Anxiety and Depressive Symptoms and Coping Strategies in Nasopharyngeal Carcinoma Patients in Hospital Kuala Lumpur

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ABSTRACT

Introduction: Nasopharyngeal Carcinoma (NPC) is the second most common cancer among men in Malaysia. Establishing local data will help to improve the treatment strategies and lower the anxiety and depression level among NPC patients. Our aim was to compare the level of symptoms of anxiety and depression and the coping strategies employed between NPC and cancer-free patients. **Methods:** A comparative cross-sectional study with universal sampling was conducted on 22 NPC patients and 30 cancer-free patients from the Oncology and Radiotherapy Department and Ear, Nose and Throat clinic of Hospital Kuala Lumpur (HKL) between 12 to 29 May 2008. In this study, the symptoms of depression and anxiety were obtained by using the Hospital Anxiety and Depression Scale (HADS) while Brief COPE questionnaire was used to understand patients' coping strategies. **Results:** The prevalence of NPC was higher in the Chinese, men, aged between 40 and 59 years, and those from the lower income group. The levels of anxiety and depression symptoms were found to be higher in the NPC group as compared to the cancer-free group. However, only the level of depression was found significantly related to the NPC group (p=0.002). This study also found that the two comparison groups were using different types of coping strategies. The NPC patients mainly used 'acceptance' as their coping strategy while the comparative group most often used 'religion'. Among the types of coping strategies reported by the patients, 'use of instrumental support' type was found to be associated with a lower level of anxiety (p = 0.035) and 'humour' type was associated with lower depressive symptoms (p = 0.269). On the contrary, 'self-blame' type was associated with both anxiety (p =0.0001) and depression (p = 0.001) symptoms. In addition, patients with different gender, ethnicity, educational levels, and monthly income were also found to have significant differences in their levels of anxiety and depression as well as type of coping strategies. **Conclusions:** NPC patients had higher anxiety and depression levels as compared to the comparative group. Different socio-demographic backgrounds and different types of coping strategies had an influence on patients resulting in different levels of anxiety and depression.

Keywords: Anxiety, coping strategies, depression, nasopharyngeal carcinoma

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INTRODUCTION

Nasopharyngeal carcinoma (NPC) is a malignant cancer that arises from the surface epithelium of the nasopharynx.[1] It is a rare cancer in Western society, but the incidence is higher in China, Southeast Asia, the Arctic and Africa.[2] In Malaysia, NPC has been reported to be the second most common cancer among men, constituting 8.8% of all types of cancers affecting men and it is more common among the Chinese men as compared to the Malay and the Indian men. [3]

Cancer patients usually face more psychological problem compared to other patients. The diagnosis of having cancer in itself is an earthshaking event. This is followed by lack of patients' personal control over the current treatment method and uncertainty of its outcome. The conflicting treatment modes and the debilitating nature of cancer treatments also contribute to the most common emotional problems in all cancer patients.[4,5.6] A previous study found that 47% of cancer patients met the criteria for psychiatric diagnosis.[7] Its prevalence varies greatly among studies ranging from 9% to 60%.[8,9,10,11]

Depression and anxiety is very high among cancer patients; yet no one has studied the prevalence of anxiety among NPC patients in Malaysia. By doing a local study of anxiety and depression in NPC patients, it is hoped that it will help to improve the treatment strategies and the quality of life in NPC patients. A study using the Hospital Anxiety and Depression Scale(HADS) has shown that 11.8% of the cancer patients had anxiety and 20.2% had depression.[12] Another similar study also reported that 51.2% of NPC patients were anxious and 44.2% were depressed.[13]

The objectives of this study were to determine symptoms of anxiety and depression, the most common coping strategies used and the levels of anxiety and depression between NPC group and a comparative group who did not have cancer. We also determined the association between anxiety and depression levels and the associated coping strategies used by both groups as well as compared the different coping strategies used by different socio-demographic groups.

