiveness and cost-efficiency of establishing appropriate intervention arrangements that can address the distress and promote psychological help seeking attitude among cancer patients at the start of cancer treatment, and more generally, all along the process of care.

Conclusion
Approximately 41.7% of cancer patients in the Department of Radiotherapy and Oncology, Hospital Kuala Lumpur reported symptoms of depression, 55.0% on anxiety, and 34.6% on

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stress. The prevalence of psychological distress among cancer patients indicates the need for psychological help among patients showing symptom of psychological distress such as depression, anxiety, and/or stress. Early referral of patients suffering from psychological distress, and provision of psychological support may help address psychological needs among cancer patients, which may have significant contribution to their overall wellbeing and quality of life.

References
Alacacioglu, A., Tarhan, O., Alacacioglu, I., Dirican, A., & Yilmaz, U. (2013). Depression and anxiety in cancer patients and their relatives. *JBUON*, *18*(3), 767-774. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/24065497

Ary, D., Jacobs, L. C., Razavieh, A., & Sorensen, C. (2010). *Introduction to research in education* (8th ed.). California: Thomson Wadsworth.

Brown, T. A., Chorpita, B. F., Korotitsch, W., & Barlow, D. H. (1997). Psychometric properties of the depression anxiety stress scales (DASS) in clinical samples. *Behaviour Research and Therapy*, *35*(1), 79-89.

Clarke, S. A., Booth, L., Velikova, G., & Hewison, J. (2006). Social support: Gender differences in cancer patients in the United Kingdom. *Cancer Nursing*, *29*(1), 66-72. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/16557124

Clinton-McHarg, T., Carey, M., Sanson-Fisher, R., Tzelepis, F., Bryant, J., & Williamson, A. (2014). Anxiety and depression among haematological cancer patients attending treatment centres: prevalence and predictors. *Journal of Affective Disorders*, *165*, 176-181. doi: dx.doi.org/10.1016/j.jad.2014.04.072

Firdaus Mukhtar, & Oei, T. P. S. (2011). A review on the prevalence of depression in Malaysia. *Current Psychiatry Reviews*, *7*(3), 1-5.

Gehdoo, R. P. (2009). Anticancer chemotherapy and it's anaesthetic implications (current concepts). *Indian Journal of Anaesthesia*. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2900029/

Hund, B., Reuter, K., Harter, M., Brahler, E., Faller, H., Keller, M., Schulz, H., Wegscheider, K., Weis, J., Wittchen, H., Koch, U., Friedrich, M., & Mehnert, A. (2016). Stressors, symptom profile, and predictors of adjustment disorder in cancer patients: Results from an

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ISSN: 2222-6990

epidemiological study with the composite international diagnostic interview, adaptation for oncology (CIDI-O). *Depression and Anxiety*, *33*(2), 153-161. doi: 10.1002/da.22441

International Agency for Research on Cancer. (2012a). *GLOBOCAN 2012 – Malaysia (2012) estimated cancer incidence, all ages: both sexes*. Retrieved from http://globocan.iarc.fr/old/summary_table_pop-html.asp?selectio…alaysia&sex=0&type=0&window=1&sort=0&submit=%C2%A0Execute%C2%A0

International Agency for Research on Cancer. (2012b). *GLOBOCAN 2012 – Malaysia (2012) estimated cancer mortality, all ages: both sexes*. Retrieved from http://globocan.iarc.fr/old/summary_table_pop-html.asp?selectio…alaysia&sex=0&type=1&window=1&sort=0&submit=%C2%A0Execute%C2%A0

Kalkidan Hassen Abate. (2013). Gender disparity in prevalence of depression among patient population: a systematic review. *Ethiopian Journal of Health Sciences*, *23*(3), 283-288. doi: 10.4314/ejhs.v23i3.11

Kessler, R., McGonagle, K., Swartz, M., Blazer, D., & Nelson, C. (1993). Sex and depression in the National Comorbidity Survey I: Lifetime prevalence, chronicity and recurrence. *Journal of Affect Disorder*, *29*, 85-96.

