Republic of Iraq
Ministry of Higher Education and Scientific Research
University of Babylon
College of pharmacy

Scientific report in

Assessment Of Use Of Vitamins And Mineral Supplements Among Medical Students

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بسم الله الرحمن الرحيم

))لَ يُكلف لاُ وسعها ۚ لاها كسبا
نافسا لَ ما ت

وعلايها ما الكتا سبا ربناا لَخذناا ن ناسينااأ أو
ت تؤُا

أأخطأنْ ربناا و لَ هلى علاينااا صرا كما حملتا
اا ۚ تا هُ

علاى الذين من ربناا و لَ ملناا ما لَ
قابلناا تُ طاقاهلح
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واعف عنا واغفر لانا وارحمناا ۚ لاناا
أانت هۖ

مولَناا فانصرنا اعلاالقوم الكافرين((
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صدق هللا العظيم

سورة البقرة- آلية 286

إهداء

الى .....

سيدنا الحبيب المصطفى محمد بن عبدهللا)صلى اهلل عليه وآله وسلم((وآاله الطهار)عليهم

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والدي العزيز حفظه هللا

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ينبوع الحنان والدتي -برا حفظها هللا

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الى جميع افراد اسرتي

والى جميع أصدقائي

الباحث

Contents

Abstract

Vitamins are defined as organic substances that cannot or can only partially be synthesized by the body, and are essential in minute amounts for health and well- being. The aim of this study was to estimate the prevalence of self-medication among medical student in University of Babylon to explore the important reasonsfor using self-medication. To identify the common sources and types of self-medication drugs. Results: A total of 126 students of University of Babylon had participated in the filling of questionnaires. The study was revealed that out of 126 respondents: 30(23.8%) were male and 96(76.2%) werefemale. Most of the respondents15(11.9%) were in the age (18-20),107(84.9%)were in the age(21-25) ,4(3.2%)were in the age (26-30). Concerning residence of students 41(32.5%) were from rural area and 85(67.5%) were from urban area. The study findings indicated that the prevalence of vitamin supplement use is increasing. However, approximately half of the respondents encourage the use of vitamin supplement only with a doctor's recommendation. Educating about the safe use of vitamin supplement is warranted.

Chapter One
Introduction

Introduction

Vitamins are defined as organic substances that cannot or can only partially be synthesized by the body, and are essential in minute amounts for health and well-being. The biological functions of vitamins are remarkably varied, as reflected by the diversity of deficiency syndromes that arise when single vitamin is missing {1}.

Vitamins are direly important for human health, growth, development, reproduction and maintenance, and their deficiencies are imposing serious health hazards. Thirteen vitamins are true vitamins which are further classified as water soluble and fat soluble vitamins. Vitamin A, E, K and D are fat soluble vitamins whereas, vitamin B1, B2, B3, B5, B6, B9, B12, biotic and vitamin C are water soluble vitamins. There are many other food components which have vitamin activity but these are not true vitamins. There are wide range of dietary sources including both plant and animal sources for these vitamins. Their regular dietary intake is essential for proper maintenance of health and development. Vitamin deficiencies are causing the serious health problems, impairment of normal growthand development. Basic introduction of vitamins, their biological importance, daily dietary requirement and dietary sources{2}

discovery of vitamins as essential factors in the diet was a scientific breakthrough that changed the world. Diseases such as scurvy, rickets, beriberi, and pellagra were recognized to be curable with an adequate diet. These diseases had been prevalent for thousands of years and had a dramatic impact on societies as well ason economic development{3}

Fruit has been recognized as a good source of vitamins and minerals, and for their role in preventing vitamin C and vitamin A deficiencies. People who eat fruit as part of an overall healthy diet generally have a reduced risk of chronic diseases.

Fruit are important sources of many nutrients, including potassium, fiber, vitamin C and folate (folic acid). One of important types of fruit is Grapefruit. Grapefruit is a tropical citrus fruit known its sweet and somewhat sour taste. It's rich in nutrients, antioxidants and fiber, making it one of the healthiest citrus fruits you can eat. Research shows that it may have some powerful health benefits, includingweight loss and a reduced risk of heart disease.{4}

Nearly 50,000 instances of vitamin toxicity are reported annually to US poison control centers. According to National Health and Nutrition Examination Survey (NHANES) data, in 2003–2006, 33% of the United States population aged 1 year and older took a multivitamin/mineral supplement (MVM) in a given month. Use rates of MVMs were 25%–27% at age 1–3 years and 14%–19% at 14–18 years. After age 18, use rates increased by age so that by age 71 years or older, 48% of women and 43% of men were taking MVMs.

