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Research Article

A QUESTIONNAIRE-BASED ONLINE SURVEY ON KNOWLEDGE AND AWARENESS OF ANAEMIA AMONG FEMALE HEALTH-CARE PROFESSIONAL STUDENTS IN TAMILNADU

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ABSTRACT

Objective: The objective of the study was to assess the knowledge and awareness about anemia among Female Health-Care Professional Students in Tamil Nadu.

Methods: A cross-sectional study conducted in Tamil Nadu, from December 2021–February 2022. Permission was obtained from IEC; a well-organized questionnaire was executed with 20 items using the Google Forms. Pre-structured questions were pre-validated by Experts. Google form contains the details such as socio-demographic, awareness, and knowledge based questions. The correct answer was marked as aware and incorrect as unaware and has converted to percentage. The completed data were collected, entered in excel sheet and the results were analyzed with the proper statistical method.

Results: A total of 340 responses received and among that only 50.52% of female health-care professional students were aware of anemia and 72.83% of female health-care professional students had adequate knowledge about anemia.

Conclusion: A significant lack of awareness was observed in female health care students. This study highly suggests the provision of health education, which can be implemented through periodic educational interventions such as webinars, CME programs, and role-plays. This may acts to build a safe tool to create more knowledge and awareness.

Keywords: Anemia, Knowledge, Awareness, Health-care professional students, Tamil Nadu.

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INTRODUCTION

Anemia is a condition in which there is a deficiency of RBC (Red Blood Cells) or Hemoglobin (Hb) in the blood resulting in pallor and weariness [1,2]. According to the WHO (World Health Organization) [3,4], Anemia is a global public health problem affecting both developing and developed countries with major consequences for human health as well as social and economic development [3,5-7]. It occurs at all stages of the life cycle, but is more prevalent in pregnant women and young children [8-10]. In 2002, iron deficiency anemia (IDA) was considered to be the most important contributing factors to the global burden of disease. Risk factors include a low intake and poor absorption of iron from diets high in phytate or phenolic compounds, and period of life when iron requirements are especially high [1,3,4] (i.e., growth and pregnancy). Other causes such as heavy blood loss during menstruation and parasite infections such as hook worms, ascaris, and schistosomiasis can lower blood hemoglobin (Hb) concentrations [6,11,12]. Acute and chronic infections, including malaria, cancer, tuberculosis, and HIV can also lower blood Hb count [4,11]. Other factors such as micro nutrient deficiencies, including Vitamins A and B12, folate, riboflavin, and copper can increase the risk of anemia [4,13]. Furthermore, the impact of hemoglobinopathies on anemia prevalence needs to be considered within some populations [13].

Anemia affects one-third of women of reproductive age (15–49 years) worldwide (33%) [3,5,14]. It is a condition characterized mainly by low blood hemoglobin level, which decreases the capacity of the blood to carry oxygen to tissues and results in symptoms such as fatigue and reduced capacity for physical work. Anemia in pregnancy has been associated with negative outcomes, including maternal mortality, low birth weight and premature birth [1,2]. The prevalence of anemia among non-pregnant women of reproductive age has been consistent in the past two decades. It is estimated that about one-third of the women being affected yearly ranging from 29.4% to 33.3% [14,15]. As the global population continues to increase, the number of women with anemia also increases every day. Given the multifactorial nature of this disease, correcting anemia often requires an integrated approach. To effectively combat it, the contributing factors must be identified and addressed. In settings where iron deficiency is the most frequent cause, additional iron intake is usually provided through iron supplements to vulnerable groups such as pregnant women and young children. Food based approaches to increase iron intake through food fortification, dietary diversification and sustainable strategies are important, for preventing IDA in the general population. Approaches such as combination of iron interventions with other measures are needed for non-iron deficiency anemic individuals. Strategies should include addressing other causes of anemia and should be built into the primary health-care system and existing programs [16,17]. These strategies should be tailored to local conditions, taking into account the specific etiology and prevalence of anemia in a given setting and population group.