Knudsen, A. K., Berge, L. I., Skogen, J. C., Veddegjærde, K., & Wilhelmsen, I. (2015). The prospective association between health anxiety and cancer detection: A cohort study linking the Hordaland Health Study (HUSK) with the Norwegian Cancer Registry. *Journal of Psychosomatic Research*, *79*, 148-152. doi: 10.1016/j.jpsychores.2015.03.002

Kolva, E., Rosenfeld, B., Pessin, H., Breitbart, W., & Brescia, R. (2011). Anxiety in terminally ill cancer patients. *Journal of Pain and Symptom Management*, *42*(5), 691-701. doi: 10.1016/j.jpainsymman.2011.01.013

Liénard, A., Merckaert, I., Libert, Y., Delvaux, N., Marchal, S., Boniver, J., Etienne, A.-M., Klastersky, J., Reynaert, C., Scalliet, P., Slachmuylder, J.-L., & Razavi, D. (2006). Factors that influence cancer patients' anxiety following a medical consultation: Impact of a communication skills training programme for physicians. *Annals of Oncology*, *17*, 1450-1458. doi: 10.1093/annonc/mdl142

Linden, W., Vodermaier, A., MacKenzie, R., & Greig, D. (2012). Anxiety and depression after cancer diagnosis: prevalence rates by cancer type, gender, and age. *Journal of Affective Disorders*, *141*, 343-351. doi: 10.1016/j.jad.2012.03.025

Liu, L., Yang, Y., Wang, Z., Wu, H., Wang, Y., & Wang, L. (2015). Prevalence and positive correlates of posttraumatic stress disorder symptoms among Chinese patients with hematological malignancies: A cross-sectional study. *PLOS ONE*, *10*(12), 1-15. doi: 10.1371/journal.pone.0145103

Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy*, *33*, 335-342.

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ISSN: 2222-6990

Matloob Ahmed Khan, & Muzamil Ahmad. (2014). Gender differences in stress and social support among Kashmiri cancer patients. *Indian Journal of Positive Psychology*, *5*(4), 484-487.

Merckaert, I., Libert, Y., Messin, S., Milani, M., Slachmuylder, J. L., & Razavi, D. (2010). Cancer patients' desire for psychological support: Prevalence and implications for screening patients' psychological needs. *Psycho-Oncology*, *19*, 141-149. doi: 10.1002/pon.1568

Ministry of Health Malaysia. (2015). *Health Facts 2015*. Retrieved from http://www.moh.gov.my/index.php/file_manager/dl_item/554756755a584a696158526 8626939515a57356c636d4a70644746675494656305957731684c305a6861335268684774 6c63326c

Moe, K. (2012). *Factors influencing women's psychological well-being within a positive functioning framework.* (Doctoral dissertation). Retrieve from http://uknowledge.uky.edu/edp_etds/3

National Comprehensive Cancer Network. (1999). NCCN practice guidelines for the management of psychosocial distress. *Oncology (Huntingt), 13*, 113-147.

Nauman A Jadoon, Waqar Munir, Mohammad A Shahzad, & Zeshan S Choudhry (2010). Assessment of depression and anxiety in adult cancer outpatients: a cross-sectional study. *BMC Cancer, 10*(594), 1-7. Retrieved from http://www.biomedcentral.com/1471-2407/10/594

Nur Azma Amin, Rusli Nordin, Quek, K. F., & Rahim Mohd. Noah. (2014). Psychometric properties of the Malay version of the Depression Anxiety Stress Scale-21 (M-DASS21) among nurses in public hospitals in the Klang Valley. *International Journal of Collaborative Research on Internal Medicine & Public Health*, *6*(5), 109-120.

O'Connor, M., White, K., Kristjanson, L. J., Cousins, K., & Wilkes, L. (2010). The prevalence of anxiety and depression in palliative care patients with cancer in Western Australia and New South Wales. *Medical Journal of Australia*, *193*(5), S44-S47.

