# Informed or Influenced? A Critical Review of Knowledge, Attitudes, and Practices Toward Dietary Supplements Among Young Adults

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## ABSTRACT

The widespread availability and marketing of dietary supplements have significantly shaped the consumption patterns of young adults, raising important questions about whether their choices are guided by informed decision-making or external influences. This critical review examines existing literature on the knowledge, attitudes, and practices (KAP) of young adults toward dietary supplements. Findings suggest that while awareness levels are relatively high, much of the knowledge is superficial or shaped by non-scientific sources such as social media, peer recommendations, and celebrity endorsements. Attitudes toward supplements are often positive, driven by perceived benefits for fitness, weight management, and overall health. However, gaps exist in understanding the potential risks, side effects, and regulatory concerns. Practices frequently reflect trends and marketing pressures rather than evidence-based health needs. The review underscores the need for targeted health education, stricter regulation of supplement marketing, and stronger dissemination of scientific information to ensure young adults make safe and informed choices.

**Keywords :** Dietary supplements; Knowledge, attitudes, and practices (KAP); Young adults; Health behavior; Nutrition awareness; Consumer influence; Social media; Evidence-based decision-making

## Introduction

In recent decades, there has been a marked global increase in the consumption of dietary supplements, especially among young adults. These supplements—ranging from vitamins, minerals, proteins, herbal formulations, and ergogenic aids—are widely marketed as essential tools for enhancing physical appearance, boosting immunity, improving mental focus, and filling nutritional gaps. As lifestyles become more fast-paced and food patterns increasingly irregular, young people have emerged as a prominent consumer segment for nutraceuticals and dietary supplements (Bailey et al., 2013; Dickinson et al., 2014).

In India, this surge is further propelled by increased access to online marketplaces, unregulated health claims on social media, and aggressive marketing by fitness influencers and gym trainers. The Indian dietary supplement market, which was valued at USD 3.9 billion in 2022, is expected to grow at a CAGR of 13% between 2023 and 2030 (Statista, 2023). Youth aged between 18 and 30 are particularly vulnerable to the persuasive messaging of health

brands, often using supplements without proper medical supervision or understanding of their implications (Gupta & Jain, 2020).

**Problem Statement**

While awareness of dietary supplements among young adults is relatively high, the depth of their knowledge remains questionable. Multiple studies have indicated a significant gap between perceived knowledge and actual, evidence-based understanding of supplements' efficacy, dosage, regulation, and potential side effects (Kaur & Walia, 2017; Rathi & Sharma, 2018). Additionally, motivations for use are often driven more by appearance-related goals, peer pressure, or unverified media influence than by clinical necessity or nutritional deficiency.

This disconnect raises several critical questions: Are young adults truly informed, or are they primarily influenced by popular narratives, marketing strategies, and peer behaviors? Do their consumption practices reflect an understanding of long-term health implications, or are they driven by short-term performance goals and aesthetic aspirations?

**Objectives of the Review**

This review aims to explore and synthesize the existing body of literature related to knowledge, attitudes, and practices (KAP) surrounding dietary supplement use among young adults. The key objectives are to:

- Analyze global and Indian trends in youth dietary supplement consumption.
- Evaluate the level and sources of knowledge regarding dietary supplements among young adults.
- Examine the attitudes that shape perception and acceptance of supplement use.
- Identify behavioral patterns and decision-making drivers in supplement consumption.
- Highlight the influence of social media, digital platforms, and peer groups.
- Identify gaps in research and offer directions for future inquiry and public health intervention.

**Relevance and Rationale**

The issue of supplement usage among youth sits at the crossroads of healthcare, education, marketing ethics, and digital literacy. The World Health Organization (2021) has highlighted the increasing vulnerability of adolescents and young adults to health misinformation, particularly in online spaces. A better understanding of how youth engage with dietary supplements can inform public health policy, regulatory frameworks, and education strategies aimed at promoting safe and informed consumption.

