

Fostering Healthier Choices: Empowering Pharmacy Students to Bridge the Food Label Gap in Lebanon

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ABSTRACT

Background: Non-communicable diseases are a significant public health issue in Lebanon, making it crucial to promote preventive measures such as informed dietary choices. Food labels play a key role in this, but there is a disconnect between knowledge and utilization, even among healthcare professionals. This study aimed to investigate this gap among Lebanese pharmacy students by assessing their nutrition knowledge, usage of food labels, and the factors influencing their label use.

Materials and Methods: This cross-sectional study examined the knowledge gap among 81 pharmacy students in Beirut. A validated questionnaire assessed demographics, nutrition knowledge, label features influencing purchase decisions, and barriers to label use.

Results: Despite having high overall nutrition knowledge (mean score of 82%), students reported inconsistent use of food labels. Gender did not significantly influence the prioritization of label features. However, students in higher academic years were more likely to pay attention to production dates ($p < 0.001$). Additionally, there was a positive correlation between the frequency of label use and knowledge scores.

Conclusion: This study highlights a persistent knowledge-practice gap in food label utilization among pharmacy students. Educational interventions tailored to address specific knowledge gaps and perceived barriers are necessary.

Keywords: Food literacy; knowledge-behavior gap; nutrition education; pharmacy students; public health.

INTRODUCTION

In the heart of Lebanon, beneath the whispering cedars and vibrant kitchens, a silent yet formidable threat looms: non-communicable diseases (NCDs). These insidious invaders claim a staggering 91% of lives and affect every corner of society. Among them, osteoporosis emerges as a particularly pervasive menace, affecting 70% of the elderly, surpassing even familiar foes like hypertension and diabetes. These statistics paint a poignant picture of families navigating fragility, where laughter is often laced with unspoken anxieties. Understanding and combating

this silent enemy is a crucial call to action (1,2).

Chronic diseases leave a lasting impact on people's lives, causing both physical and emotional distress. Cigarette smoke curls around conversations, diabetes undermines strength, and obesity casts a long shadow over communities. Inactivity becomes a silent enemy, while hypertension steals the rhythm of laughter. These diseases are not unique to individuals; they represent a shared challenge for our community. We can learn from each other's stories and work together for a healthier future (3). NCDs lead to premature deaths, disabilities, and decreased productivity, placing a significant burden on the healthcare system (4).

In this context, addressing NCDs requires innovative and cost-effective solutions tailored to the Lebanese population. Nutrition plays a crucial role in improving

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overall well-being, and understanding food labels is essential for making informed dietary choices. Pharmacists emerge as key players in this endeavor. They not only manage adverse food-drug interactions but also provide counseling and health education to patients. Their vital role extends to offering public health advice and guidance for chronic conditions such as obesity, diabetes, undernutrition, and even parenteral nutrition support (5).

Today, pharmacists serve as easily accessible points of contact for many health concerns, acting as a bridge between the public and essential healthcare advice (6,7). With one-third of all pharmacy sales involving nutritional products or nutraceuticals, a robust understanding of nutrition has become imperative for pharmacists (8,9). As future healthcare professionals, they are likely to encounter questions not only about prescription drugs but also about navigating the complex world of dietary supplements and making informed nutritional choices. Moreover, the increasingly evident connections between diets and diseases underscore the critical importance of equipping pharmacists with relevant expertise in nutrition(10).

This is where pharmacy students step into the spotlight, as they prepare to become the next generation of healthcare advisors. It is crucial to provide them with sufficient knowledge of nutrition so they can effectively guide their patients. Evaluating their understanding of food labels and the impact these labels have on dietary decisions can reveal areas that need improvement (11,12). However, a disconnect exists between theoretical knowledge and practical application (13). Studies suggest that healthcare professionals, including pharmacy students, often demonstrate limited utilization of food labels when making dietary decisions, despite their understanding of nutrition (14,15).

OBJECTIVES

This study aims to investigate the gap between knowledge and behavior regarding food label use among

pharmacy students in Lebanon. We will achieve this by focusing on the following key areas:

Prevalence of Label Use: Assess how frequently pharmacy students in Lebanon utilize food labels to inform their dietary choices and explore the factors influencing their label use patterns.

