

ORIGINAL ARTICLE



OPEN ACCESS

Anxiety, Depression and Self-Care Management among Hypothyroidism Patients Attending Chitwan Medical College Teaching Hospital, Chitwan

Khanal D¹, Chapagain S², Thapa S³

¹Senior lecturer, School of Nursing, ²Assistant Professor, School of Public Health, ³Associate professor, School of Nursing, Chitwan Medical College.

Abstract

Background: Thyroid dysfunctions have been recognized to cause significant manifestations in physical health as well as mental health. A descriptive cross-sectional research design was used to assess anxiety, depression and self-care management among hypothyroidism attending Chitwan Medical College Teaching Hospital (CMC-TH). **Methods :** A total of 258 patients diagnosed with hypothyroidism were selected by convenience sampling. Data was collected from the date June 6, 2021 to November 17, 2021 using face to face interview schedule. The data was analyzed in SPSS version 20 using descriptive and inferential statistics was used to analyze the data. **Result :** Out of 258 respondents females constituted 64% of the sample. A total of 72.1% of the respondents had different level of anxiety based on GAD-7 among them 43.8% of the respondents had mild anxiety and 9.3% severe level of anxiety. Regarding depression 60.1 % of the respondents had different level of depression based on PHQ-9. Among them 27.1% had mild level of depression whereas 4.7% severe level of anxiety. More than fifty percentages of the respondents (54.3%) had inadequate level of self-care management. Anxiety was significantly associated with sex (0.044), marital status (0.000) and family history of mental illness (0.009) whereas depression was significantly associated with educational status (0.009) and duration of illness (0.002). **Conclusion :** It is concluded that anxiety and depression was more prevalent among hypothyroidism patients so, routine screening of hypothyroidism patients for psychiatric disorder and treating by both an endocrinologist and a psychiatrist in liaison with each other is very important to optimize their management and improve quality of life.

Key Words : Anxiety, depression, self-care management and hypothyroidism

Introduction

Hypothyroidism is the most prevalent endocrine disorder worldwide.¹ It can be defined as a disorder of the endocrine system in which there is a deficient production of thyroid hormone by the thyroid gland and can be primary (abnormality in thyroid gland itself) or secondary/central (as a result of hypothalamic or pituitary disease). Primary hypothyroidism is the etiologies in approximately 99% of cases of hypothyroidism.² Thyroid dysfunctions have been recognized to cause significant manifestations in physical health as well

as mental health. They may lead to disturbances in emotions and cognition.³

The prevalence of hypothyroidism in the developed world is about 4-5%. The prevalence of subclinical hypothyroidism in the developed world is about 4-15%.⁴ In the United States, it was 5% depression among hypothyroidism patients during 2018.⁵ Prevalence of hypothyroidism in western part of Nepal is 10.5%⁶ and in eastern part of Nepal is 17.9%.⁷

Hypothyroidism patients had many behavioral disturbances among them depressive symptoms, and anxiety are more common and it can impact certain aspects of cognitive functioning, such as slowed information processing, poor learning and

Correspondence Author

Dr. Dina Khanal, Chitwan Medical College, Chitwan, Nepal ,
Email: kxanaldina9@gmail.com

ORIGINAL ARTICLE



OPEN ACCESS

memory, mood disturbance, and problems in verbal fluency. More severe hypothyroidism can mimic melancholic depression and dementia.⁸ Similarly, High prevalence of moderate to high level depression, anxiety cause increased stress response and it triggers a cascade which producing a series of changes in human vital physiological functions such as blood pressure, respiratory rate and heart rate which was significantly higher.

The coexistence of hypothyroidism, anxiety and depression results in poor self-care management and reduces overall quality of life so, early screening for psychiatric disorder, recognition and treatment of these conditions and promoting self-care behavior are essential for achieving optimal goals in the management of hypothyroidism. In Nepal, depression and anxiety are usually underdiagnosed and undertreated due to social stigma. Anxiety and depression are common among patients suffering from hypothyroidism and their prevalence has been summarized in a number of studies.^{8,12,13,16} Even though limited study has been conducted to assess anxiety and depression among hypothyroidism patients. Hence, this study aimed to assess anxiety, depression and self-care management among hypothyroidism patients attending the Chitwan Medical College Chitwan Nepal.

Material and Methods

A descriptive cross-sectional research design was conducted. Population of the study was those clinically diagnosed with hypothyroidism by physician of at least 1 year duration and under medication of hypothyroidism attending endocrinology Out Patients Department of CMC-TH and they were selected by using convenience sampling method. A patients with a history of mental illness or currently diagnosed as a mental illness were excluded from this study. Data was collected from the date June 6, 2021 to November 17, 2021 by using face to face interview schedule. Sample size was determined using 60% overall prevalence of depression⁸ among hypothyroidism with an allowable error of 6% at 95% confidence interval. The estimated sample size was 258.