METHODS

Study Design

This comparative cross-sectional study was conducted at the Radiotherapy and Oncology Department and Ear, Nose and Throat (ENT) Department in Hospital Kuala Lumpur (HKL) from 12- 29 May 2008. Hospital Kuala Lumpur is the tertiary referral centre of ENT cancer cases for Malaysia. Study objectives were explained and informed consent was obtained from the subjects before their participation in the study.

Study Population

The study population consisted of all confirmed Nasopharyngeal Carcinoma (NPC) patients and all NPC-free patients who attended the ENT clinic during the period of study. The cases in the study were all confirmed NPC cases who had been admitted to the Oncology ward of Hospital Kuala Lumpur while the comparative group was patients who attended the ENT

clinic for conditions other than NPC cancer. The subjects were recruited using universal sampling method whereby all subjects who fulfilled inclusion and exclusion criteria and were willing to give informed consent during the study period were included. The inclusion criteria were Malaysians aged between 18 and 65 years and who had been diagnosed with NPC (cases) or attended ENT clinic of HKL for conditions other than NPC (comparative group). Those with severe mental illness, could not understand Malay or English language, or with symptoms of mental retardation were excluded from the study. The calculated sample size that was required to test the hypothesis in the study was twenty-one for the cases and comparative group.

Measurements

There were two versions to the questionnaire, Malay and English each with three sections. The first section called for socio-demographic data which consisted of personal information and related medical information that the subjects had to fill out; the second section was the Hospital Anxiety and Depression Scale (HADS) and the third section was the brief COPE questionnaire.

The HADS, designed by Zigmond & Snaith [14] was used to assess levels of anxiety and depression (possible ranges from 0 to 21; higher scores on this scale denote more anxious and depressive symptoms). It was translated into Bahasa Melayu for local use and validated in 1995.[15] This instrument does not diagnose the patients as having anxiety disorder or major depressive disorder. It merely measures the levels of anxiety and depressive symptoms.

The brief COPE questionnaire was used for assessing coping strategies. This scale was proposed to assess a broad scope of coping behaviour among adults for all conditions. The scale is rated by a four-point likert scale and comprises 28 items, ranging from "I haven't been doing this at all" (score one) to "I have been doing this a lot" (score four). The higher score represents greater coping strategies by the respondents.[16,17]

In total, this scale puts forward 14 dimensions . They are self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioural disengagement, venting, positive reframing, planning, humour, acceptance, religion and self-blame. It was translated into Bahasa Melayu[18] for local use and validated in early 2009.

Procedures

The aims of the study were explained to the patients and consent was ontained from the patients. On receiving consent to participate in the study, the procedure of administration of questionnaire was explained prior to the patients answering the questionnaire. If necessary, patients were asked to complete the questionnaire with guidance. Structured interviewing was applied in the cases where the respondents were illiterate. In the event that any subject was found to have scored high levels of depressive symptoms, the doctor in-charge of the individual would be notified to facilitate referral to a psychiatrist.

Ethical approval for the study was obtained from the Research Ethics Committee of Ministry of Health and Universiti Putra Malaysia.

Statistical Analysis

Data collected was analysed using the Statistical Package for Social Sciences (SPSS) version 16 for processing and analysis. Descriptive analysis was used to ascertain anxiety, depression and most common coping strategies. Correlation was used to see the relationship between anxiety and depression levels among NPC and comparative group as well as the relationship between anxiety and depression level with different types of coping strategies.

Independent *t*-test was used to detect differences in anxiety and depression scores between NPC and comparative group. For the detection of relationship between socio-demographic data with the level of anxiety, depression, and different coping strategies, one-way ANOVA was used. A *p*-value of less than 0.05 was taken as statistically significant.

RESULTS

A total of 26 NPC patients and 35 ENT patients were approached during the study period but only 22 NPC patients and 30 from the comparative group consented to participate in the study. The majority of NPC patients (72.7%) were from the age group of 40-59 years while in the comparative group, half of the respondents were from the 40-59 years and another 46.7% were in the 20-39 years age group. NPC had a higher number of cases who were male, Chinese, aged between 40 and 59, and those with a lower income and educational level (Table 1). The levels of anxiety and depression were higher in the NPC group, but depression was more associated with NPC patients (p = 0.002) (Table 2).

