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THE ROLE OF DEMOGRAPHICS IN NUTRITIONAL SUPPLEMENT PRACTICES: EVIDENCE FROM AHMEDABAD

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ABSTRACT

Health awareness, exercise, and lifestyle changes have driven nutritional supplement demand. Demographic characteristics, information sources, and key supplement motivations are examined in this Ahmedabad research on dietary supplement usage. Research shows that younger people generally trust social media celebrities and fitness coaches for supplement advice, whereas older people seek specialists. Lifestyle and exercise objectives determine supplement selection, with protein powders and multivitamins being the most popular. Potential hazards, side effects, and the importance of medical advice are yet little understood. The research emphasizes the need for stronger laws, consumer education, and healthcare practitioner participation to ensure informed and responsible dietary supplement usage.

Keywords: Nutritional Supplements Practices, Adoption, Health Awareness

1. INTRODUCTION

The domain of sport and exercise nutrition is experiencing significant expansion, with the global market assessed at $40 billion USD in 2021 and anticipated to increase at an annual rate of 8.5% from 2022 to 2030 (Jacob et al., n.d.). The escalating global demand has been paralleled by a heightened availability of evidence-based nutritional interventions, several of which have demonstrated efficacy in supporting athletic performance, facilitating post-exercise recovery, and improving body composition (Juma et al., n.d.). The worldwide rise in life expectancy, which coincides with corresponding increases in the prevalence of chronic diseases, has led to an escalating demand for solutions grounded in empirical evidence to bolster population health. Considering that physical activity and dietary practices represent two of the most efficacious and commonly employed preventive strategies for chronic disease mitigation, the practical advancement of food-centric interventions is essential, not solely for athletes, but to foster healthy and active lifestyles throughout the entirety of one's life span. Individuals who utilize supplements exhibit a distinct sociodemographic profile, characterized by a predominance of females, a higher level of education, and an older age demographic (Nieper, n.d.). Furthermore, it has been noted that individuals who utilize supplements tend to engage in a comparatively health-conscious lifestyle (Kaoche, n.d.). Consequently, they do not inherently represent the demographic with the most

pressing requirement for supplements, a notion referred to as the 'inverse supplement hypothesis'(Aljaloud & Ibrahim, 2013).

Nutritional supplements have gained significant popularity globally as individuals seek to improve their overall health and well-being. In India, the increasing awareness of fitness and preventive healthcare has fueled the demand for dietary supplements (Goston & Toulson Davisson Correia, 2010). Ahmedabad, one of Gujarat's largest cities, is witnessing a growing trend in supplement consumption due to urbanization, changing lifestyles, and rising health consciousness (Kumar, 2018). However, little research has been conducted on the prevalence, attitudes, and practices surrounding supplement usage in Ahmedabad.

Despite the increasing accessibility of dietary supplements, concerns persist regarding their regulation, proper usage, and potential health risks (Montuori et al., 2021). Studies in other regions indicate that supplement consumption is often driven by gym trainers, social media influencers, and peer recommendations rather than healthcare professionals (Druker & Gesser-Edelsburg, 2017). Understanding the patterns and motivations behind supplement adoption in Ahmedabad can help bridge knowledge gaps and guide regulatory frameworks for safer consumption.

- To assess the prevalence of nutritional supplement usage in Ahmedabad.
- To identify the demographic factors influencing supplement adoption.
- To measure the impact of factors with demographic variables

2. LITERATURE REVIEW

Several studies have examined the prevalence and motivations behind dietary supplement usage globally. A study conducted in Malaysia (Azila Mohd Noor et al., n.d.) found that supplement consumption was influenced by health concerns, fitness aspirations, and social media influence. Similarly, research in India (Patel et al., n.d.) highlighted that gym-goers were more likely to consume protein supplements due to peer pressure and lack of awareness about potential side effects. Another study in Brazil (Rodrigues et al., n.d.) emphasized the role of healthcare professionals in guiding supplement consumption, which contrasts with India's trend of gym trainers and influencers acting as primary advisors. These findings highlight the importance of conducting localized studies to assess supplement adoption patterns in Ahmedabad, Gujarat.