Female Health-Care Professional students are more Vulnerable to anemia due to their busy schedules, irregular meal time, long working hours, etc… [5]. considering these aspects, this questionnaire research is aimed to determine the knowledge and awareness of anemia among Female Healthcare Profession Students in Tamil Nadu.

Aim

The aim of the study was to assess the knowledge and awareness of anemia among female health-care professional students in Tamil Nadu.

Table 1: Survey questionnaire

S. No.	Questions	Options given for scoring
1.	Have you ever heard about anemia?	(A) Yes (B) No
2.	Is anemia is a fatal condition?	(A) Yes (B) No (C) May be
3.	What is anemia?	(A) Increased RBC count/hemoglobin concentration (B) Decreased RBC count/hemoglobin concentration (C) Increased WBC count (D) Decreased WBC count
4.	What is Hemoglobin?	(A) Lipid (B) Carbohydrate (C) Transport protein (D) None of these
5.	What is the normal range of hemoglobin in female?	(A) 12.0–15.0 g/dl (B) 15.0–18.5 g/dl (C) 8.0–11.0 g/dl (D) 6.0–8.0 g/dl
6.	What causes anemia?	(A) Poor diet (B) Intestinal worm infestation (C) severe blood loss (D) All the above
7.	How to prevent anemia?	(A) Intake of iron-rich foods (B) Consumption of caffeine products (C) Intake of Vitamin C and folic acid-rich foods (D) Both A and C
8.	What are the common symptoms of anemia?	(A) Pale skin (B) Tiredness (C) Both A and B (D) Icterus
9.	Does heavy menstrual bleeding cause anemia?	(A) Yes (B) No (C) May be
10.	What is the treatment for anemia?	(A) Iron/vitamin supplements (B) Blood transfusion (C) Deworming (D) All the above
11.	What are the foods rich in iron content?	(A) Banana (B) Pomegranate (C) Honey (D) All the above
12.	What are the foods that worseness anemia?	(A) Tea and coffee (B) Red meat (C) Honey (D) Nuts and seeds
13.	If your hemoglobin level is 10mg/dl, are you considered as anemia or not?	(A) Yes (B) No (C) May be
14.	What are the effects of anemia?	(A) Decreases growth and development (B) Decreases muscle strength and IQ (C) Both A and B (D) Renal failure
1.	Have you ever checked your hemoglobin level in the past 1 year?	(A) Yes (B) No
2.	Have you taken IFA tablets in the past 1 year?	(A) Yes (B) No
3.	Do you take Vitamin C and Vitamin B12 supplements regularly?	(A) Yes (B) No
4.	Have you ever taken Albendazole in the past 1 year?	(A) Yes (B) No
5.	Do you practice personal hygiene every day?	(A) Yes (B) No (C) sometimes
6.	If your hemoglobin level is below the normal range, are you eligible for blood donation?	(A) Yes (B) No (C) Don't know

Objectives

The objectives are as follows:

- Female Health-Care Professional students are more vulnerable to anemia due to their busy schedules, irregular meal time, long working hours, etc... [5].
- To assess the knowledge and awareness of anemia,
- To educate and create awareness about the anemia to Female Health Care Professional Students.

METHODS

Study type

Observational.

Study design

The target population selected was full-time undergraduate Female Health-Care Professional students in Tamil Nadu.

Data collection

The study was conducted online in Tamil Nadu from Dec 2021 to Feb 2022. Permission was obtained from the Institutional Ethical Committee (IEC), MMCHRI, Kanchipuram. We designed and implemented an online data collection tool using Google Forms (viadocs.google.com/forms). The questionnaire assesses knowledge and awareness of anemia. The questions were pre-designed and pre-validated by professionals in the field. Google forms include socio-demographic details, such as name, age, gender, course of study, institution, state, and informed consent in one part, and 20 questions asking about awareness and knowledge of anemia in the next. Participants were asked to select the appropriate option. Completed data were collected, and entered into an excel sheet and the results were analyzed with the proper statistical method (Table 1).