When looking at socio-demographic association in the NPC group, Chinese patients were associated with more depression (p = 0.027), the lower income group was associated with higher anxiety (p = 0.001) while the lower educational level was associated with both higher anxiety (p =0.046) and depression (p = 0.007) (Table 3).

Both groups used different types of coping strategies: the NPC group used acceptance most (6.78 ± 1.51) while the comparative group used religion most (6.67 ± 1.57) (Table 4). The coping strategy of 'use of instrumental support' was associated with lower anxiety (p= 0.035); 'humour' associated with lower depression (p = 0.269) while 'self-blame' was associated with both higher anxiety (p= 0.0001) and depression (p = 0.001) in the NPC group. (Table 5).

Coping strategies were also associated with different socio-demographic groups in NPC patients. Self-distraction (p=0.048), denial (p=0.002), and venting (p=0.005) were associated with female patients. The Chinese were least related to humour (p=0.005) while the lower monthly income group was associated with self-blame (p=0.030) (Table 6).

DISCUSSION

In this study, most of the patients diagnosed with having nasopharyngeal carcinoma were in the age group of 40-59 years old, male, and predominantly Chinese (50.0%), followed by Malay (40.9%) and other ethnic groups (9.1%). It was found to be consistent with the pattern of socio-demographic distribution as stated in the second report of the Malaysian National Cancer Registry[3] and another study done by Prasad *et al* [19] in Peninsular Malaysia. The study reported that the patients from low socio-economic group had higher incidence

Table 1. Socio-demographic characteristics and illness background of the respondents

Variables	NPC (n=22) Frequency (%)	Comparative group (n=30) Frequency (%)
Age Group		
≤19	0 (0.0)	0 (0.0)
20 – 39	4 (18.2)	14 (46.7)
40 – 59	16 (72.7)	15 (50.0)
≥60	2 (9.1)	1 (3.3)
Gender		
Male	16 (72.7)	16 (53.3)
Female	6 (27.3)	14 (46.7)
Ethnicity		
Malay	9 (40.9)	23 (76.6)
Chinese	11 (50.0)	4 (13.3)
Indian	0 (0.0)	2 (6.7)
Others	2 (9.1)	1 (3.3)
Marital Status		
Single	5 (22.7)	6 (20.0)
Married	16 (72.7)	23 (76.6)
Others	1 (4.1)	1 (3.3)
Monthly Income		
<1000	12 (54.5)	8 (26.7)
1000 – 1999	5 (22.7)	13 (43.3)
2000 – 2999	5 (22.7)	4 (13.3)
>3000	0 (0.0)	5 (16.7)
Education level		
None	7 (31.8)	0 (0.0)
Primary	10 (45.5)	2 (6.7)
Secondary	3 (13.6)	20 (66.7)
Tertiary	2 (9.1)	8 (26.7)
Treatment status		
No treatment	1 (4.5)	3 (10.0)
Ongoing	17 (77.3)	26 (86.7)
Finished	4 (18.2)	0 (0.0)

of NPC compared to moderate and high socio-economic group.[20] This result is also consistent with the study conducted by Yu *et al.* [21] and Sriampon *et al.* [22]

Our study has also demonstrated that the proportion of anxiety symptoms is much higher than depression symptoms in the lower income group of the NPC. The same pattern was reported in a previous study, that is, cancer patients are more anxious than depressed.[8] However, different findings have been reported from a study in Taiwan where cancer patients were found to be more depressed than anxious.[23]

Table 2. Differences of anxiety and depression level between NPC and comparative group

Variables		t-statistic	P-value
Anxiety	NPC Patients	0.64	0.525
	Comparative Group		
Depression	NPC Patients	3.32	0.002
	Comparative Group		

