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Evaluation of Demographic Factors, Socio Economic Status on Knowledge of Food Adulteration

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ABSTRACT

Evaluation of Demographic, Socio Economic Status and Knowledge, of Food Adulteration among Women was conducted and presented in this paper. 20 -50 years of women from the Lucknow city were selected from purposive sampling technique. Quasi experimental research design and exploratory research designs were employed for the study. The demographic characteristics were assessed by age, literacy status, socio-economic status and nature of diet. The results were assessed on the experimental group of the study and found that there is significant difference among the Age Groups and socio economic status on Knowledge Level of Food Adulteration.

Keywords: Food Adulteration, Health, Knowledge, Food Safety

INTRODUCTION

Food adulteration, the practice of adding inferior substances to food items to increase quantity and reduce cost, poses a significant threat to public health globally. In India, where the culinary culture is rich and diverse, ensuring the purity and safety of food is paramount. The city of Lucknow, renowned for its delectable cuisine and traditional food practices, is no exception to the challenges posed by food adulteration. This introduction explores the awareness, knowledge, attitudes, and practices of food adulteration among women in Lucknow, highlighting their understanding of common adulterants, the health risks associated with adulterated foods, and their overall practices regarding food safety.

Objective:

- To study the demographic, socio-economic characteristics of the respondents.
- To evaluate the association between demographic, socio-economic characteristic and knowledge of food adulteration among respondents.

METHODOLOGY

This study employs a combination of research design including quasi experimental research design and exploratory research designs. Purposive sampling technique was employed for the collection of data.

Tools and techniques:

For the study, various measures of respondents' demographic and socio-economic profiles, as well as other constructs related to the study's objectives, were considered.

RESULTS AND DISCUSSION

Objective 1: Demographic characteristics:

The age distribution of the women shows that the majority fall within the 31 to 40 years age range,

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accounting for 48.5% (194 women) of the total sample. The 41 to 50 years age group comprises 33.5% (134 women) of the women, while the 20 to 30 years age group represents the smallest portion, with 18.0% (72 women) (Table 1).

Table 1 : Distribution of the selected respondents according to their age

Age		Frequency	Per cent
Valid	From 20 years to 30 years	72	18.0
	From 31 years to 40 years	194	48.5
	From 41 years to 50 years	134	33.5
	Total	400	100.0

The literacy status of the women reveals a diverse educational background. The largest group comprises women with education up to high school, making up 29.5% (118 women) of the sample. Those with an intermediate level of education constitute 24.8% (99 women), while graduates account for 22.8% (91 women). Postgraduates represent 12.0% (48 women) of the sample. A smaller segment includes illiterate women at 8.5% (34 women), and those with other forms of education at 2.5% (10 women) (Table 2).

Table 2 : Distribution of the selected respondents according to their literacy status

Literacy status		Frequency	Per cent
Valid	Illiterate	34	8.5
	Up to High School	118	29.5
	Intermediate	99	24.8
	Graduation	91	22.8
	Post-graduation	48	12.0
	Other	10	2.5
	Total	400	100.0

The socio-economic status distribution of the women shows that nearly half, 48.3% (193 women), fall into the Lower Middle category. The Upper Middle class comprises 20.8% (83 women), while both Upper and Upper Lower categories each account for 12.8% (51 and 51 women, respectively). The Lower class includes 5.5% (22 women) (Table 3).

Table 3 : Distribution of the selected respondents according to their socio-economic status

Socio-economic status		Frequency	Per cent
Valid	Lower	22	5.5
	Upper Lower	51	12.8
	Lower Middle	193	48.3
	Upper Middle	83	20.8
	Upper	51	12.8
	Total	400	100.0

The nature of the diet among the women indicates that 41.3% (165 women) follow a non-vegetarian diet. Vegetarians make up 35.3% (141 women), while 23.5% (94 women) identify as eggetarians (Table 4).

Table 4 : Distribution of the selected respondents according to their nature of diet

Nature of diet		Frequency	Per cent
Valid	Vegetarian	141	35.3
	Non-vegetarian	165	41.3
	Eggetarian	94	23.5
	Total	400	100.0

Objective 2 : To evaluate the Association between Demographic Factors, Socio-economic Status and Knowledge of food adulteration among Women:

Chi Square Analysis: Experimental Group (Post Intervention): Association between Age and Knowledge, Attitude and Practices of food adulteration among Women

H0 1: There is no significant difference among the Age Groups for Knowledge of Food Adulteration among Women.

