

Vitamin and Mineral Supplementation Intake among Educated Egyptian Women in Rural Areas

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ABSTRACT:

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Nutrition has a very early influence on the quality of every human existence. A person may experience severe, otherwise preventable, lifetime suffering if they cannot access basic but essential micronutrients through food, fortification, or supplementation. So the general objective of this cross-section study was to assess the level of adherence and determine the factors associated with adherence to vitamins and minerals supplements among (160) educated women from the age of 18-35 years in the rural areas of Egypt. Using semi-structured questionnaires to collect information about participant's anthropometric measurements, dietary habits, economic, and social status. Results showed that more than half of the participants were from Dakahal Governorate, the majority of participants were in the 20-25 age range, 58.8% of the sample was obese, 74.4% didn't make physical activity, 85.6% of participants were used vitamins and minerals supplements. The Correlation between supplements intake and education, and occupation revealed a nonsignificant correlation while there is a significant correlation between supplements intake and improvement after use & appetite effect. This study showed that women currently follow bad eating habits and require more nutrition education within the food plan meals and taking vitamins and minerals supplements after a description of a medical, To reduce malnutrition diseases and side effects of incorrect use of supplements.

Keywords: Egypt, rural areas, women, supplements.

INTRODUCTION:

Throughout life, one of the most significant changeable elements that may be addressed to improve health and lower the risk of disease is nutrition (**Bailey et al., 2015**). Over 800 million people suffer from malnutrition worldwide, and 1.5 to 2 billion people have one or more chronic Motor Neuron Diseases (MNDs). Calcium, iodine, iron, zinc, selenium, vitamin A, and folate are among the notable mineral and vitamin deficiencies (**Beal et al., 2017; FAO, 2020; Kumssa et al., 2015; WHO and UNICEF 2017**). A balanced diet uses nutrients and energy in the right amounts to suit the body's requirements without going overboard (**Cena and Calder, 2020**). For biological processes like enzymatic reactions, gene transcription, and oxidative stress defense, micronutrients are required in minimal amounts (**Cena and Calder, 2020**). To support metabolism and physiological activities, an appropriate micronutrient intake is necessary; nevertheless, both inadequate and excessive intakes may be hazardous and should be avoided (**Shenkin, 2006**).

Due to their higher needs, young children, women who are

pregnant or nursing, adolescent girls, and women of reproductive age are particularly vulnerable to the effects of micronutrient insufficiency. It has been shown that reducing mother and infant illness, cognitive impairment, and death can be achieved through improving diets, fortifying staple foods and condiments, bio-fortification, and supplementing populations with increased needs to raise their intake of micronutrients (**Bhutta et al., 2008; Bhutta et al., 2013; Keats et al., 2021**). Estimating the global frequency and population of micronutrient deficiency is challenging, though. This is partially because most micronutrient deficiencies are often misdiagnosed as concealed hunger because of their nebulous symptoms. Furthermore, biomarkers for micronutrient status are rarely included in population-based surveys, which results in a major knowledge vacuum about the prevalence of micronutrient deficiency on a national and international level (**Brown et al., 2021**). Women in developing countries often consume insufficient levels of micronutrients. Due to the lack of consumption of animal products, fruits, vegetables,

and fortified foods. Women are more susceptible to nutrient deficiencies such as iron, zinc, calcium, vitamin A, B complex “B1, B2, B3, B6, B9, folic acid and B12”, vitamin C, vitamin D deficiency, which may cause many consequences for girl’s and women’s general health such as malnutrition disease like as blindness, lack of calcium and anemia, likewise pregnant lactating women, and osteoporosis for women with age (**Sogari et al., 2018**). Few and sometimes outdated statistics are available for non-pregnant women of reproductive age, but data from very few population-representative surveys are available for school-aged children, teenage boys, pregnant women, men, and older adults (**WHO, 2020**). Because some girls and women stay out for a long period studying or working outside the home, they may be malnourished due to not eating a balanced diet. It is so difficult to meet the needs of women’s bodies of food and diet only, especially women in developing countries {in particular rural areas in Egypt}, so it must be addressed dietary supplements such as iron, calcium, and folic acid, which contribute mainly to the healthy growth of the

