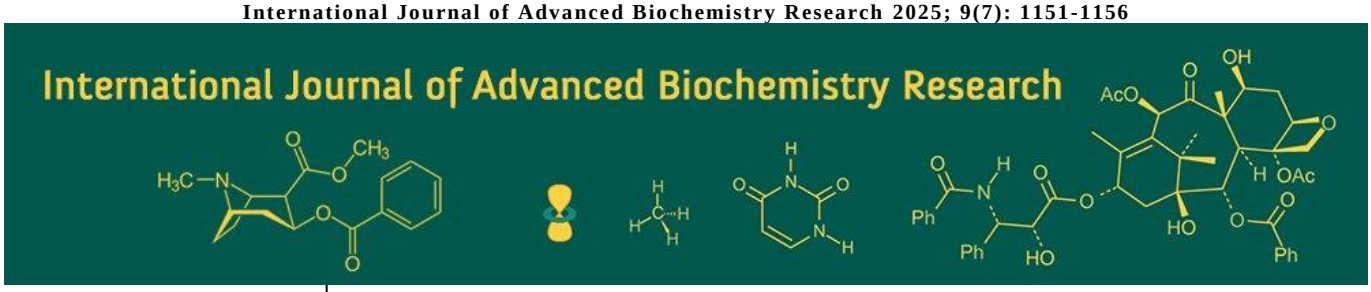

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A study on the knowledge of health foods and dietary supplements among women in Udaipur city

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Abstract
This study provides vital insight into the knowledge and awareness levels of health foods and dietary supplements among women aged 30 to 45 in Udaipur. Using a descriptive cross-sectional methodology, the study collected data from 200 women using organized, face-to-face interviews, assuring clarity and reducing response bias. The demographic focus on women in this age range is especially noteworthy since it represents a life stage with increasing dietary needs, health obligations, and active family care roles. In this setting, understanding how women perceive and use health-enhancing items is critical for developing successful health interventions.

The findings show that, while most women had heard of phrases like "health foods" and "dietary supplements," their knowledge was frequently superficial and characterized by conceptual uncertainty. For example, many people associate health foods simply with organic or natural products, neglecting the broader scientific definition, which includes fortified, functional, and processed foods meant to provide specific health benefits. Similarly, dietary supplements were viewed as nutrient fillers rather than tools with curative and preventative properties. This poor knowledge demonstrates a contrast between awareness and proper understanding, which is critical in nutrition instruction.

Such conceptual gaps are especially troubling considering the increasing popularity and accessibility of these items. In an environment where marketing narratives sometimes outstrip scientific literacy, consumers, particularly women, may choose supplements or health foods based on commercial influences or anecdotal suggestions rather than clinical proof. This raises the possibility of overuse, nutritional redundancy, or lack of basic dietary requirements. The study also highlights women's crucial role in establishing household food habits, emphasizing the larger influence of their knowledge (or lack thereof) on family and community health.

In light of these findings, the study emphasizes the critical need for customized public health education based on women's real-life experiences and informational demands. Nutrition literacy projects should extend beyond awareness campaigns to include conceptual clarification, practical advice, and critical thinking regarding marketing claims. Furthermore, legislators and health experts must work together to develop supportive conditions, such as clearer labelling requirements, controlled product claims, and easy access to health information. Empowering women to make evidence-based nutritional decisions promotes health literacy and resilience.

Keywords: Health foods, dietary supplements, nutrition knowledge, women's health, preventive nutrition, consumer awareness, urban women, supplement consumption, health education, nutrition literacy

Introduction
The purpose of this study work is to analyse women's knowledge levels, information sources, and influencing variables on the use of health foods and dietary supplements. By highlighting patterns in awareness and understanding, this study hopes to educate stakeholders ranging from healthcare professionals to policymakers about existing knowledge gaps and the need for evidence-based educational outreach that respects women's lived experiences and empowers them in their health decisions.