Owing to their ability to accumulate in the body, fat-soluble vitamins have a higher potential for toxicity than do water-soluble vitamins. Iron-containing vitamins are the most toxic, especially in pediatric acute ingestions.

Age-related demographics Single vitamins are consumed more often by adults, while multivitamins are administered more frequently to children.

Premature infants with low birthweight have suffered life-threatening adverse effects from vitamin E, with sepsis and necrotizing enterocolitis having occurred in these infants but not in others.

A syndrome of ascites, hepatomegaly, and thrombocytopenia resulting in death occurred in the 1980s in association with an intravenous vitamin E preparation used in premature infants with low birthweight. The cause was presumably a polysorbate carrier of the vitamin, and the syndrome has not occurred since its

removal The Annual Report of the American Association of Poison Control Centers' National Poison Data System (NPDS) documents the number of exposures for each class of vitamins (eg, adult and pediatric multiple vitamins, individual vitamins), the outcomes, and the fatalities from that ingestion. [1] In 2019, the NPDS reported 46,280 single exposures to vitamins, with 1836 minor adverse outcomes, 211 moderate outcomes, 12 major outcomes, and one death.

Regarding vitamin D toxicity, a retrospective analysis of NPDS data from 2000 through June 30, 2014 found that the mean number of exposures, which was 196 per year from 2000 to 2005, increased 1600% between 2005 and 2011 to a new annual mean of 4535 exposures per year. Nevertheless, a decline occurred in the percentage of patients treated in a health care facility and of patients with serious medical outcome, and one death was reported {5}

Aim:

The aim of this study was to estimate the prevalence of self-medication among medical student in University of Babylon to explore the important reasons for using self-medication.

Chapter Two
Material and methods

Materials and Methods

Cross sectional study design was performed in Babylon province in Iraq. The on-line survey was performed from December 2020 to April 2021. The study population consisted of 126 students of University of Babylon studying in various medical faculties i.e. Medicine, Dentistry, Pharmacy and Nursing. In order to data collection, on-line Questionnaire was conducted. The potential items of the survey can be characterized from a literature review of previous studies. The questionnaire consisted of 5parts : the first part consisted of demographic information. Thesecond part included if the participant was suffering illness . The third part composed of the regimen of usage of vitamin and minerals. The fourth part demonstrated the type of vitamin and mineral supplement usage by the participant. The fifth partincluded the reasons for taking the vitamin and minerals by the participant. The sixth part verified if the participant suffered side effects related to supplement use. The seventh part demonstrated type of Side effects of vitamin and minerals from which the participants suffered. The internal consistency of questionnaire was evaluated using Cronbach'sα test (r=0.753). The collected data was entered in the statistical package foe social science (SPSS) version 24 and descriptive statistics performed. The results of the study were presented as frequency and percentage.

Chapter Three
Results

Results:

1-Demographic information:

A total of 126 students of University of Babylon had participated in the filling of questionnaires. The study was revealed that out of 126 respondents: 30(23.8%) were male and 96(76.2%) were female .Most of the respondents15(11.9%) were in the age (18-20) ,107(84.9%)were in the age(21-25) ,4(3.2%)were in the age (26-30).Concerning residence of students 41(32.5%) were from rural area and 85(67.5%) were from urban area. Most of the respondents 108(85.7%) werethe students of College of Pharmacy, followed by students of College of Medicine 12(9.5%), Dentistry 5(4%) and Nursing 1 (0.8%). Most of the respondents were 5th stage which are 82 (65.1%), followed by 4th stage students which are 23 (18.3%)and 3rd stage students which are 8(6.3%) followed by 2rd stage students13 (10.3%).