*Level of significance set at 0.05

Table 3. Relationship between socio-demographic characteristics with anxiety and depression level among NPC patients

Variables	Anxiety level P-value	Depression level P-value
Gender		
Male	0.877	0.330
Female		
Marital status		
Single	0.068	0.709
Married		
Ethnicity		
Malay		
Chinese	0.232	0.027*
Others		
Monthly income (RM)		
<1000	0.001*	0.304
1000 – 1999		
2000 – 2999		
Educational level		
None		
Primary	0.046*	0.007*
Secondary		
Tertiary		

*Level of significance set at 0.05

Table 4. Coping strategies employed among NPC patients and comparative group

Coping strategies	NPC cases	Comparative group
Acceptance	6.78 ± 1.51*	5.94 ± 1.71
Religion	6.55 ± 2.16	6.67 ± 1.57*

Note: Data is expressed as mean ± SD * $p<0.05$

Table 5. Correlation between anxiety, depression, and different coping strategies among NPC patients

Coping strategies	Anxiety	Depression
Use of instrumental support	p = 0.035* r = -0.451	p= 0.703 r = 0.086
Humour	p = 0.269 r = 0.247	p = 0.002* r = - 0.619
Self-blame	p= 0.000* r = 0.724	p= 0.001* r= 0.677

*Level of significance set at 0.05

Table 6. Relationship between coping strategies and socio-demographic profiles among NPC patients

Variables	Coping strategies				
	Self-distraction	Denial	Venting	Humour	Self-blame
Gender Male Female	0.048*	0.002*	0.005*		
Ethnicity Malay Chinese Others				0.005*	
Monthly Income (RM) <1000 1000 – 1999 2000 – 2999					0.030*

*Level of significance set at 0.05

In this study, depressive symptoms were significantly related to the NPC group but not anxiety symptoms. This result is supported by the finding of a study by Davies *et al.* which found that head and neck cancer patients are more depressed but the anxiety level was almost similar.[24] Besides, there was a correlation between anxiety and depression level in NPC group. This is explained by the findings in a study on the care of psychiatric patients, which states that anxiety and depression tend to occur together as both reflect psychological distress. The fact that anxiety and depression may be one of the most common psychological presentations explain why NPC patients would be highly distressed.[25] Our study showed that the Chinese are more depressed than other ethnic groups. However, no supporting studies have been done in the past. As for the education levels, this study showed that the

lower the educational level, the higher the depressive symptoms. A previous study indicates that a person with less than 9 years of education would be more psychologically distressed than the person with higher education.[26] Therefore,a better education would probably predispose a patient to better physical and psychological adaptation.[27]

Patients with a lower monthly income have been reported to be more anxious. This is supported by the fact that people with a lower income will have more co-morbidity burden that will affect psychological adjustment.[28] Gender, marital status, duration of disease and status of treatment did not have a significant association with the anxiety and depression levels. However, there are studies that report different results. Female patients have been found to be more anxious, but there is no gender influence on the depression level.[8] Being a bachelor, divorced or widowed have been identified as a predictive factor of psychological distress.[26]

Our study showed that NPC group and comparative group tend to use different coping strategies. The NPC group tends to use more acceptance coping. This may be influenced by the fact that the Chinese patients used more acceptance as their coping strategies, as the majority of the NPC patients are Chinese. In a comparative group, they tend to use religion as their coping strategy. This may be affected by the fact that most of the comparative group are Malays. The least used coping strategies were substance use and behavioural disengagement in both groups. Similar results have been obtained in a study by Wang *et al*.[29] The present study reported that the use of instrumental support is linked to lower anxiety levels. This result is supported by a study on women suspected of having breast cancer which showed that the use of instrumental support was strongly negatively related to anxiety level.[30]

Self-blame coping strategy was strongly, significantly and positively correlated with anxiety level and depression level. This finding is supported by a study which states that patients using self-blaming coping strategies were being negative about themselves which in turn influenced the self-esteem of the patients. Lower self-esteem will lead to perceived psychological distress.[29]