Research instruments consist of three parts. Part I

which consists of socio-demographic information, Part II: The Patient Health Questionnaire-9 (PHQ-9) and Generalized Anxiety Disorders-7 (GAD-7) were used for the screening of depression and anxiety.^{9,10} These two instruments assessed the symptoms experienced by respondents during the 2-week period before they take the survey. Each item of GAD-7 and PHQ-9 was rated from 0 to 3 scores, where 0-not at all, 1-several days, 2-more than half of the days, and 3-nearly every day, with higher scores indicating patients' increased self-report of anxiety and depression. Scores obtained in GAD-7 were classified into mild (5–9), moderate (10–14), and severe anxiety (≥ 15). Likewise, scores of PHQ-9 were divided into mild (5 to < 10), moderate (10 to < 15), moderately severe (15 to < 20), and severe (≥ 20) depression. The Patient Health Questionnaire PHQ-9 and GAD-7 is a validated tool found to be useful in screening psychiatric illness and had used for different chronic disease worldwide. PHQ-9 had 61% sensitivity and 94% specificity and 89% sensitivity and 82% sensitivity in adult. Part III consists of Self-care management which consists of ^{10,11,14} items generated from extensive review of literature. Each item contains 0-4 score, and total score is calculated by summing all item score and then divided into two categories as adequate ($> 60\%$) and inadequate ($< 60\%$)¹¹. Content validity was maintained by consulting with subject experts. Pretesting of the Nepali version instrument was done among 30 hypothyroidism patients on medical OPD of CMC-TH and they were excluded from the final study.

Ethical clearance was obtained from Institutional Ethical Review, CMC-TH with reference number CMC-IRC/077/078-223. Informed written consent was obtained from each participant. Privacy, confidentiality and anonymity of the respondents were maintained. All the collected data was checked, reviewed and organized for accuracy, consistency and completeness. After that collected data were coded and entered in Statistical Package for Social Science (SPSS) version 20 for analysis. Then the data were analyzed using descriptive statistics and inferential statistics.

ORIGINAL ARTICLE



OPEN ACCESS

Results

Table 1: General Characteristics of Respondents

General Characteristics		Frequency	Percentage
Age (in years)	≤ 52	132	51.2
	>52	126	48.8
Mean age of the respondent 52.22±12.61 years			
Sex	Male	93	36.0
	Female	165	64.0
Marital status	Married	167	64.7
	Unmarried	67	26.0
	Divorce	24	9.3
Religion	Hindu	189	73.3
	Buddhist	65	25.2
	Others	4	1.6
Educational Status	Illiterate	105	40.7
	Literate	153	59.3
	informal educational	25	9.7
	basic level	21	8.1
	secondary level	86	33.3
Occupation	bachelor and above	21	8.1
	Service	94	36.4
	Business	48	18.6
	Farmer	40	15.5
	house maker	70	27.1
Economic status (yearly income sufficiency)	Other	6	2.3
	enough for less than 1 year	162	62.8
Duration of illness (in years)	enough or sufficient for 1 year	96	37.2
	1-4 years	169	65.5
Co morbid condition	≥ 5 years	89	34.5
	Yes	70	27.1
Family History of mental illness	No	188	72.9
	Yes	97	Yes
Family History of mental illness	No	160	No

ORIGINAL ARTICLE



OPEN ACCESS

Table 1 depicts that Mean age of the respondents was 52.22±12.61 years. More than half of the hypothyroid patients (64.0%) were female and 64.7% of the respondents were married. Regarding religion more than half of the respondents (73.3%) were Hindu. More than half (59.3%) of the respondents were literate among them only 8.1% of the respondents had completed bachelor and above level. Re-

garding occupation 36.4% of the respondents were services holder followed by business, house maker, and farmer. Only 37.2% income were enough or sufficient for 1 year. Regarding duration of illness most (78.3%) of the respondent had hypothyroidism of 1-5 years duration and among them 27.1% of respondents had comorbid condition and only 37.6% had family history of mental illness.

