

SUMMER
INTERNSHIP
2019-2021

A STUDY ON EXPOSURE TO MEDIA, TOTAL
FERTILITY RATE AND NUTRITION HABITS AS
THE DETERMINANTS OF PREVALENCE OF
ANEMIA IN WOMEN

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LEAN AND SIX SIGMA- GREEN BELT

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MBA -HM 24

PART- A

INTRODUCTION

LITERATURE REVIEW

METHOD

RESULT

DISCUSSION

CONCLUSION

PART- B

COURSE DESCRIPTION

CONTENT

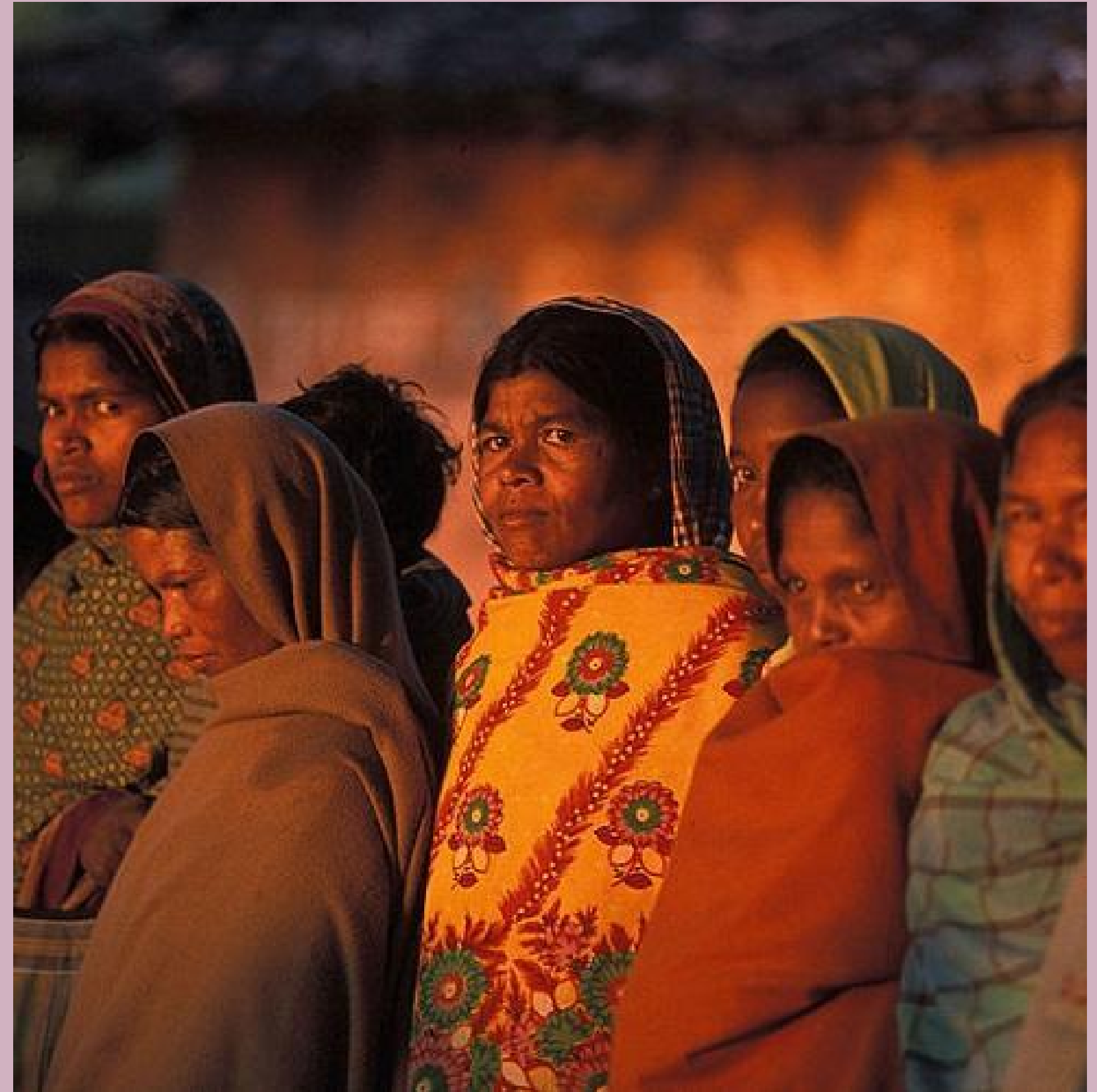
METHOD

KEY LEARNINGS

CONTENT

PART- A

A study on exposure to media, total fertility rate and nutrition habits as the determinants of prevalence of anemia in women