Table 1: Demographic information of participants

Variables		Frequency	Percentage
-Sex	Male	30	23.8%
	Female	96	76.2%
-Age	18-20	15	11.9%
	21-25	107	84.9%
	26-30	4	3.2%
-Residence	Rural	41	32.5%
	Urban	85	67.5%
-College	Medicine	12	9.5%
	Dentistry	5	4%
	Pharmacy	108	85.7%
	Nursing	1	0.8%
-Stage	2nd Stage	13	10.3%
	3rd Stage	8	6.3%
	4th Stage	23	18.3%
	5th Stage	82	65.1%
-Weight status	Under weight	15	11.9%
	Normal weight	95	75.4%
	Over weight	16	12.7%

2-The illness from which the participant was suffering:

Figure1shows that out of 126 students, 22(22.2%)of respondents had reported diagnosis suffer from illness followed by 98(77.8%) hadn't suffer from illness

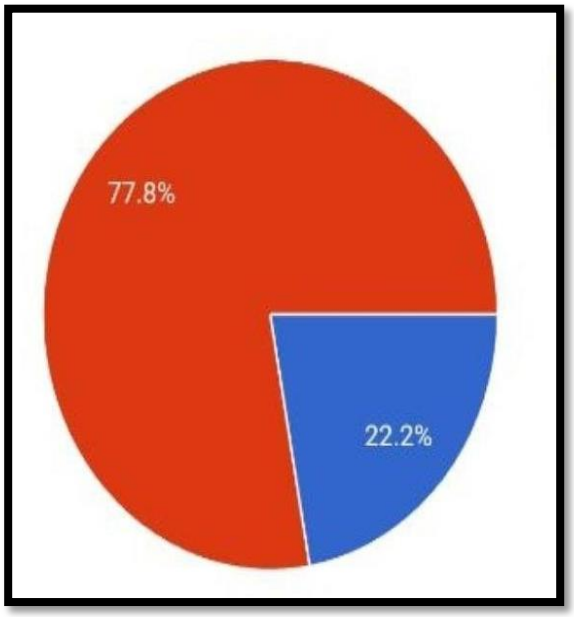

Figure 1: The illness of participant

3- The regimen of usage of vitamin and minerals

Figure 2 shows regimen of usage of vitamin and minerals. It demonstrated that The highest percentage of participants used the vitamins and minerals monthly41(32.5%).

32 of the participants used the vitamins and minerals daily (25.4%) while 24 of the participants used the vitamins and minerals weekly (19%) and only 29 of the participants never use the vitamins and minerals (23%).

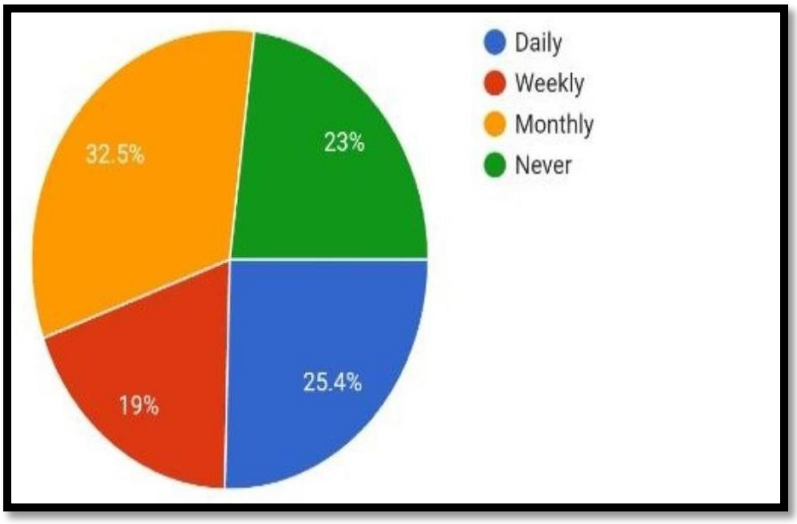

Figure 2: The regimen of usage of vitamin and minerals

4-The type of vitamin and mineral supplement usage by the participant:

