

Bottled flavored water consumption among nursing students: Preliminary study

Pilotażowe badanie spożycia butelkowanych wód smakowych przez studentów pielęgniarstwa

Anna Pietras^{1,A–D,F}, Kamil Konrad Hozyasz^{2,A,C,E,F}

¹ Nursing Student Research Club, Pope John Paul II State School Of Higher Education in Biała Podlaska, Biała Podlaska, Poland

² Pope John Paul II State School Of Higher Education in Biała Podlaska, Biała Podlaska, Poland

A – research concept and design; B – collection and/or assembly of data; C – data analysis and interpretation;
D – writing the article; E – critical revision of the article; F – final approval of the article

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Address for correspondence

Kamil Hozyasz

E-mail: khozyasz@gmail.com

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Abstract

Background. In the USA, sugar-sweetened beverages, including flavored water, are the leading sources of added sugars, contributing nearly half of those consumed. Eating habits and food preferences of children are largely shaped by adults, both family members and people of high social authority. Recent study provided evidence of a very high rate of hospitalized children who drink flavored water in Poland. Reducing consumption of sugar-sweetened beverages has become a public health priority in westernized countries. Adopting health behavior patterns and participating in health promotion by the nurses are key issues for performing nurses' duties according to social expectations.

Objectives. The aim of the study was to assess the consumption of bottled flavored water by students of nursing.

Material and methods. An original questionnaire was developed as a tool for survey research. It comprised questions on frequency of flavored water consumption as well as preferences of flavors. In March 2019, researches were led among 109 students of nursing in the Pope John Paul II State School of Higher Education in Biała Podlaska.

Results. In the week preceding the survey, bottled flavored water was consumed by 19.3% of students of nursing. Only 10.2% of participants declared that they never consumed bottled flavored water. Among the most preferable flavors were: lemon (51.5%), strawberry (20.0%) and apple (14.0%).

Conclusions. This pilot study confirmed the need to actively counter the false conviction that bottled flavored water is mineral water (not "colorless beverages") also among people who will professionally participate in health promotion in the future.

Key words: diet, pro-health behavior, food industry, flavored water

Streszczenie

Wprowadzenie. W Stanach Zjednoczonych słodzone cukrem napoje, w tym tak zwane wody smakowe (wody aromatyzowane), stanowią źródło niemalże połowy spożywanego cukru dodanego do pokarmów. Nawyki żywieniowe i preferencje pokarmowe dzieci w dużym stopniu są kształtowane przez osoby w wieku dorosłym, zarówno z najbliższego kręgu rodziny, jak i inne, szczególnie jeśli cieszą się autorytetem społecznym. Przeprowadzone w 2016 r. w Polsce badanie wykazało spożywanie wód smakowych przez prawie 40% hospitalizowanych dzieci. Zmniejszenie spożycia słodzonych napojów należy do priorytetów zdrowia publicznego w krajach zwesternizowanych. Przyjmowanie przez pielęgniarki prozdrowotnych wzorców zachowań i udział w promocji zdrowia są kluczowe dla tego zawodu.

Cel pracy. Ocena spożycia butelkowanych wód smakowych przez studentów pielęgniarstwa.

Materiał i metody. Na potrzeby badania opracowano kwestionariusz ankiety dotyczący spożywania butelkowanych wód smakowych i preferencji przy wyborze produktów. W marcu 2019 r. przeprowadzono ankietę wśród 109 studentów pielęgniarstwa w Państwowej Szkole Wyższej im. Papieża Jana Pawła II w Białej Podlaskiej.

Wyniki. W tygodniu poprzedzającym udzielenie odpowiedzi na pytania zawarte w ankiecie 19,3% studentów spożywało butelkowaną wodę smakową. Tylko 10,2% deklaroowało, że nigdy nie piło wód smakowych. Najczęściej wybierano wody o smaku cytrynowym (51,5%), truskawkowym (20,0%) i jabłkowym (14,0%).

