

Prevalence of Multivitamin Supplements use Among General Population of Rawalpindi and Islamabad

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ABSTRACT

Objective: To determine the prevalence of multivitamin supplement use among prescribed and non-prescribed population of Rawalpindi and Islamabad Pakistan.

Study Design: It was a Quantitative analytical cross-sectional study.

Place and Duration of Study: The study was carried out among general population of Rawalpindi and Islamabad Pakistan, from Jan till Apr 2022.

Methodology: Nonprobability convenient sampling technique was used. The sample size was 385. The data was gathered through an online survey and was analyzed using IBM SPSS statistics version 25. Chi-square test was applied on qualitative variables with *p*-value significant at <0.05.

Results: Only 41% of people were prescribed multivitamins by their doctors while 59% were self-medicated. An overall prevalence of multivitamin supplementation among the population was 66.9%. About 48.3% of people are aware of their harmful effects. Majority (88.1%) of population consider vitamins good for their health. 70% of people buy supplements via pharmacist and almost half of the people do not read the leaflets that come with supplements. Male gender was statistically significantly associated with awareness of vitamin supplement use and encouraging its use to others (*p*≤0.05).

Conclusion: There exists a high prevalence of multivitamins use amongst the twin cities of Rawalpindi/Islamabad. Although most of the population had an awareness of what multivitamins are essentially, half the population do not know about the harmful effects of vitamins. Males had more awareness of multivitamins supplement use as compared to females.

Keywords: Leaflet, Multivitamin, Non-Prescribed, Supplements.

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INTRODUCTION

Over the last two decades, there has been a trend for people to supplement their nutritional intake with multivitamins which are also commonly prescribed as concomitant medication. The aim of our study was to determine the prevalence of multivitamins use among prescribed and non-prescribed population.¹

Multivitamins are nutritional supplements containing multiple vitamins often combined with dietary minerals, trace elements and sometimes small amounts of herbs.² Their primary role is to fill nutritional gaps and ensure that people get their daily allowances for under consumed nutrients.³

Generally, multivitamins are used to treat deficiencies caused by illnesses, poor nutrition, pregnancy, digestive disorders, and other conditions.⁴ The health benefits of vitamins follow a biphasic dose response curve.

Pakistan national nutrition survey was conducted in 2011 by Agha Khan University in collaboration with UNICEF Pakistan. The survey found out that knowledge about micronutrients was generally low and varied greatly between urban and rural areas. The respondents who had heard about micronutrients were further asked about their impact on individual's health. Around 60.7% population was ignorant, 26.4% responded that it may cause anaemia, 7.4% mentioned lethargy/irritability and 4.4% mentioned weakness.

A recent NNS was conducted in 2018 by UNICEF showing a comparative progress which was quite slow but could be coined as consistent. The trend of self-prescription of vitamins is increasing now a days.⁵ Many individuals are using these supplements as preventive and to alleviate diseases as well. This self-prescribed use is turning irrational in some places, mostly due to lack of awareness.⁶ It's essential to know that how multivitamins can interact with other medications and how this can affect our body systems.^{7,8}

Critically the diets of our local population require substantially more diversity and, in most cases, suffi-

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cient calories. There is a dire need that government should evaluate nutrition and health policies to enhance nutritional status, diets, and health of its population and above all provision of education to eradicate illiteracy. The media and medical community are required to play their role in this regard.⁹

We planned to conduct a descriptive study on prevalence of multivitamins among prescribed and non-prescribed population of Rawalpindi and Islamabad Pakistan. No such study has been conducted on the population in our study. We also wanted to find out its relationship with selected demographics and lifestyle characteristics. With an increasing proportion of population using such supplements, the implications of this study could be far reaching.

METHODOLOGY

A quantitative analytical cross-sectional study was carried out, which was the most appropriate design for assessing data from population at one specific point in time.

Our study was conducted in the general population of Rawalpindi and Islamabad where it was probable that we would find a representative sample of the population. We scheduled the duration of the study to be from January till April 2022.

Sample size was calculated via Rao Soft with 95% confidence interval. Our sample size came out to be 385. Our sampling technique was through an online validated Questionnaire from previous research. Non-probability convenience sampling technique was used.

Inclusion Criteria: It consisted of literate population specifically ranging from young adults to senior citizens (18 to 60+ years of age).

