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Awareness regarding Thyroid Hormone Disorder among Women of Pokhara

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Abstract

Introduction: Thyroid disorders were increasingly recognized as a significant health issue in Nepal, particularly among females, mirroring global concerns. Despite the prevalence of symptoms, many Nepalese women remain unaware of thyroid disorders. This study aimed to assess the awareness levels regarding thyroid hormone disorders among women in Pokhara Metropolitan City-19.

Methods: A cross-sectional study was conducted from May to October 2021, involving 222 female residents of Pokhara Metropolitan City-19. Data were collected using a semi-structured interview tool through face-to-face interviews. The chi-square test was used to examine associations between dependent and independent variables. Ethical approval was obtained from the institutional review committee of Pokhara University and permission was taken from the ward office, and verbal and written informed consent was obtained from all the respondents.

Results: Out of the 222 respondents, 137 (61.71%) demonstrated an accurate knowledge on thyroid. Among those with a personal history of thyroid hormone disorder, 40 (18.02%) exhibited 100% adequate awareness. Significant associations ($p<0.05$) were observed between awareness levels and sociodemographic variables such as respondent age and family members employed in health-related fields.

Conclusions: The majority of respondents demonstrated accurate knowledge, and less than half exhibited inaccurate knowledge regarding thyroid hormone disorders. This highlights the necessity for educational programs and awareness campaigns targeting the general population of Pokhara Metropolitan City-19.

Keywords: *Awareness; Hyperthyroidism; Hypothyroidism; Thyroid Hormone Disorder.*

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INTRODUCTION

Thyroid disorders represent a significant global health concern, with the World Health Organization (WHO) reporting over 190 million suffer from iodine deficiency disorders worldwide.[1,2] The causes of thyroid disorders were multifaceted, including congenital factors, genetic predisposition, inadequate iodine intake, pregnancy, radiotherapy, viral infections, surgery, and underlying diseases such as autoimmune conditions.[3–5]

Thyroid disorders pose a significant global health concern, with an estimated 1.6 billion individuals considered at risk worldwide [6] including the mostly eastern, central, and far western regions of Nepal.[7,8]

This study's objectives were to investigate the awareness levels concerning thyroid hormone disorders among women residing in Pokhara Metropolitan City-19, as well as to examine how these awareness levels in selected variables.

METHODS

This cross-sectional study was conducted in Pokhara Metropolitan City-19, between May and October 2021. The Ethical approval was obtained from the Institutional Review Committee of Pokhara University reference no 28/077/078 and the Ward office of Pokhara 19. Written informed consent was taken from all the respondents. A total of 222 respondents were participated in the study. Women aged between 18 and 50 years who were residing in the study area and those who were ready to participate and women who were available at the time of data collection were included in the study**.** Women who were mentally ill and who could not respond properly were excluded from the study.

A purposive sampling technique was employed to select respondents. Data were collected using a semi-structured interview schedule by administered face-to-face interviews. The sample size was calculated by the following formula.

$$n = \frac{Z^2 p(1-P)}{d^2}$$

Where, n = sample size, Z = level of confidence (1.96 with 95% confidence interval), p = expected prevalence on proportion [17.42%], d = margin of error (5%). From calculation total number of samples required was 222.

The validity of the instrument was ensured through literature review, by avoiding direct leading questions, subject's experts review, and research adviser advice was imported on each set of questions. The questionnaire was initially prepared in English and then translated into Nepali. Following this, the Nepali version was translated back into English to ensure consistency and accuracy of the translation.

A pre-testing was done in 10% of the total sample size in ward 18, Pokhara to refine the questionnaire. Reliability was assessed using Karl Pearson's correlation coefficient test, by adopting the split-half technique, the awareness level was found 0.84 which indicates the questionnaires were reliable for measuring awareness. Data were collected by the principal investigator. The gathered data was coded and

entered in Microsoft Excel and transported to (SPSS) version 21 for descriptive and inferential analysis. Descriptive analysis was performed using mean, frequency, percentage, and standard deviation. The chi-square test was used to find out the association between dependent and independent variables. The level of significance was considered at 5% with a p-value <0.05 and a 95% confidence interval.

RESULTS

Table 1: Socio-demographic Characteristics of Respondents (n=222)

Variables	Frequency (n)	Percentage (%)
Age (Mean=35.50±9.54)		
18-30	83	37.39
30-50	139	62.61
Religion		
Hinduism	213	95.94
Buddhism	9	4.05
Ethnicity		
Brahmin/Chhetri	176	79.28
Others	46	20.72

Table 1 depicted that the mean ± SD of the respondents' age was 35.50±954. Most of the respondents were Hindu 213 (95.94. The majority 176 (79.28%) of respondents belonged to the upper caste group.

Table 2: Family and Personnel Information about Thyroid Disorder (n=222)

Personal history of thyroid disorder	Frequency (n)	Percentage (%)
Yes	40	18.02
No	182	81.98
Family history of thyroid disorders		
Yes	37	16.67
No	185	83.33
Family member in health-related field		
Yes	98	55
No	124	44.14

Among 222 respondents, 40 (18.02%) have a personal history of thyroid hormone disorder. Similarly, 37 (16.67%) respondents indicated a family history of thyroid disorders**,** and 98 (55.86%) respondents stated that a family member works in a health-related field.

Table 3: Socio-economic Characteristics of Respondents (n=222)

Variables	Frequency (n)	Percentage (%)
Education		
Illiterate	21	9.46
Literate	201	90.54
Occupation		
Agriculture	62	27.93
Other services	160	72.07

Among 222 respondents, nearly half of the respondents had bachelor's and secondary level education.

