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Evaluate the Knowledge about Hyperparathyroidism and Hyperthyroidism among Nursing Staffs Working at Medicine Unit

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ABSTRACT

Background: The endocrine system is essential for sustaining the body's equilibrium and overseeing numerous physiological functions. In this intricate system, two medical conditions, hyperparathyroidism and hyperthyroidism, arise, each impacting distinct glands and resulting in specific symptomatology. This article explores the fundamental distinctions between hyperparathyroidism and hyperthyroidism, investigating the causes of two disease conditions, their symptoms, and the most effective treatment alternatives for these endocrine disorders. Hyperparathyroidism and hyperthyroidism are two terms that may appear similar, yet they refer to distinct medical conditions.

Aims: To evaluate the level of level of knowledge regarding hyperparathyroidism and hyperthyroidism among staff nurses, and to find out the relationship between knowledge score regarding hyperparathyroidism and hyperthyroidism among staff nurses with selected demographic variables.

Materials and Methods: The methodology employed in the current study was descriptive in nature, for evaluating the knowledge self-structured questionnaire and observational checklist were used, numbers of subjects were 40, sampling technique of the present study is purposive sampling.

Results: Table 5: Revealed that majority of the respondents perceived average score that is about 5 (12.5%), and SD is 2.7. more or less similar respondents perceived good score that is about 5 (12.5%), and SD will be 2.8, and less similar respondents perceived poor score that is about 2 (5%), and SD will be 1.6. Table 6: Revealed that majority of the respondents perceived average score that is about 6 (15%), and SD is 3.1. more or less similar respondents perceived good score that is about 3 (8%), and SD will be 2.8, and less similar respondents perceived poor score that is about 2 (5%), and SD will be 1.8. Table 7: Revealed that majority of the respondents

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perceived average score that is about 6 (15%), and SD is 3.6. more or less similar respondents perceived very good score that is about 5 (13%), and SD will be 2.9, more or less similar respondents perceived good score that is about 3 (7%), and SD will be 2.8, and less similar respondents perceived poor score that is about 3 (7%), and SD will be 2.3.

Conclusion: The findings of the study revealed that majority of the staff nurses belonged to Diploma in GNM nursing staffs perceived average knowledge, PB. B.Sc. nursing staffs perceived good knowledge, and Basic B.Sc. Nursing staffs perceived very good knowledge about hyperparathyroidism and hyperthyroidism.

KEYWORDS:

• Comparative Study • Knowledge • Hyperparathyroidism • Hyperthyroidism • Nursing Officers.

INTRODUCTION

Hyperparathyroidism is due to increased activity of the parathyroid glands, either from an intrinsic abnormal change altering excretion of parathyroid hormone (primary or tertiary hyperparathyroidism) or from an extrinsic abnormal change affecting calcium homoeostasis stimulating production of parathyroid hormone (secondary hyperparathyroidism). Primary hyperparathyroidism is the third most common endocrine disorder, with the highest incidence in postmenopausal women. Asymptomatic disease is common and severe disease with renal stones and metabolic bone disease arises less frequently now than it did 20–30 years ago. Primary hyperparathyroidism can be cured by surgical removal of an adenoma, increasingly by minimally invasive parathyroidectomy. Medical management of mild disease is possible with bisphosphonates, hormone replacement therapy, and calcimimetics. Vitamin D deficiency is a common cause of secondary hyperparathyroidism, particularly in elderly people. However, the biochemical definition of vitamin D deficiency and its treatment are subject to much debate. Secondary hyperparathyroidism as the result of chronic kidney disease is important in the genesis of renal bone disease, and several new treatments could help achieve the guidelines set out by the kidney disease outcomes quality initiative.[1]

Overt hyperthyroidism, defined as suppressed thyrotrophic (previously thyroid-stimulating hormone) and high concentration of T_3 and T_4 affects approximately 0.2% to 1.4% of people worldwide. Subclinical hyperthyroidism, defined as low concentrations of thyrotrophic and normal concentrations of T_3 and T_4, affects approximately 0.7% to 1.4% of people worldwide. Untreated hyperthyroidism can cause cardiac arrhythmias, heart failure, osteoporosis, and adverse pregnancy outcomes. It may lead to unintentional weight loss and is associated with increased mortality.[2]

