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Use of dietary supplements in a sample of Iraqis

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Abstract:

Background: Dietary supplementation is a common additional strategy to achieve a specific health status or performance benefit. This is the first study to describe the use of dietary supplement in Iraq.

Patients and Methods: In 2021, in Baghdad, a total of 359 individuals (112 males and 247 females) aged 35–74 years have responded randomly to a questionnaire about dietary supplement use and have indicated reported supplement use frequency and prevalence by sex and supplement type.

Results: The percentage of people who reported taking dietary supplements differed between men and women with women being more likely to use them than men. The most common supplements reported were vitamins and minerals, but there were significant disparities between genders. Vitamins, especially D and C, were the most popular among both genders. Herbal use was higher in females than males.

Conclusions: This study found that supplement use varies widely in the study group, potentially affecting individual and societal nutrient intakes. The findings highlight the importance of closely monitoring dietary supplement use.

Keywords: supplements type, Iraq, vitamins, minerals, herbals.

Introduction:

Food supplements denotes foodstuffs that are concentrated sources of nutrients or other substances with a nutritional or physiological effect, either alone or in combination, and are intended to supplement a normal diet. A variety of nutritional deficiency illnesses paved the way for the discovery of micronutrients. Limes and scurvy unpolished rice and Beriberi, cod liver oil and rickets all had apparent interventions that alleviated symptoms and cured diseases. Nowadays, diseases are not defined by a lack of nutrients; rather, excessive food consumption is the leading cause of chronic diseases such as cardiovascular disease, diabetes, and cancer [1, 2]. These lifestyle diseases are complex, with diet/nutrients playing a role in disease development.

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Nevertheless, treating or preventing them requires more than a restricted focus on micronutrients [2]. Daily intake of milk, meat and fish is deficient in high proportion in elderly subjects [3]. Indeed, a new and different examination of National Health and Nutrition Examination Survey (NHANES)data suggests that a significant percentage of people had dietary intakes of these nutrients below the Estimated Average Requirement (EAR) [4].These dietary shortfalls occur despite the wide use of dietary supplements [5, 6, and 7]. Dietary supplements, on the other hand, are frequently utilized by people who already eat a nutrient-dense diet. Multiple supplements can be utilized by older women, which increase the risk of over supplementation and excessive nutrient intake.(6,8) The lack of an uniform scientific or regulatory definition of multivitamin/multimineral supplements (MVMS) makes it difficult to estimate their use and evaluate the benefits and dangers of these over-the-counter items in observational studies and controlled trials [9].The discovery of links between food intake and the activity of particular genes linked to health has spawned the field of nutrigenomics, which was made

possible by the human genome's sequencing [10, 11]. The terms nutrigenetics and nutrigenomics are used to describe the science of assessing the effect of nutrients and bioactive food components on gene expression and evaluating the impact of genetic variants on dietary response, respectively [12]. Furthermore multiple single-nucleotide polymorphisms (SNPs) appear to influence the production and function of essential proteins, potentially altering nutritional requirements and metabolism [11]. In other investigations, genome-wide determinants of nutritional levels in plasma or serum were explored. Despite the fact that statistically significant genetic variants have been found as predictors, they have only been able to explain a small amount of variation in nutritional levels so far [13]. By regulating gene expression in cell cycle progression, apoptosis, cellular adhesion, oxidative metabolism, immunological function, and steroid metabolism, vitamin D deficiency has been linked to an increased risk of cancer and/or tumor growth [14, 15]. Vitamin D has also been implicated in the transcriptional activation of tryptophan hydroxylase-2, which catalyzes serotonin synthesis so, may have relevance to some neurological conditions, like: attention deficit hyperactivity disorder, bipolar disorder, schizophrenia, depression, impulsive behavior, and autism [16, 17]. The Women's Health Initiative (WHI) study found that women with high folate status before widespread folic acid fortification had lower levels of DNA methylation than women with high folate status after fortification. These findings imply that the relationship between folate status and DNA methylation is not linear, and that fortification in otherwise healthy people may reduce folate beneficial benefits and lead to negative health outcomes [18].

Patients and Methods

The study began in 2021,359 participants has enrolled randomly in the study in Baghdad, Iraq. The participants were asked to respond to a questionnaire regarding how often they used dietary supplements. The number of supplements that could be disclosed was unrestricted. Anyone who reported taking at least one dietary supplement is considered a dietary supplement user in this study.. Qualitative categorization, as well as guidelines on how to classify supplements, was used in this study Vitamins, minerals, multivitamins and multiminerals (MVM), oil-based supplements, herbs/plants, other single-substance supplements, other complex substances, and other combination supplements were included in the categories. Participants submitted information on their medical history and the monthly cost of their supplement.