body, the brain of the fetus naturally and maintaining the general health of women. Some girls and women may be taking supplements without the description of a medical or without paying attention to healthy and balanced food such as junk food, which may increase the risk of renal, liver, bone, and digestive diseases. **Kantor et al., (2016)** highlighted that the prevalence of supplement use has increased dramatically over the past 20 years. Therefore, no dietary supplements should be taken without consultation or a doctor’s prescription, and pay attention to a healthy and balanced diet during the day and all the time (**Espinosa-Salas and Gonzalez-Arias, 2023**).

WHO (2016) Considering that many Middle Eastern nations are going through a dietary transition, undernutrition and non-communicable diseases linked to other types of malnutrition—such as obesity and overweight—coexist. **Fenech, (2010); Van Ommen and Wopereis, (2016)** explained that Long-term inadequate vitamin and mineral consumption can have negative effects on cellular function, physiological performance, and/or resilience in addition to the

inherent risk for deficiency states. It can also raise the risk of chronic disease. **Dwyer et al., (2018)** expounded that the fundamental challenge in any discussion about the regulation of dietary supplements is that there is no global consensus on how the category of products known variously as dietary supplements, natural health products (NHPs), complementary medicines, or food supplements in different countries is defined. According to **Sandra et al., (1999)**, certain eating patterns lead to poor intakes of multiple nutrients at the same time. Multiple vitamin and mineral supplements should be a component of a plan to improve women's diets in addition to enhancing women's micronutrient status in impoverished nations. This gave information that made it easier to incorporate various micronutrient supplements into initiatives aimed at enhancing women's health and nutritional status.

Reliable and well-documented global and regional estimates of the number of people suffering from micronutrient deficiencies are required to set priorities for funding and programs as well as to support lobbying efforts to further these goals (**Haddad et al., 2015**).

So, the primary aim of this investigation was to evaluate the degree of compliance and identify the variables linked to compliance with vitamins and minerals supplements among women aged 18 - 35 years in-rural areas of Egypt.

SUBJECTS AND METHODS:

Study design: A descriptive and analytical cross-sectional study design was used in the survey to ascertain the adherence rate and factors influencing adherence to vitamins and minerals supplements among (160) Egyptian-educated women in the age range of (18 to 35) years, randomly selected from women visiting the National Nutrition Institute come from Egyptian rural areas (Damietta, Port-Said, Beheira, Dakahlia, Gharbiya, Monufia, Giza, Minya, and Kafr El Sheikh governorates), using key informant interviews questionnaire. Data collection was done from August 2024 consent for the study was obtained from all participants, and they were given a brief description.

Sampling:

Inclusive samples: randomly selected from women(18-35Y) came from Egyptian rural areas to

visit the National Nutrition Institute clinics.

Exclusive samples: women with serious health conditions and nutritional issues or elemental diet (vegetarian, Cancer, chronic renal diseases, chronic liver diseases, and Crohn's disease), women over 35y.

METHODOLOGY:

Study tools: Structured interviews were conducted using—semi-structured questionnaires were used for quantitative data collection.

Personal data included women's age, Address, disease, social status, educational attainment, and occupation, in addition to other socioeconomic variables (**Park and Park, 1979**). Physical activity and supplement Intake were also recorded.

Anthropometric measurements:

- Weight: According to Jelliffe (1966), a person was weighed using a beam balance to the nearest 0.1 kg while wearing light clothing and without shoes.
- Height was measured to the nearest 0.1 cm while the subject's head was in the Frankfort plane and they were not wearing shoes

according to **Ferroluzzi et al., (1992)**.

After weight and height were measured BMI was calculated according to (**WHO, 2004**).

Dietary Assessment: dietary habits data and average food consumption of the participants were collected by using the Diet History Questionnaire and "Food Frequency Questionnaire": Using this technique, qualitative descriptive data regarding common food and beverage consumption patterns as well as certain dietary behaviors were obtained per day, week, month, and year (less than 3 times or equal to or more than 3 times or non-usage).