RESULTS

A survey on knowledge and awareness of anemia was conducted on female health-care professional students of I year, II year, III year, and IV year and interns which includes MBBS, BDS, AHS, Nursing, BPT, BOT, other health-care professional students in Tamil Nadu. Around 340 students from various colleges in Tamil Nadu responded to this survey.

Among the 340 responses, 19.4% of responders were from BPT, 17.6% of responders were from MBBS, 13.2% of responders from BDS, 10.3% of responders were from B.Sc. Renal Dialysis Technology, 9.7% of responders were from B.Sc. Anesthesia Technology, and 8.5% of responders were from B.Sc. Cardio Pulmonary Technology, 6.8% of responders were from B.Sc. Perfusion Technology, 5.3% of responders were from B.Sc. Physician Assistant, 4.4% of responders were from other AHS, 3.2% of responders were from Nursing, 1.2% from B.Sc. Radio Imaging Technology, 0.3% of responders were from BOT, and 0.1% of responders were from B.Sc. Medical Laboratory Technology (Fig. 1).

According to the statistical analysis of data received, 11.2% of the responders were a 1st-year, 20% of the responders were 2nd year, 39.1%

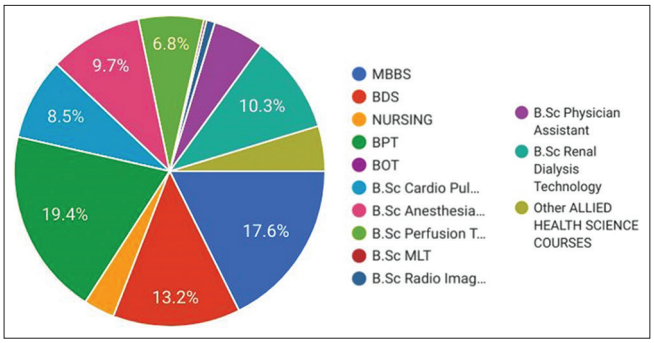

Fig. 1: Responses showing the course of study of female health-care professional students in Tamil Nadu

Table 2: Responses showing the knowledge of anemia among female health-care professional students in Tamil Nadu

Survey questions	Responses received in percentage
1) Have you ever heard about anemia?	
a) Yes	96.2
b) No	3.8
2) What is anemia?	
a) Increase RBC count/hemoglobin concentration	0.4
b) Decrease RBC count/hemoglobin concentration	93.8
c) Increase WBC count	5.3
d) Decrease WBC count	0.5
3) Is anemia a fatal condition?	
a) Yes	32.9
b) No	16.2
c) May be	50.9
4) What is hemoglobin?	
a) Lipid	2.9
b) Carbohydrate	1.2
c) Transport Protein	67.1
d) None of the above	28.8%
5) What is the normal range of hemoglobin in females?	
a) 12.0–15.0gm/dl	95.6
b) 15.0–18.5gm/dl	2.4
c) 8.5–11.0gm/dl	1.2
d) 6.0–8.0gm/dl	0.8
6) What causes anemia?	
a) Poor Diet	8.8
b) Intestinal worm infestation	1.2
c) Severe blood loss	15.6
d) All the above	74.4
7) How to prevent anemia?	
a) Intake of iron rich foods	15.9
b) Consumption of caffeine products	1.7
c) Intake of vitamin C and folic acid rich foods	3.0
d) Both a and c	79.4
8) What are the common symptoms of anemia?	
a) Pale skin	7.4
b) Tiredness	2.1
c) Both a and b	89.4
d) Icterus	1.1
9) Does heavy menstrual bleeding causes anemia?	
a) Yes	58.8
b) No	19.1
d) May be	22.1
10) What is the treatment for anemia?	
a) Iron/Vitamin supplements	32.9
b) Blood transfusion	2.4
c) Deworming	0.9
d) All the above	63.8
11) What are the foods rich in iron content?	
a) Banana	4.0
b) Pomegranate	37.9
c) Honey	5.5
d) All the above	52.6
12) What are the foods that worseness the anemia?	
a) Tea and Coffee	82.9
b) Red meat	5.0
c) Honey Nuts and seeds	4.5
	7.6
13) If your hemoglobin level is 10 g/dl, are you considered as anemic?	
a) Yes	57.4
b) No	21.8
c) May be	20.8
14) What are the effects of anemia?	
a) Decreases in growth and development	10.0
b) Decreases muscles strength and IQ	7.6
c) Both a and b	75.3
d) Renal failure	7.1

of the responders were 3rd year, 10% of the responders were 4th year, and 19.4% of responders were Interns (Fig. 2).