In the twenty-first century, people's attitudes toward food, health, and preventative medicine have shifted significantly. With growing concern about non-communicable illnesses, lifestyle-related problems, and nutritional deficiencies, there has been an astonishing increase in the consumption of health foods and dietary supplements across populations. Fortified cereals, protein powders, omega-3 capsules, herbal extracts, and probiotics are increasingly being marketed as tools for wellness, vitality, and illness prevention, rather than just

nutritional supplements. However, the rapid rise of the health supplement sector has not been matched by a matching increase in consumer understanding, particularly among women, who are biologically and socially more vulnerable to dietary changes.

Women have an important role in the discussion of nutritional awareness due to their reproductive roles, unique physiological demands, and pivotal position in family health decision-making. Women are more likely to suffer from micronutrient deficiencies, hormone imbalances, bone-related issues, and metabolic changes during maturity, especially between the ages of 30 and 45. This age group is also known for multitasking between employment, caregiving, and self-care responsibilities, which frequently leaves them relying on convenience-based food options or over-the-counter supplements sold through commercial, non-clinical channels.

Despite the increased popularity of supplements, multiple studies indicate that women's health-food decisions are influenced more by marketing, social influence, and anecdotal information than by evidence-based understanding of nutritional science or clinical counsel. Misinformation, a lack of regulatory openness, and inadequate interaction with health professionals might lead to inappropriate or hazardous use, nutritional redundancy, or unmet health demands. Furthermore, social conceptions of femininity, attractiveness, strength, and aging frequently impact women's food habits and supplement intake, resulting in a complicated interplay of health, identity, and consumerism.

Women in many metropolitan and semi-urban contexts are increasingly exposed to a wide range of health information, from traditional beliefs and cultural standards to social media influencers and wellness marketing. However, the validity, depth, and interpretation of such information are largely unknown, especially in the context of regional, cultural, and socioeconomic variation. It is consequently necessary to analyse how women perceive, assimilate, and implement knowledge about health foods and supplements in their daily lives.

This study focuses on women's knowledge and awareness of health foods and dietary supplements. It aims to assess not only what women know, but also how they learned it, by investigating the sources, motivations, challenges, and views that affect their understanding. By analysing knowledge levels and identifying informational gaps, this study hopes to make a significant contribution to public health education, nutrition literacy, and policy creation aimed at women's wellbeing. Furthermore, the findings are intended to provide insights for healthcare practitioners, educators, and product makers looking to promote more equitable, educated, and culturally sensitive health treatments.

Finally, this study is based on the concept that knowledge is more than a cognitive asset; it is a form of empowerment, especially for women who balance many duties and health obligations. Providing them with accurate, accessible, and context-specific information about what they eat is not only a nutritional necessity, but also a gendered act of health equity and social justice.

Objectives: To assess the level of knowledge and awareness related to health foods and dietary supplements among women residing in Udaipur city.

Methodology

A descriptive cross-sectional survey design was employed to assess the knowledge and attitudes toward health foods and dietary supplements among women aged 30 to 45 years in Udaipur. The study aimed to capture a snapshot of participants' awareness and knowledge at a specific point in time.

A total of 200 women within the specified age group were recruited through convenience sampling, which involved selecting participants who were readily accessible and willing to participate. Data collection was conducted using a structured questionnaire, administered via face-to-face interviews to ensure clarity of questions, encourage participation, and minimize missing or inconsistent responses. The questionnaire comprised three main sections:

- Demographic information, including age, marital status, education, occupation, and socioeconomic status;
- Knowledge assessment, designed to evaluate participants' understanding and awareness of health foods and dietary supplements.