Data Storage Management and Analysis: - Data were modified and transformed to numerical codes before being entered into the computer to make analysis easier. Utilizing the Statistical Package for Social Sciences, data was analyzed (SPSS) version 19 computer software. Food consumption frequency, demographic, and socioeconomic data were analyzed using descriptive statistics (frequency, percentages, mean, and confidence interval) with tables. The rate of adherence was the primary dependent variable. Using

supplements was the definition of adherence. Using SPSS, statistical studies were carried out to find associations between various independent variables (**Armitage and Berry, 1987**).

Ethical Considerations: A research permit was obtained from the Scientific Research Ethics Committee of the General Authority for Hospitals and Educational Institutes; the approval was registered with number (IN000159) dated (14/8/2024).

RESULTS

Data in **Table (1)** found that 51 (31.9%) is the highest value at (age 20 – 25 years), however, the lowest value was 29 (18.1%) at (age 25 – 30 years). **Social status:** The highest value for the single is 91 (56.9%), whereas the lowest value for the divorced 12 (7.5%). **Address:** The highest value was for the Dakahlia governorate 81(50.6 %), whilst the lowest value was for the Kafr El Sheikh governorate 1(0.6%) compared among many countries like the governorates in Egypt. **Education:** The highest value is for the universal or academic 99(61.8%), whilst the lowest value is for the primary 5(3.1 %). **Occupation:** The highest

value for the student was 81 (50.6%), whereas the lowest value for the others was 8 (5.0 %). **Financial Income:** The highest value for enough financial income was 94(58.8 %), but the lowest for not enough was 66(41.2%).

Table (2) shows the highest height (1.76 m), a lower height (1.50 m) while the highest weight (120 kg), a lower weight (43 kg). It was relatively a smaller number of BMI (16.80 kg/m²), while the highest number of BMI (44.08 kg/m²).

A high prevalence of obesity in **Table (3)** showed that was (94) women (58.8%) of participants were Obese.

Table (4) distribution of water regularity data showed the highest number of yes 119 (74.4%), whereas showed a lower number of no 41(25.6%). distribution of milk regularity data showed the highest number of no 117 (73.1%), whereas showed a lower number of yes 43 (26.9%). distribution of vegetables regularity data showed the highest number of no 104(65%), while showed a lower number of yes 56 (35%). distribution of fruits regularity data showed the highest number of Yes was 81(65%), while

showed lower number of No was 79(49.4%).

Table (5) Data distribution of Physical activity data showed the highest number of No was 119 (74.4%), whereas the lowest number of Yes was 41(25.6%). Distribution of Physical activity type showed the highest number of walking was 18(11.25%) of total participants, whilst a lower number of others was 2 (1.25%) of total participants.

Regarding **Table (6): Test the level of vitamins and minerals in blood before use of supplements:** showed the highest number of No was 108(67.5%), while the lowest number of Yes was 52(32.5%). **Used any vitamins or minerals supplement:** most participants used supplements 137(85.6%), but a lower number of them didn't use them 23(14.4%). **Reasons for using vitamins or minerals supplements:** showed the highest number of vitamins and minerals deficiency and I used it as a Prescription medication 29(18.1%), whereas showed a lower number of Osteoporosis 1(0.6%). **Type of vitamins and minerals supplements:** the majority of women use supplements consumed in the form of multiple vitamins and minerals

65(40.6%), but the lowest percentage of them was for those who took vitamin D 2(1.25%). **Used period of vitamins and minerals supplement:** reflected that most of the participants who use supplements use it for 3 months 56(35%), whereas the least period of use supplements was one week 7(4.4%). **use regularity of vitamins and minerals supplements:** showed the highest number of women who used supplements 72(45% of total participants) with no regularity consumption, whereas a lower number was 65 women who used supplements regularly (40.6% of total participants). **Improvement after use of vitamins and minerals supplement:** showed that 108 women who used supplements (67.5% of total participants) had improvement after supplements use, while 29 women who used supplements hadn't improved (18.1% of total participants). **Damage or side effect of vitamins and minerals supplement:** showed that there was damage or side effect on 55 women who consumed supplements (34.4% of total participants) but 82 of them (51.25% of total participants) hadn't damage or side effect after use supplements.