INTRODUCTION

- Anemia is a worldwide public health issue, mostly affecting women of reproductive age group (15-49 years)
- According to National family Health Survey- 4 (2015-16), 53.1% women in India are anemic
- Severe anemia in women may lead to maternal morbidity and mortality causing serious consequences on the country's development
- According to the past studies, women in developing countries are more vulnerable to anemia in respect to their health, socio-economic condition and food intake
- The prime objective of this research study is to find how exposure to media, total fertility rate and nutrition is associated with prevalence of anemia in Indian women

LITERATURE REVIEW

TITLE	AUTHOR	KEY FINDINGS
EXPOSURE TO MEDIA		
Identifying risk factors of anemia among women of reproductive age in Rwanda – a cross-sectional study using secondary data from the Rwanda demographic and health	D. Hakizimana, M. P. Nisingizwe, J. Logan and R. Wong,	Findings showed that there is no significant relationship between exposure to media and prevalence of anemia among women
Prevalence of Anemia and Its Determinants Among Pregnant, Lactating, and Nonpregnant Nonlactating Women in India	M. Z. Siddiqui, S. Goli, T. Reja, R. Doshi, S. Chakravorty, C. Tiwari and N. P. Kumar	Findings of the study revealed that with an increase in exposure to media, the risk of anemia reduces among the non-pregnant & pregnant women
TOTAL FERTILITY RATE		
Risk factors for anemia in Vietnam	Phuong H Nguyen, Khan C Nguyen, Mai B Le, Tam V Nguyen, Khoi H Ha, Caryn Bern, Rafael Flores and Reynaldo Martorell	Results concluded that having more than 3 children increases the risk of anemia among women compared to the women having lesser number of children
Determining factors for the prevalence of anemia in women of reproductive age in Nepal: Evidence from recent national survey Data	S. Gautam, H. Min, H. Kim and H. S. JeonG	Found no statistically significant relationship between number of children and prevalence of anemia among women

TITLE	AUTHOR	KEY FINDINGS
CONSUMPTION OF DGLV*		
Prevalence of anaemia among adolescent girls in the urban slums of Vellore,south India	Choudhary A, Moses PD, Mony P, Mathai M.	Study does not find any significant association between the consumption of green vegetables and the prevalence of anemia
CONSUMPTION OF F/C/M*		
Anemia and risk factors among female secondary students in the Gaza Strip	Marwan O. Jalambo &Amin Hamad &Yehia Abed	Association between meat consumption and anemia was found negative. With increase in consumption of meat the risk of anemia is found to be reduced
CONSUMPTION OF ALCOHOL		
Intake of Alcoholic Beverages Is a Predictor of Iron Status and Hemoglobin in Adult Tanzanians	W. Malenganisho, P. Magnussen, B. . J. Vennervald, H. Krarup, P. Kæstel, J. Siza, G. Kaatano, M. Temu and . H. Friis	Alcoholic beverages intake was found to be associated with reduced risk of anemia
The Effect of Alcohol Consumption on the Prevalence of Iron Overload, Iron Deficiency,and Iron Deficiency Anemia	George N Ioannou , Jason A Dominitz, Noel S Weiss, Patrick J Heagerty, Kris V Kowdley	Results concluded that with increased alcohol consumption (upto 2 drinks per day) is associated with reduced risk of anemia

*DGLV- Dark green leafy vegetables

*F/C/M- Fish/chicekn/meat



RESEARCH QUESTION

Does exposure to media, total fertility rate and nutrition habits affects prevalence of anemia in Indian women of reproductive age (15-49 years)?