3. Results

3.1 General background information

Table 1: Categorization of respondents on the basis of their demographic information

S. No	Items	Frequency	Percentage
1.	Age		
a.	30-35	128	64
b.	36-40	50	25
c.	41-45	22	11
2.	Educational status		
a.	Primary school	74	37
b.	Higher school	50	25
c.	Undergraduate	64	32
d.	Postgraduate	25	12.5
3.	Employment status		
a.	Student	79	39.7
b.	Homemaker	63	31.7
c.	Employed	46	23.1
d.	Self employed	28	14.1
4.	Marital status		
a.	Single	82	41
b.	Married	102	51
c.	Divorced	14	7
d.	Widowed	2	1
5.	Monthly household income		
	Low	61	30.8
	Medium	117	59.1
	High	20	10.1

Table 1 shows majority of participants were concentrated in the 30-35 year age group (64%), indicating that health-related awareness and consumption behaviours are particularly pronounced during early to mid-adulthood. This life stage is often associated with increased personal and familial responsibilities, which may influence health-related decision-making and dietary choices.

Educational attainment among respondents varied considerably. While a substantial portion had completed only primary education (37%), a noteworthy proportion possessed higher educational qualifications, including undergraduate degrees (32%) and higher secondary education (25%). A smaller segment (12.5%) had attained postgraduate education. These findings suggest that interest

in health foods and dietary supplements is not restricted to the highly educated but is increasingly observed across all levels of formal education. This trend reflects a broadening health consciousness that transcends educational boundaries.
In terms of employment status, the sample was predominantly composed of students (39.7%) and homemakers (31.7%), indicating that a significant proportion of participants were not engaged in formal employment. These groups may exhibit distinct health behaviours and nutritional needs, often shaped by their varying degrees of autonomy and access to health-related resources. A smaller share of respondents reported being employed (23.1%) or self-employed (14.1%), which may suggest better financial capability and informational access to health and nutrition products, albeit representing a less dominant portion of the sample.
With respect to marital status, the majority of respondents were married (51%), followed by single individuals (41%). A smaller proportion reported being divorced (7%) or widowed (1%). Marital status is a relevant variable, as it often shapes household dietary patterns, caregiving responsibilities, and health priorities within the family structure.
Analysis of monthly household income revealed that most participants (59.1%) belonged to the medium-income group. Approximately 30.8 percent were categorized as low-income earners, while only 10.1 percent fell within the high-income bracket. These figures emphasize the role of affordability and economic accessibility in influencing the consumption of health foods and supplements. They also underscore the economic constraints that may limit consumers' ability to act on health-related intentions despite growing awareness.

Knowledge of health foods and supplements

Knowledge refers to an individual's awareness, understanding, and accuracy of information concerning a particular topic. In this study, a self-structured questionnaire was designed to evaluate the knowledge of women pertaining to health foods and dietary supplements. Based on the participants' responses, their knowledge levels were classified into three categories: good, moderate, and poor. The assessment comprised a total of 16 questions aimed at measuring the depth and accuracy of their understanding.

Table 2: Categorization of respondents on the basis of knowledge level

Knowledge Level	Frequency (n)	Percentage (%)
Good (80-100%)	132	66.0%
Moderate (60-79%)	48	24.0%
Poor (<60%)	20	10.0%
Total	200	100.0%