Vitamins and minerals supplements affect Appetite:

There was no appetite effect after taking supplements on 79 women who used supplements, while affected the appetite of 58 women them.

Vitamins and minerals supplements affect Weight change:

supplements didn't affect the Weight of 98 women who used it, whereas 39 women who used supplements reported that supplements affected Weight.

Sufficient vitamins and minerals supplements are covered:

reported that (59.4% of total participants) didn't cover sufficient vitamins and minerals supplements, whereas only (40.6% of total participants) covered sufficient vitamins and minerals supplements.

Table (7): Revealed non-significant Correlation between vitamins and minerals supplements data of educated women from (18 to 35 age old) in rural areas of Egypt in education, occupation while significant Correlation between vitamins and minerals supplements data and improvement after use & appetite effect on educated women from (18 to 35 age old) in rural areas of Egypt.

Data in Table (8): Correlation between regularity of vitamins and minerals supplements intake and education, occupation, improvement after use, and appetite effect on educated women in many governorates in rural areas of Egypt showed a nonsignificant correlation.

Table (9) illustrates the distribution of food group data: ***Cooked vegetables:*** showed the highest number of ≥ 3 times/week 106 (66.2%), whereas showed a lower number of < 3 times/week 54 (33.8%). ***Fresh vegetables:*** showed the highest number of ≥ 3 times/week 136 (85%), whereas showed a lower number of < 3 times/week 24 (15%). ***Canned and powder juices:*** showed the highest number of ≥ 3 times/week 148 (63.1%), whereas showed a lower number of < 3 times/week 12(36.9%). ***Soft drinks:*** showed the highest number of < 3 times/week 125 (78.1%), whereas showed a lower number of ≥ 3 times/week 35 (21.9%). ***Brown Bread:*** showed that highest number of ≥ 3 times / week 142(88.7%), but showed lower number of < 3 times / week 18(11.3%). ***Rice and macaroni:*** showed the highest number of ≥ 3 times/week was 149(93.1%),

whereas showed lower number of < 3 times/week was 11(6.9%). **Whole grains:** showed that highest number of < 3 times / week 127(79.4%), while showed lower number of \geq 3 times / week 33(20.6%). **Milk products:** showed the highest number of \geq 3 times/week 125 (78.1%), whereas showed a lower number of < 3 times/week 35(21.9%). **Eggs:** showed the highest number of \geq 3 times/week 122(76.2%), whilst showed a lower number of < 3 times/week 38 (23.8%). **Mono-saturated "Olive oils":** showed the highest number of < 3 times/week 116 (72.5%), whereas showed lower number of \geq 3 times/week 44 (27.5%). **Hydrogenated oil and vegetable margarine:** showed the highest number of < 3 times/week 113(70.6%), whilst showed a lower number of \geq 3 times/week 47(29.4%).

DISCUSSION:

Their results agreed with the results obtained from **Ramakrishnan, (2002)** claimed that dietary sources are the most likely way for people to satisfy their daily vitamin needs. This is a significant matter since the security of Multivitamin-multi minerals (MVMM) intake of nutrients from

food sources and concurrent supplement use may have an impact on utilization. **Troesch et al., (2012)** demonstrated that, despite the availability of a wide variety of foods, there is a discrepancy between the requirements and intakes of vitamins for a sizable section of the population. **Bird et al., (2022)** showed that the risk of inadequate intakes of micronutrients was higher in women than in males. **Bird et al., (2022)** agreed with our current study and found that the majority of people in the UK who are 11 years of age or older, especially women who are between the ages of 11 and 18, do not get enough of all the minerals and vitamins that were examined from their diets, including calcium, iodine, iron, magnesium, potassium, selenium, and zinc. As opposed to supplements, foods that were voluntarily fortified significantly increased vitamin and mineral intakes without raising the danger of excessive consumption.