Ramli Musa, Mohd Ariff Fadzil, & Zaini Zain. (2007). Translation, validation and psychometric properties of Bahasa Malaysia version of the Depression Anxiety and Stress Scales (DASS). *ASEAN Journal of Psychiatry*, *8*(2), 82-89.

Richardson, A. E., Morton, R. P., & Broadbent, E. (2016). Coping strategies predict post-traumatic stress in patients with head and neck cancer. *European Archives of Otorhinolaryngoly*, *2*(1), 1-7. doi: 10.1007/s00405-016-3960-2

Ruhlmann, C. H., Iversen, T. Z., Okera, M., Muhic, A., Kristensen, G., Feyer, P., Hansen, O., & Herrstedt, J. (2015). Multinational study exploring patients' perceptions of side-effects induced by chemo-radiotherapy. *Radiotherapy and Oncology*, *117*, 333-337. doi: dx.doi.org/10.1016/j.radonc.2015.09.014

Sehlen, S., Hollenhorst, H., Schymura, B., Herschbach, P., Aydemir, U., Firsching, M., & Dühmke, E. (2003). Psychosocial stress in cancer patients during and after radiotherapy. *Strahlenther Onkol*, *3*, 175-180. doi: 10.1007/s00066-003-1018-z

Sprod, L. K., Fernandez, I. D., Janelsins, M. C., Peppone, L. J., Atkins, J. N., Giguere, J., Block, R., & Mustian, K. M. (2015). Effects of yoga on cancer-related fatigue and global side-effect

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ISSN: 2222-6990

burden in older cancer survivors. *Journal of Geriatric Oncology*, *6*, 8-14. doi: dx.doi.org/10.1016/j.jgo.2014.09.184

Thekdi, S. M, Milbury, K., Spelman, A., Wei, Q., Wood, C., Matin, S. F., Tannir, N., Jonasch, E., Pisters, L., & Cohen, L. (2011). Posttraumatic stress and depressive symptoms in renal cell carcinoma: association with quality of life and utility of single-item distress screening. *Psycho-Oncology*, *24*, 1477-1484. doi: 10.1002/pon.3758

Vodermaier, A., Linden, W., MacKenzie, R., Greig, D., & Marshall, C. (2011). Disease stage predicts post-diagnosis anxiety and depression only in some types of cancer. *British Journal of Cancer*, *105*, 1814-1817. doi: 10.1038/bjc.2011.503

Wang, K., Liu, X., & Wang, L. (2014). Age and gender differences in the association between serious psychological distress and cancer: Findings from the 2003, 2005, and 2007 Health Information National Trends Surveys (HINTS). *American Journals of Cancer Science*, *3*(1), 54-66. Retrieved from http://ivyunion.org/index.php/ajcs/

Weissman, M., Bland, R., Joyce, P., Newman, S., Wells, J., & Wittchen, H. (1993). Sex differences in rates of depression: Cross-national perspectives. *Journal of Affect Disorder*, *29*, 77–84.

World Health Organization. (2014). *Integrating the response to mental disorders and other chronic diseases in health care systems*. Retrieved from http://apps.who.int/iris/bitstream/10665/112830/1/9789241506793_eng.pdf

Yasmin Nilofer Farooqi, & Sidra Ahsan. (2009). Gender differences in anxiety and depression among Pakistani cancer patients. *Journal of the Research Society of Pakistan*, *46*(2), 1-5.

Zhao, L., Li, X., Zhang, Z., Song, C., Guo, C., Zhang, Y., Zhang, Y., Li, L., Lu, G., Zheng, G., Wang, K., Pei, W., & Han, L. (2014). Prevalence, correlates and recognition of depression in Chinese inpatients with cancer. *General Hospital Psychiatry*, *36*, 477-482. doi: http://dx.doi.org/10.1016/j.genhosppsych.2014.05.005