Table 2 categorizes respondents based on their level of knowledge concerning health foods and dietary supplements, as determined through a structured scoring system. The classification was divided into three distinct categories: poor (<60%), moderate (60-79%), and good (80-100%) knowledge levels. The findings revealed that a substantial majority of participants (66%) exhibited a high level of knowledge. These respondents demonstrated accurate comprehension across key areas, including the health benefits of specific foods, the definition and purpose of dietary supplements, and potential health risks associated with overconsumption.
Approximately 24% of the sample displayed a moderate level of knowledge. While these individuals possessed a general understanding, they also exhibited notable gaps, particularly in distinguishing dietary supplements from pharmaceutical products and in grasping the broader conceptual framework of health foods. A smaller segment (10%) scored below the threshold for adequate knowledge, indicating limited awareness or the presence of misconceptions—potentially due to restricted access to credible health information sources.
These results highlight a generally strong awareness among women in the study area, while simultaneously underlining the need for focused educational initiatives to improve conceptual clarity and dispel misinformation. The scoring framework employed in this study enabled a more detailed assessment of participants' understanding—not only measuring awareness but also evaluating the depth of their knowledge regarding the functionality, usage, and risks of health foods and supplements.
The current findings are in agreement with the study conducted by Sharma *et al.* (2021) [21], which investigated nutritional knowledge and supplement consumption patterns among urban women in Delhi. That study reported that 62% of participants had high levels of knowledge, which the authors attributed to the growing influence of digital health content and the shift in health behaviour trends following the COVID-19 pandemic. Similarly, the present study found that women demonstrated a strong foundational understanding, particularly regarding the health-promoting and preventive roles of health foods, as well as awareness of the adverse effects associated with excessive supplement intake.
Nonetheless, misconceptions persisted—especially concerning the accurate definition of dietary supplements and confusion related to their labelling and packaging. These observations echo findings by Dwivedi and Mehta (2020) [3], who noted that while urban women were generally well-versed in health-related terminology, they often lacked in-depth knowledge of the scientific classifications and functional attributes of these products. The variation in knowledge scores, as indicated by the standard deviation, further emphasizes the need for targeted health literacy programs to address specific informational gaps and promote informed decision-making.
Table 3 shows evaluation of knowledge among the women surveyed reveals a detailed understanding of health foods and dietary supplements. A large portion of respondents demonstrated strong awareness, with many items classified under the "Good Knowledge" level according to Bloom's taxonomy criteria. Specifically, 94% of the participants were familiar with the term "health foods," and 98% recognized "supplements," indicating widespread familiarity with these concepts in everyday life. This likely reflects the increasing impact of wellness trends and digital health information, especially following the COVID-19 pandemic (Bhattacharya, 2022) [2]. Furthermore, between 84% and 86.5% correctly identified the definitions and potential health risks of these products, signifying a solid foundational understanding of their nature and the risks associated with misuse. Over 90% acknowledged that such products contribute to health improvement and longevity, which aligns with Liu, Zhang, and Wang's (2023) [13] findings that urban health-conscious consumers increasingly perceive functional foods and supplements as preventive healthcare tools rather than mere nutritional supplements.

Table 3: Categorization of respondents on the basis knowledge and awareness about Hf and supplements

S. No	Knowledge Statement	Correct/Positive Response (f, %)	Knowledge Level
1	Aware of the term "health foods"	188 (94.0%)	Good Knowledge
2	Familiar with the term "supplements"	196 (98.0%)	Good Knowledge
3	Able to define health foods accurately	168 (84.0%)	Good Knowledge
4	Able to define dietary supplements correctly	170 (85.0%)	Good Knowledge
5	Aware of the risks associated with excessive supplement intake	173 (86.5%)	Good Knowledge
6	Acknowledges the role of health foods and supplements in disease prevention	181 (90.5%)	Good Knowledge
7	Recognizes that health foods are generally more expensive than supplements	175 (87.0%)	Good Knowledge
8	Believes health foods and supplements contribute to improved health and longer life	185 (92.5%)	Good Knowledge
9	Understands that health foods extend beyond just fruits and vegetables	143 (71.5%)	Moderate Knowledge
10	Aware that these products are available in more than just specialized stores	97 (48.5%)	Poor Knowledge
11	Considers "health food" and "natural food" as interchangeable terms	132 (64.0%)	Moderate Knowledge
12	Believes that health foods are nutritionally superior to supplements	182 (91.0%)	Good Knowledge
13	Understands that health foods offer benefits beyond basic nutritional value	179 (89.0%)	Good Knowledge
14	Aware that supplements have a longer shelf life compared to health foods	126 (63.0%)	Moderate Knowledge
15	Knows that health foods and supplements should support, not substitute, meals or medications	136 (68.0%)	Moderate Knowledge
16	Believes that health and supplement packaging should use eco-friendly (biodegradable/compostable) materials	154 (77.0%)	Moderate Knowledge