In India, where regulatory mechanisms are still evolving and awareness campaigns are limited in scope, there is an urgent need to contextualize young adults' health behavior in relation to dietary supplements. This review is particularly relevant given the growing penetration of fitness culture and the parallel rise of non-communicable diseases in the youth population.

**Scope and Structure of the Paper**

This paper is based on a critical review of scholarly literature published between 2010 and 2024. It draws from peer-reviewed journals, public health databases, regulatory reports, and empirical studies related to dietary supplement use among young adults. The paper is structured as follows:

- Section 2 provides a thematic literature review categorized under knowledge, attitudes, and practices.
- Section 3 discusses influencing factors such as digital marketing, peer norms, and body

image.

- Section 4 identifies key research gaps and limitations.
- Section 5 offers implications for policy, education, and health communication.
- Section 6 concludes with recommendations for future research and stakeholder engagement.

**Significance of the Study**

This review serves as a knowledge consolidation effort that can benefit:

- Health educators and institutions designing curricula and awareness campaigns.
- Public health professionals crafting youth-oriented interventions.
- Policy-makers and regulators formulating guidelines on supplement marketing and labeling.
- Researchers and academicians interested in adolescent health behavior, media influence, and decision science.

By distinguishing between being "informed" and being "influenced," the paper seeks to contribute to a more nuanced understanding of dietary supplement consumption and encourage evidence-based health behavior among young adults.

## Literature Review

Dietary supplement use among young adults is a complex behavior influenced by an interplay of knowledge, attitudes, social environments, and marketing exposure. The literature in this area spans nutrition science, behavioral health, marketing studies, and digital communication. This review critically evaluates global and Indian studies to map the current understanding of knowledge, attitudes, and practices (KAP) related to dietary supplement use among youth, drawing thematic insights from both quantitative and qualitative research.

**Knowledge About Dietary Supplements**

Studies worldwide indicate that while awareness of dietary supplements is high, actual knowledge remains inconsistent. According to Bailey et al. (2013), over 50% of U.S. adults use dietary supplements, but less than 25% can accurately identify their intended uses or distinguish between different supplement types. In a similar vein, Dwyer et al. (2018) found that only a fraction of young users understand labeling standards, recommended dosages, or side effects.

In India, Gupta and Jain (2020) conducted a cross-sectional study of college students in Delhi NCR, revealing that 78% of students had heard of dietary supplements, but only 41% could name the key ingredients of what they were consuming. Kaur and Walia (2017) found that even students from science backgrounds exhibited poor regulatory knowledge.

A growing concern is the absence of reliable sources. Chowdhury et al. (2020) noted that only 21% of respondents received information from healthcare professionals, while the majority depended on gym instructors or YouTube videos.

**Attitudes Toward Dietary Supplements**

Attitudes form a critical component of supplement-related behavior. A study by Dickinson et al. (2014) indicated that young people often view supplements as a necessary part of a healthy lifestyle, regardless of their actual diet quality. In their survey of over 2,000 individuals aged 18–29, they found that 62% believed supplements were essential for maintaining fitness.

In the Indian context, Rathi and Sharma (2018) observed that peer pressure and the pursuit of an ideal body image significantly influenced

attitudes toward supplements. The perception that supplements are "natural and safe" was a common yet flawed belief.

Sharma and Gopalkrishnan (2022) analyzed the influence of digital influencers on youth attitudes and found that emotionally persuasive messages—especially before-and-after transformation visuals—often override rational evaluation.

**Practices and Consumption Patterns**

Globally, protein powders and multivitamins are among the most consumed supplements among youth. Andrews et al. (2018) reported that supplement use is highest among fitness enthusiasts, college athletes, and adolescents involved in structured physical training.

In India, Agarwal and Goel (2016) found that supplement use is often seasonal or linked to specific events (e.g., exams, weddings, sports events). Most users were self-prescribing based on advice from peers or personal trainers.