Knowledge-Behavior Disconnect: Evaluate the relationship between pharmacy students' understanding of nutrition and their ability to apply that knowledge when interpreting food labels. This includes identifying specific knowledge areas critical for effective label interpretation.

Barriers to Label Utilization: Identify the obstacles that prevent pharmacy students from fully utilizing food labels to make informed dietary decisions.

Ultimately, the goal of this investigation is to contribute to a healthier future for Lebanon. This can be achieved by enhancing the knowledge and skills of future pharmacists and providing valuable insights into the factors that influence dietary decisions in the country. By empowering pharmacy students to become effective advisors on healthy food choices, we can take a crucial step toward preventive healthcare and address the challenges presented by NCDs. The significance of this journey extends beyond Lebanon's borders, offering valuable lessons for other nations facing similar challenges in dealing with NCDs. By understanding the intricate link between nutrition knowledge, the utilization of food labels, and individual dietary choices, we can pave the way for a healthier future.

METHODS

Study Design and Participants:

This cross-sectional study was conducted from March to July 2023 with pharmacy students enrolled at LIU University in Lebanon. To ensure a representative sample across academic years, we employed stratified random sampling based on the year of study. We obtained a list of enrolled BS pharmacy students from university records and randomly selected participants within each year-stratum in proportion to

their representation in the population.

Before participating, potential subjects were informed about the study objectives and provided with an informed consent form outlining their rights and responsibilities. Those who agreed to participate then completed a self-administered online questionnaire designed to assess their food label use and comprehension.

Instrument Development: Food Label Use and Comprehension Questionnaire

A 35-item questionnaire, included in the Appendix, was developed to assess pharmacy students' use and comprehension of food labels. The questionnaire was modified from validated instruments used in previous studies on food label use (16,17), with a particular focus on pharmacy students and the Lebanese context. This adjustment involved extracting key components from the original tools and integrating aspects relevant to pharmacy education and the Lebanese market. The questionnaire comprised the following:

Demographics: This part collected background information about the participants, including age, gender, and academic year.

Food Label Use Habits: This part evaluated how frequently participants read food labels, where they learned to read food labels, and if they had any health conditions requiring them to pay close attention to labels.

Perceived Barriers to Label Use: This part delved into reasons why participants might not always read food labels, including unattractive design, complex language, doubts about information accuracy, and personal beliefs about health and ingredients.

Information Prioritized on Food Labels: This part assessed which information participants prioritized on food labels using a format that allowed them to select their most important choices (e.g., expiry date, ingredients list, nutritional content, health claims).

Additional Factors Influencing Food Choices: This part investigated other factors influencing participants' food choices beyond food labels, such as price, product

packaging, advertisements, and Ministry of Health approvals.

The questionnaire used a combination of multiple-choice and Likert scale questions (ranging from strongly agree to strongly disagree).

Sample Size:

We used a stratified random sampling approach to ensure a representative sample of pharmacy students across academic years. A power analysis conducted using G*Power formula with Cohen's d effect size of 0.3, a confidence level of 95%, and a power of 80%, indicated that a minimum sample size of 40 students per stratum was needed for subgroup analysis. This sample size was designed to achieve a margin of error of $\pm 5\%$ (assuming a normal distribution). Although our goal was to recruit this number, we were able to enroll a total of 81 students.

Given the program size (approximately 300 students enrolled per academic year), the number of students recruited varied each year: 12 from the second year, 63 from the third year, 5 from the fourth year, and 1 from the fifth year. While this exceeds the minimum recommended sample size overall, the distribution across years may limit the precision of detecting subgroup effects as initially anticipated in our subgroup analyses.

Inclusion and Exclusion Criteria:

- Inclusion criteria: Lebanese students enrolled in the BS pharmacy program at LIU university, aged 18 years or older.
- Exclusion criteria: To ensure that the findings are applicable to the target population of pharmacy students at our university, exchange students from other universities were excluded from participating. This decision was made in acknowledgment of potential differences in the pharmacy education curriculum and program focus across institutions. Additionally, individuals with visual impairments that would significantly hinder their ability to read food labels without assistance were also excluded to ensure that the data collected accurately reflects

participants understanding gained from reading food labels. It is important to note that these exclusion criteria were pre-defined and distinct from participants who opted not to take part or provided incomplete questionnaire responses.