However, some gaps in conceptual clarity were evident. For instance, only 71.5% correctly rejected the idea that health foods are limited solely to fruits and vegetables, and just 48.5% disagreed with the belief that these products are exclusively available in specialty stores. These results point to moderate to low awareness regarding the diversity and accessibility of health foods. A similar observation was made by Dwivedi and Mehta (2020) [3], who noted that many urban working women tend to narrow the definition of functional foods to organic or specialty items. Other areas with moderate understanding included the interchangeable use of terms like "health foods" and "natural foods" (64%), awareness about shelf life differences (63%), and the perception that biodegradable packaging is necessary for these products (77%). These responses indicate not only scientific knowledge but also underlying environmental and social values, suggesting that while participants may lack precise textbook definitions, they hold value-driven awareness. Interestingly, 68% recognized that supplements and health foods are meant to complement, not replace, the diet, highlighting a reasonable level of dietary literacy. This finding supports Shinde and Deshmukh's (2014) [21] emphasis on the importance of health communication in fostering realistic expectations regarding dietary products among Indian women.

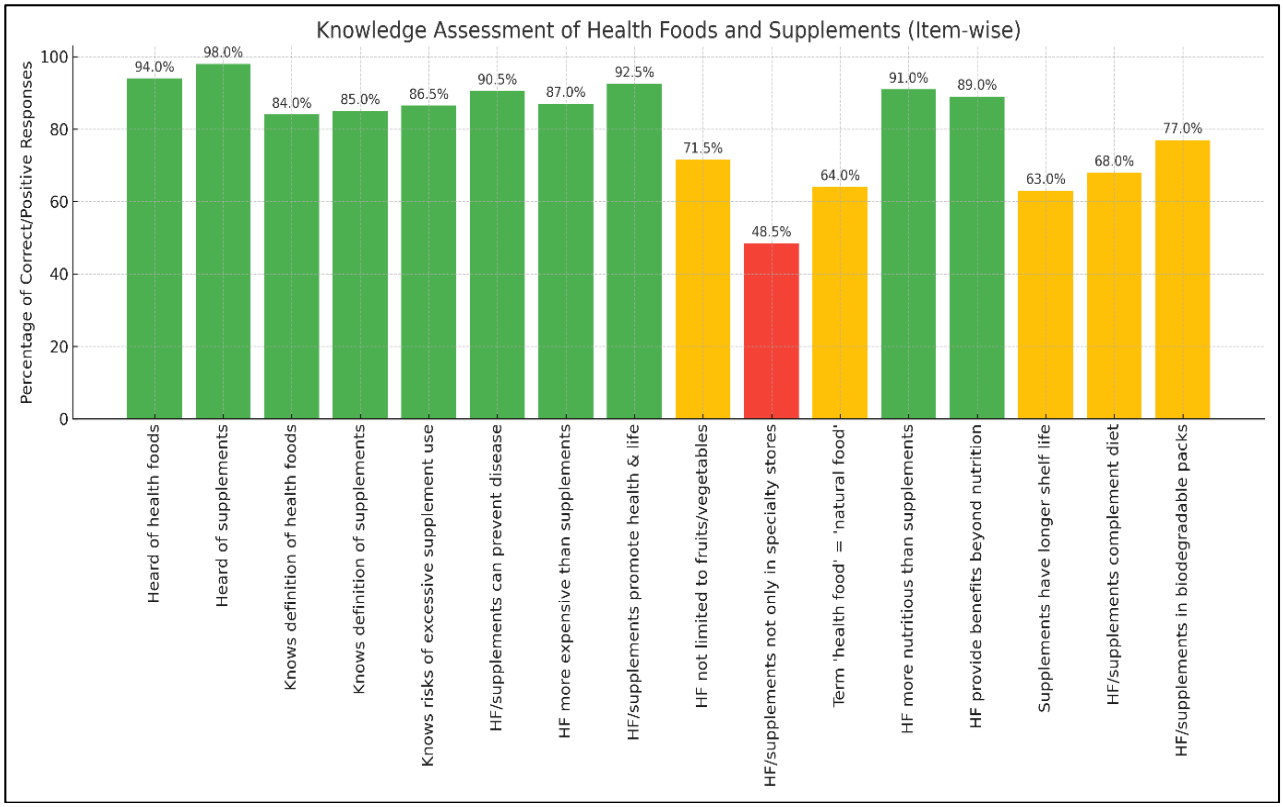

Fig 1: Demonstrates knowledge and awareness of respondents

Table 4: Categorization of Respondents on the basis of their Knowledge of Definitions and Preventive Role of Health Foods and Supplements

Aspect	Frequency (f,%)	Knowledge Level
Understanding of Health Foods as Organic and Natural Foods	90 (45.0%)	Poor Knowledge