Exclusion Criteria: Those people who were unwilling to participate were excluded from our study.

We used a self-structured modified online questionnaire. A validated questionnaire consisting of 22 questions was used to collect data online via google forms on 385 participants' socio-demographic characteristics, knowledge, practice, opinion, and attitude regarding multivitamin use.

The data was analysed using IBM SPSS Statistics Version 25. Demographic variables were analysed using descriptive statistics including frequencies and percentages. For categorical variables chi square test of significance was applied with *p*-value <0.05 considered to be significant.

Ethical approval from Ethical review board of Army Medical College was taken to conduct the study (ERC/ID/225). All principles and ethical values were

considered while taking our responses, Which included Informed consent, voluntary participation, anonymity, and confidentiality.

RESULTS

In our study 59.5% were males while only 40.5% of population were females. The mean age of our study population was 23.7±7.27 years ranging from 17-69 years of age.

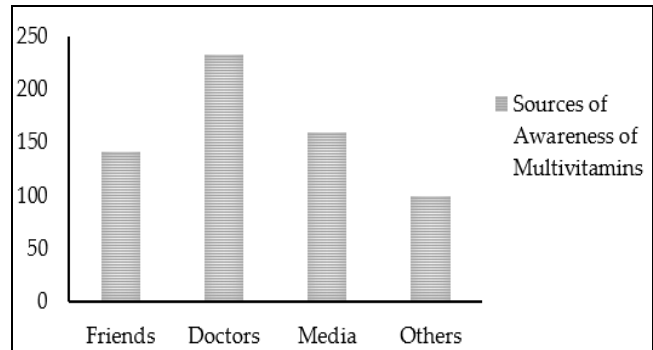


Figure-1: Source of Awareness of Multivitamins

'Doctors' represents the prescribed population and 'friends, media and others' represent the non-prescribed one. The non-prescribed makes 59% higher than the prescribed by the doctors which makes 41% of the population. This signifies majority of people take multivitamins on their own.

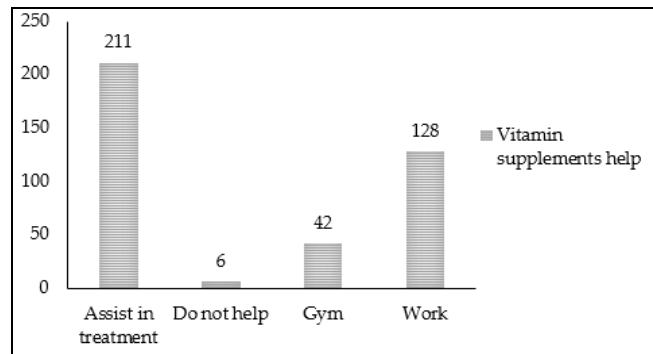


Figure-2: Vitamin Supplement help

Most of the population (211) thinks vitamin supplements assist in treatment of health conditions followed by for work-related purposes and gym (workout supplementation) respectively.

Around 71% of people considered excessive use of multivitamins as harmful. The results also showed that about 90% of the population had the awareness of vitamin supplements yet only 48% of the population of the twin cities knew about the harmful effects of vitamin supplements while 32% did not.

