



College Students' Knowledge and Use of Herbal Supplements: Informed Decision, Health Risk, or Marketing Ploy?

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Introduction

Herbal supplements (HS) are plant, herb or products that are thought to be helpful for treating illnesses and maintain health. The Dietary Supplement Health and Education Act of 1994¹ limits the regulatory and evaluation authority of the U.S. Food and Drug Administration (FDA) to oversee HS; unlike prescribed or over-the-counter (OTC) medicines, they do not need to be proven safe or effective.

HS are widely used, heavily marketed, and easily found on the internet, pharmacies, and retail shops.² However, many of their marketing claims do not match their effectiveness, as examined by rigorous scientific studies. Taking these supplements in substitution of prescription medicine can be dangerous; causing higher rates of early deaths.^{3,4}

The purpose of this study is to better understand the extent to which college students from Eastern Kentucky use HS. The research questions for this study were:

- How do the participants find out about HS?
- How helpful do participants perceive the HS they take to be?
- What misconceptions do participants have regarding HS?
- Does a positive or negative attitude towards science change the usage rate of HS?

Methodology

After the study was approved by the MSU IRB Board (protocol 21-09-11), data for this study were gathered in two locations:

- Students waiting for an appointment at the Health and Human Services Clinic on campus
- Students approached in public spaces on campus.

Once students were informed of their rights as participants and consented, they completed a six-page, anonymous survey about their knowledge and usage of HS. The sample size was 60 participants.

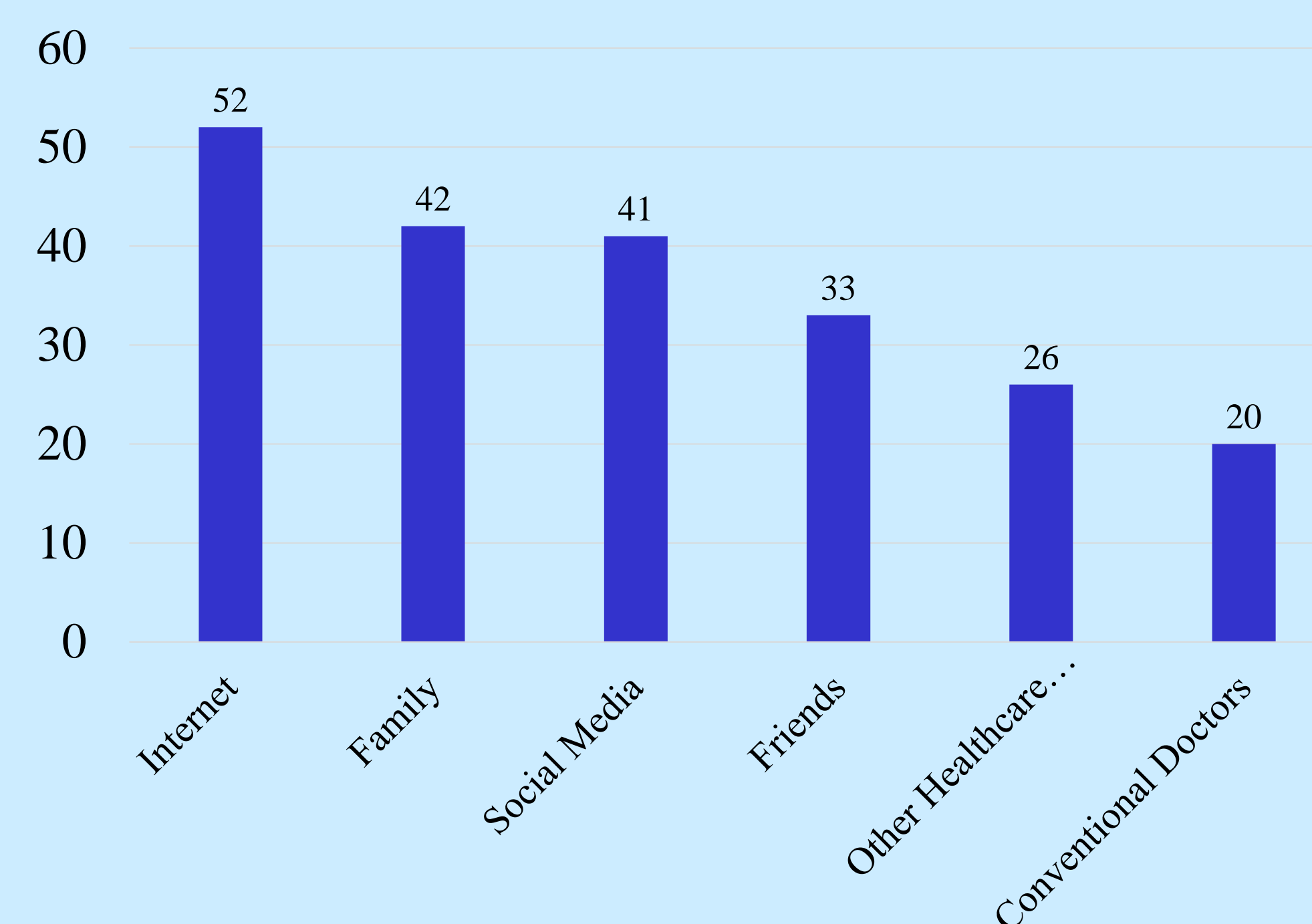
Independent variables: Gender; age; alcohol use; physical activity level; fruit, veggies or fat in their diet; current health; attitude toward science⁵; number of doctor visits a year; number of long term medications used.