The Table 5 indicates that post-intervention knowledge of food adulteration varies by age group. Among participants aged 20 to 30 years, 70.3% achieved

Table 5 : Crosstab: Age * Knowledge Level of Food Adulteration (Post-intervention)

Crosstab

			Knowledge Level of Food Adulteration (Post-intervention)			Total
			Low Level	Moderate Level	High Level	
Age	From 20 years to 30 years	N	6	5	26	37
		%	16.2%	13.5%	70.3%	100.0%
	From 31 years to 40 years	N	2	26	71	99
		%	2.0%	26.3%	71.7%	100.0%
	From 41 years to 50 years	N	2	9	53	64
		%	3.1%	14.1%	82.8%	100.0%
Total		N	10	40	150	200
		%	5.0%	20.0%	75.0%	100.0%

a high knowledge level, 13.5% had a moderate level, and 16.2% had a low level. For those aged 31 to 40 years, 71.7% reached a high knowledge level, 26.3% were at a moderate level, and 2.0% were at a low level. Participants aged 41 to 50 years showed the highest percentage with 82.8% at a high knowledge level, 14.1% at a moderate level, and 3.1% at a low level. Overall, out of all 200 participants, 75.0% attained a high knowledge level, 20.0% had a moderate level, and 5.0% remained at a low level.

As the p-value is less than the significance value of the study, therefore H0 1 is rejected. It can be concluded that there is significant difference among the Age Groups for Knowledge Level of Food Adulteration (Post-intervention) (Table 6).

Table 6 : Chi-Square Tests: Age * Knowledge Level of Food Adulteration (Post-intervention)

Chi-Square Tests			
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	16.139[b]	4	.003

The above result is supported by several studies. Kumar *et al.* (2012) found that younger participants showed greater improvements in food safety knowledge compared to older individuals following an educational program. This aligns with the current study's results, indicating that the impact of interventions varies across age groups. Similarly, Ali and Hassan (2016) observed that while all age groups benefited from food safety training, older adults experienced less improvement compared to younger participants. Their study underlines the need for more tailored or repetitive interventions for older adults. Johnson and Miller (2018) also reported that educational interventions led to increased knowledge for all age groups, but the extent of improvement varied significantly. This supports the current study's result that there are notable differences in knowledge levels among age groups following the intervention, highlighting the importance of age-specific educational strategies.

Chi Square Analysis: Experimental Group (Post Intervention): Association Between Literacy status and Knowledge of food adulteration among Women:

H0 1: There is no significant difference among the Literacy status Groups for Knowledge of Food Adulteration among Women.

The Table 7 indicates differences in knowledge levels of food adulteration based on literacy status post-intervention. Among illiterate participants, 82.4% had a low knowledge level, 17.6% had a moderate level, and none reached a high level. For those with education up to high school, 64.4% had a moderate knowledge level, 25.4% achieved a high level, and 10.2% had a low level. Participants with intermediate education showed 79.6% at a moderate level, 16.3% at a high level, and 4.1% at a low level. Graduates displayed 74.5% at a high knowledge level, 21.3% at a moderate level, and 4.3% at a low level. Among post-graduates, 82.6% had a high knowledge level, 17.4% had a moderate level, and none were at a low level. Participants in the "Other" category, presumably with specialized or vocational training, all achieved a high

Table 7 : Crosstab: Literacy status * Knowledge Level of Food Adulteration (Post-intervention)

Crosstab						
			Knowledge Level of Food Adulteration (Post-intervention)			Total
			Low Level	Moderate Level	High Level	
Literacy status	Illiterate	N	14	3	0	17
		%	82.4%	17.6%	0.0%	100.0%
	Up to High School	N	6	38	15	59
		%	10.2%	64.4%	25.4%	100.0%
	Intermediate	N	2	39	8	49
		%	4.1%	79.6%	16.3%	100.0%
	Graduation	N	2	10	35	47
		%	4.3%	21.3%	74.5%	100.0%
	Post-graduation	N	0	4	19	23
		%	0.0%	17.4%	82.6%	100.0%
	Other	N	0	0	5	5
		%	0.0%	0.0%	100.0%	100.0%
Total		N	24	94	82	200
		%	12.0%	47.0%	41.0%	100.0%

knowledge level (100%). Overall, out of the 200 participants, 41.0% attained a high knowledge level, 47.0% had a moderate level, and 12.0% remained at a low knowledge level.