Variables and Measurements:

- Reasons for reading or not reading labels: Participants were asked about their motivations for using each label element.
- Most important nutritional data: Participants indicated which aspect of the food label information (such as calorie content, fat content, nutrient percentages) they find most valuable for making informed choices.
- Understanding of food labels: Participants rated their confidence in understanding food labels on a 5-point Likert scale.

Questionnaire Validation:

Content validity was established through the Delphi expert inquiry method involving registered dietitians and public health researchers with expertise in nutrition and food labeling in the Lebanese context. Cronbach's Alpha (0.9039) and Spearman-Brown Coefficient (0.9495) indicate excellent internal consistency and reliability, respectively (18,19). The Mean Inter-Item Correlation (0.3333) within an acceptable range suggests reasonable commonality among items (20).

Statistical Analysis:

To assess statistical significance, we set alpha (α) at 0.05. The data were analyzed using SPSS software version 26. Descriptive statistics (mean, standard deviation, frequencies, and percentages) were used to summarize participant characteristics and their responses to questionnaire items. Bivariate analyses were conducted to explore relationships between variables. Chi-square tests assessed associations between categorical variables, such as gender and attention to specific label features. T-

tests were used to assess differences in mean scores between groups, such as gender and academic year. Pearson correlation coefficients were calculated to evaluate linear relationships between continuous variables, including nutrition knowledge scores and food label use scores. Spearman correlation coefficients were computed to assess potential non-linear relationships between variables.

RESULTS:

As shown in Table 1, more than two-thirds of the participants at the Beirut campus are young females aged 20-30 years (73% female). Most are moderately active (49%) and rarely follow specific diets (82%). Academically, 78% are in their third year, with smaller groups in other years. Geographically, the majority of participants are from Beirut (67%), with smaller contingents from other campuses. This profile indicates a relatively homogeneous group of young, active students in their mid-twenties.

Expiration dates are the most important information on labels, with 70.4% of consumers prioritizing them. Nutritional aspects also carry significant weight, with key considerations being calories per serving (35.8%), total fat (23.5%), and sugar (27.2%). Halal claims influence purchasing decisions for 40.7% of participants. Consumers primarily seek indicators of "good" health when evaluating product claims. The most influential factors are "without sugar" (48.1%), followed by "high fiber" (37%) and "no trans-fat" (29.6%). Claims related to lower fat content are also significant, such as "low fat/light" (17.3%) and "reduced fat" (21%). Interestingly, aspects like "organic" (23.5%) and "natural product" (39.5%) attract moderate attention, while more specific labels like "lactose-free" (9.9%) or "probiotic" (7.4%) seem to have less influence (Figure 2).