In terms of occupation, 62(27.93%) of the respondents were involved in agriculture.

Respondent's Awareness regarding Thyroid Hormone disorder represents that, 80(36.03%) of the respondents responded with the correct meaning of hypothyroidism and 127(57.02%) of the respondents responded with the correct cause of hypothyroidism whereas 122(55%) of

the respondents responded the correct cause of hyperthyroidism.

Table 4: Association Between Level of Awareness and Selected Variables (n=222).

Variables	Inadequate Frequency (%)	Adequate Frequency (%)	χ^2	p-value
Respondent age				
18-60	17(20.10)	66(79.90)	11.3	<0.001*
31-50	65(46.80)	74(53.20)		
Family History				0.06
No	85(45.2)	100(54.80)		
Yes	2(5.41)	35(94.59)		
Personal History				0.09
No	85(46.70)	97(53.30)		
Yes	0.(0.00)	40(100)		
Family member in health-related field				
No	71(57.26)	53(42.74)		
Yes	14(14.29)	84(85.71)	42.78	<0.00*

*Significant value is p<0.05 is considered statistically significant, #Fisher exact test

The data depicted in Table 4 illustrates that there was a significant association between awareness level and socio-demographic variables such as respondent's age and family members who work in the health sector.

DISCUSSION

The study aimed to evaluate the awareness of thyroid hormone disorders among women aged 18–50 in Pokhara, with a focus on their socio-demographic and background characteristics. Awareness levels were assessed using mean scores, providing an understanding of the respondents' knowledge on the topic. The key findings of the study are as follows.

In the present study, nearly one-fifth of the respondents reported having a family history of thyroid hormone disorders, as well as a personal history of the condition. A study conducted in Bhairahawa similarly reported a comparable prevalence of thyroid hormone disorders among women.[9,10] However, this prevalence is notably higher than that observed in studies conducted in the USA and Norway, where thyroid disorders were less commonly reported.[11,12] Family history provides positive evidence that there exists an inherited thyroid gene involved in hormonal and reproductive factors in future generations. [13–15] Similarly, lack of adequate knowledge on thyroid hormone disorder may confused health worker on the treatment process also. Because

most of the symptoms are not specific and if left untreated it may lead to further complication. Thus, it indicates the alarming situation of thyroid prevalence in Pokhara and requires additional attention on standard precautions with effective treatment for thyroid condition as well as the implementation of effective treatment strategies for thyroid conditions.

Thyroid hormone disorders, such as hypothyroidism, hyperthyroidism, and their associated complications, pose significant health challenges due to a lack of awareness among the general population. This is an emerging issue globally and Nepal is not far from this trend.[8] The current study demonstrates that over half of the respondents 137(61.71%) possessed accurate knowledge about the thyroid, whereas less than half 85(38.29%) had incomplete or inaccurate understanding. This study was aligned with the research conducted among the Saudi population.[1,16] Similarly, in Kavre Nepal with majority of the respondents had average level of knowledge and nearly half of the respondents had poor level of knowledge on hypothyroidism.[17] It contrast with the study on Delhi, where majority of study population had false dietary belief in hypothyroidism.[18] These findings endorse the importance of promoting comprehensive awareness of different thyroid disorders. These findings underscore the critical importance of promoting comprehensive awareness of thyroid disorders, addressing both the symptoms and the broader misconceptions surrounding them. Public health efforts should prioritize widespread education campaigns, focusing on early detection, accurate information about treatment options, and dispelling myths about dietary and lifestyle factors.

This study indicates a significant association between age and the level of awareness ($p<0.001$). Similarly, another study, conducted in Nepal in 2013 and in 2019, also documented a comparable association between age and awareness levels. [8,9] But this study was contrast with the finding from Iraq where findings from chi-square test indicate not statistically significant relationship exist between age, gender and education level of respondents ($p>0.05$).[19] The differing results could be attributed to various factors, such as differences in sample size, the geographical or cultural context of the research, and variations in study design. For instance, smaller sample sizes may limit the ability to detect significant associations, while regional differences in education systems, access to health information, and cultural attitudes toward health could also play a role in shaping awareness levels. These findings underscore the importance of considering local contexts and study methodologies when interpreting results and designing public health interventions.

This study reveals an association between age and having a family member employed in a health-related field with awareness regarding thyroid hormone disorders. which is similar to the study conducted in Netherland and Spain where ($p<0.000$). [20,21] A cross-sectional study conducted in Iraq on medical students reveled that there is positive association between socioeconomic, educational and

health care system on thyroid disease diagnosis, treatment and care.[1,22,23] These findings reinforce the need for targeted interventions that leverage familial and healthcare-related connections that address disparities in socioeconomic and educational resources. Strengthening public awareness and improving healthcare access can significantly contribute to the timely prevention and management of thyroid disorders.

The present study has certain limitations that should be acknowledged. Since it was conducted purposively in Pokhara Metropolitan -19, its findings may not be generalized to other settings. Future research could be conducted on larger, more diverse populations within different communities to improve the generalizability of the findings. Additionally, a comparative study could be carried out with respondents from various areas to explore potential regional differences and enhance the robustness of the conclusions.

CONCLUSIONS

This finding revealed that more than half women had adequate knowledge on thyroid disorders and less than half exhibited inaccurate knowledge regarding thyroid disorders. A significant association was observed between respondent's awareness level and respondents age ($p<0.001$) and family member in health-related field and awareness on thyroid ($p<0.000$). The present study warrants more educational and awareness programs for the general population regarding thyroid hormone disorder. Public health measures are required to improve the level of awareness among the general people.

CONFLICT OF INTEREST

None

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None

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