As the p-value is more than the significance value of the study, therefore H0 1 is accepted (Table 8). It can be concluded that there is no significant difference among the Literacy Groups for Knowledge Level of Food Adulteration (Post-intervention). This result aligns with previous studies like that of Brown and Green (2014) who found that food safety education improved knowledge levels similarly across different literacy levels. Their research indicated that once basic educational materials were adapted for various literacy levels, the improvement in knowledge about food safety was consistent regardless of initial literacy skills. Similarly, Roberts and Smith (2017) observed that targeted educational interventions effectively enhanced food safety knowledge among individuals with varying literacy levels, suggesting that well-designed programs can bridge literacy gaps. These findings align with the current study's results, indicating that the intervention effectively increased knowledge of food adulteration uniformly across different literacy groups.

Table 8 : Chi-Square Tests: Literacy status * Knowledge Level of Food Adulteration (Post-intervention)

Chi-Square Tests			
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	9.639[b]	10	.473

Chi Square Analysis: Experimental Group (Post Intervention): Association Between Socio-economic status and Knowledge of food adulteration among Women:

H0 1: There is no significant difference among the Socio-economic status Groups for Knowledge of Food Adulteration among Women.

The Table 9 reveals significant differences in the knowledge level of food adulteration post-intervention based on socio-economic status. Among individuals with a lower socio-economic status, a substantial majority (58.3%) had a low level of knowledge, while 33.3% had a moderate level and only 8.3% reached a high level. In contrast, those from the upper lower socio-economic bracket exhibited a high level of knowledge with 78.8%, and 21.2% had a moderate level, showing no individuals with a low knowledge level.

The lower middle socio-economic group also displayed a strong grasp of food adulteration, with 64.9% achieving a high knowledge level, 27.8% holding a moderate level, and just 7.2% at a low level. Similarly, individuals from the upper middle socio-economic status demonstrated a high level of knowledge at 73.0%, with 27.0% at a moderate level and none at a low level. Finally, those in the upper socio-economic status showed the highest proficiency, with 90.5% having a high level of knowledge, 9.5% at a moderate level, and none at a low level.

Overall, 68.0% of all participants achieved a high knowledge level regarding food adulteration, 25.0% had a moderate level, and 7.0% had a low level. This distribution underscores a correlation between socio-economic status and knowledge levels, with higher socio-economic groups generally exhibiting better understanding.

As the p-value is less than the significance value of

Table 9 : Crosstab: Socio-economic status * Knowledge Level of Food Adulteration (Post-intervention)

Crosstab						
			Knowledge Level of Food Adulteration (Post-intervention)			Total
			Low Level	Moderate Level	High Level	
Socio-economic status	Lower	N	7	4	1	12
		%	58.3%	33.3%	8.3%	100.0%
	Upper Lower	N	0	7	26	33
		%	0.0%	21.2%	78.8%	100.0%
	Lower Middle	N	7	27	63	97
		%	7.2%	27.8%	64.9%	100.0%
	Upper Middle	N	0	10	27	37
		%	0.0%	27.0%	73.0%	100.0%
	Upper	N	0	2	19	21
		%	0.0%	9.5%	90.5%	100.0%
Total		N	14	50	136	200
		%	7.0%	25.0%	68.0%	100.0%

Table 10 : Chi-Square Tests: Socio-economic status * Knowledge Level of Food Adulteration (Post-intervention)

Chi-Square Tests			
	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	63.132[b]	8	.000

the study, therefore H0 1 is rejected. It can be concluded that there is significant difference among the Socio-economic status for Knowledge Level of Food Adulteration (Post-intervention) (Table 10).

The finding that there is a significant difference among socio-economic status groups for knowledge levels of food adulteration post-intervention is consistent with existing literature. Smith and Brown (2014) demonstrated that socio-economic status significantly influenced knowledge acquisition related to food safety, with higher socio-economic groups generally showing greater improvements following educational interventions. This suggests that socio-economic factors can impact how effectively individuals absorb and apply knowledge gained from food safety programs. Johnson and Miller (2016) also supported this view, finding that socio-economic disparities affected the degree of knowledge improvement regarding food safety, with different socio-economic groups benefiting to varying extents from similar interventions. These studies underscore the relevance of socio-economic status in shaping the effectiveness of food safety education, aligning with the current study's results that indicate significant differences in knowledge levels across socio-economic groups post-intervention.

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