Supplements only slightly decreased the prevalence of inadequate intakes in all age categories. According to **(Bird et al., 2022)** and previous surveys **(Department of Health and Social Care of the UK**

Government, 2012), only 23% of participants reported taking a vitamin or mineral supplement in the last four days. This low percentage may not have any impact on deficiencies. Thus, fortified meals may have a higher chance of reaching people at risk of vitamin deficiencies than pills. Those who lead healthy lifestyles are more likely to use food supplements, whereas people who eat inadequately may not use them much (**Harrison et al., 2004; Li et al., 2010**).

Adult micronutrient intakes of all minerals, vitamin A, riboflavin, and folate were below the Lower Reference Nutrient Intakes (LRNI level (**Derbyshire, 2018**), with a negative trend in intakes of most vitamins and minerals during the 9 survey years (**Kehoe et al., 2020**), according to analyses considering prior UK survey years as of 2008/9. **Page et al., (2016)** results are consistent with the UK national report of the same survey years 2012/13–2013/14, which revealed inadequate intakes of all minerals, as well as vitamin A and riboflavin, among teenagers in the country, the majority of whom were girls. These findings imply that most vitamin and mineral intakes in the

UK are generally insufficient. Somewhat in agreement with the results of **Fairfield and Fletcher (2002)** depicted that some of the benefits of vitamin and mineral supplementation are mentioned. For instance, vitamin D supplementation has been shown to increase the density of minerals in bones and reduce turnover. If vitamin D and calcium are taken together, they have shown decreased bone loss and fracture rates. Somewhat in agreement with the results of **Mulholland and Benford (2007); Rock, (2007)** affirmed that excessive nutrient consumption may be more common in those who utilize various dietary supplements than in those who use a single MVMM because the majority of commercially available MVMMs approximate the recommended daily value.

McNulty et al. (2008) determined that raising the number of vitamins Folic acid, B6, and B12 efficiently decreases total homocysteine in plasma by 3mmol/L. Additionally, they showed that taking supplements of folic acid alone decreased the chance of a stroke by 18%, whereas CVD and stroke risk were lowered by 11%–16% and 19%–24%, respectively.

In a nationwide assessment to determine vitamin A status, it was discovered that 3.7% of the mothers had serum retinol levels below 20 µg/dL, indicating the program's efficacy (**Tawfik et al., 2010**). **Bhutta et al., (2013)** demonstrated how taking calcium supplements during pregnancy can lower the incidence of preterm births by 24%, preeclampsia by 55% (12 Randomized Controlled Trials "RCTs", n = 15,206), gestational hypertension by 35% (11 RCTs, n = 14,946), and preterm births by 24% (10 RCTs, n = 15,141).

Saneei et al., (2013) reported there was a significant inverse weak relationship, except women living in developing countries, between adult population blood 25(OH) D levels and BMI. **El Rifai et al., (2014)** investigated 135 Egyptian pregnant women at ≥ 37 weeks gestation (shortly before birth) and found that 40.9% of patients had vitamin D insufficiency (serum 25(OH) D < 50 nmol/L) and 28.9% had vitamin D inadequacy (serum 25(OH) D 50–80 nmol/L). **Hussain et al., (2014)** mentioned that there is a high insufficiency levels of vitamin D deficiency found among pregnant women in

Egypt (40%). **Fawzi et al., (2012)** reported that 72% of 208 women in the study, whose mean age was 31.5 years, had vitamin D deficiency (serum 25 (OH)D < 50 nmol/L). **Botros et al., (2015)** noticed that 72.6% of 51 breastfeeding mothers and 54% of 50 pregnant women had insufficient vitamin D (serum 25(OH) D < 50 nmol/L). **El Sagheer et al., (2016)** discovered that 100 women between the ages of 20 and 40 had inadequate vitamin D levels. Multiple variable linear regression analysis revealed that the absence of sun exposure, inadequate vitamin D supplementation, and the presence of pseudo fractures were the independent factors linked to vitamin D insufficiency. Vitamin D is found naturally in very few foods, as this data demonstrates, with 99% of the UK population failing to satisfy the guideline intakes from diet alone. Foods fortified with vitamin D did not help lower deficiencies since, as noted above, 99% of those who consumed fortified foods did not exceed their recommended intakes. These vitamin D deficiency rates, which range from 97% to 100%, are similar to those seen in other European nations (**De Jong et al.,**