A significant number of studies, including those by Goyal and Bhattacharya (2021), highlight irrational use, such as exceeding daily recommended doses or combining multiple supplements without guidance.

**Sources of Information and Misinformation**

The role of media, especially social media, is central to shaping youth behavior. According to Cleveland Clinic (2021), more than 40% of young supplement users rely on online platforms for health decisions. In India, Sharma and Gopalkrishnan (2022) found that Instagram, YouTube, and WhatsApp forwards were primary information sources for over 60% of respondents.

This dependence on non-expert sources contributes to widespread misinformation, such as the belief that all dietary supplements are FDA-approved or that they are free from side effects.

**Regulatory Awareness and Risk Perception**

One of the major gaps in youth knowledge is regulatory awareness. In the U.S., supplements are regulated under DSHEA (1994), which doesn't require premarket approval. In India, regulation is fragmented between FSSAI and AYUSH guidelines, and most users are unaware of these frameworks (Dwyer et al., 2018).

Risk perception is equally poor. Few users recognize the potential for liver damage, allergic reactions, or drug interactions. A study by Goyal and Bhattacharya (2021) showed that less than 20% of users read supplement labels carefully.

**Gaps in Literature**

While a considerable body of work exists on the prevalence and types of supplements used, there is a lack of longitudinal studies tracking changes over time. Qualitative studies capturing user motivations, cultural influences, and emotional triggers are also limited.

Most studies are urban-centric and lack representation from semi-urban and rural regions. Moreover, the role of educational institutions, family influences, and healthcare professionals in shaping KAP has not been sufficiently examined.

**Conclusion**

The literature reveals a complex but critical gap between awareness and informed decision-making among young adults regarding dietary supplements. While the market grows exponentially, knowledge remains superficial, attitudes are often influenced by aesthetics rather than health, and practices are shaped by peer influence and media rather than science.

This review sets the stage for evidence-based educational interventions, stricter regulatory oversight, and deeper behavioral research to ensure that young adults move from being

merely aware to being truly informed consumers of dietary supplements.

## Key Themes and Analytical Discussion

Building on the reviewed literature, this section synthesizes core themes emerging from global and Indian studies on dietary supplement use among youth. It delves into the intersections between knowledge, social influence, and digital marketing, emphasizing the gap between perceived awareness and actual informed behavior. The discussion is grounded in the Knowledge, Attitudes, and Practices (KAP) model and integrates public health behavior theories such as the Health Belief Model and Social Cognitive Theory.

**Theme 1: The Illusion of Awareness**

Most young adults report being "aware" of dietary supplements, yet this awareness is often superficial. Studies show that respondents frequently mistake brand familiarity or influencer endorsements for factual knowledge. This illusion of awareness leads to high confidence but poor understanding of usage risks, interactions with medications, and regulatory compliance.

The implication is that public health strategies must distinguish between mere exposure to supplement terminology and deep, actionable knowledge.

**Theme 2: Attitudes Shaped by Aesthetics and Peer Culture**

A strong motivator for supplement use is the pursuit of a desired body image, often defined by peers or digital influencers. This aesthetic-driven behavior, fueled by transformation videos and fitness culture, often leads youth to prioritize appearance over health outcomes.

Such attitudes blur the line between wellness and vanity, making it crucial for interventions to reframe fitness narratives around sustainable health.

**Theme 3: Practices Rooted in Misinformation**

From dosage errors to combining multiple supplements, poor consumption practices are widespread. The absence of clinical consultation and reliance on non-professional advice reflect broader issues in health literacy.

This highlights the urgent need to improve science communication through trusted channels and build a culture of consulting certified professionals.

**Theme 4: Social Media as a Double-Edged Sword**

Social media serves both as a source of misinformation and a potential tool for corrective education. Influencer-led content often presents biased, unregulated narratives promoting unverified products. However, the same platforms can host expert-led content, webinars, and evidence-based campaigns.

