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To assess the prevalence of iron deficiency anaemia in menopausal women

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Abstract
The present study was conducted in Hanumangarh District of Rajasthan state. Two hundred women was selected as the sample of study. Two variable was taken i.e. dependent and independent variable. Menopausal women was taken as independent variable and anaemia was taken as dependent variable. Information regarding to the prevalence of iron deficiency anaemia were collected with the help of questionnaire cum interview method. Result revealed that the mean haemoglobin level of the pre and post-menopausal women in 45- 55 years of age were 9.12±1.65 g/dl and 10.4±7.45 g/dl respectively which was lower than the normal level (>12g/dl). The overall prevalence of anemia among 45-55 year pre and post-menopausal women was about 83.5 percent having the Haemoglobin level below the much cut off level of 12 recommended by the WHO (1989). It was observed that out of 200 women examined for IDA. Only 16.5 percent women (45-55 years age) were normal. Prevalence of severe form of anemia was very low (4.0%) while moderate (48.5%) and mild (31%) forms of anemia was quite high in women (45-55 years). Results further revealed that out of 100 pre-menopausal women, only 14 percent women of 45-55 years were normal and rest of the women were suffering from different grades of anemia. The prevalence of moderate and mild forms anemia was 54 percent and 25 percent respectively while only 7 percent pre-menopausal women were severely anaemic. It is evident that out of 100 post-menopausal women 19 percent were normal. The gradation of anemia in post-menopausal women (45-55 years) was moderate in 43 percent cases, mild in 37 percent and severity in only 1 percent. When the prevalence rate of anemia was compared between pre and post-menopausal women in the present study, the total percentage was higher in pre-menopausal women i.e. 86 percent as compared to post-menopausal women (81%).

Keywords: Anaemia, menopause, women

Introduction
Anaemia is the public health concern that affects countries with low, middly or high income. The cause of anaemia include iron and other micronutrient deficiencies, acute and chronic infections, inherited or acquired disorders etc. (WHO, 2015) [12]. Anaemia appeared as an important public health problems throughout the world, particularly in developing countries (Sharma *et al*. 2013).Globally, the overall prevalence of severe anaemia among non-pregnant women of reproduction age was 1.1% affecting 19 million non-pregnant women(Stevens *et al*. 2013).

According to a WHO report in 2011 [13], the prevalence of severe anaemia among Chinese non pregnant women was 0.3% lower than both the global prevalence (1.3%). iron deficiency account for anaemia in 5% of American women.Iron deficiency anaemia is the most common nutritional deficiency anaemia in developing as well as developed countries. (Nils, 2011) [8].

Anaemia is a major public health problem in India.the medical heamoglobin concentration was 11.3g/dl in females. (Alvarez-Uria *et al*. 2014) [1]. According to WHO there are two billion people with anaemia in the world and half of the anaemia is due to iron deficiency. Anaemia is a condition in which level of hemoglobin, hematocrit and erythrocytes falls below the normal range. the world health organization defines anaemia as hemoglobin concentration below 12g/dl in women and 13g/dl in men. (WHO, 2011) [13].

The prevalence of anaemia increase during growth and developed when there is an increased need of an iron rich diet.more than 30% of patient admitted to hospitals in developed countries are reported to be anemic and this rate in known to be higher in developing countries and among women. (Jefferery, 2013) [4].

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Anaemia can be defined by a condition in which the total hemoglobin level or number of red blood cells is poorly lowered. The world health organization define anaemia as hemoglobin concentration below 12g/dl in women and 13g/dl in men. The anaemia prevalence among women in 21-80 percent world wide. (Karakus *et al*. 2016) [5].

To keep in mind the prevalence of iron deficiency anaemia in menopausal women, the present study was conducted.

Objectives
1. To assess the prevalence of iron deficiency anaemia among menopausal women.
2. To find out the hemoglobin status of women.

Methodology
The present study was conducted in Hanumangarh District of Rajasthan state. Two hundred women was selected as the sample of study. Two variable was taken i.e. dependent and independent variable. Women was taken as independent variable and anaemia was taken as dependent variable. Information regarding to prevalence of iron deficiency anaemia were collected with the help of questionnaire cum interview method. Haemoglobin levels of all the subjects (200) was estimated by using Shail's haemoglobinometer. For the estimation of haemoglobin, the finger tip of the subject was cleaned with a spirit swab and 0.02 ml blood drawn in the pipette of Shail's haemoglobinometer and blown in 0.2 ml of dilute hydrochloric acid (N/10) in haemoglobinometer tube to develop the brown acid hematin clour. Further, dilution was made with distilled water till the colour matched with the standard brown glass tube in a comparator. The reading thus obtained from calibrated haemoglobinometer was considered as haemoglobin concentration. The haemoglobin concentration was expressed in g/dl (WHO, 1989). The haemoglobin level of >12 g/dl was considered as normal.