Objective -To assess if exposure to media, total fertility rate and nutrition habits are determinants of prevalence of anemia in Indian women

Objective-1	Objective-2	Objective-3	Objective-4	Objective-5
To assess the relationship between exposure to media with prevalence of anemia in women	To assess the relationship between total fertility rate with prevalence of anemia in women	To establish relationship between consumption of dark green leafy vegetables and prevalence of anemia in women	. To establish relationship between consumption of chicken/meat/fish and prevalence of anemia in women	. To establish relationship between consumption of alcohol and prevalence of anemia in woman

METHODOLOGY



01

STUDY DESIGN

Correlational study



02

DATA SOURCE

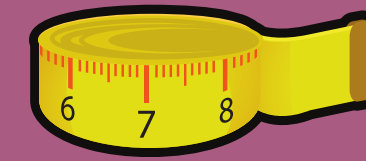
The data is extracted from National Family Health Survey-4(2015-16)



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STUDY POPULATION

The study population consists of women(pregnant and non-pregnant women) of age group 15-49 years from all the states of India



04

SAMPLE SIZE

The data was collected from 568,200 households and a total sample of 625,014 women



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ANALYSIS

Multiple regression was performed and multi-collinearity was checked using Microsoft Excel and Minitab

Variables

Dependent Variable

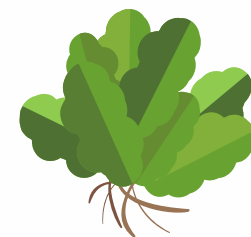
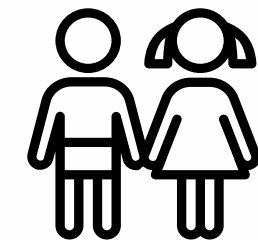
All women age 15-49 years who are anemic (%)

Independent Variable



1. Exposure to media (reads a newspaper/magazine at least once a week) (%)

2. Total Fertility Rate (children per woman)



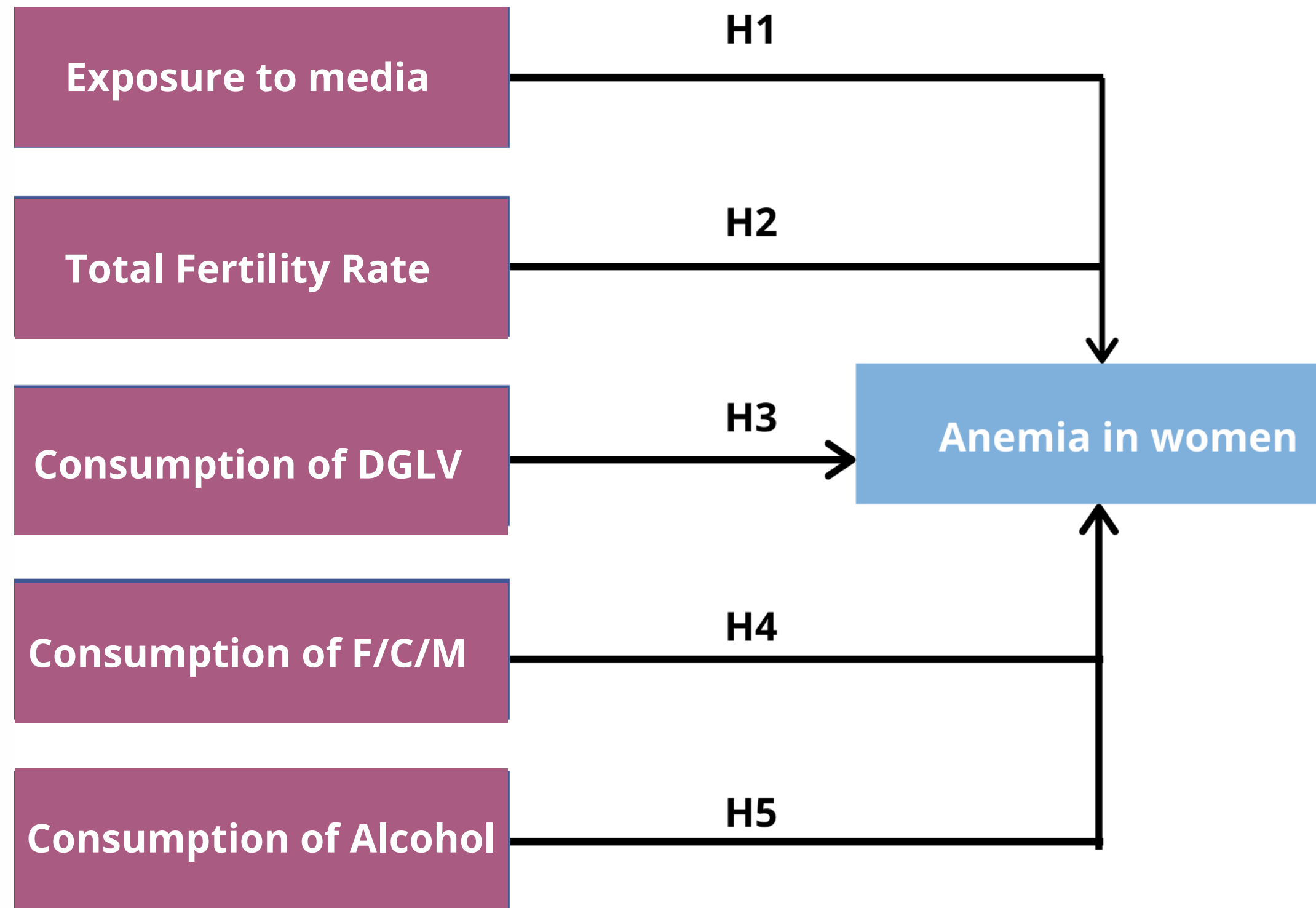
3. Consumption of dark green leafy vegetables weekly (%)