Results:

In the present study there were more female than male supplement users (table 1). The table shows that vitamins were the category of supplements most frequently used by both genders in the study group (48.2% by males and 61.5% by females) and minerals were in the second place. MVMs were used by 11.6% of males while herbs were equally used by both genders (nearly 10%). Oil based supplement were used more frequently by females than males, while other supplements were used by 5.4% of males and less than 1% by females.

Table 1: Distribution of the types of dietary supplements used by respondents by gender

Type	Female No. (%)	Male No. (%)
Vitamins	152 (61.5)	54 (48.2)
Minerals	49 (19.8)	26 (23.2)
MVM"	13 (5.3)	13 (11.6)
Oil-based supplements"	7 (2.8)	2 (1.8)
Herbs/plants"	24 (9.7)	11 (9.8)
Other substance supplements"	2 (0.8)	6 (5.4)
Total (100%)	247	112

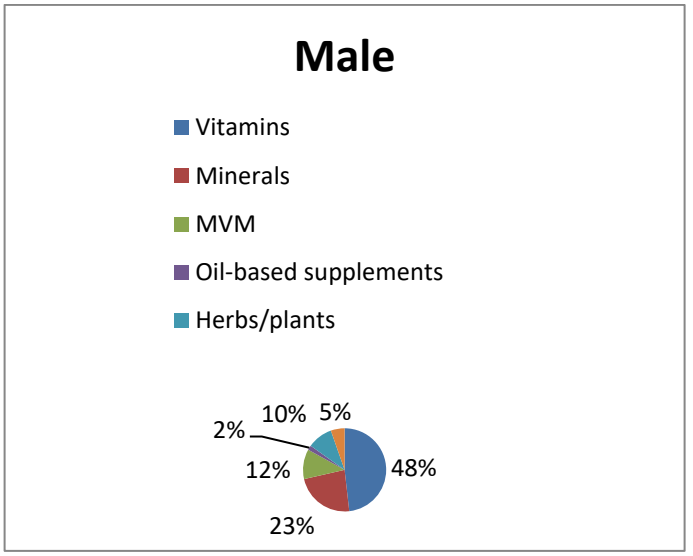

Figure 1 A: percentage of types of dietary supplements used (%) **in Iraqi population by male**

As shown in Figure 1A, B, vitamins were the category of supplements most frequently used in both gender in Iraqi population (48% by male in contrast to 61 % by female). Minerals were the second category of supplements users. MVMs were the category of supplements used by male 12 % while herbs are equally used by same gender 10 %. Oil based supplement were used most frequently by male than female. The other supplements used were 5 % by male with 1 % by female.

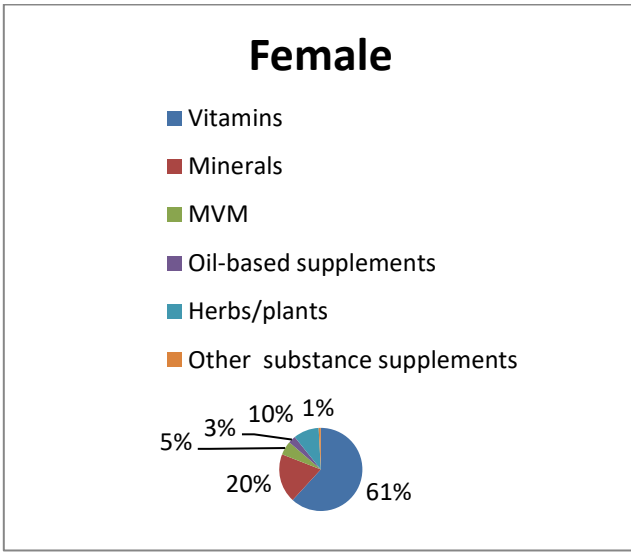

Figure 1B: percentage of types of dietary supplements used (%) **in Iraqi population by female**

When the major groups of supplements were further broken down by individual supplements, vitamins, particularly D and C, were the most frequently used by the sample participant, For females, minerals, particularly Calcium, was in the first list of supplements used, whereas zinc was highest for males, (Table 2):

Table 2: Distribution of the supplements used by gender

Supplement	Female No. (%)	Male No. (%)
Vitamin D3	68 (27.5)	21 (18.8)
Vitamin C	31 (12.6)	11 (9.8)
Folic Acid	29 (11.7)	13 (11.6)
Calcium	20 (8.1)	10 (8.9)
Zinc	17 (6.9)	11 (9.8)
Iron	12 (4.9)	4 (3.6)
Herbal	24 (9.7)	10 (8.9)
MVM	13 (5.3)	13 (11.6)
B12	16 (6.5)	6 (5.4)
B6	4 (1.6)	2 (1.8)
Protein	0 (0.0)	4 (3.6)
Omega 3	7 (2.8)	2 (1.8)
L-carnitine	1 (0.4)	2 (1.8)
B-Complex.	1 (0.4)	1 (0.9)
Magnesium	0 (0.0)	1 (0.9)
Fiber	0 (0.0)	1 (0.9)
Vitamin E	3 (1.2)	0 (0.0)
Collagen	1 (0.4)	0 (0.0)
Total (100%)	247	112