Dependent Variables: Number of HS ever used, and number of HS currently using.

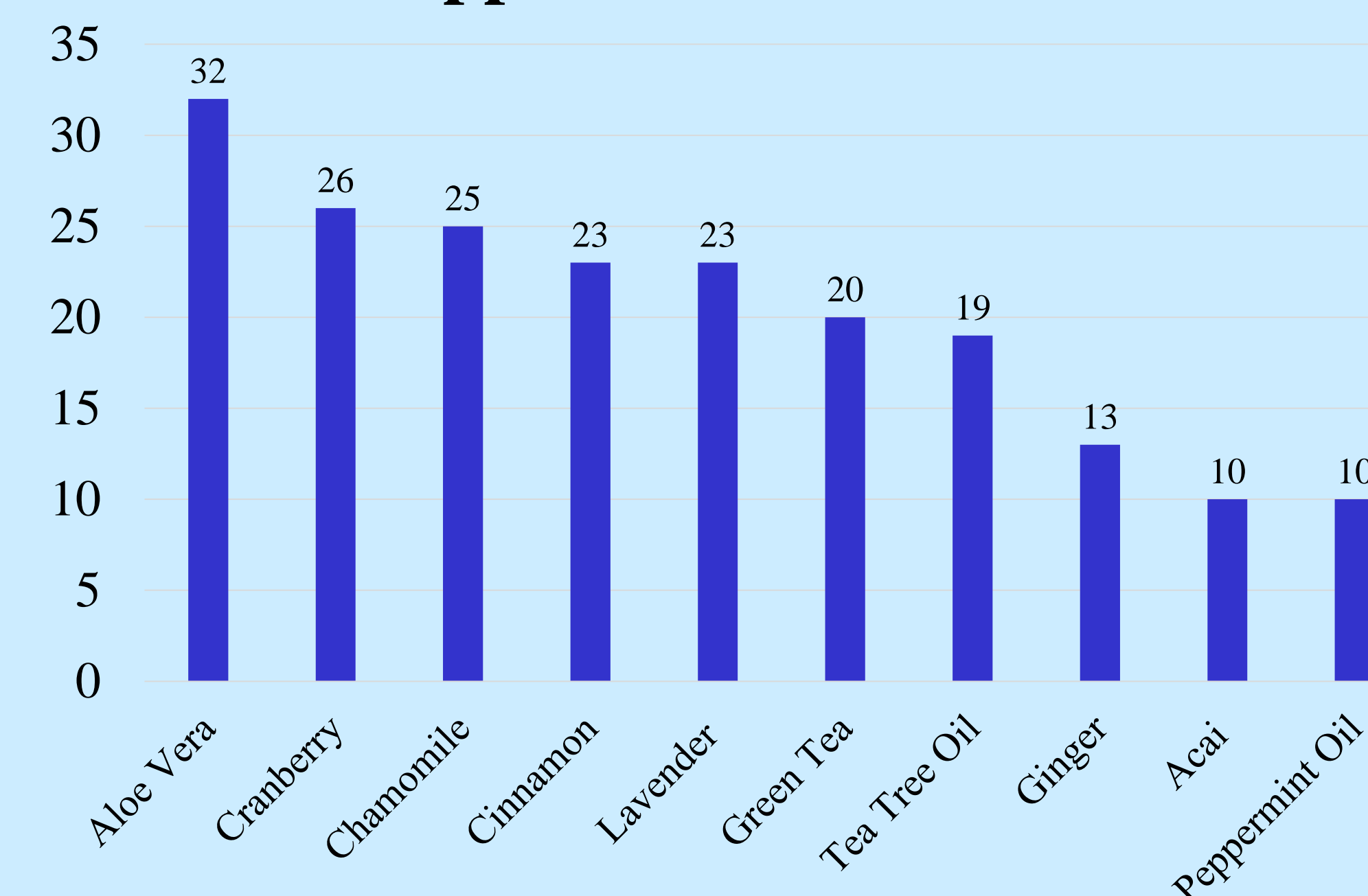
Additional information: What HS the participants used, what they used them for, where they learned about them, and how effective they were.