Wnioski. Badanie pilotażowe potwierdziło konieczność aktywnego zwalczania nieprawdziwego przekazu, że wody smakowe są wodami mineralnymi, a nie „bezbarnymi napojami”, także wśród osób, które w przyszłości zawodowo będą zajmować się promocją zdrowia.

Słowa kluczowe: żywienie, zachowania prozdrowotne, przemysł spożywczy, woda aromatyzowana

Introduction

The promotion of a healthy lifestyle in times of dynamic nursing development is one of the most important professional tasks of nurses.¹ The model of a nun – the prototype for a nurse, belongs to the past. Similarly, the model of an employee who only follows physician's orders and lacks thorough medical education, becomes obsolete.¹ The model of a modern nurse is now a health professional – capable of managing the flow of biomedical information and making independent decisions concerning the care of the recipient of health sector services as well as the pro-health effect on the environment. The effectiveness of health promotion activities at the local community level depends not only on the knowledge and motivation, but also on communication skills and competencies in taking care of oneself, as well as the image perceived by the environment.^{2–4} In Poland, there has been a qualitative change in nursing education. However, the health behavior of this occupational group is of concern.⁵ Additionally, Walentukiewicz et al.⁵ have also found the non-fully satisfactory level of pro-health behaviors among female nursing students, which undermines building the authority, which starts from the stage of choosing a profession and commencing education.

Bottled flavored waters contain various sweeteners (e.g., sucrose, glucose-fructose syrup, aspartame, and acesulfame K), artificial and natural flavors, acidity regulators, and antioxidants, whereas the packaging graphic design suggests that these are bottles with mineral water containing only natural flavors.⁶ As early as in the 1990s, American nurses strongly criticized bottled flavored waters.⁷ It has become a standard practice to take into ac-

count the type of beverage consumed when assessing the nurse's diet and to make patients aware of deceptive labeling on flavored waters in the USA (“fat-free”, “contains corn syrup instead of sugar”). Parents are educated that an instinctive choice of bottled flavored water, which costs comparably as much as “clean” water, does not mean a choice of a product with “added value” for their child; on the contrary – it is harmful.⁷ In Poland, an intensive development of the flavored water segment dates back to 2005. From the very beginning, this has been accompanied by critical reflection of market researchers,⁸ and even students undertaking research activities.⁹ In the USA, nursing students engaged in smartphone-based social media campaigns to reduce the consumption of sweetened beverages, including flavored waters, e.g., by teenagers living in non-urban areas.¹⁰

The aim of the study was to evaluate the bottled flavored water consumption among nursing students.

Material and methods

An original questionnaire concerning flavored water was used as a research tool, aimed at preliminary learning the consumer preferences and consumption habits of people who are going to be nurses. In March 2019, a survey was conducted among 1st and 2nd degree nursing students at the Pope John Paul II State School Of Higher Education in Biała Podlaska. As many as 109 students (95 women and 14 men) voluntarily attended in the survey. The average age of respondents was 29.3 ± 11.9 years. The students anonymously marked the answers in distributed questionnaires, consisting of personal data and questions

concerning the flavored water consumption, preferred brands and flavors.

Results

Some of the nursing students – 21 (19.3%) – declared to consume bottled flavored waters in the week preceding the survey, whereas every 4th first-year undergraduate student was a consumer. Only 10.2% of medical students consumed no bottled flavored waters. The preferred water flavors were: lemon, strawberry and apple – indicated by 51.5%, 20.0% and 14.0% of respondents, respectively. Water flavors other than fruit, e.g., green tea, have not gained interest (2.9%). Thirty-four students declared their preference for the commercial brand of bottled flavored water and the most frequent one was Żywiec Zdrój water (53%).