Primary hyperparathyroidism is generally discovered when asymptomatic but the disease always has the potential to become symptomatic, resulting in bone loss and kidney stones. In countries where biochemical screening tests are not common, symptomatic primary hyperparathyroidism tends to predominate. Another variant of primary hyperparathyroidism has been described in which the serum calcium concentration is within normal range but parathyroid hormone is elevated in the absence of any obvious cause. Primary hyperparathyroidism can be cured by removal of the parathyroid gland or glands but identification of patients who are best advised to have surgery requires consideration of the guidelines that are regularly updated. Recommendations for patients who do not undergo parathyroid surgery include monitoring of serum calcium concentrations and bone density.[3]

Secondary hyperparathyroidism is a universal complication in patients with chronic renal failure. Hyperplasia of the parathyroid glands is typically seen in these patients. In early renal failure, alteration in vitamin metabolism, decreased levels of calcitriol and moderate decreases in ionized calcium may allow greater synthesis and secretion of PTH. As the disease progresses, there is a decrease in the number of vitamin D receptors (VDR) and calcium receptors

(CAR). The decreased number of VDR and CAR makes the parathyroid glands more resistant to calcitriol and calcium. Phosphorus induces hyperplasia of the parathyroid glands independent of calcium and calcitriol, and by a post-transcriptional mechanism increases PTH synthesis and secretion.[4]

Hyperparathyroidism is the most common cause of hypocalcaemia in the ambulatory setting. Although this condition can occur at any age, it commonly affects people over the age of 50 years and postmenopausal women. Over the past few decades it has changed from being a condition usually defined by its symptoms to one that is often discovered on routine screening tests while the patient is still largely asymptomatic. In light of advances in research, new guidelines on the diagnosis and management of asymptomatic primary hyperparathyroidism have recently been developed. We review the presentation, diagnosis, and management of primary hyperparathyroidism for the generalist doctor, with evidence drawn from randomised controlled trials, cohort studies, and the most recent consensus guidelines.[5]

The cause of hyperthyroidism or Graves' disease remains unknown, but it is believed to sequence from a complex interaction between genetic background (heredity), environmental factors and the immune system. For not well-known rationale, the immune system secretes antibodies [TSH receptor antibody (TRAB)] that enliven the thyroid gland to secrete excess thyroid hormone. Genetic susceptibility to the disease is considered to be polygenic. Graves' disease has been narrated to be consociated with the human leukocyte antigen (HLA) gene on chromosome 6p, the cytotoxic T lymphocyte antigen-4 (CTLA-4) gene on chromosome 2q33, and the lymphoid tyrosine phosphatase (PTPN22) gene on chromosome 1p13. In Graves' disease, hyperthyroidism sequences from the action of thyroid-stimulating antibodies (TSAB) directed fight the thyrotropin receptor on the surface of the thyroid cell. The thyroid-stimulating immunoglobulin (TSI) attaches to and enliven the TSH receptor on the thyroid cell membrane sequencing in follicular cell growth, vascularity escalates, and in excessive secretion and secretion of thyroid hormone. The thyroid gland typically replaces lymphocytic infiltration, with T-lymphocyte deformity and absence of follicular diminishment.[6]

OBJECTIVES

- To evaluate the level of level of knowledge regarding hyperparathyroidism and hyperthyroidism among staff nurses,
- To find out the relationship between knowledge score regarding hyperparathyroidism and hyperthyroidism among staff nurses with selected demographic variables.

HYPOTHESIS

H_1: There will be no significant association between levels of knowledge about hyperparathyroidism and hyperthyroidism among nursing staffs.

H_2: There will be significant association between levels of knowledge about hyperparathyroidism and hyperthyroidism among nursing staffs with selected demographic variables.

ABBREVIATIONS

HPT	Hyperparathyroidism
HT	Hyperthyroidism
PTH	Parathyroid Hormone
T3	Triiodothyronine
T4	Tetraiodothyronine or Thyroxin
TSH	Thyroid Stimulating Hormone
VDR	Vitamin D Receptor
TRAB	Thyrotropin Receptor Antibodies
PHPT	Primary Hyperparathyroidism
Chromosome 6p	Chromosome 6 petit
T-Lymphocyte	Thymus Lymphocyte
CTLA-4	Cytotoxic Thymus Lymphocyte Associated Protein-4
TSI	Thyroid Stimulating Immunoglobulin
OFC	Osteitis Fibrosa Cystica
x^2	Mean or Average
%	Percentage
F	Frequency
SD	Standard Deviation
X^2	Chi-Square
DF	Degree of Freedom