Findings

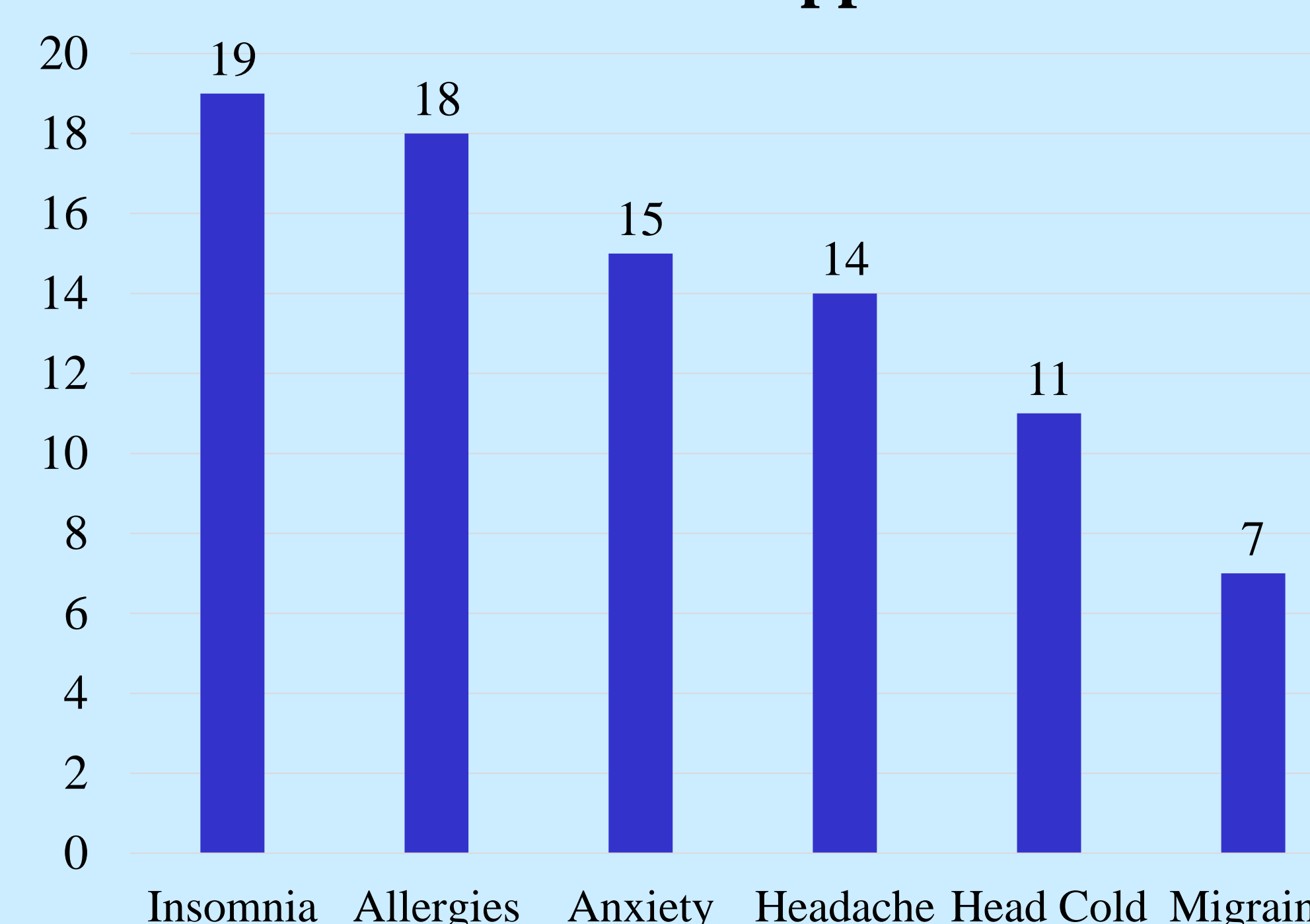
Most Common Sources of Information



Most Common Herbal Supplements Ever Used