Prevalence of Multivitamin Supplements

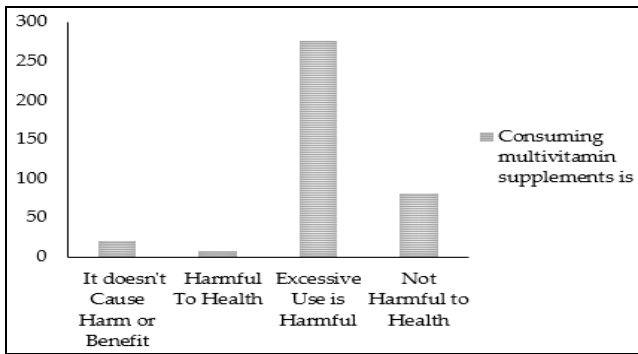


Figure-3: Consuming multivitamin supplements

Table: Association of gender with different variables

Variable	Male	Female	All	X ² with p-value
Frequency of multivitamin supplement use				
Once daily	84(36.7%)	82(52.6%)	166(43.1%)	22.869 ≤0.00*
Don't know	92(40.2%)	27(17.3%)	119(30.9%)	
others	53(23.1%)	47(30.1%)	100(26.0%)	
Longest pause without eating fresh fruits & vegetables				
< 1 week	78(34.1%)	75(48.1%)	153(39.7%)	11.086 ≤0.01*
1 week	88(38.4%)	46(29.5%)	134(38.4%)	
2 weeks	27(11.8%)	22(14.1%)	49(12.7%)	
>2 weeks	36(15.7%)	13(8.3%)	49(12.7%)	
Amount of money spent on Vit supplements per month				
500/-	71(31%)	50(32.1%)	121(31.4%)	11.939 ≤0.01*
1000/-	36(15.7%)	30(19.2%)	66(17.1%)	
1500/-	18(7.9%)	7(4.5%)	25(6.5%)	
>2000	8(3.5%)	17(10.9%)	25(6.5%)	
none	96(41.9%)	52(33.3%)	148(38.5%)	
Are Vitamin supplements good or health				
yes	195(85.2%)	144(92.3%)	339(88.1%)	4.515 ≤0.03*
no	34(14.8%)	12(7.7%)	46(11.9%)	
Do you encourage Vit. Supplement use to others?				
yes	149(65.1%)	123(78.8%)	272(70.6%)	10.656 ≤0.005*
no	66(28.8%)	31(19.9%)	97(25.2%)	
Don't know	14(6.1%)	2(1.3%)	16(4.2%)	

Significant p-value < 0.05

Currently, 68% of population consumed vitamin supplements or used them in the past. 55.6% population agreed that multivitamins help people meet nutrient needs that cannot be met through food alone. Only 48% of them thought that they should not replace healthy dietary and lifestyle habits with multivitamins use. 43% of people used multivitamin supplements once daily.

A whopping 71% of population of Rawalpindi and Islamabad encouraged the use of multivitamin

supplementation to others. Only 88% of them thought multivitamin supplementation is beneficial for health.

When we applied Chi square test, we found out that gender was statistically significantly associated with different variables in our study.

Frequency of taking multivitamins was once daily among most of the participants ($p < 0.00$), While the longest pause between taking fruits and vegetables was less than a week ($p < 0.01$).

Majority of the participants didn't like to spend money on buying multivitamins ($p < 0.01$).

Regarding awareness of multivitamin use, most of them agreed that multivitamin supplements are required for maintaining good health ($p < 0.03$), and they encouraged other fellows to take them as well ($p < 0.005$).

DISCUSSION

This study investigated the prevalence of multivitamin supplement use amongst the prescribed and non-prescribed populations and it supported the theory that a significant number of people learn about multivitamin consumption from sources other than doctors and more than half of the population do not know about the harmful effects of vitamins overdose.⁷

Our research set out to find the sequela of aggressive vitamins sales and marketing and if the local population had the necessary awareness about vitamins use or not. The results of our study showed that most people do in fact consume multivitamins and consider them good for general health but only a small part of the population use them to overcome diagnosed deficiencies.¹⁰ Only half the population gain awareness about them through doctors while the rest cited the internet, media and friends as their primary sources of awareness regarding vitamins consumption.

The results, thus, support our hypothesis that a significant amount of people does consume vitamins supplements and have awareness about them. This correlates with the mean younger age of the sample and generally younger people (20s to 30s) have more access to health-related information via media and internet.¹⁰ The results portrayed that most people encourage the use of vitamins supplements to others as well. An interesting finding was that more than half of the population do not even read the leaflets that come with the supplements also found in another study conducted in Saudi Arabia.¹¹ Despite the fact that most multivitamins are available over the counter, there still needs to be a prior advise taken from healthcare

professionals diagnosed health conditions and deficiencies. Reading these leaflets is important to avoid overdosage and adverse reactions and a lack of this step will surely lead to undesirable outcomes. This is especially vital as the regulatory bodies like FDA are unable to assess the quality of all multivitamins supplements especially those containing botanical ingredients due to the sheer number of products being manufactured daily, lack of information about the individual ingredients and low level of reporting. Out of the population that consumes vitamins, a major proportion took them once daily. However, one-fourth of the population stated that they do not take the recommended dose of their vitamin's supplements. It was observed that a very meagre population spends more than Rs. 2000 on supplements per month. This seems paradoxical considering the high prevalence of vitamin supplement use, however, it can be explained by how vitamins are relatively cheaply available in modern times.