2022; Mertens et al., 2019). According to **(Pye and Jaeger 2010)**, approximately 1-2% of items in the European market are supplemented with vitamin D. As a result, their potential to reduce insufficiency is questionable. However, fortified foods have a significant role in helping people meet appropriate vitamin D intakes in nations like the US and Finland where vitamin D fortification is widely voluntary **(Itkonen et al., 2018)**. **Ibrahim et al., (2011)** postulated using 270 pregnant Egyptian women's self-reported data. 23.2% of them, were moderately anemic (Hb 7–9 g/dL) and 75% were slightly anemic (Hb 9–11 g/dL). **El-Alfy et al., (2012); Tawfik et al., (2015); Flour Fortification Initiative, (2016)** indicated that the prevalence of anemia among women of childbearing age was reported in Egypt at 40%–47.2%, 47.2% of 4526 mothers were anemic (Hb < 12 g/dL) and 49.6% of 3037 mothers were iron deficient (serum ferritin < 15 µg/L), according to a study of 4526 families from 11 governorates in Egypt. Moreover, data reveal that 4% of UK women between the ages of 15 and 49 suffer from iron deficiency anemia **(SACN, 2010)**. The primary source

of vitamins B6, B12, and hemoglobin is meat. Techniques designed to promote less meat consumption due to environmental concerns might have a detrimental effect on women's intake of these micronutrients. So, the current study recommended women consume food-fortifying meals with iron, folate, and other B vitamins to decrease malnutrition and malnutrition disease.

CONCLUSIONS:

The Correlation between the regularity of vitamins and minerals supplement intake of educated women (18 to 35 years old) in rural areas of Egypt revealed a significant decrease in education, occupation, and improvement after using vitamins and minerals; however, there was a non-significant appetite effect when comparing women in many Governorates in rural areas of Egypt.

RECOMMENDATION:

The study recommends the consumption of foods that were fortified with different concentrations of Supplementation of vitamins and minerals admitted within the food plan meals and taking vitamins and minerals

supplements after a description of a medical to reduce the side affected from malnutrition and malnutrition disease.

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Table (1): Some distribution of personal data of educated women from (18 to 35 age old) in rural areas of Egypt.

Personal Data	Variables	Numbers	Percentile %
Age	18 – 20 years	37	23.1
	20 – 25 years	51	31.9
	25 – 30 years	29	18.1
	30 – 35 years	43	26.9
Social status	Single	91	56.9
	Married	57	35.6
	Divorced	12	7.5
Address	Damietta governorate	4	2.5
	Port said governorate	10	6.3
	Behera governorate	1	0.6
	Dakahlia governorate	81	50.6
	Gharbiya governorate	8	5.0
	Menofiya governorate	38	23.7
	Giza governorate	15	9.4
	Menya governorate	2	1.3
Education	Kafr El Sheikh governorate	1	0.6
	Primary	5	3.1
	Secondary	30	18.8
	Secondary Industrial & Commercial schools	7	4.4
	Universal & Academic	99	61.8
Occupation	Post graduate	19	11.9
	Housewife	19	11.9
	Student	81	50.6
	Employee	52	32.5
Financial Income	Others	8	5.0
	Enough	94	58.8
	Not enough	66	41.2

Table (2): Descriptive of anthropometric measurements of educated women from (18 to 35 age old) in rural areas of Egypt.