The incidence of nutritional supplement consumption in India varies markedly among diverse populations and locations. A research conducted by Bansal & Pandey (2022) revealed that 70% of gym attendees in India utilize nutritional supplements, with 77% of males favoring protein-based supplements and 60% of females depending on multivitamins and minerals. This corresponds with the findings of Patel et al. (2018), which indicated that supplement use is notably elevated among young fitness aficionados in metropolitan areas such as Mumbai, Delhi, and Bangalore. In Indian males, the principal motivation is the augmentation of muscular bulk, while ladies mostly utilize supplements for weight control and general well-being. Information on supplements in India is predominantly derived from social media influencers, gym trainers, and peer recommendations, with minimal dependence on medical specialists (Sharma et al., 2021). Kumar (2020) reports that 78% of males and 60% of females get supplement-related knowledge via the internet and social media, resulting in prevalent self-prescription without medical supervision. In accordance with worldwide trends, Indian fitness coaches predominantly influence supplement recommendations, whereas just a tiny percentage (15-20%) of customers consult dietitians or physicians (Mehta & Singh, 2019). Notwithstanding the increase in supplement usage, understanding of possible health dangers remains minimal. Gupta et al. (2021) discovered that hardly 22% of Indian fitness enthusiasts recognized potential adverse effects, with an even lesser proportion (14%) seeking advice from healthcare specialists before to initiating supplementation. The usage of performance-enhancing chemicals, including anabolic steroids, has been recorded in 11-18% of gym attendees, notably among competitive bodybuilding communities (Thakur & Kaur Brar, 2018). Research by Nair et al. (2020) has recorded instances of uncontrolled supplement usage resulting in renal impairment, hepatic toxicity, and hormonal dysregulation. The absence of regulatory control continues to be a significant concern in India. A multitude of supplements fail to adhere to FSSAI (Food Safety and Standards Authority of India) laws, and counterfeit or unverified items often infiltrate the market (Bhatia et al., 2019). In contrast to nations with stringent supplement regulations, India currently lacks thorough legislation regarding supplement safety, labelling, and medical oversight (Rajput et al., 2022). This highlights the necessity for enhanced

consumer awareness initiatives, more stringent laws, and proactive healthcare engagement to guarantee safe supplement usage in the nation.

The results derived from various studies suggests that the patterns of supplement consumption in Ahmedabad are probably influenced by analogous factors—social peer dynamics, insufficient professional counsel, and an escalating culture of fitness (Attlee et al., 2018). It is anticipated that younger males will predominantly engage in the utilization of supplements, with the enhancement of muscle mass serving as the principal impetus. The deficiency in risk awareness and the presence of regulatory voids underscore the necessity for more robust regulations, comprehensive educational initiatives, and active participation from the healthcare sector to guarantee safe and informed consumption of supplements in Ahmedabad (Rashani et al., n.d.).

3. METHODOLOGY

Study Design

A cross-sectional investigation was undertaken among the inhabitants of Ahmedabad, concentrating on young age group (18-34 years) and adults (35-45 years). Data were amassed through an online self-administered questionnaire disseminated across various social media platforms. The sample size was ascertained through the application of the conventional statistical formula, thereby guaranteeing a heterogeneous and representative demographic composition. A cumulative total of 380 individuals engaged in the study. Participants were recruited using convenience sampling utilizing social media channels and fitness organizations. The poll had 20 multiple-choice questions addressing supplement use, sources of influence, and health consciousness. All respondents provided informed consent, and data confidentiality was maintained.

Statistical Analysis

The analysis of data was conducted utilizing IBM SPSS Statistics (Version 21.0). Descriptive statistics, encompassing frequency distributions and means, were employed to encapsulate the responses succinctly. Chi-square tests were employed to investigate the relationships among categorical variables, while one-way ANOVA was utilized to assess the differences in awareness scores across various age cohorts.

Data Analysis

Demographic Distribution

DEMOGRAPHIC PROFILE			
Variables		Frequency	Percent
Gender	Male	209	55
	Female	171	45
Age	18-24 years	218	57.4
	25-34 years	130	34.2
	35-44 years	26	6.8
	More than 45 years	6	1.6
Occupation	Job	140	36.8
	Business	81	21.3
	Student	136	35.8
	Housewife	23	6.1
Annual Income	0 – 2,50,000	147	38.7
	2,50,001-5,00,000	125	32.9
	5,00,001-7,50,000	72	18.9
	7,50,001-10,00,000	23	6.1
	10,00,000 >	13	3.4
Total		380	100

Prevalence of Supplement Use

Supplement Type	Number of Respondents (n=380)
Pro powder	167
Multivitamins	130
Omega3/Fish oil	65
Herbal Supplements	14
Others	4

Motivations for Supplement Use

Motivation	Number of Respondents (n=380)
Health & Immunity Boost	183
Muscle Gain & Fitness	143
Doctor's Recommendation	22
Weight Management	14
Self-recommendation	18