4. Consumption of fish or chicken or meat daily (%)



5. Consumption of alcohol (%)

Hypothesis Model



RESULT

Exposure to media ($p=0.002$; $p<0.05$), consumption of DGLV ($p=0.016$; $p<0.05$) and alcohol consumption ($p=0.04$; $p<0.05$) are significant

Analysis done explains that exposure to media should be increased by 0.457 unit ($\beta = -0.457$), to decrease prevalence of anemia by 1 unit. Surprisingly, alcohol consumption ($\beta = -0.597$) should be increased by 0.597 unit to decrease the prevalence of anemia by 1 unit which cannot be true. It shows the presence of some confounding factors. Moreover, consumption of DGLV ($\beta = 0.335$) should be decreased by 0.335 unit to decrease the prevalence of anemia by 1 unit showing the need of other supplements in diet.

- Multiple R - 0.76
- R Square - 0.58
- Adjusted R Square - 0.48

Variables	Coefficients	P- Value	Vif- Values
Exposure to media	-0.457	0.002	1.7
TFR	-3.689	0.314	1.18
DGLV consumption	0.335	0.016	1.21
Fish/Chicken/Meat	-0.084	0.535	1.56
Alcohol consumption	-0.597	0.042	1.24

DISCUSSION

The result shows that exposure to media is significantly associated with prevalence of anemia. This depicts that women who are exposed to media might have more awareness, literacy and good socio-economic conditions which results in lower odds of anemia.

The mean TFR value of the population studied is 2.1 and the highest TFR recorded is in state of Bihar which is 3.4. The analysis shows no significant association between TFR and prevalence of anemia in women showing that an average TFR rate of 2.1 is not a concern.

According to the result, surprisingly, the odds of anemia decrease on consuming alcohol. This association is true for a very small percentage of women with no data on the amount of alcohol consumed. Some confounding factors like good nutrition habits and high socio-economic status might have led to this result.

Consuming dark green leafy vegetables increases the odds of anemia as per the analysis. The previous studies have shown that only consumption of DGLV is not enough. It has to be accompanied with a balanced diet.

Rich protein foods like chicken/fish/meat do not have a significant impact on prevalence of anemia showing that a combination of right proportion of food containing iron is required.

CONCLUSION

Women in the age group 15-49 years old are more vulnerable to anemia. Exposure to media, consumption of dark green leafy vegetables and alcohol consumption were the significant factors associated with prevalence of anemia.