Table2: Respondents Level of Anxiety and Depression

Level of Anxiety and Depression	Frequency (n=258)	Percentage
Level of Anxiety (GAD-7)		
Mild anxiety	113	43.8
Moderate anxiety	49	19.0
Severe anxiety	24	9.3
Overall anxiety	186	72.1
Level of Depression (PHQ-9)		
Mild depression	70	27.1
Moderate depression	41	15.9
Moderately severe depression	32	12.4
severe depression	12	4.7
Overall depression	155	60.1

Table 2 shows that 72.1% of respondents had different level of hypothyroidism among them 43.8% of respondents had mild and 9.3% had severe level of anxiety. Whereas regarding depression 60.1% of respondents had different level of depression among them 27.1% had mild and 4.7% had severe level of depression.

Table 3: Respondents Level of Self-care Management

Level of Self-Care Management	Frequency (n=258)	Percentage
Adequate(≥60%)	118	45.7
Inadequate (<60%)	140	54.3

ORIGINAL ARTICLE



OPEN ACCESS

Table 3 shows that more than half of the respondent had inadequate level of self - care management and 45.7% had adequate level of self-care management.

Table 4: Association between Levels of Anxiety and Selected Variable of Respondents

Characteristics		No anxiety	Anxiety	Value	chi-square
Age in years	≤52	37	94	0.015	0.902
	> 52	35	92		
Sex	Male	19	74	4.041	0.044*
	Female	53	112		
Marital Status	Married	33	133	16.23	0.000*
	Unmarried	31	37		
	Divorce	8	16		
Religion	Hindu	57	132	1.781	0.182
	Other	15	54		
Educational Status	Illiterate	32	73	0.581	0.446
	Literate	40	113		
Economic status (yearly income sufficiency)	enough for less than 1 year	41	121	1.461	0.227
	enough or sufficient for 1 year or more	31	65		
Comorbid condition	Yes	17	53	0.626	0.429
	No	55	133		
Family history of mental illness	Yes	18	79	6.755	0.009*
	No	54	107		
Duration of illness	1-4 years	51	118		0.263
	≥5 years	21	68	1.255	

* Significant level at $<^{0.05}$ where p value computed from chi-square test

Table 6 shows there is statistically significant association of anxiety level with sex, marital status and family history of mental illness and depression.

ORIGINAL ARTICLE



OPEN ACCESS

Discussion

A cross-sectional descriptive study was conducted to assess anxiety, depression and self-care management among hypothyroidism patients attending Chitwan Medical College-Teaching Hospital, Chitwan. Out of 258 respondents more than half of the respondents (64.0%) were female.^{12,13} Majority (72.1%) of the respondents had different level of anxiety based on GAD-7 among them 43.8% of the respondents had mild anxiety whereas 19% and 9.3% had moderate and severe level of anxiety respectively. Where as in the study conducted in India 63% of the respondents had some level of anxiety among hypothyroid patient.⁸ In contrast to this study, study conducted at India observed 46.1% had severe level of anxiety.¹⁴

Regarding depression 60.1 % of the respondents had different level of depression based on PHQ-9 among them 27.1% had mild level of depression whereas 15.9%, 12.3% and 4.7% of the respondents had moderate, moderately severe and severe level of depression respectively. This finding is supported by study conducted in Saudi Arabia where prevalence of depression among hypothyroid patients was 70% based on PHQ-9.¹⁵ Similar finding were observed on the study conducted by Bathla et al in India⁸ where 60% of the respondents had some level of depression. Whereas study conducted in Nepal 42.2% of the thyroid dysfunction disorder respondents had depression.¹⁶ As this study revealed that 4.7% of the respondents had severe level of depression nearly similar finding was identified on study conducted at India where 4.6% subjects had severe depression.¹⁴

As this study revealed anxiety and depression was highly prevalent among hypothyroidism this might be the reason that in hypothyroidism there is decrease in CNS-TH which promotes alteration in neurotransmission leading in mood disorder such as anxiety and depression.

More than fifty percentage of the respondents (54.3%) had inadequate level of self-care management similar finding was noted on the study

conducted at Kerala where 52.8% of the respondents had inadequate level of self-care management.¹⁴

Anxiety was significantly associated with sex (0.044), marital status (0.000), family history of mental illness (0.009) whereas depression was significantly associated with educational status (0.009) and duration of illness (0.002) whereas in the study conducted by Gorkhali et al revealed statistical significant of anxiety and depression with sex and economic status.¹⁶

In this current study even respondents had comorbid conditions, different level of economic status, religion and occupation. It showed no statistical significant association between this condition with anxiety and depression. This indicates that patients who were having anxiety and depression are more likely to be due to hypothyroid-related causes rather than other confounders.