Results indicated little change over the decade in terms of general population nutrition indicators. Regarding Vitamin deficiencies, vitamin A status had deteriorated. A significant rise in night blindness prevalence status was observed.^{12,13}

In pregnant women, the survey discovered 24.7% iron deficiency anaemia, 42.5% vitamin A deficiency, 68.9% vitamin D deficiency and 58.9% hypocalcaemia ratio. In a nutshell, stunting, wasting, increased risk of developing diseases was observed in people who were multivitamins and micronutrients deficient. This laid the foundation of our research as both prescribed and non-prescribed populations were evaluated to have a general glimpse of their awareness, consumption, and health status. There is not only a dire need of awareness regarding vitamins supplements to treat the prevailing deficiencies in the Pakistani population, but also about how their timely and correct prescription can reverse mild to severe physical and mental symptoms. Their results differed regarding the relatively lesser prevalence of multivitamins consumption as compared to Pakistan and their main reason behind use was given as hospital prescriptions whereas, in Pakistani population, it is given as general health maintenance. One of the prospective studies indicated multivitamins use as a source to reduce risk of some chronic diseases related to cardiovascular, endocrine, neurological, musculoskeletal, renal, and pulmonary systems.^{14,15}

This correlates with the mean younger age of the sample and generally younger people (20s to 30s) have more access to health-related information via media and internet.^{10,16}

Another cross-sectional study in the Kingdom of Saudi Arabia was conducted to determine the prevalence of multivitamins use among the local population.^{11,17} They portray vitamins as elixirs of eternal health that can make up for a lack of a healthy diet consisting of vegetables and fruits.¹⁸

The first, Pakistan national nutrition survey was conducted in 2011 by Agha Khan University in collaboration with UNICEF.¹⁹ Over the recent years, vitamin supplement use has been advertised in all forms of media whether that is television ads or the internet.²⁰ Hence the safety and efficacy of these products is also questionable.²¹ The research considered many learning outcome from this perspective as well and this research also provided a new insight into the correlation between a diet lacking in vitamin rich vegetables and dependency on vitamins supplements which remains a root problem.

LIMITATIONS OF STUDY

As our study is cross sectional, we cannot estimate the incidence. The use of Online questionnaire affected data collection implementation. Unanticipated obstacles, scope of research discussion and lastly COVID-19 Pandemic related problems hindering the process of data collection were found to be the key limitations.

RECOMMENDATIONS

- Educating people through seminars, social media, print media regarding use of multivitamins and its association in causing harmful effects.
- Encouraging people to have a positive attitude to avoid excessive use of multivitamins and focus more on natural diet containing vitamins.
- Local government coordination to inform the public about the safe dosages of multivitamins while fostering environmental stewardship.
- Only licensed medical professionals should properly diagnose nutritional deficiencies so that the patient can be informed of the proper dosage, side effects, and advantages.

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CONCLUSION

There exists a high prevalence of multivitamins use amongst the twin cities of Rawalpindi/Islamabad. Although

most of the population had an awareness of what multivitamins are essentially, half the population do not know about the harmful effects of vitamins. Males had more awareness of multivitamins supplement use as compared to females.

Conflict of Interest: None.

Author's Contribution

Following authors have made substantial contributions to the manuscript as under:

AS: Supervision, Conception, Study design, analysis and Interpretation of data, Critically reviewed manuscript & approval for the final version to be published.

SFM: Co-supervision, Data entry, analysis and interpretation, manuscript writing & approval for the final version to be published.

SS: Methodology, Questionnaire, Data collection, Analysis, Discussion, References & approval for the final version to be published.

AS: Abstract, Methodology, Questionnaire, Discussion, Limitation, Research booklet & approval for the final version to be published.

HO: Abstract, Questionnaire, Data collection, SPSS, References, Research booklet & approval for the final version to be published.

SMAS: Abstract, Questionnaire, Introduction, Methodology, Data collection, Discussion & approval for the final version to be published.

NK: Abstract, Questionnaire, Introduction, Methodology, Data collection, SPSS, Analysis, Discussion & approval for the final version to be published.

SA: Abstract, Questionnaire, Introduction, Data collection, SPSS, Discussion & approval for the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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