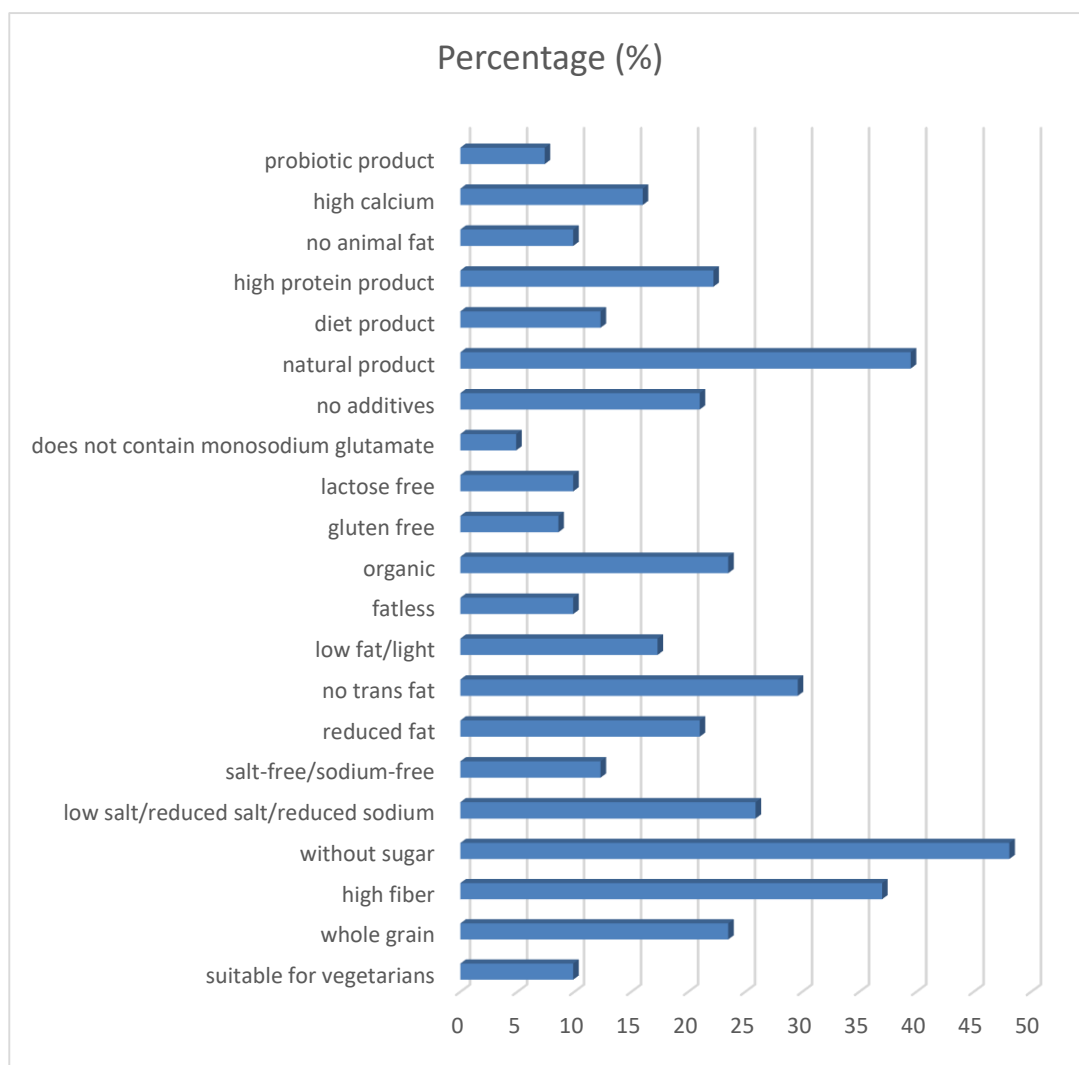


Figure 2. Health perception factors influencing purchasing decisions

Table 2 presents the frequency and percentage distribution of participants' responses regarding their habits of reading food labels, sources of learning how to read labels, health problems that require attention when reading labels, and reasons for not reading nutritional labels.

To explore student preferences for various product information attributes on food labels, T-tests were

conducted to assess potential differences based on gender and academic year (Table 3). Pearson's and Spearman's correlation coefficients were calculated to investigate the strength and direction of the relationships between these preferences and other variables. Table 4 displays the correlation between knowledge scores derived from the questionnaire and other relevant variables, such as age, frequency of label use, and source of learning.

Table 1. Demographics and Background of the Study Group

Variables	Category	Frequency	Percent(%)
Age	<20	25	30.9
	20-30	56	69.1
Sex	Male	22	27.2
	Female	59	72.8
Educational year	Second year	12	14.8
	Third year	63	77.8
	Fourth year	5	6.2
	Fifth year	1	1.2
Campus	Akkar	6	7.4
	Beirut	54	66.7
	Mount Lebanon	1	1.2
	Nabatieh	7	8.7
	Saida	5	6.2
	Tripoli	4	4.9
	Tyre	4	4.9
Physical Activity	Active	32	39.5
	Moderately Active	40	49.4
	Inactive	9	11.1
On a specific diet	No	66	81.5
	Yes	15	18.5

Table 2. Unveiling the Reality of Food Label Utilization in Pharmacy Students

Variables		Frequency	Percent (%)
Reading the food label when buying foodstuff	Rarely	14	17.3
	Most of the times	23	28.4
	Never	6	7.4
	Sometimes	29	35.8
	Always	9	11.1
If you know how to read food labels, where did you learn it	Dietician	10	12.3
	friend/family	9	11.1
	other	12	14.8
	school	5	6.2
	TV/Magazine/newspaper/internet	14	17.3
	University	31	38.3
Do you have a health problem that requires attention when reading a food label?	No	67	82.7
	Yes	14	17.3
Which of the following is/are the reasons why you don't read the nutritional labels of foods?	food labels are unattractive	9	11.1
	I believe the information on the food label is incorrect	3	3.7
	I don't mind because I'm healthy and at a good weight	31	38.3
	I know what's in the product I bought	20	24.7
	I'm afraid to learn the ingredients of the foods I consume	2	2.5
	The language on the product label is too small for me to read	5	6.2
	Words that are difficult to understand are utilized in food label information	11	13.5