NEED FOR THE STUDY

Thyroid disease is a global health problem that can substantially impact well-being, particularly in pregnancy and childhood. In advanced economies, the prevalence of undiagnosed thyroid disease is falling owing to widespread thyroid function testing and relatively low thresholds for treatment initiation. Iodine nutrition remains a key determinant of thyroid function worldwide, and continued vigilance against the resurgence of iodine deficiency in previously sufficient regions remains essential. More studies are needed in developing countries, especially within Africa, to understand the role of ethnicity and iodine nutrition fluxes in current disease trends.[7]

Primary hyperparathyroidism a disease predominantly affecting post-menopausal women was first described by Fuller Albright in the 1940s. The condition is most commonly caused by parathyroid adenoma (80–85% of cases), followed by parathyroid hyperplasia (10-15%), and the rare parathyroid carcinoma accounting for the remainder (1–4%). Since the initial description of PHPT, there has been a notable shift in the clinical presentation of PHPT. Historically, patients presented with severe skeletal and renal involvement, including osteitis fibrosa cystica (OFC), fractures, and recurrent nephrolithiasis. However, in recent decades, the disease has increasingly been identified in asymptomatic individuals, especially in developed countries. This asymptomatic presentation is primarily reported in Western countries, whereas in developing countries such as those in Asia and Africa.[8]

When PHPT was first described almost a century ago, in the 1930's, the disease was associated with severe hypocalcaemia and serious skeletal and renal complications. The indelible association of PHPT with signs (kidney stones and fractures) and symptoms (due to hypocalcaemia) persisted until the 1970's when biochemical screening tests became routinely employed, first in the United States and then elsewhere. The clinical phenotype of PHPT changed from overt bone and renal involvement to asymptomatic hypocalcaemia.[9]

Hyperthyroidism is common, affecting approximately 2% of women and 0.2% of men. There are three principal treatments anti-thyroid drugs, radioiodine, and surgery all of which are effective, but opinions differ about the indications for them[2] because no single treatment regularly results in permanent euthyroidism.[10]

MATERIALS AND METHODS

Research methodology: The methodology employed for this study was quantitative in nature.

Research design: Descriptive approach.

Study Variables: Knowledge about hyperparathyroidism and hyperthyroidism among nursing staffs.

Demographic Variables: Age, gender, religion, and qualification.

Research setting: Tertiary care teaching hospital Belagavi.

Population of the study: 12 number of Diploma in General Nursing & Midwifery staffs, 11 number of post-basic nursing staffs 17 number of Basic B.Sc. Nursing staffs, and overall samples were 40.

Sample size: 40 subjects

Sampling technique: Purposive sampling.

Data collection tool: The tool consists of 2 sections.

Section A: Demographic data of nursing staffs.

Section B: To find out the relationship between knowledge score regarding hyperparathyroidism and hyperthyroidism among staff nurses.

Reliability of the tool: Reliability of the knowledge questionnaire and observational checklist were established by test- retest reliability technique, using these values co-efficient correlation was done with the help of Karl Pearson's formula. The reliability score obtained was r = 0.92. Hence knowledge questionnaire and observational checklist were highly reliable.

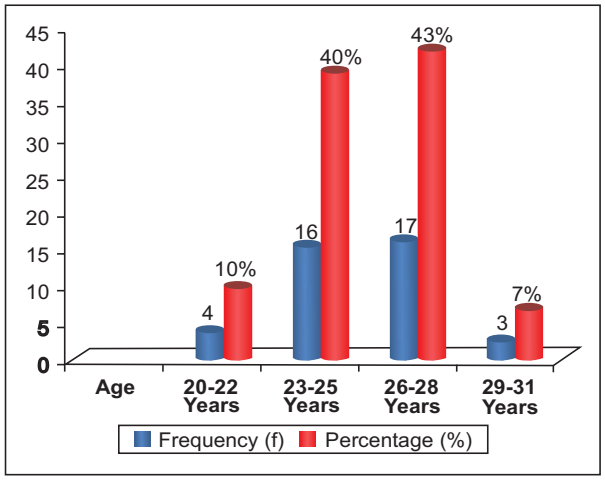
SCHEMATIC REPRESENTATION OF RESEARCH DESIGN

RESULTS

Section A: Demographic data of nursing staffs.

