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Short communication

Exploring consumer attitudes and associated factors toward functional food and food supplement use

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Introduction

Functional foods and food supplements are widely used forms of nutritional supplementation. Functional foods are enriched conventional foods with bioactive compounds, while supplements are concentrated nutrients in dosed forms (Arai, 2002; Del Balzo et al., 2014; Siró et al., 2008). Although both may support health and reduce chronic disease risk, inappropriate use can pose risks (Tsartsou et al., 2020). Consumers often do not clearly distinguish between functional foods and food supplements, and their choices are influenced by health awareness, culture, marketing, and availability, highlighting the need for improved education. This study aimed to assess supplementation patterns and associated factors among adults in Republic of North Macedonia.

Materials and methods

A questionnaire was distributed to adults (n=100) aged 21–60 years via digital platforms over a four-month period. Participation was anonymous and voluntary. The questionnaire covered sociodemographic characteristics (age, sex, education); lifestyle (physical activity, smoking, alcohol intake, dietary preferences); self-reported health status and chronic conditions; primary reasons for using functional food and/or food supplements;

product categories most often consumed; frequency of use; level of information, and perception of benefits and risks. Question formats included multiple-choice and closed items with 5-point Likert scaling (1=strongly disagree, 5=strongly agree). Descriptive statistics was applied to analyze the obtained responses.

Results and discussion

Sociodemographic profile and dietary patterns

Of the 100 respondents, 71.7% were female and 28.3% male; 61% belonged to the 21–30 age group, with the remainder distributed across the 31–40 (17%), 41–50 (10%) and 51–60 (12%) age groups. The educational profile was 40.4% secondary, 43.4% graduate, and 16.2% postgraduate. While 76% of respondents reported concern for their health, only 49.5% perceived themselves as healthy, indicating a subgroup with potential for nutritional supplementation use. In addition, 43% reported no engagement in physical activity. Moderate to high daily stress (levels 3–4 on a 5-point scale) was reported by over 70% of respondents. Only 4% followed a specific dietary regimen, all aged 21–40, suggesting greater awareness of individualized nutrition among younger adults.

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The most frequently consumed food groups were meat (81%), milk and dairy (67%), vegetables (61%), and cereals (53%), suggesting potentially inadequate dietary fibre intake, consistent with broader European patterns (Seljak et al., 2021). For health maintenance, 51% used food supplements, 40% tried to eat healthily, and 21% regularly consumed functional foods, suggesting limited awareness or availability of the latter. If given identical bioactive components, 50% preferred supplements and 29% functional foods, likely due to familiarity, convenience, and marketing. The main reason for use was immune support (67%), followed by overall health (39.4%), body condition (38.4%), and weight control (34.3%), while only 4% reported no use, consistent with global trends toward health-supporting products (Kamarli Altun et al., 2021).

Knowledge, perception, and attitudes

Only 24% of respondents were fully aware of the distinction between functional food and food supplements, 39% were partially informed, and 24% uninformed. Primary information sources were the internet (36%) and social media (29%), with healthcare professionals (30%), and nutritionists (20%) representing more reliable but underused channels. Family and friends were the least cited source (5%). This profile highlights the risk of exposure to inaccurate information and underscores the need to guide consumers toward qualified personnel.

Self-assessed benefits were rated on a 5-point scale more favorably for food supplements (56.5%) than for functional food (46%). Regarding safe use, 77.3% declared adherence to recommended doses, but responses on concomitant use of multiple supplements and timing of intake indicated only moderate awareness of potential interactions. Almost half of respondents (48.5%) were aware of possible adverse effects, while 36.4% had not considered this issue at all. This is a concerning result suggesting that many users start supplementation without sufficient prior information. Most respondents (78.4%) reported no adverse effects; among those who did, nausea and vomiting (7.2%), skin reactions (5.2%), and headache or dizziness (2.1%) prevailed. Importantly, 13.4% of affected individuals informed a doctor or pharmacist, a behavior relevant to post-marketing pharmacovigilance and product safety monitoring. Finally, 59.2% of respondents viewed functional foods as a safer alternative to supplements, 34.7% were undecided, and 8.2% disagreed, indicating a clear knowledge gap that may be addressed through targeted education.

Conclusion

The use of food supplements and functional foods among adults in the Republic of North Macedonia is mainly driven by health maintenance and disease prevention. Food supplements are preferred due to convenience, marketing, and availability. However, limited knowledge, reliance on non-professional sources, and low awareness of risks represent key public health concerns. Therefore, targeted education is needed to support informed choices and improve health.

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