Awareness that Supplements Complement the Diet with Nutrients	86 (43.0%)	Poor Knowledge
Recognition of Health Foods and Supplements in Disease Prevention	120 (60.0%)	Moderate Knowledge

Table 4 sheds light on the respondents' comprehension of health foods and dietary supplements. The most frequently chosen description for health foods was "organic and natural foods," selected by 45% of participants. Although this indicates a basic level of understanding, it also reveals a limited grasp of the broader scientific concept, which encompasses fortified, functional, and processed foods with health-enhancing properties. Consequently, the overall knowledge in this area was deemed poor.Similarly, when defining dietary supplements, 43% of respondents stated that supplements are "used to complete the diet with nutrients." While this is somewhat correct, it fails to capture the full scope of supplements' therapeutic and preventive roles, such as managing nutrient deficiencies and supporting specific health conditions. This response also points to a poor knowledge level. On a positive note, a higher percentage of respondents (60%) recognized that health foods and supplements can contribute to disease prevention. This reflects a moderate level of awareness, showing that some respondents understand the potential health benefits these products offer. This finding is consistent with earlier studies; for example, Bailey *et al.* (2013) [1] found that many individuals use dietary supplements as a preventive measure, particularly to boost immunity and reduce chronic disease risk. Likewise, Rautiainen *et al.* (2016) [18] highlighted that although the general public may not fully grasp scientific definitions, there is an increasing perception of health foods and supplements as part of a healthy lifestyle.