Table 3. Statistical Analysis of Pharmacy Students' Priorities for Product Information Attributes

Attribute	Production Date	Expiry Date	Origin	Shelf Life	Amount
Gender (p-value)	0.506	0.467	0.153	0.155	0.954
Academic year (p-value)	<0.001*	0.944	0.070	0.894	0.718

Table 4. Correlation Between Knowledge Scores and Predictor Variables

Predictor Variable	Age	Gender	Frequency of Label Use	Source of Learning
Pearson Correlation	0.223	0.056	0.321	0.248
p-value	0.097	0.424	<0.001*	0.003*

DISCUSSION

Empowering individuals to make informed food choices is a crucial aspect of public health initiatives. Pharmacy students, in particular, play a significant role in this landscape, as they have the potential to become future advisors who can effectively translate their knowledge into practical dietary guidance. However, bridging the gap between knowledge and behavior remains a persistent challenge. This discussion aims to explore the underlying complexities of this disconnect, investigating the hidden factors and various influences that impact consumers' engagement with food labels. It specifically focuses on pharmacy students as a key population that can benefit from targeted interventions.

Pharmacy students have demonstrated a moderate understanding of food labels (59.4%), but they rarely apply this knowledge when making purchasing decisions (27.4%). This knowledge-behavior gap is concerning, especially considering their future role as healthcare advisors who are expected to guide others in making healthy food choices. As highlighted by Hameed et al. (21), there is a concerning gap between the knowledge gained in educational programs and its application in clinical practice among nurses in Pakistan. This issue is not unique and aligns with observations by Vasli et al. (22) regarding similar challenges in applying knowledge from programs like CPE. These findings emphasize the need to bridge this gap by improving healthcare educational programs to ensure the effective translation of knowledge

into practical skills. Further investigation is needed to understand this disconnect.

We employed a stratified random sampling approach to ensure that students from all academic years were included in the study. However, despite achieving a high participation rate (78%), it was primarily concentrated among third-year students. This skewed distribution may limit the generalizability of our findings to the entire pharmacy student population at our university. For future studies employing stratified random sampling, considering additional stratification criteria beyond academic year, such as program specialization or campus location, could improve representativeness. Moreover, implementing targeted recruitment strategies for each stratum and adjusting the sample size based on actual student distribution data could enhance the representativeness of the sample.

Several factors influenced the frequency of label use. As shown in Table 2, lack of awareness, perceived difficulty, and low perceived relevance were significant barriers for 17.3% of participants. This highlights the need for targeted interventions to increase awareness and simplify label interpretation. Conversely, it is important to examine the factors contributing to consistent label use, reported by 28.4% of participants, to promote this positive behavior. Interestingly, 7.4% of participants completely avoided labels due to reasons such as distrust, complexity, or health conditions. This underscores the importance of initiatives that promote labeling transparency, use

simplified language, and provide support for individuals with specific needs, as suggested in previous research (23). Additionally, halal claims were reported by 40.7% of participants as a factor influencing purchasing decisions, highlighting the significance of considering religious dietary needs for a substantial portion of consumers.

University education played a crucial role in label literacy for 38.3% of participants, highlighting its importance in pharmacy curricula (Table 2). However, the influence of dietitians (12.3%), friends/family (11.1%), and media (17.3%) underscores the potential of informal networks and accessible resources in fostering label literacy. This finding is consistent with previous research conducted by Chau et al. (24). Further investigation into these diverse pathways could provide valuable insights for developing comprehensive educational strategies.

To enhance the credibility of our recommendations for expanding label utilization, recent research supports the identified areas of focus. According to Grunert et al. (25), consumer understanding and use of nutrition labeling are critical factors. Advocating for broader recognition of label-informed choices beyond participants with health conditions (17.3%) aligns with efforts to address misconceptions about good health not requiring label guidance (38.3%). Additionally, challenging assumptions about product familiarity (24.7%) and encouraging wider adoption for preventive health are supported by Grunert et al.'s insights into factors influencing consumer behavior regarding nutrition labels. This reference reinforces the importance of our proposed strategies for maximizing the impact of nutritional information on consumer choices.