Table 1: Distribution of respondents accordingly age N=40

Demographic Variables	Frequency (f)	Percentage (%)	Chi-Square
Age			
20-22 Years	4	10%	X^2= 7.08
23-25 Years	16	40%	DF= 9
26-28 Years	17	43%	P Value- 0.36
29-31 Years	3	7%	
Total	**40**	**100%**	

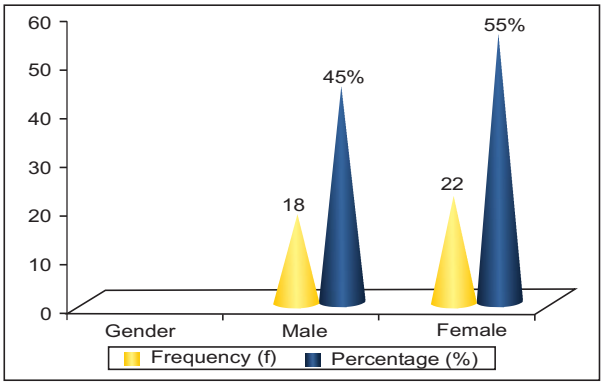


Graph 1: Age distribution

Graph 1, Revealed that, majority of the findings were 17 (43%) of respondents belonged to 26-28 years, 16 (40%) of respondents belonged to 23-25 years, 4 (10%) of respondents belonged to 20-22 years, and 3 (7%) of respondents belonged to 29-31 years.

Table 2: Distribution of respondents accordingly gender N=40

Demographic Variables	Frequency (f)	Percentage (%)	Chi-Square
Gender			X^2= 6.08
Male	18	45	DF= 1
Female	22	55	P value- 0.41
Total	**40**	**100%**	

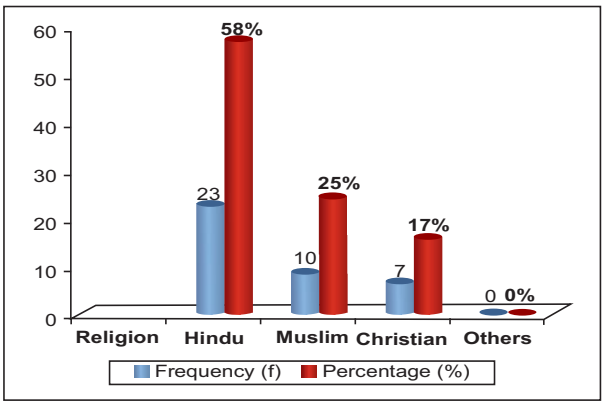


Graph 2: Gender distribution

Graph 2, Revealed that majority of the findings were 22 (55%) of respondents belonged to females, and 18 (45%) of respondents belonged to males.

Table 3: Distribution of respondents accordingly religion N=40

Demographic Variables	Frequency (f)	Percentage (%)	Chi-Square
Religion			
Hindu	23	58	X^2= 7.06
Muslim	10	25	DF= 9
Christian	7	17	P value- 0.45
Others	0	0	
Total	**40**	**100%**	



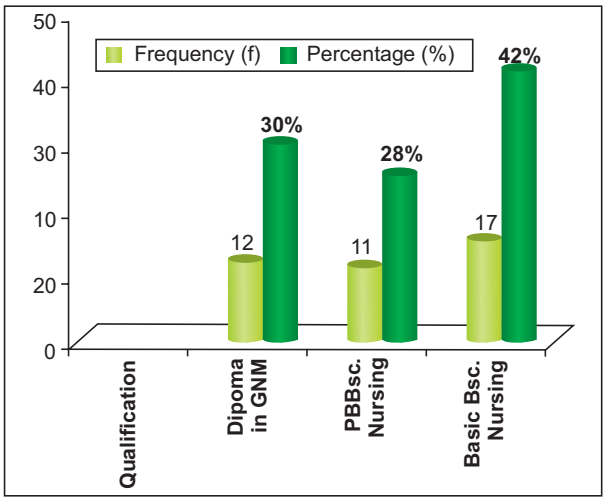
Graph 3: Religion distribution

Graph 3, Revealed that majority of the findings were 23 (58%) of respondents belonged to Hindu, 10 (25%) of respondents belonged to Muslim, and 7 (17%) of respondents belonged to Christians.