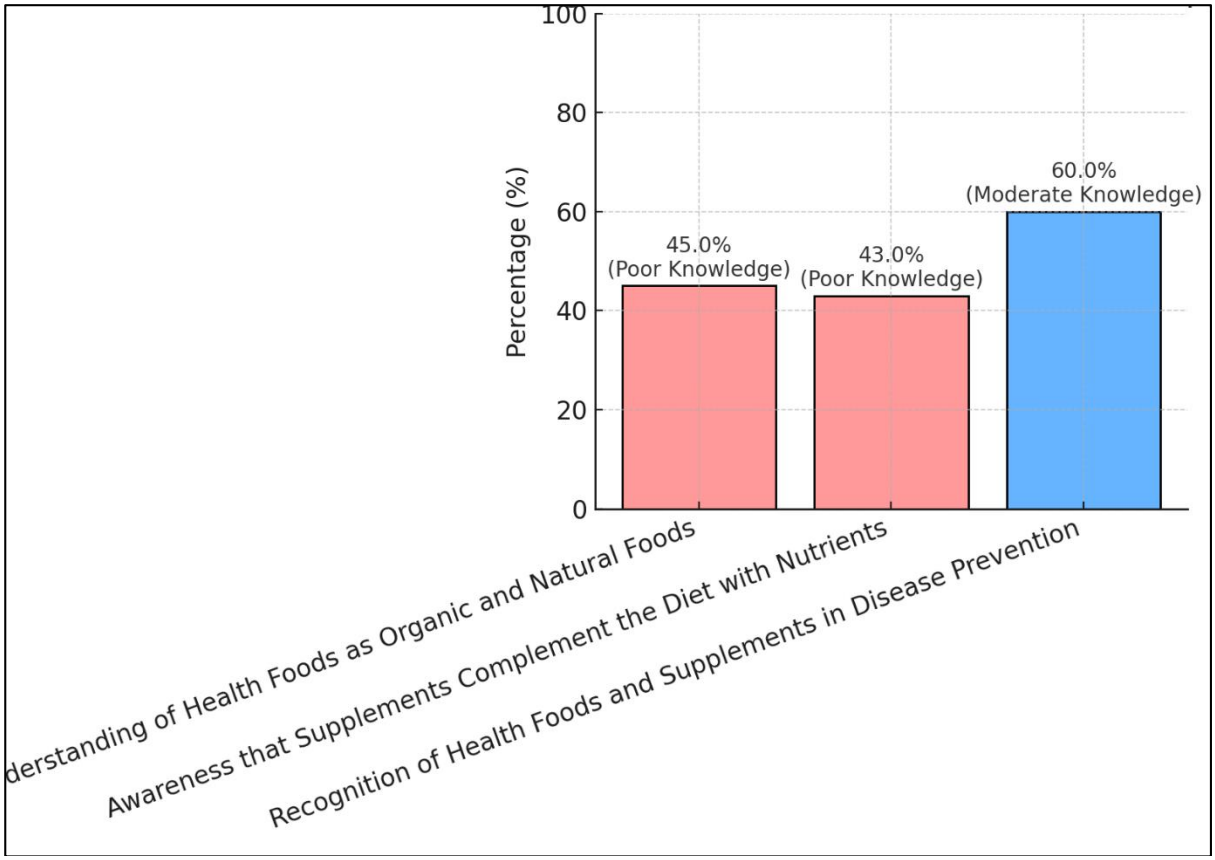

Fig 2: Demonstrates Knowledge about definition and also recognition of Hf and supplements in disease prevention

Conclusion

This study's findings reveal a considerable gap in women's conceptual understanding of health foods and dietary supplements in Udaipur. While most participants were generally aware of these words, their definitions and scientific implications were frequently misconstrued or oversimplified. For example, 45% of women considered health foods to be associated with organic and natural items, whereas 43% saw supplements as ordinary dietary add-ons. Although 60% recognized these items' disease-prevention significance, their limited understanding of definitions and applications indicates a moderate to low degree of expertise. This gap between recognition and comprehension is troubling, especially given that women control the majority of decisions about household nutrition and health practices. Without a strong understanding, their purchasing decisions may be influenced more by marketing messages or anecdotal information than by evidence-based reasoning. As a result, enhancing women's nutrition knowledge is critical—not only for their own health, but also for promoting healthy family and community habits. To close the knowledge gap, it is critical to implement multi-level

tactics that raise awareness and foster informed decision-making among women. Prioritize community-based nutrition education initiatives that are customized to the socio-cultural environment of urban and semi-urban women. These can be carried out by local health institutions, women's self-help groups, and community organizations. Healthcare professionals, particularly dietitians and general practitioners, should aggressively educate women during routine consultations, emphasizing both the benefits and drawbacks of health foods and supplements. Digital platforms and social media, which are rapidly influencing health habits, must be used to provide reliable, accessible, and regionally appropriate information. Furthermore, schools and businesses should incorporate wellness education initiatives, particularly for women in caregiving or multitasking jobs. To avoid disinformation, policymakers should require clearer labelling and regulatory transparency for health products. Finally, providing women with accurate information can improve not only individual dietary decisions but also overall population health.

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