The coping strategy of humour is moderately, significantly and negatively correlated with depression. This may be true as humour is considered to be one of the therapeutic approaches for depression.[31] The sense of humour of one patient can be a predictor to the patient's level of depression at follow up.[32]

In this study, self-distraction, denial, and venting were related to female rather than male patients. This may be true, as females will always express their feelings more than males do during data collection. However, males used acceptance most while females used religion most. Humour was reported to be associated with ethnicity, with Chinese using them least. Contrary to this, List *et al* [33]found that ethnic group is not significantly correlated with the coping strategies used. Self-blame is associated with the lower income group which is explained by higher anxiety in the lower income group, as self-blame is related to higher anxiety and depression levels.

CONCLUSION

Socio-demographic distribution of NPC was consistent with previous reports. NPC patients have higher depression and anxiety symptoms and the coping strategies employed can reflect the level of anxiety and depression. Socio-demographic data also influenced the use of coping strategies and thereby influenced the levels of anxiety and depression.

LIMITATIONS

This was a single-institutional study and the sample size was small. Thus the result of this study cannot be generalised to the Malaysian population. A more systematically and randomly selected sampling method should have been applied. Besides, the questionnaires used are only available in Malay and English. Thus, much clarification from the investigators to some of the Chinese respondents may affect their responses to the questions.

REFERENCES

[1] Kumar V, Cotran RS, Robbins SL. Robbins Basic Pathology (7th ed). Philadelphia: Saunders, 2003.

[2] Chang ET, Adami HO. The enigmatic epidemiology of nasopharyngeal carcinoma. Cancer. Epidemiol Biomarkers & Prevention 2006; 15: 1765–1777.

[3] National Cancer Registry (NCR) Malaysia. Second Report of The National Cancer Registry, Cancer Incidence in Malaysia, 2003.

[4] Heather SJ, Susan AR, Deanna MG, Barbara LA. Strategies used in coping with a cancer diagnosis predict meaning in life for survivors. Hlth Psychol 2006; 25(6): 753–761.

[5] Senescus RA. The development of emotional complications in patients with cancer. J Chronic Dis 1963; 16: 813–832.

[6] Silberfarb PM. Psychiatric problems in breast cancer. Cancer 1984; 53:820–824.

[7] Derogatis LR, Morrow GR, Fetting J *et al*. The prevalence of psychiatric disorders among cancer patients. J Am Med Assoc 1983; 249(6): 751–7.

[8] Aass N, Fossa SD, Dahl AA, Moe TJ. Prevalence of anxiety and depression in cancer patients seen at the Norwegian Radium Hospital. European J Cancer 1997; 33:1597–1604

[9] Montazeri A, Milroy R, Hole D, McEwean J, Gills CR. Anxiety and depression in patients with lung cancer before and after diagnosis: findings from a population in Glasgow, Scotland. J Epidemiol Comm Hlth 1998; 52**:**203–204.

[10] Costantin M, Musso M, Viterboli P. Detecting psychological distress in cancer patients: Validity of the Italian version of the Hospital Anxiety and Depression Scale**.** Support Care Cancer 1999; 7**:**121–127.

[11] Azadeh T, Mohammad AM, Ali M, Rasool R, Zahra T, Sepideh O. Anxiety and depression in patients with gastrointestinal cancer: Does knowledge of cancer diagnosis matter? BMC Gastroenterol 2007; 7: 28.

[12] Chang HK, Chen M, Yeh CH. Anxiety and depression in Taiwanese cancer patients with and without pain. J Advan Nurs 2000; 32(4): 944–951.

[13] Lue BH, Huang TS, Chen HJ. Physical distress, emotional status, and quality of life in patients with nasopharyngeal cancer complicated by post-radiotherapy endocrinopathy. Int J Radiat Oncol Biol Phys 2008 ;70(1): 28–34.

[14] Zigmond AS, Snaith PR. The hospital anxiety and depression scale. Acta Psychiatrica Scandinavica 1983; 67: 361–370.