Table 4: Distribution of respondents accordingly qualification N=40

Demographic Variables	Frequency (f)	Percentage (%)	Chi-Square
Qualification			
Diploma in GNM	12	30	X^2= 8.02 DF= 4P value- 0.54*
PB.B.Sc. Nursing	11	28	
Basic B.Sc. Nursing	17	42	
Total	**40**	**100%**	

*P value is ≥ 0.5 level of significance



Graph 4: Qualification distribution

Graph 4, Revealed that majority of the findings were 17 (42%) of respondents belonged to Basic B.Sc. Nursing, 12 (30%) of respondents belonged to Diploma in GNM, and 11 (28%) of respondents belonged to PB.B.Sc. Nursing.

Section B: To find out the relationship between knowledge score regarding hyperparathyroidism and hyperthyroidism among staff nurses.

Table 5: Level of knowledge score about hyperparathyroidism and hyperthyroidism among Diploma in GNM nursing staffs N=12

Level of knowledge	Obtained score	Frequency (f)	Mean	Mean (%)	SD
Poor	0-5	4	2	5%	1.6
Average	6-10	6	5	12.5%	2.7
Good	11-15	2	5	12.5%	2.8
Very Good	16-20	0	0	0	0
	Total	**12**	**12**	**30%**	**7.1**

Table 5: Revealed that majority of the respondents perceived average score that is about 5 (12.5%), and SD is 2.7. more or less similar respondents perceived good score that is about 5 (12.5%), and SD will be 2.8, and less similar respondents perceived poor score that is about 2 (5%), and SD will be 1.6.

Table 6: Level of knowledge score about hyperparathyroidism and hyperthyroidism among PB.BSc. nursing staffs N=11

Level of knowledge	Obtained score	Frequency (f)	Mean	Mean (%)	SD
Poor	0-5	3	2	5%	1.8
Average	6-10	5	6	15%	3.1
Good	11-15	3	3	8%	2.8
Very Good	16-20	0	0	0	0
	Total	**11**	**11**	**28%**	**7.7**

Table 6: Revealed that majority of the respondents perceived average score that is about 6 (15%), and SD is 3.1. more or less similar respondents perceived good score that is about 3 (8%), and SD will be 2.8, and less similar respondents perceived poor score that is about 2 (5%), and SD will be 1.8.

Table 7: Level of knowledge score about hyperparathyroidism and hyperthyroidism among Basic BSc. nursing staffs N=17

Level of knowledge	Obtained score	Frequency (f)	Mean	Mean (%)	SD
Poor	0-5	1	3	7%	2.3
Average	6-10	7	6	15%	3.6
Good	11-15	6	3	7%	2.8
Very Good	16-20	3	5	13%	2.9
	Total	**17**	**17**	**42%**	**11.6**

Table 7: Revealed that majority of the respondents perceived average score that is about 6 (15%), and SD is 3.6. more or less similar respondents perceived very good score that is about 5 (13%), and SD will be 2.9, more or less similar respondents perceived good score that is about 3 (7%), and SD will be 2.8, and less similar respondents perceived poor score that is about 3 (7%), and SD will be 2.3.

DISCUSSION

In the present study Revealed that majority of the respondents perceived average score that is about 5 (12.5%), and SD is 2.7. more or less similar respondents perceived good score that is about 5 (12.5%), and SD will be 2.8, and less similar respondents perceived poor score that is about 2 (5%), and SD will be 1.6. Table 6: Revealed that majority of the respondents

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In the similar study attempted to assess the effectiveness of structured teaching programme on knowledge regarding thyroid problem like hyperparathyroidism and hyperthyroidism among adolescent girls. Findings of the study were discussed based on the objectives and hypothesis of the study Present study shows that. out of 60 samples 96.66% of adolescent girls had poor knowledge, 3.33% had average knowledge and no adolescent girls had good knowledge regarding thyroid problems in pre-test. After a structured teaching programme 28.33% had good knowledge, 68.33% had average knowledge and 3.33% had poor knowledge. The present study shows that the mean post-test score 14.55 (± 1.92) was greater than the mean pre-test score 6.72 (± 2.13). The 't' test value was 27.93. So that structured teaching programme was effective to increasing the knowledge regarding thyroid problems among adolescent girls. There was significant association between knowledge and demographic variables like monthly income.

CONCLUSION

The findings of the study revealed that majority of the staff nurses belonged to Diploma in GNM nursing staffs perceived average knowledge, PB. B.Sc. nursing staffs perceived good knowledge, and Basic B.Sc. Nursing staffs perceived very good knowledge about hyperparathyroidism and hyperthyroidism.

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