DETERMINATIONS OF THE TREND AND PATTERN OF DIETARY SUPPLEMENT USE IN MALAYSIA FROM 2020 TO 2021: THE GOOGLE SEARCH ALGORITHM AND RANKING SYSTEM ASSESSMENT APPROACH METHODS

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INTRODUCTION

According to FDA, dietary supplements (DS) is defined in part by the legislation as orally used products that contain a "dietary element" (FDA, 2019). Google Trends offers a retrospective analysis of the popularity of specific topics among Google users across subregions and over time.

Nationally,

13.3% increase in intake

of DS according to the MANS 2014 study conducted among adults (Mohd Zaki *et al.*, 2018).

OBJECTIVE

To determine the popularity of different types and categories of dietary supplements among Google users of all ages in Malaysia from 2020 to 2021.

METHODOLOGY

The trend and popularity of DS was calculated in **3 steps:**

1 Classification of dietary supplements

Selection was based on categories, ingredients with no potential beneficial effects and those which cannot be matched on GT were excluded. moving down the NIH list, a related topic in GT is searched using "health" as the default search category and "Malaysia" as the region until ten topics of each category were obtained.

Each included ingredient was categorised into one of the following groups: "amino acid", "bacterial", "botanical", "chemical", "enzyme", "fat or fatty acid", "fibre", "mineral", "protein", or "vitamin". the categories were derived from the ingredients in the dietary supplement label database.

- **Mann-Kendall trend test**
- **Slope**
- **Seasonal components**

2 Assessment of dietary supplements

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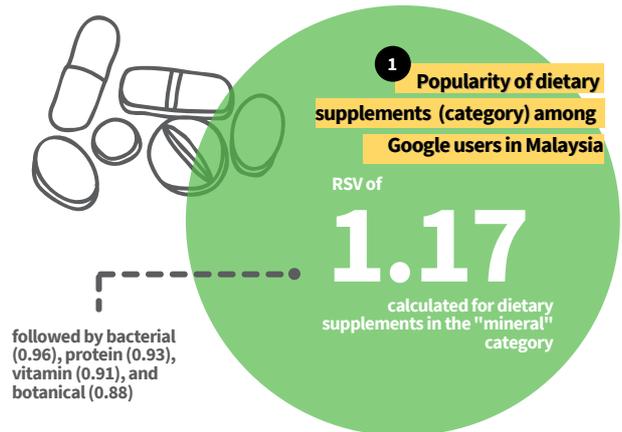
3 Data analysis

The Mann-Kendall test is performed using XLSTAT 2019 to search for the presence of a significant long-term in the time series). a p-value below 0.05 was considered to represent a significant difference. simple linear regression is performed to determine the slope for all significant long-term trends expressed as changes in

RSV per year over the study period. the seasonal component of the time series is extracted by differencing. the difference between the maximum and minimum seasonal components of the time series is the monthly amplitude.

RESULTS

1 Popularity of dietary supplements (category) among Google users in Malaysia

RSV of

1.17

calculated for dietary supplements in the "mineral" category

followed by bacterial (0.96), protein (0.93), vitamin (0.91), and botanical (0.88)

Topic	Category	Ratio of RSV to "Vitamin C"
Protein	Protein	1.76
Magnesium	Mineral	1.68
Calcium	Mineral	1.60
Dietary fibre	Fibre	1.55
Iron	Mineral	1.52
Fish oil	Fat or fatty acids	1.50
Probiotic	Bacterial	1.50
Omega-3 fatty acid	Fat or fatty acids	1.45
Collagen	Protein	1.44
Folate	Vitamin	1.36
Potassium	Mineral	1.34
Whey protein	Protein	1.28
Olive	Botanical	1.23
Cobalamin	Vitamin	1.22
Zinc	Mineral	1.21
Iodine	Mineral	1.20
Aloe vera	Botanical	1.18
Garlic	Botanical	1.18
Glucosamine	Chemical	1.09
Glutathione	Chemical	1.09

2 The **top 20 most popular topics** used on the dietary supplements as a ratio with the value for "Vitamin C"

DISCUSSION

- There is a **positive correlation** between **socioeconomic status and food security level**. According to the Department of Statistics, there was a higher total RSV in Selangor, WP Kuala Lumpur, Pulau Pinang, and Perak compared to other states with some of the highest mean gross household income in Malaysia.

- Consumers believe supplements have a **beneficial impact** on their health and help to **prevent** chronic diseases, especially during the **pandemic**.

CONCLUSION

- **Proteins, minerals and vitamins** generated the **most attention** among Google users in Malaysia from 1 November 2019 until 31 October 2021, reaching a **peak** during **July 2020 and March 2021**, **lowest** during **December 2020**.

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