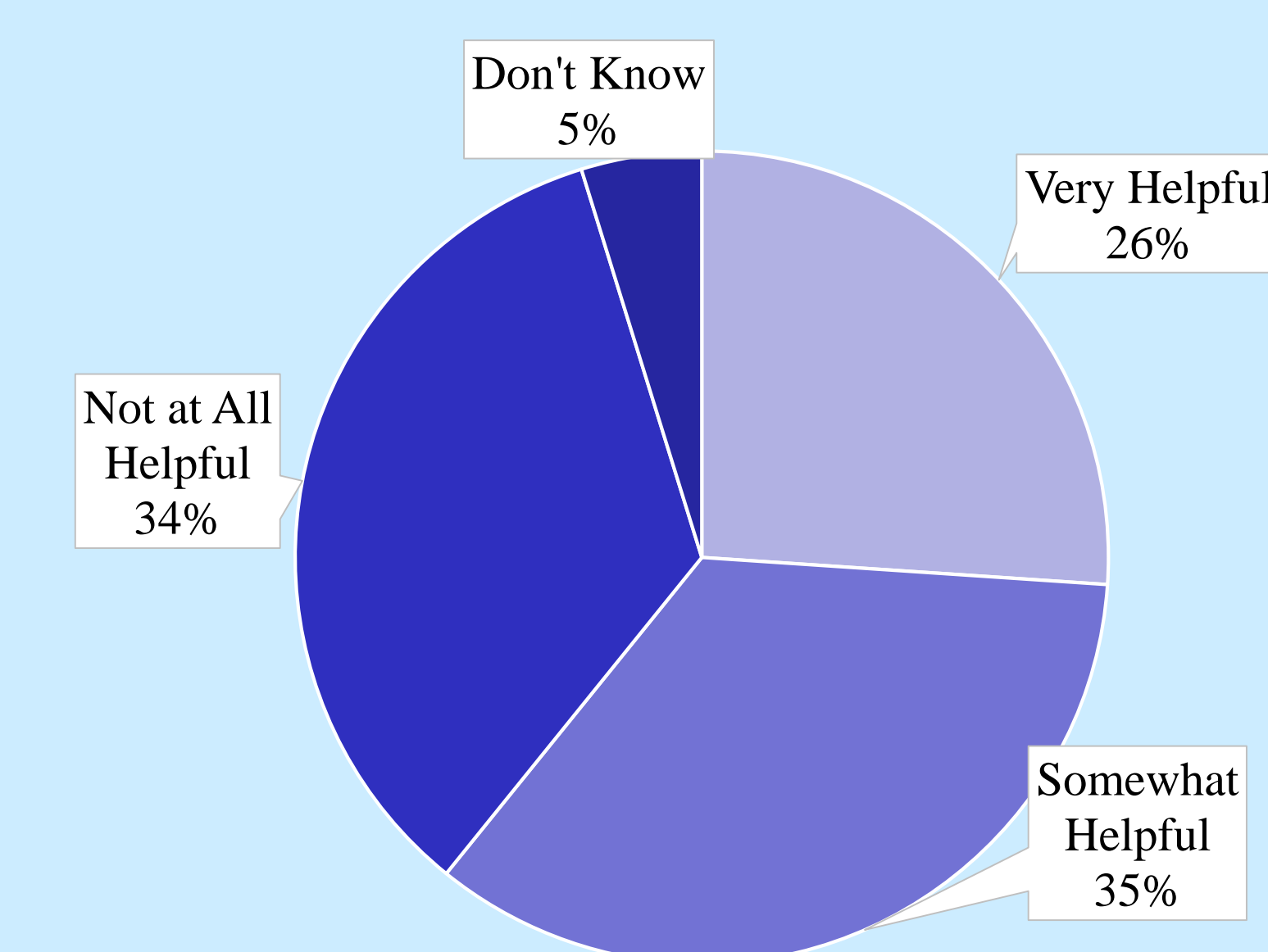
Common Health Conditions Treated With Herbal Supplements