The analysis showed that women exposed to media resources must have better awareness, literacy and socio-economic condition which is the reason of lower odds of anemia. Surprisingly, consumption of alcohol came to be a significant factor is lowering the odds of anemia confirming the presence of confounding factors like good diet and health practices. Moreover consumption of green leafy vegetables is not enough alone, it needs to be supplemented with balanced diet

Specific interventions are required. Efficient and effective programs need to be implemented to increase literacy, awareness and improve socio-economic conditions of women to combat anemia

PART- B

Lean & Six Sigma – Green Belt



LEAN & SIX SIGMA



LEAN

- Lean was developed in Toyota as part of the Toyota Production System
- Lean runs on the basis of elimination of wastes.
- A set of tools is used to assist in the identification and the steady elimination of waste like 8 wastes and 5S

+



SIX-SIGMA

- Six Sigma was first developed at Motorola during the late 1980s
- The Six Sigma methodology aims on finding and removing anything that is a source of variation in the process.
- When the variation is removed, the process results can be accurately forecasted
- DMAIC is used
- Tools like cause and effect, pareto chart and control charts are used

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LEAN & SIX SIGMA

Lean Six Sigma is a blend of two constantly improvement oriented methods – Lean & Six Sigma, so as to make the way for better efficiency, and effectiveness within the process for organisations

OBJECTIVE

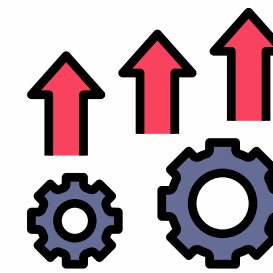
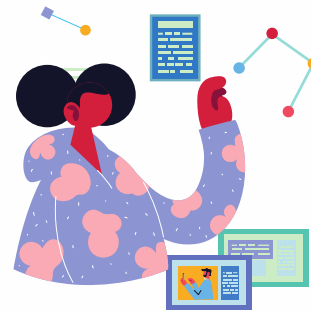
- Learn how to understand the current process in statistical forms
- Applying Lean & six sigma method to improve any process and bring more efficiency & effectiveness in the current process

"The Manager's role is to promote process improvement."

LEAN SIX SIGMA

6 Sigma level means max 3.4 DPMO

DMAIC ROADMAP



DEFINE

Set directions for improvement

MEASURE

Collect reliable data to understand current process performance

ANALYSE

Identify root causes of problems through process and data analysis

IMPROVE

Determine new improved process design

CONTROL

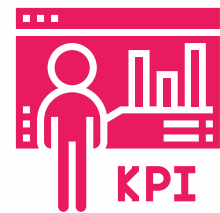
Improvement effectiveness over time

DEFINE

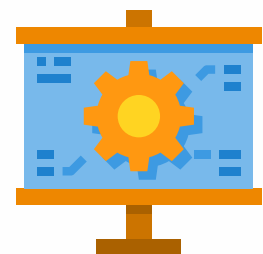
Set direction for improvement



1. **SIPOC**- Have a high level view of the process



2. **CTQs**- Know the customers' needs and identify their key performance requirements



3. **Project Charter**- Formalize the charter of the improvement

MEASURE

Collect reliable data to understand current process performance



1. The sigma of a process



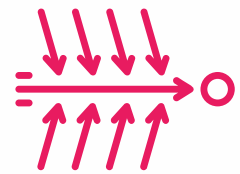
2. **VOC**- Voice of customer



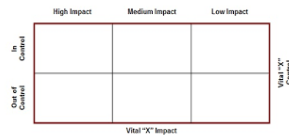
3. **VOP**- Voice of the process

ANALYSE

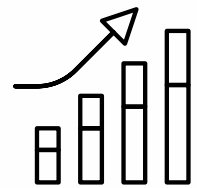
Identify problem's root causes through process and data analysis



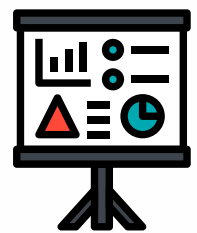
Cause and Effect Diagram



Control Impact matrix



Pareto chart



Value analysis using process map

IMPROVE

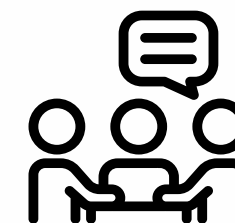
Determine new improved process design
Generate solution test & select



Process Benchmarking



Best practices



Brainstorming

CONTROL

Organise process reviews by process owner

Create control tools (documentation and dashboard)



Ensure improvement over time

Key Learnings



- How to define the current process
- Converting variables/feedbacks into measurable terms
- Analyse the data using statistical tool
- Finding solutions to improve the existing process
- Sustaining and keep a check on the improved processs



THANK
YOU!