Collaborating with credible influencers and digital educators could bridge the trust gap in health communication.

**Theme 5: Regulatory Vacuum and Consumer Vulnerability**

Lack of strict regulation and consumer protection policies exposes youth to potentially harmful products. Inconsistent labeling, ambiguous claims, and weak oversight allow substandard supplements to circulate freely.

Policy-level reform, including mandatory education on supplement safety in higher education curricula and transparent product labeling, is urgently needed.

**Conclusion**

The reviewed literature and emerging themes underscore that the issue is not the act of taking

dietary supplements per se, but the context in which such decisions are made. Youth are often navigating complex socio-cultural and digital ecosystems without adequate guidance.

An integrated strategy involving educational institutions, policymakers, healthcare professionals, and responsible digital media is essential to empower youth to make informed, healthy, and ethical choices regarding dietary supplements.

## Research Gaps and Limitations

Despite increasing research on dietary supplement use among youth, several gaps and methodological limitations persist. These hinder the ability to form comprehensive, evidence-based health interventions. This section outlines key research gaps and suggests areas for further scholarly exploration.

Lack of Longitudinal and Experimental Research

Most studies are cross-sectional in design and rely heavily on self-reported surveys. Longitudinal research is needed to understand how youth attitudes and behaviors evolve over time—especially in response to health campaigns, regulations, or personal health events.

Moreover, there is a scarcity of randomized controlled trials (RCTs) assessing the outcomes of supplement use among youth in real-world settings.

**Limited Representation of Diverse Populations**

Urban college-going populations are overrepresented in current studies. There is a need to include:

- Rural and semi-urban youth
- Non-college-going young adults
- Gender and sexual minorities
- Individuals from different cultural or religious backgrounds

This would offer a more nuanced and equitable understanding of youth supplement behavior.

**Poor Integration of Behavioral Theory**

Many studies focus on describing trends without embedding them in theoretical frameworks such as the Health Belief Model, Theory of Planned Behavior, or Social Cognitive Theory. Future research should use these models to explain why youth engage in supplement use despite awareness of risks.

**Under-Explored Role of Educational and Healthcare Institutions**

Few studies analyze how schools, colleges, or healthcare systems shape youth perceptions and decisions about supplements. There's a lack of intervention research on the effectiveness of school-based health education, counseling services, or awareness campaigns.

**Methodological Limitations**

Common issues include:

- Small sample sizes
- Non-random sampling
- Poor questionnaire validity
- Reliance on self-assessment over objective indicators

Improvements in study design, sample diversity, and validation methods are essential to enhance the generalizability of findings.

**Summary of Research Gaps**

## Policy and Practice Implications

The findings from the literature and thematic discussion suggest a need for comprehensive policy reform, institutional engagement, and

evidence-informed public health strategies. This section outlines actionable recommendations for stakeholders.

**Policy-Level Interventions**

- Regulatory Oversight: FSSAI and AYUSH must enhance enforcement by mandating transparent labeling, banning misleading claims, and requiring disclaimers for non-evidence-based supplements.
- Marketing Guidelines: Implement age-restricted advertising and content labeling for supplements, particularly on digital platforms.
- Standardized Classification: Develop a unified regulatory framework that clearly defines and differentiates between health supplements, nutraceuticals, and medicines.

**Education and Awareness Programs**

- Curriculum Inclusion: Integrate dietary supplement education into secondary and tertiary school health curricula.
- Peer Educator Models: Train youth ambassadors to conduct peer-led workshops addressing supplement myths and safety.
- Digital Literacy Campaigns: Partner with credible influencers to produce fact-checked, science-backed content on social media.

**Institutional Practices**

- Healthcare Engagement: Encourage routine screening for supplement use during doctor visits or campus health checkups.
- College Initiatives: Establish supplement literacy cells in colleges that offer guidance, host guest lectures, and provide credible reading materials.
- Family Counseling: Include family members in education efforts to shift intergenerational beliefs about traditional or over-the-counter supplement use.