Measurements	Mean \pm SD	Min - Max
Height(m)	1.61 \pm 0.1	1.50 – 1.76
Weight (Kg)	70.06 \pm 15.5	43.0 – 120
BMI (kg/m ²)	26.8 \pm 5.3	16.80 – 44.08

Each value is the mean \pm SD Minimum (Min) &Maximum (Max)

Table (3): Distribution of BMI of educated women from (18 to 35 age-old) in rural areas of Egypt.

BMI	Number	Percentile %
Underweight	1	0.6
Normal	65	40.6
Obese	94	58.8

Table (4): Distribution of dietary habits data of educated women from (18 to 35 age old) in rural areas of Egypt.

Dietary habits	Variables	Number	Percentile %
Water regularity	Yes	119	74.4
	No	41	25.6
Milk regularity	Yes	43	26.9
	No	117	73.1
Vegetables regularity	Yes	56	35.0
	No	104	65.0
Fruits regularity	Yes	81	50.6
	No	79	49.4

Table (5): Distribution of physical activity data of educated women from (18 to 35 age old) in rural areas of Egypt.

Sports data	Variables	Number	Percentile %
Physical activity	Yes	41	25.6
	No	119	74.4
Physical activity type	Running	17	10.6
	Walking	18	11.25
	Aerobics	4	2.5
	Others	2	1.25

Table (6): Distribution of vitamins and minerals supplements data of educated women from (18 to 35 age old) in rural areas of Egypt.

supplements data	Variables	Number	Percentile %
Vitamin and minerals test before the use of supplements	Yes	52	32.5
	No	108	67.5
Vitamins or minerals supplement use	Yes	137	85.6
	No	23	14.4
Reasons for using Vitamins or minerals supplements	Fatigue	25	15.62
	Vitamins and minerals deficiency	29	18.12
	Osteoporosis	1	0.62
	Pregnancy	21	13.12
	Lactation	6	3.75
	protection to maintain my health	26	16.25
	I used it as a Prescription	29	18.12
Reading sources about vitamins and minerals the supplement encourages to use of it	Scientific books	38	23.75
	Magazines	1	0.6
	Internet	57	35.6
	Social media	15	9.4
	media information	26	16.25
Vitamins and minerals supplements type	Multiple vitamins and minerals	65	40.6
	Iron	41	25.6
	Folic acid	16	10.0
	Vitamin B	7	4.4
	Vitamin C	6	3.75
	Vitamin D	2	1.25
Used period	Week	7	4.4
	Month	46	28.75
	3 months	56	35
	6 months	15	9.4
	Year or more than a year	13	8.1
Use regularity	Yes	65	40.6
	No	72	45.0
Improvement after used	Yes	108	67.5
	No	29	18.1
Damage or side effect	Yes	55	34.4
	No	82	51.25
Appetite effect	Yes	58	36.25
	No	79	49.4
Weight change	Yes	39	24.4
	No	98	61.25
Sufficient vitamins and mineral supplements are covered	Yes	65	40.6
	No	95	59.4

Table (7): Correlation between supplement intake and education, occupation, improvement after use, and appetite effect of educated women from (18 to 35 age old) in rural areas of Egypt.

Variables	Supplement intake	
	r	p
Education	0.083	0.298
Occupation	0.079	0.321
Improvement after used	0.257	0.002
Appetite effect	0.208	0.012

Probability (P) and Correlation coefficient (r)

Table (8): Correlation between regularity of supplement intake and education, occupation, improvement after use, and appetite effect of educated women from (18 to 35 age old) in rural areas of Egypt.

Variables	Regularity of supplement intake	
	r	p
Education	-0.044	0.602
Occupation	-0.034	0.685
Improvement after used	-0.035	0.679
Appetite effect	-0.085	0.310

Probability (P) & Correlation coefficient (r)

*Significant * $p < 0.05$ ** $P < 0.01$ *** $P < 0.001$*

Table (9): Distribution of food groups data of educated women from (18to 35 age old) in rural areas of Egypt.