Common Herbal Supplements Currently Used



How Helpful Participants Found Herbal Supplements To Be



Because of a low sub-group sample size and the non-normal nature of the dependent variables, non-parametric analyses with SPSS were calculated.

Spearman: No association between attitude toward science and the number of HS ever or currently used; there was a correlation between the number of HS ever and currently used ($p < 0.0001$).

Mann-Whitney Test: No relationships between the dependent variables and gender, alcohol use, physical activity level, fruit or veggies in diet, or current health.

Kruskal-Wallis Test: No relationships between the dependent variables and age, diet fat, doctor visits a year, or number of long-term medicines used.

Concluding Remarks

College students from rural areas found out about HS mainly from the internet, family, social media, and friends. After using supplements, 61% of college students found them very or somewhat helpful. Participants think that HS can treat medical conditions like insomnia, allergies, and anxiety. A positive or negative attitude towards science does not change the usage rate of herbal supplements. This could be because many companies market herbal supplements as medication.

Selected Bibliography

1. Congress. (1994, October 25). *Dietary Supplement Health and Education Act of 1994*. NIH Office of Dietary Supplements. Retrieved October 25, 2021, from https://ods.od.nih.gov/About/DSHEA_Wording.aspx.
2. Offit, P. A. (2013). *Do you believe in magic? The sense and nonsense of alternative medicine*. Harper.
3. Mayo Clinic (2021, January 9). *Herbal supplements: What to know before you buy*. Mayo Clinic. Retrieved October 25, 2021, from <https://www.mayoclinic.org/healthy-lifestyle/nutrition-and-healthy-eating/in-depth/herbal-supplements/art-20046714>.
4. Asher, G. N., Corbett, A. H., & Hawke, R. L. (2017, July 15). Common herbal dietary supplement-drug interactions. *American Family Physician*. Retrieved October 25, 2021, from <https://www.aafp.org/afp/2017/0715/p101.html>.
5. Kind, P., Jones, K., & Barmby, P. (2007). Developing attitudes towards science measures. *International Journal of Science Education*, 29(7): 871-893.

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