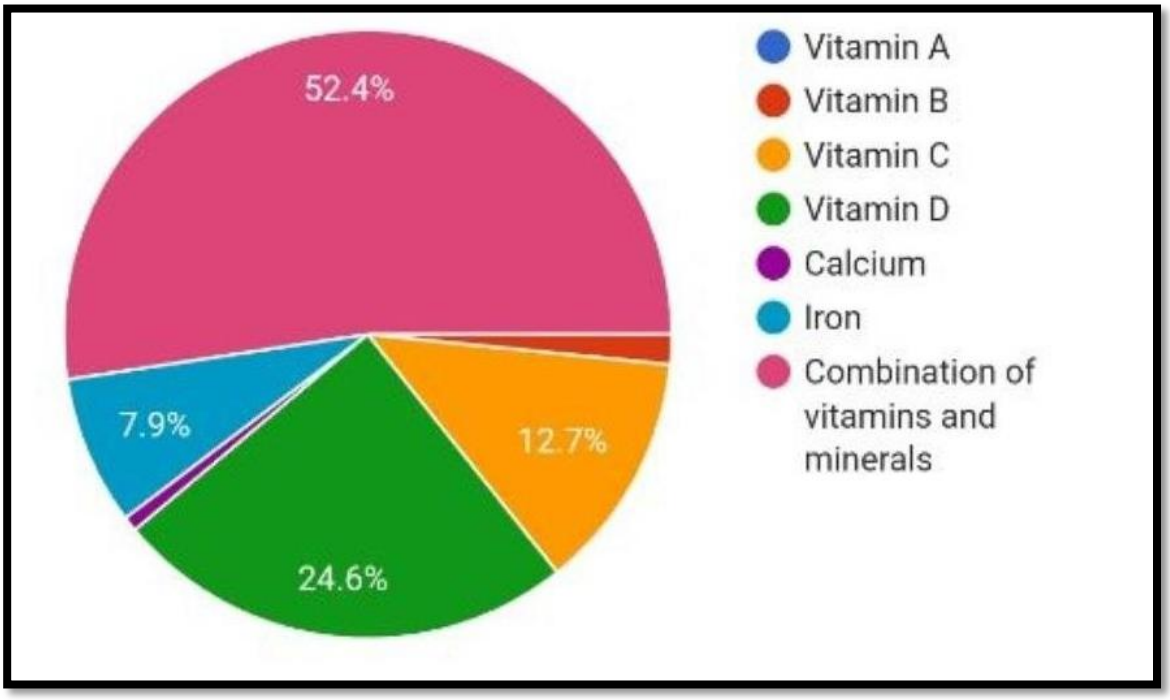

Figure 3: The type of vitamin and mineral supplement usage by the participant

Figure 3 shows which type of vitamin and mineral supplements which can be used by the participant. The highest percentage of participants used compination of combination of vitamin and mineral supplements which are 66 (52.4%). 31(24.6%) of the participants used vitamin D. 16(12.7%) of the participants used vitamin C. Equal percent of participants used vitamin A and iron which are10(7.9%). of the participants used vitamin A. Few percent of participants used vitamin B which are 2(1.6%).