Sources of Information

Source	Number of Respondents (n=380)
Gym Trainers & Coaches	145
Social Media Influencers	133
Doctors & Dietitians	45
Friends & Family	57

Awareness & Risk Perception

Factor	Number of Respondents (n=380)
Unaware of Potential Side Effects	235
Experienced Mild Side Effects	113
Trusted Government Regulations	32

Statistical Analysis:

Independent T- test: Gender and Supplement use, Motivation

Independent Samples Test		Levene's Test for Equality of Variances		t-test for Equality of Means	
		F	Sig.	t	df
SUPP_USE	Equal variances assumed	1.988	0.159	2.175	378
	Equal variances not assumed			2.168	358.757
MOTIVATION	Equal variances assumed	0.032	0.858	0.144	378
	Equal variances not assumed			0.144	361.717

Cross tabulation: Source by Age Group

SOURCE				
AGE	**FRIENDS/FAMILY**	**GYM TRAINER/COACHES**	**DOCTORS/DIETICIANS**	**SOCIAL MEDIA INFLUENCERS**
18-24 years	31	84	13	90
25-34 years	24	55	29	22
35-44 years	2	6	3	15
More than 45 years	0	0	0	6

TOTAL	57	145	45	133

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	52.150[a]	9	0
Likelihood Ratio	55.025	9	0
Linear-by-Linear Association	0.792	1	0.373
N of Valid Cases	380		

Cross tabulation: SUPPLEMENT USAGE by AGE

SUPP_USE				
AGE	PRO POWDER	MULTIVITAMINS	OMEGA3/FISHOIL	HERBAL SUPPLEMENTS
18-24 years	118	65	24	8
25-34 years	35	51	37	6
35-44 years	9	13	4	0
More than 45 years	5	1	0	0
TOTAL	167	130	65	14

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	38.717[a]	12	0
Likelihood Ratio	40.8	12	0
Linear-by-Linear Association	4.009	1	0.045
N of Valid Cases	380		

Cross tabulation: Motivation for Supplement Use by Education Level

MOTIVATION				
AGE	health & immunity	muscle gain & fitness	doctor recommendation	weight management
18-24 years	103	74	15	13
25-34 years	64	57	4	0
35-44 years	13	10	2	1
More than 45 years	3	2	1	0
Total	183	143	22	14

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	16.248[a]	12	0.18
Likelihood Ratio	22.092	12	0.036
Linear-by-Linear Association	3.836	1	0.05
N of Valid Cases	380		

One-Way ANOVA: Awareness Score by Age Group

ANOVA - age

		Sum of Squares	df	Mean Square	F	Sig.
SOURCE	Between Groups	30.037	3	10.012	8.671	0.000
	Within Groups	434.184	376	1.155		

	Total	464.221	379			
SUPP_USE	Between Groups	19.075	3	6.358	8.109	0.000
	Within Groups	294.809	376	0.784		
	Total	313.884	379			
MOTIVATION	Between Groups	5.362	3	1.787	1.675	0.172
	Within Groups	401.214	376	1.067		
	Total	406.576	379			

4. DISCUSSION OF THE RESULTS

The analysis employing the independent samples t-test concerning supplement utilization and motivational factors indicated a significant disparity in supplement use between male and female participants ($t(378) = 2.175$, $p = 0.030$). This finding implies that one gender, presumably males, may engage in supplement consumption with greater frequency than their counterparts. Nevertheless, a notable absence of significant disparity was observed in the motivations underlying supplement utilization ($t(378) = 0.144$, $p = 0.886$), suggesting that individuals of both genders engage in supplement consumption for analogous reasons, including fitness, health, immunity, or upon the counsel of a physician.

The chi-square test reveals that younger individuals, specifically those aged 18 to 24 years, exhibit a pronounced dependence on social media influencers along with gym trainers or coaches for health and fitness guidance. In contrast, this reliance diminishes as age increases. The demographic cohort aged 25 to 34 continues to hold gym trainers and medical professionals, such as doctors and dieticians, in high regard; however, there is a noticeable decline in their trust towards social media platforms. Individuals in the older demographic (35 years and above) demonstrate a limited dependence on various sources, although social media continues to exert a degree of influence. The Chi-Square test substantiates a noteworthy correlation between age and sources of influence; however, the observed pattern is non-linear, indicating diverse preferences instead of a straightforward escalation or decline with age.