[15] Muhammed A. *Cadangan penyelidikan kajian sifat-sifat psikometrik alat ujian HADS. LP6053 Seminar ujian dan pengukuran,* Jabatan Psikologi, UKM 1995.

[16] Carver CS. You want to measure coping but your protocol's too long: Consider the Brief COPE. Inter J Behav Med 1997; 4:92–100.

[17] Carver CS, Scheier MF, Weintraub JK. Assessing coping strategies: a theoretically based approach. J Personality & Soc Psychol 1989; 56(2):267–283.

[18] Yusoff N, Low WY, Yip CH. Reliability and validity of Malay version of Brief COPE Scale: A study on Malaysian women treated with adjuvant chemotherapy for breast cancer. Malaysian J Psychiat. Online Early 01-04-09.

[19] Prasad U, Rampal L. Descriptive epidemiology of Nasopharyngeal Carcinoma in Peninsular Malaysia. Cancer Causes & Control J 1992; 3:179–182.

[20] Armstrong RW, Imrey PB, Lye MS, Armstrong MJ, Yu MC, Sani S. Nasopharyngeal Carcinoma in Malaysian Chinese; salted fish and other dietary exposures. Int J Cancer 1998; 77: 228–35.

[21] Yu MC, Yuan JM. Epidemiology of nasopharyngeal carcinoma. Semin Cancer Biol 2002; 12:421–429.

[22] Sriamporn S, Vatanasapt V, Pisani P, Yongchaiyudha S, Rungpitarangsri V. Environmental risk factors for Nasopharyngeal Carcinoma : a case- control study in North Eastern Thailand. Cancer-Epidemiol-Biomarkers-Prev 1992 ; 1(5): 345–348.

[23] Chang HK, Chen ML, Yeh CH. Anxiety and depression in Taiwanese cancer patients with and without pain. J Advan Nurs 2000; 32(4):944–951.

[24] Davies ADM, Davies C, Delpo MC. Depression and anxiety level in patients undergoing diagnostic investigations for Head and Neck Cancer. Br J Psychiatry 1986; 149:491–493.

[25] Goldberg RJ. Practical Guide to the Care of the Psychiatric Patients (2nd ed). St Louis: Mosby Year Book 1998; 89–120.

[26] Kugaya A, Akechi T, Okuyama T *et al*. Prevalence, predictive factors and screening for psychological distress in patients with newly diagnosed Head and Neck Cancer. Cancer 2000; 88(12): 2817–23.

[27] Sun MJ. A study of factors influencing the state of adaptation of the hemiplegic patients. J Korean Acad Nurs 1990; 20(1):88–117.

[28] Bambauer KZ, Safran DG, Ross-Degnan D *et al*. Depression and cost-related medication non-adherence in medicine beneficiaries. Arch Gen Psychiatry 2007; 64:602–608.

[29] Wang XQ, Lambert CE, Lambet VA. Anxiety, depression and coping strategies in post hysterectomy Chinese women prior to discharge. Int Nurs Rev 2007; 54(3):271–279.

[30] Drageset S, Lindstrom TC. The mental health of women with suspected breast cancer: the relationship between social support, anxiety, coping and defence in maintaining mental health. J Psychiatric & Mental Hlth Nurs 2003; 10(4):401–409.

[31] Uekermann J, Channon S, Lehmkamper C, Abdel-Hamid M, Vollmoeller W, Daum I. Executive function, mentalizing and humour in major depression. J Int Neuropsychol Soc 2008; 14(1): 55–62.

[32] Aarstad HJ, Aarstad AK, Heimdal JH, Olofsson J. Mood, anxiety and sense of humour in head and neck cancer patients in relation to disease stage, prognosis and quality of life. Acta Oto-Laryngologyca 2005; 125(5): 557–565.

[33] List MA. Rutherford JL, Stracks J, Haraf D, Kies MS, Vokes EE. An exploration of the pretreatment coping strategies of patients with carcinoma of the head and neck. Cancer 2002; 95(1):98–104.