5-The reasons for taking the vitamin and minerals by the participant

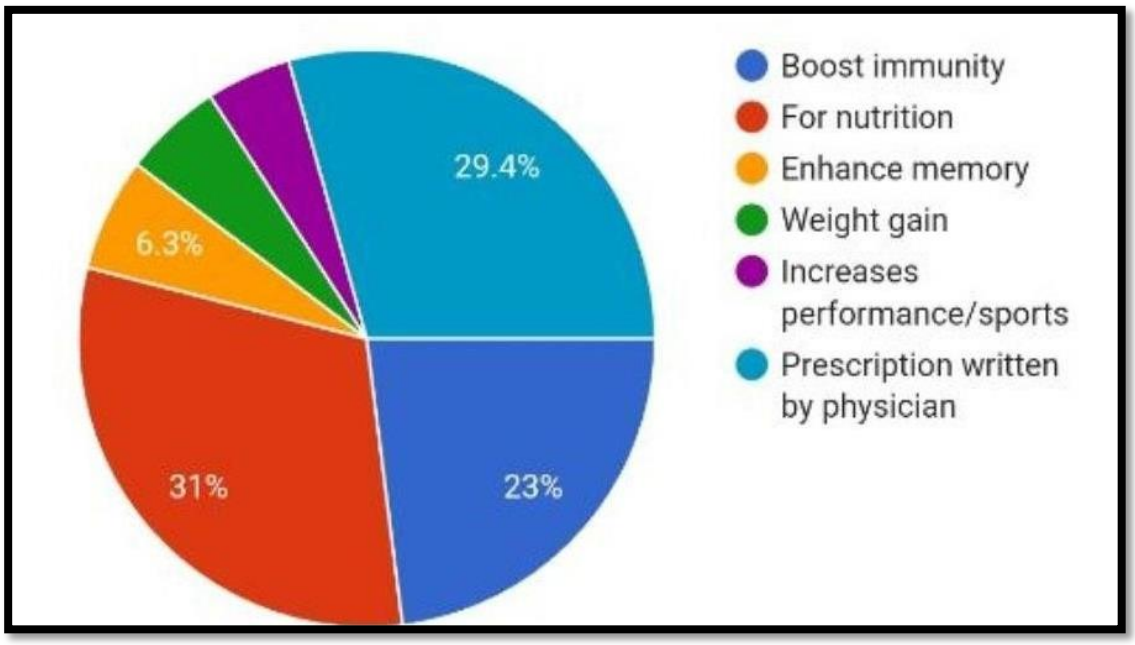

Figure 4: The reasons for taking the vitamin and minerals by the participant

Figure 4 showed the reasons for taking vitamin and mineral supplements. 39 participants (31%) used the vitamins and minerals for nutrition followed by 37participants (29.4%) used them according to prescription written by physician. For boost immunity, 29 participants (23%) used the vitamin and minerals. For enhance memory, 8 participants (6.3%) used the vitamin and minerals, weight 7 participants (5.6%) used the vitamins and minerals for weight gain For increase performance/sports, 6 participants(4.8%) used the vitamins and minerals

6-The side effects that is related supplement use

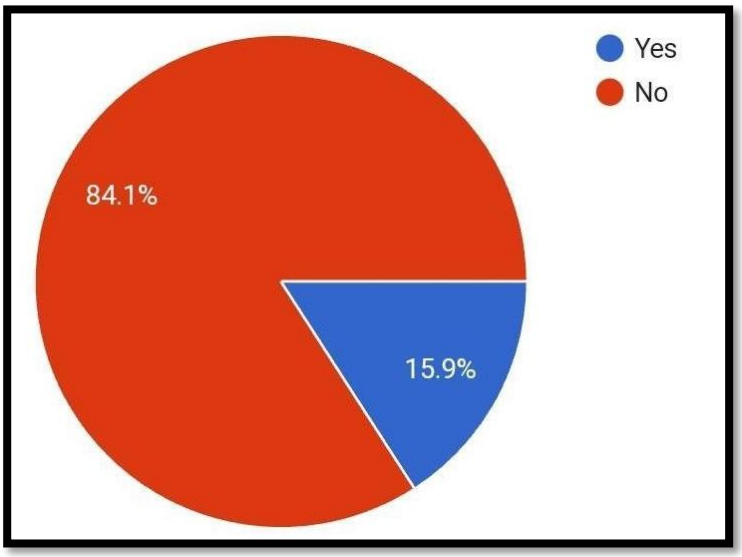

Figure 5: The side effects that is related supplement use

Figure 5 verified the percentage of participants who had experienced any side effects related to use of vitamin and mineral supplements. Most of participants 106(84.1%) had not suffered from side effects of vitamin and minerals .A few percent 20(15.9%) of participants suffered from side effects of vitamin and minerals.