**Multi-Sectoral Collaboration**

- NGO and Government Partnerships: NGOs working in youth health should be supported through CSR funding to run community-based supplement awareness drives.
- Interdisciplinary Research: Promote research that brings together public health, nutrition, psychology, and digital media scholars.

| Gap Area | Description |
|---|---|
| Study Design | Overreliance on cross-sectional, non-experimental methods |
| Population Diversity | Underrepresentation of non-urban and marginalized youth |
| Theoretical Frameworks | Limited use of behavioral or sociological theories |
| Institutional Influence | Minimal research on role of schools, families, and clinics |
| Data Validity | Self-reported data with minimal triangulation |

**Summary Table: Key Stakeholders and Action Items**

These interventions aim to shift supplement consumption from an unregulated, peer-influenced behavior to a safe, informed, and health-just practice.

## Conclusion and Future Research

This critical review of literature has illuminated the multifaceted dimensions of dietary supplement use among young adults. While the awareness and visibility of dietary supplements have significantly increased—primarily due to digital media and changing health paradigms—this review shows that knowledge remains superficial, attitudes are strongly shaped by aesthetics and peer influence, and practices are often rooted in misinformation. Youth are navigating a complex terrain where perceived health choices are influenced by unregulated marketing, cultural norms, and structural gaps in education and regulation.

Thematic synthesis revealed that social media, gym culture, emotional triggers, and cultural trust in traditional remedies all intersect to shape KAP (Knowledge, Attitudes, Practices) among young adults. Importantly, the role of institutions—be it educational, regulatory, or healthcare—remains underutilized, offering an untapped avenue for change. These insights advocate for a paradigm shift—from reactive public health communication to proactive, systems-based educational and regulatory interventions.

**Future Research Directions**

Based on the identified gaps and evolving trends, the following future research priorities are recommended:

**1. Longitudinal Studies**

Conduct multi-year studies tracking changes in supplement behavior across critical life stages (e.g., college years, early employment) to understand behavioral patterns and health outcomes.

**2. Interventional Research**

Design and evaluate the effectiveness of educational programs, digital campaigns, and policy rollouts on youth behavior and health literacy regarding supplements.

**3. Mixed-Methods Approaches**

Combine large-scale quantitative surveys with qualitative interviews and ethnographic methods to capture deeper insights into motivations, fears, and social contexts.

| Stakeholder | Recommended Action |
|---|---|
| Regulators (FSSAI, AYUSH) | Strengthen classification and monitoring of supplement products |
| Schools and Colleges | Embed health literacy programs in curriculum |
| Healthcare Providers | Include supplement screening and counseling in routine consultations |
| Digital Platforms | Monitor and flag misleading content; promote expert -led narratives |
| NGOs and CSR Initiatives | Run localized awareness campaigns and distribute IEC materials |

**4. Rural and Non-Urban Representation**

Include youth from non-metropolitan regions to account for geographical, cultural, and economic diversity in supplement use behaviors and beliefs.

**5. Comparative Studies**

Contrast India's regulatory, educational, and cultural frameworks with those of other nations to derive context-specific and globally informed recommendations.

**6. Industry and Media Studies**

Examine the role of the supplement industry, marketing practices, and influencer economics in shaping youth perceptions—particularly the ethical responsibilities of content creators and advertisers.

**7. Technology-Enabled Data Collection**

Leverage AI-driven surveys, mobile health (mHealth) platforms, and social media analytics to track and evaluate real-time trends in dietary supplement discussions and behaviors.

**Final Remarks**

The review reinforces that being "informed" is not the same as being "aware." It is critical for researchers, educators, and policymakers to recognize that today's youth are increasingly exposed but not necessarily equipped to make health-informed decisions. A collective, evidence-based approach—bridging policy, pedagogy, and practice—can help recalibrate the current narrative and promote safer, more conscious consumption of dietary supplements among young adults.

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