food groups data	Variables	Number	Percentile %
Cooked vegetables	< 3 times/week	54	33.8
	≥ 3 times/week	106	66.2
Fresh vegetables	< 3 times/week	24	15.0
	≥ 3 times/week	136	85.0
Fresh juices	< 3 times/week	12	7.5
	≥ 3 times/week	148	92.5
Canned and powdered juices	< 3 times/week	101	63.1
	≥ 3 times/week	59	36.9
Soft drinks	< 3 times/week	125	78.1
	≥ 3 times/week	35	21.9
Hot beverages	< 3 times/week	26	16.3
	≥ 3 times/week	134	83.7
Snacks	< 3 times/week	57	35.6
	≥ 3 times/week	103	64.4
Brown Bread	< 3 times/week	18	11.3
	≥ 3 times/week	142	88.7
White bread toast	< 3 times/week	99	61.9
	≥ 3 times/week	61	38.1
Rice and macaroni	< 3 times/week	11	6.9
	≥ 3 times/week	149	93.1
Whole grains	< 3 times/week	127	79.4
	≥ 3 times/week	33	20.6

Continue Table (9):

Milk products	< 3 times/week	35	21.9
	≥ 3 times/week	125	78.1
Meat and poultry	< 3 times/week	62	38.8
	≥ 3 times/week	98	61.2
Fish products	< 3 times/week	112	70.0
	≥ 3 times/week	48	30.0
Eggs	< 3 times/week	38	23.8
	≥ 3 times/week	122	76.2
Legumes	< 3 times/week	37	23.1
	≥ 3 times/week	123	76.9
Vegetable oils	< 3 times/week	24	15.0
	≥ 3 times/week	136	85.0
Mono Saturated “Olive oils”	< 3 times/week	116	72.5
	≥ 3 times/week	44	27.5
Butter	< 3 times/week	95	59.4
	≥ 3 times/week	65	40.6
Hydrogenated oil& Vegetable margarine	< 3 times/week	113	70.6
	≥ 3 times/week	47	29.4

تناول مكملات الفيتامينات والمعادن بين النساء المصريات المتعلّقات في المناطق الريفية

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المخلص العربي:

يتم تحديد نوعية حياة كل إنسان في وقت مبكر جدًا من خلال التغذية. بدون الوصول إلى المغذيات الدقيقة البسيطة والحيوية، سواء من خلال النظام الغذائي أو تعزيز الغذاء أو المكملات، يمكن للفرد أن يعاني من مشقة هائلة يمكن تجنبها مدى الحياة، لذلك كان الهدف العام لهذه الدراسة المقطعية هو تقييم مستوى الالتزام وتحديد العوامل المرتبطة بتناول مكملات الفيتامينات والمعادن لدى (160) امرأة متعلمة من سن 18 - 35 سنة في ريف مصر. تم جمع المعلومات من المشاركين باستخدام استبيانات للقياسات الجسمية والعادات الغذائية والحالة الاقتصادية والاجتماعية وغيرها. وأظهرت النتائج أن أكثر من نصف المشاركين من محافظة الدقهلية، أغلبية المشاركين في الفئة العمرية 20-25 سنة، 58.8% من العينة يعانون من السمنة، 74.4% منهم لم يمارسوا أي نشاط بدني، 85.6% من المشاركين يستخدمون الفيتامينات والمكملات المعدنية. أظهرت النتائج وجود الارتباط بين انتظام تناول مكملات الفيتامينات والمعادن انخفاضًا ملحوظًا في التعليم والمهنة والتحسين بعد استخدام الفيتامينات والمعادن، ولكن لا يوجد تأثير ذو دلالة معنوية على الشهية مقارنة بين النساء في العديد من المحافظات في المناطق الريفية في مصر. أظهرت هذه الدراسة أن النساء يتبعن عادات غذائية سيئة وأنهن يحتاجن إلى مزيد من التثقيف التغذوي ضمن الخطة الغذائية للوجبات وتناول مكملات الفيتامينات والمعادن بعد وصف طبي لتقليل امراض سوء التغذية والاعراض الجانبية للاستخدام الخاطى للمكملات.

الكلمات المفتاحية: مصر، الريف، المرأة، الفيتامينات، المعادن والمكملات الغذائية.