The examination of supplement utilization among different age cohorts uncovers notable discrepancies in preferences, as substantiated by the Chi-Square test ($\chi^2 = 38.717$, $df = 12$, $p = 0.000$), which signifies a robust correlation between age and supplement selection. Individuals in the younger demographic (ages 18-24) primarily engage in the consumption of protein powder, as evidenced by 118 responses, alongside multivitamins, which garnered 65 responses. In contrast, there is a comparatively lower utilization of Omega-3/fish oil, with only 24 responses, and herbal supplements, which received a mere 8 responses. The demographic cohort aged 25 to 34 exhibits a notable reduction in the consumption of protein powders (35), while demonstrating a comparatively stable utilization of multivitamins (51) and a marginally elevated inclination towards Omega-3/fish oil supplements (37). Conversely, the utilization of supplements markedly declines within the older demographics (ages 35-44 and 45 years and above), exhibiting a negligible dependence on any specific category. The Linear-by-Linear Association test ($p = 0.045$) indicates a diminishing trend in supplement utilization with advancing age, underscoring a transformation in health and nutritional priorities as individuals mature.

The findings from the one-way ANOVA reveal noteworthy disparities among age cohorts concerning the SOURCE of influence ($F = 8.671$, $p = 0.000$) and SUPP_USE ($F = 8.109$, $p = 0.000$). This suggests that age exerts a significant impact on both the sources from which individuals derive health and fitness guidance and their patterns of supplement utilisation. The minimal within-group variance observed in both instances further substantiates these findings. Nevertheless, with respect to MOTIVATION ($F = 1.675$, $p = 0.172$), no statistically significant difference is discerned among the various age cohorts, suggesting that the motivational determinants for supplement utilisation exhibit a remarkable degree of consistency irrespective of age.

5. CONCLUSION

This research investigates the uptake of nutritional supplements in Ahmedabad, elucidating the principal determinants that shape consumer behavior among various age demographics. The results indicate that younger

demographics exhibit a greater propensity to depend on social media influencers and fitness trainers for guidance on supplementation, in contrast to older individuals who tend to adopt a more prudent and restrained stance regarding supplement use. The inclination towards particular categories of supplements seems to be influenced more by individual lifestyle decisions, fitness aspirations, and levels of awareness than by professional medical counsel (Bansal & Pandey, n.d.). Furthermore, the research highlights the increasingly significant influence of digital platforms in informing health-related choices, frequently resulting in self-prescription without sufficient understanding of the associated risks. Although the motivations for supplement consumption—encompassing the enhancement of immunity, muscle development, and general well-being—persist across various demographics, the study uncovers a notable deficiency in awareness pertaining to appropriate usage and safety considerations (Noor & Patel, n.d.). The necessity for regulatory oversight and educational initiatives arises as a pivotal factor to guarantee responsible and well-informed adoption of supplements. The study further elucidates the evolving dynamics of health consciousness, wherein external factors, particularly social media, exert a significant influence on consumer perceptions and their subsequent purchasing decisions. These revelations underscore the significance of equitable direction from reputable authorities to cultivate safer and more efficacious utilization of supplements.

6. RECOMMENDATIONS AND LIMITATIONS

To enhance the safety and knowledge surrounding supplement consumption, it is imperative to regulate the influence of social media personalities and fitness trainers by mandating the dissemination of evidence-based health information. Enhanced engagement of healthcare practitioners, including physicians and nutritionists, in the provision of supplement guidance can effectively alleviate misconceptions and promote judicious utilization. Furthermore, it is imperative to execute targeted awareness campaigns specifically designed for various age demographics to enlighten consumers regarding the advantages and potential hazards associated with dietary supplements. Regulations that require explicit labeling and transparency concerning the constituents and potential adverse effects of supplements can significantly augment consumer awareness. Future investigations ought to embrace a longitudinal methodology to scrutinize the dynamic trends in supplement utilization and its enduring health ramifications.

Notwithstanding its significant contributions, this study is not without its limitations. The dependence on self-reported data has the potential to introduce bias, as the responses of participants may be swayed by individual perceptions or the desire to conform to social expectations. Furthermore, the results are particular to Ahmedabad, thereby constraining their applicability to other areas characterized by varied cultural and economic contexts. The cross-sectional design of the study limits the capacity to monitor fluctuations in supplement utilization across temporal dimensions. Furthermore, the implementation of convenience sampling may inadequately encompass the viewpoints of diverse demographic cohorts, thereby underscoring the imperative for more representative sampling methodologies in forthcoming investigations. Mitigating these constraints in future research endeavors will enhance the comprehension of supplement utilization and its ramifications for public health.

CONFLICT OF INTERESTS

None.

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