7-Type of Side effects of vitamin and minerasls

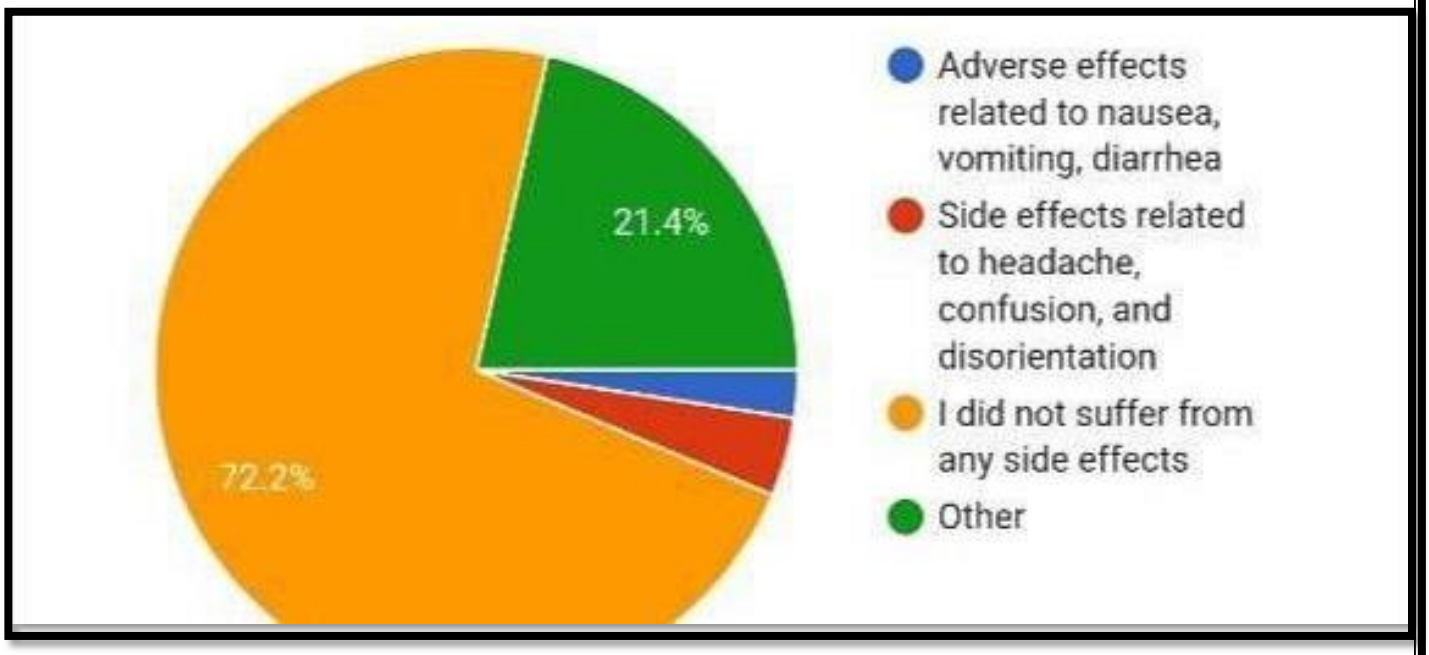

Figure 6. Type of Side effects of vitamin and minerals

Figure 6 showed type of Side effects of vitamin and minerals from which the participants suffered. 5(4%) of the participants suffered from headache, confusion and disorientation. 3(2.4%) of participants suffered from nausea, vomiting and diarrhea. 91 (72.2) of the participants did not suffered any side effects. 27(21.4%) of the participants suffered other types of side effects.

Discussion

The present study found that the use of vitamin supplements was commonamong the participating university students specifically, 99.2% of the participantsmost of them are from medical students.

The results show , 33.5% of participants used vitamins and supplements monthly , 19% used it weekly , 25.4% used the vitamin supplements daily. Only 23% of the participants did not use vitamins and supplements.

However , these results were higher than studies published among female college in Qatar 56.5% {16} and higher than the rate reported in jordan 30.2%{17 }and lower than those reported in studies by johani among saudi medical student{18}. Also , lower than professional athletes in Saudi Arabia 93.3%{19} ,and lower than those reported in studies by jairoun among Emirati athletes {20}. Combination of vitamin and minerals were the most common supplements taken by the study participants.

On the other hands, when we asked the participants for reasons taking vitamins and minerals supplements , their answers were for nutrition, to Boost immunity , weight gain and enhance memory .

Additionally , the majority of participants did not suffer from diseases and their weight within the normal range .

This study revealed the use of supplement by female students , female were more use compared to males .

The study involved only medical students at one university , and therefore , may not be representative of all Iraqi medical students.

Conclusion

The study findings indicated that the prevalence of vitamin supplement use is increasing. However, approximately half of the respondents encourage the use of vitamin supplement only with a doctor's recommendation. Educating about the safe use of vitamin supplement is warranted.

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