Result
In the present study, (Table1) the mean haemoglobin level of the pre and post-menopausal women in 45-55 years of age were 9.12±1.65 g/dl and 10.4±7.45 g/dl respectively which was lower than the normal level (>12g/dl). The overall prevalence of anemia among 45-55 year pre and post-menopausal women was about 83.5 percent having the Haemoglobin level below the much cut off level of 12 recommended by the WHO (1989). It was observed that out of 200 women examined for IDA. Only 16.5 percent women (45-55 years age) were normal (Table 2 and Fig.). Prevalence of severe form of anemia was very low (4.0%) while moderate (48.5%) and mild (31%) forms of anemia was quite high in women (45-55 years).

Table 1: Mean ± SD blood haemoglobin levels of the women (45-55 years)

Mean blood Hb level (g/dl)	Premenopausal women (N =100)	Post-menopausal women (N=100)	Normal range# (g/dl)
	9.12±1.65	10.04±7.45	> 12

#WHO 1989)

Results further revealed that out of 100 pre-menopausal women, only 14 percent women of 45-55 years were normal and rest of the women were suffering from different grades of anemia (Table 2). The prevalence of moderate and mild forms anemia was 54 percent and 25 percent respectively while only 7 percent pre-menopausal women were severely anaemic. It is evident from Table 2 that out of 100 post-menopausal women 19 percent were normal. The gradation of anemia in post-menopausal women (45-55 years) was moderate in 43 percent cases, mild in 37 percent and severity in only 1 percent. When the prevalence rate of anemia was compared between pre and post-menopausal women in the present study, the total percentage was higher in pre-menopausal women i.e. 86 percent as compared to post-menopausal women (81%).

Table 2

Haemoglobin level # (g/dl)	Grades of Anaemia	45-55 years pre-menopausal women (N=100)	45-55 years post-menopausal women (N=100)	Overall (N=200)
<7	Severe	7.0	1.0	4.0(8)
7-9.9	Moderate	54.0	43.0	48.5(97)
10-12	Mild	25.0	37.0	31.0(62)
>12	Normal	14.0	19.0	16.5(33)

Conclusion
It was concluded that the mean hemoglobin level of the pre and post-menopausal women was lower than the normal level. The prevalence rate of anaemia was higher in pre-menopausal women. The most common cause of IDA in post-menopausal women in chronic gastrointestinal bleeding and malabsorption (Goddard *et al*. 2011) [2]. Pre-menopausal women are at greater risk of IDA due to their regular menstruation blood loss (Mc clung and murray, 2013) [7]. Saydam *et al*. (2016) [9] determined that 37.1% iron deficiency anaemia and 6.9% severe anaemia among 15-49 years of aged women. Jongjoo and hosseini (2016) [3] conducted that iron deficiency anaemia in individuals with anaemia was 6.5% and mean of the levels of hemoglobin 9.7 g/dl.

References
1. Alvarez-uria G, Naik PK, Midde M, Yalla PS, Pakam R. Prevalence and Severity of Anaemia stratified by age and gender in Rural India. Indexed in Web of science, 2014. Article ID 176182, 5 Pages.
2. Goddard AF, James MW, Mcintyre AS, Scott BB. Guidelines for the management of iron deficiency anaemia. Gut. 2011; 60(10):1309-1316.
3. Jangjoo S, Hosseini L. The prevalence of iron deficiency Anaemia in non-pregnant women of Reproductive age (14-45) with Anaemia in Marvdasht's Shahid motahari hospital in 2012-13 Electronic J Biol. 2016; 12:4.
4. Jeffery LM. Iron deficiency anaemia common and curable disease. Cold Spring Harb perspect med. 2013; 3(7):9011866.
5. Karakus V, Giden A, Ersil SD, Bozkurt S, Kurtoglu E. evaluation of anaemia in terms of etiology, risk factors and relapse in adult patients. Mugla Med J, 2016; 3:1-6.
6. Kaur K. Anaemia 'a silent killer' among women in India: Present Scenario European Journal of Zoological Research. 2014; 3(1):32-36.

7. Mcclung JP, Murray-Kolb LE. Iron nutrition and premenopausal women: Effects of poor iron status an physical and neuropsychological performance. Annu. Rev. Nutr. 2013; 33:271-288.

8. Nils M. Anameia-Still a major health problem in many part of the world. Ann Hematol. 2011; 90(4):369-377.

9. Saydam BK, Genc RE, Turfan EC. Prevalence of anaemia and related factors among in aturkey, Pakistan Journal of Medical Sciences. 2016; 33(2):433-438.

10. Sharma P, Mehta S, Nagar R, Prevalence of anaemia and socio-demographic factors associated with anaemia among pregnant women Attending Hospital in Jaipur city India. IOSRJ. Pharm. Biol. Sci. 2016; 2013:1-5.

11. Stevens GA, Finucane MM, De-Regil LM, Paciorek CJ, Flaxman SR, Branca F *et al*. Nutrition Impact Model Study Group. Global, regional and national trends in haemoglobin concentration and prevalence of total and severe anaemia in children and pregnant and non-pregnant women for 2011. A systematic analysis of population representation data. Lancet Glob. Health, 2013, e16-e25.

12. World Health Organization (WHO). Geneva, Switzerland, 2015.

13. World Health Organization (WHO). The Global prevalence of anaemia in, 2011.