Conclusions

Based on finding of the study it is concluded that majority of the respondents had anxiety and more than half of the respondent had depression whereas regarding self-care management more than half of the respondents had inadequate level of management. As this study revealed anxiety and depression were common among hypothyroidism. Thus, the relation between hypothyroidism and psychiatry disorder is a major area of concern. So, routine screening for psychiatric disorder and those patients' presenting with such sign and symptoms should be treated and managed by both an endocrinologist and a psychiatrist in liaison with each other. Beside this awareness about self-care management of hypothyroidism should be addressed to optimize their management and improve quality of life.

References

1. Chakera AJ, Pearce SH, Vaidya B. Treatment for primary hypothyroidism: current approaches and future possibilities. Drug design, development and therapy. 2012; 6:1. 1-11 doi: 10.2147/DDDT.S12894

ORIGINAL ARTICLE



OPEN ACCESS

2. Khandelwal D, Tandon N. Overt and subclinical hypothyroidism. *Drug.*; 2012; 72(1):17-33.
3. Hollowell JG, Staehling NW, Flanders WD, Hannon WH, Gunter EW, Spencer CA, Braverman LE. Serum TSH, T⁴, and thyroid antibodies in the United States population (1988 to 1994): National Health and Nutrition Examination Survey (NHANES III). *The Journal of Clinical Endocrinology & Metabolism.* 2002;1;87(2):489-499. <https://doi.org/10.1210/jcem.87.2.8182>
4. Wolkowitz OM, Rothschild AJ, editors. *Psychoneuroendocrinology: the scientific basis of clinical practice.* American Psychiatric Pub. 2008; ¹³. [Google Scholar]
5. Werhun A, Hamilton W. Are we overusing thyroid function tests. *Br J Gen Pract.* 2013; 1;63(613):404.
6. Yadav RK, Magar NT, Poudel B, Yadav NK, Yadav B. A prevalence of thyroid disorder in Western part of Nepal. *Journal of clinical and diagnostic research.* JCDR. 2013 ;7(2):193–196. doi: 10.7860/JCDR/2013/4833.2724
7. Regmi A, Shah B, Rai BR, Pandeya A. Serum lipid profile in patients with thyroid disorders in central Nepal. *Nepal Med Coll J.* 2010; 1;12(4):253-256.
8. Bathla M, Singh M, Relan P. Prevalence of anxiety and depressive symptoms among patients with hypothyroidism. *Indian journal of endocrinology and metabolism.* 2016 ;20(4):468-474. <https://dx.doi.org/10.4103%2F2230-8210.183476>
9. Kroenke K, Spitzer RL, Williams JB. The PHQ-9: validity of a brief depression severity measure. *Journal of general internal medicine.* 2001;16(9):606-613. <https://doi.org/10.1046/j.1525-1497.2001.016009606.x>
10. Spitzer RL, Kroenke K, Williams JB, Löwe B. A brief measure for assessing generalized anxiety disorder: the GAD-7. *Archives of internal medicine.* 2006; 22;166(10):1092-1097. doi:10.1001/archinte.166.10.1092
11. Chali SW, Salih MH, Abate AT. Self-care practice and associated factors among Diabetes Mellitus patients on follow up in Benishangul Gumuz Regional State Public Hospitals, Western Ethiopia: a cross-sectional study. *BMC research notes.* 2018;11(1):1-8.
12. Madariaga AG, Santos Palacios S, Guillén-Grima F, Galofré JC. The incidence and prevalence of thyroid dysfunction in Europe: A meta-analysis. *J Clin Endocrinol Metab.* 2014;99(3):923–931.
13. Khan A, Khan MMA, Akhtar S. Thyroid disorders, etiology and prevalence. *J Med Sci.* 2002;2(2):89–94. [FullText]10. Madariaga AG, Santos Palacios S, Guillén-Grima F, Galofré JC. The incidence and prevalence of thyroid dysfunction in Europe: A meta-analysis. *J Clin Endocrinol Metab.* 2014;99(3):923–931.
14. Nila KM, Mekhana VD, Nair SR. Anxiety, depression, and self-care management among patients with hypothyroidism. *Asian J Pharm Clin Res.* 2018;11(1):337-340. <https://innovareacademics.in/journals/index.php/ajpcr/article/download/2107>
15. Almalki A, Alosail A, Almalki M, Mal R, Albacker A, Alrebdi A, Ismail A, Omair A, Alshahrani A. Prevalence of depression among hypothyroid patients being treated with levothyroxine in a tertiary care hospital in Saudi Arabia. 2020;4(11):1918–1923. <https://doi.org/10.24911/IJMDC.51-1601735563>
16. Gorkhali B, Sharma S, Amatya M, Acharya D, Sharma M. Anxiety and Depression among Patients with Thyroid Function Disorders. *Journal of Nepal Health Research Council.* 2020; 13;18(3):373-378.