According to the statistical analysis of data received from Table 2, it results, 72.83% of female health-care professional students have adequate knowledge about anemia.

According to the statistical analysis of data received from Table 3, it results, 50.52% of female health-care professional students are aware about anemia.

DISCUSSION

The questionnaire-based study was started on December 15, 2021, in Tamil Nadu. This study was aimed at assessing the knowledge and awareness of anemia among female health-care professional students in Tamil Nadu. The questionnaire was divided into two categories with essential knowledge and awareness of anemia.

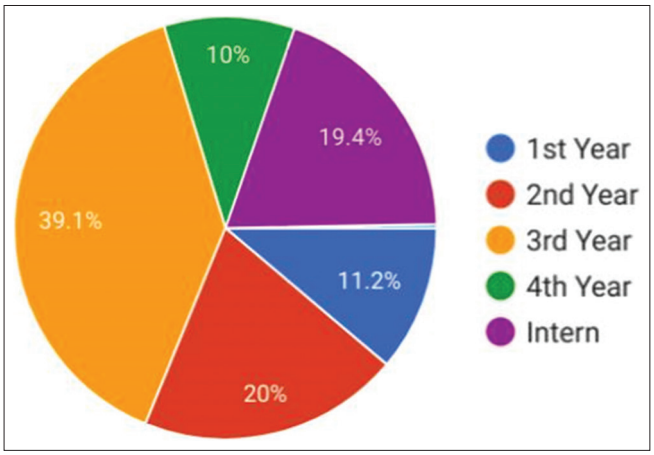

Fig. 2: Responses showing the year of study of female health-care professional students in Tamil Nadu

Table 3: Responses showing the awareness of female health-care professional students in Tamil Nadu

Survey questions	Responses received in percentage
1) Have you ever checked your hemoglobin level in last 1 year?	
a) Yes	69.4
b) No	30.6
2) Have you taken IFA (Iron Folic Acid) tablets in the past 1 year?	
a) Yes	71.8
b) No	28.2
3) Do you take Vitamin C and Vitamin B12 supplements regularly?	
a) Yes	25
b) No	55.3
c) May be	19.7
4) Have you ever taken Albendazole in the past 1 year?	
a) Yes	17.6
b) No	82.4
5) Do you practice personal hygiene every day?	
a) Yes	77.9
b) No	4.5
c) Sometimes	17.6
6) If your hemoglobin level is below the normal range, are you eligible for blood donation?	
a) Yes	8.2
b) No	85
c) May be	6.8

According to the statistical analysis of the data gathered, only 50.52% of female healthcare professional students are aware of anemia and only 72.83% of female health-care professional students have adequate knowledge about anemia.

CONCLUSION

Anemia is a global public health problem affecting both developing and developed countries with major consequences for human health as well as social and economic development. As compared to men, females are more prone to anemia. Among them, especially female health-care professional students, they are at risk due to their busy schedules, irregular meal times, long working hours, etc...

A significant lack of awareness was observed in female health care students. This study highly suggests the provision of health education which can be implemented through periodic educational interventions such as webinars, CME programs, and role-plays. This may serve as a safe tool to create more knowledge and awareness.

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AUTHORS CONTRIBUTION

DE Nirman Kanna - Review of Literature, Dhanush S - Review of Literature, Reshma B - Review of Literature, Bettina Lavanya Magdaline - Data Analytics, Subbulakshmi Packirisamy - Manuscript writing.

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

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None.

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