Discussion:

This study provides the first detailed investigation of supplement use in a sample of the Iraqi population in which dietary supplement use differed markedly in type and frequency of intake. It was higher among women than men, although Vitamins, minerals and/or MVMs were most frequently used. For example, vitamin D, C was most used to protect from coronavirus disease. Because of antioxidant of vitamin C so when co-administered of vitamin E with vitamin C in the antineoplastic drug doxorubicin reduces its cytotoxicity on cardiac cells in breast cancer patients (19). Folic acid together with iron was more often used by female because they are recommended to improve birth outcome and reduce low birth weight and rates of miscarriage also iron was widely used by woman against anemia. Minerals were more often used by women than by men. This can largely be due to the use of calcium supplements to treat osteoporosis, which are more prevalent among women. Zinc was predominant mineral in both genders to protect from coronavirus. Herbal especially curcumin extract was mainly used in order to ameliorate osteoarthritis and other disease in both genders in Iraq. Many MVMS observational studies lack information on baseline micronutrient status, changes in dietary habits over time, and the potential causes of these changes, which can lead to the development of additional comorbidities. In multivariable-adjusted analyses, no significant associations were observed among baseline multivitamin users compared with nonusers for the risk of major Cardiovascular disease (CVD) events, whereas a self-reported duration of ≥20 years at baseline was associated with lower risk (20) .Baseline multivitamin use was also significantly inversely associated with the risk of cardiac revascularization and was not significantly associated with other CVD endpoints. It is also possible by the long-term follow-up of the Physicians Health Study (PHS) I that evaluated cardiovascular CVD outcomes (20), that MVMS use may need to be of sufficient duration to observe a significant health benefit. Because the use of broad-spectrum MVMS does not considerably enhance the chance of exceeding the upper limit, there do not appear to be any serious safety concerns associated with their long-term use (21, 22). A systematic review of 15 MVMS studies reported that only mild gastrointestinal adverse events were observed (21). According to the purpose of dietary supplement use, the most commonly-used dietary supplements were vitamin/mineral supplements in both males and females (23). Pouchieu et al (24) reported that women with higher use of dietary supplements showed high level of physical activity. In Australian population the most commonly used supplements were multivitamins and/or multiminerals and fish oil preparations by (35% of males and 50% of females) (25).

Conclusion:

To our knowledge, this is the first detailed investigation of dietary supplement use in a sample of Iraqi population. In this presented an Iraqi comparison of supplement use in an adult/elderly population by both genders showed a different of percentage use by female and male.Women had a higher consumption than men.

The best recommend that future studies should include questions regarding supplements in their food data collection, and attempt to quantify the risks and benefits for users of dietary supplements.

Author's contributions:

Sami S. Shihab: supervisor 1: Supervising the research in all aspects, including writing and collecting samples.

Haidar M. Jawad: supervisor2 Supervising the research in all aspects, including writing and collecting samples.

Zahraa M. Nasir, Eman M. Jasim: Gathering data, Sample collection, data analysis, statistics, writing and all research requirements

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استخدام المكملات الغذائية في عينه من العراقيين

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الملخص
المقدمة :استخدام المكملات الغذائية هي إستراتيجية شائعة لتحقيق حالة صحية معينة أو فائدة في الأداء. تهدف هذه الدراسة إلى وصف استخدام المكملات الغذائية في العراق.
المرضى والطرق: في عام 2021 ، تم طرح استبيان على 359 شخص (112 ذكر و 247 أنثى) تتراوح أعمارهم بين 35 و 74 عامًا حول استخدام المكملات الغذائية تدور حول تكرار استخدام المكملات وانتشاره حسب الجنس ونوع المكملات.
النتائج: اختلف متوسط نسبة الأشخاص الذين يتناولون المكملات الغذائية بين الرجال والنساء. كانت النساء أكثر عرضة للاستخدام من الرجال. كانت أكثر المكملات الغذائية شيوعًا هي الفيتامينات والمعادن ، ولكن كانت هناك تفاوتات كبيرة بين الجنسين. كانت الفيتامينات ، وخاصة D و C ، أكثر المواد المستخدمة شيوعًا من قبل كل من الرجال والنساء. تستخدم الأعشاب في الإناث أكثر من الذكور.
الاستنتاجات: وجدت هذه الدراسة أن تكرار إستخدام المكملات الغذائية يختلف بشكل كبير في العراق ، مما قد يؤثر على تناول المغذيات الفردية والمجتمعية. تسلط النتائج الضوء على أهمية المراقبة عن كثب لإستخدام المكملات الغذائية وموازنة المخاطر والفوائد.
الكلمات الرئيسية: نوع المكملات ؛ العراق؛ الفيتامينات، المعادن والأعشاب.