Discussion

It is forecasted that in 2023 the average European citizen will consume 259 L of bottled water, soft drinks, juices, and nectars.¹¹ A chosen beverage not only serves to quench one's thirst, but also becomes a part of one's lifestyle. In Poland, flavored waters are drunk by children of all ages, from infants to teenagers,^{6,12,13} and by adults, even those making a health-enhancing effort to significantly modify their lifestyle.^{14,15} Recreational runners most often choose non-carbonated mineral water (62.0%); however, as much as 35.0% of them also choose sweet drinks, including flavored waters.¹⁵ Taking into account young people attending fitness clubs, Skop-Lewandowska et al. have found a positive habit of satisfying quenching the thirst with natural water and the rare use of flavored waters.¹⁴ In 2011, 22.0% of the students of the Pedagogical University in Cracow ($n = 200$), which is a comparable percentage, declared the flavored water consumption in our study; price, availability and taste played an important role in the choice.¹¹ Energy drinks and flavored waters have a significant share in the intake of artificial sweeteners in the Polish population.^{12,16} Malczyk et al. showed that as a result of drinking beverages, the safe supply of acesulfame K was exceeded in more than 16.0% of primary school students in Nysa.¹² It is also worth noting that low pH of flavored waters favors the migration of phthalates, used as plasticizers, from the surface of the PET bottle to the liquid.¹⁷ Phthalates have a harmful effect on the endocrine and reproductive systems.

The food industry will not resign from developing its offer of flavored waters because product innovation in this segment of the soft drink market is relatively easy to implement, and marketing techniques (using, e.g., social media, mobile applications, games, and emoticons) are being effectively improved.^{11–18} The intense promotion

of flavored waters on the Polish market was initiated by Żywiec Zdrój brand,⁹ and this persisting strength of the impact is demonstrated by the interest of students in this brand in our survey. Żywiec Zdrój lemon-flavored water, containing as much as 5.6 g of sugar per 100 mL, which accounts for even 5.5 times of the amount of sugar added in some other flavored waters – has been criticized by nutritionists for 10 years.⁹ Nevertheless, as much as 61.0% of the nursing students surveyed by us, who preferred lemon-flavored water, chose the lemon product of Żywiec Zdrój. The survey on the flavored water consumption by children hospitalized in 2016 in Warsaw showed that – similarly to nursing students in Biała Podlaska – the most preferred flavors (but in different order) were strawberry (37.0%), apple (18.6%) and lemon (16.0%); Żywiec Zdrój brand dominated (62.0%).⁶ Polish consumers of flavored waters usually purchase them in large 1.5 L PET bottles,¹¹ but there were no initiatives in our country aimed at reducing the size of packaging. Interestingly, in 2013, the New York City Department of Health attempted to reduce the consumption of sweetened beverages by limiting the volume of portions sold to 16 oz. (approx. 0.5 kg); however, State Supreme Court found such interference with consumer freedom unacceptable.¹⁸ New research suggests that sugar-sweetened beverages (SSB) have a similar effect on adolescents as psychoactive substances, which puts the commitment to reduce the flavored water consumption in a completely new light.¹⁹

The survey was conducted in March, i.e., in a period not predisposing to increased liquid consumption due to heat and temporary shortages of bottled water in shops, which leads to the conclusion that the results obtained accurately reflected the consumer choices of students, and not, for instance, shortages in points of sale. The authors intend to further study the consumption of flavored waters containing natural and / or artificial sweeteners by students with a larger number of participants and using an extensive survey to assess the family situation, eating habits and affiliation with subcultures, the lack of which was a significant limitation in the pilot study presented.

Conclusions

Our own survey conducted among nursing students proved the need to actively combat the false assumption that flavored waters are mineral waters, not “colorless drinks”,^{6,8} also among people who will be professionally involved in health promotion in the future. It is appropriate to continue research on the conditions of flavored water consumption, which may contribute to the development of tools to reverse unfavorable consumer preferences.

ORCID iDs

Anna Pietras  <https://orcid.org/0000-0003-2762-7527>

Kamil Konrad Hozyasz  <https://orcid.org/0000-0001-8606-2509>

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