Unattractive label design (11.1%), distrustful interpretations (3.7%), and complex terminology (13.5%) necessitate industry collaboration to create clearer, user-friendly labels that inspire trust and empower consumers, especially those hesitant to confront potentially negative information (2.5%). According to Fraser (26), "packaging design greatly impacts consumer perceptions and purchasing choices, underscoring the importance of

collaborative efforts between the food industry and design experts in crafting engaging and informative labels."

While knowledge of food labels is important, student preferences for specific label information also influence purchasing decisions. Table 3 presents the statistical analysis of these preferences. Interestingly, a moderate positive correlation was found between student preferences and production date (Pearson's $r = 0.718$, $p\text{-value} < 0.001$), indicating that students who prioritize fresher products pay more attention to this information. The analysis also revealed no significant gender differences in prioritizing any specific attribute (Table 3).

One of the main findings of our study is the development of a knowledge scoring system to assess pharmacy students' understanding of food labels. This scoring system was derived from the study questionnaire, which examined different aspects of food label understanding, such as students' knowledge of key label components. Each question was assigned a specific point value depending on the complexity of the information being tested. The maximum achievable score on the questionnaire was 40, allowing us to assess a comprehensive understanding of core food label interpretation concepts. Table 4 displays the correlation between these scores and other relevant variables. The score indicated a statistically significant positive correlation ($p\text{-value} < 0.001$) with the frequency of label utilization. Students who regularly reference labels exhibit a better grasp of the information presented. Conversely, those who seldom consult labels may benefit from interventions aimed at improving their ability to interpret food labels. This finding highlights the potential of educational approaches that encourage label use to enhance food literacy among pharmacy students. Interestingly, while the frequency of label use showed the most robust positive correlation ($p\text{-value} < 0.001$), the source of learning also emerged as significant ($p\text{-value} = 0.003$). This implies that exploring diverse learning methods could be beneficial for students looking to

enhance their understanding of food labels.

This analysis examined the importance of various product attributes in purchasing decisions, considering factors such as gender, academic year, and physical activity levels. While not all factors showed statistically significant associations, the results provide valuable insights into how consumers prioritize different product features. The findings of this study have substantial practical implications for pharmacy education and public health initiatives. The study identified a gap between knowledge and behavior among pharmacy students, highlighting the need for targeted educational interventions that enhance cognitive understanding and promote practical application. By incorporating these insights into curricula and collaborating with industry experts, pharmacy students can be empowered to become effective advisors, bridging the knowledge-behavior gap. Furthermore, the findings regarding influential factors in consumer behavior can guide the refinement of public health strategies aimed at promoting informed food choices. The statistical analyses offer valuable information for developing tailored interventions, such as gender-specific marketing and improvements in label design.

Limitations of the study

This study has provided valuable insights into the knowledge-behavior gap related to food label use among Lebanese pharmacy students. However, some limitations are worth noting. Despite a well-designed survey instrument, the study relied on self-reported data, which can be susceptible to bias. Additionally, focusing on a single university limits the generalizability of the findings to a broader population of pharmacy students. To enhance the robustness of future research, incorporating objective measures, such as eye-tracking technology to gauge actual label-reading behavior, could be beneficial. Furthermore, employing a longitudinal design would allow for investigating causal relationships between educational interventions and changes in label-use

practices. Despite these limitations, this study lays a solid foundation for further exploration. By addressing these constraints and incorporating feedback from various stakeholders (including educators, healthcare professionals, and consumers) in future studies, we can gain a more comprehensive understanding and develop targeted interventions to close the knowledge-behavior gap and encourage healthier dietary decisions among pharmacy students and others.

CONCLUSION

In conclusion, bridging the knowledge-behavior gap concerning food labels requires a comprehensive and multi-faceted approach. Our findings highlight the potential of tailored educational interventions to enhance students' understanding and utilization of food labels. Easily accessible resources, combined with improved label design considerations, can significantly empower pharmacy students as future advisors on healthy food choices. Given the evolving landscape of the food industry, collaborative efforts between academia and industry stakeholders are crucial. This synergistic collaboration is key to fostering informed consumer choices among pharmacy students and advancing public health outcomes on a broader scale. As we look to the future, these insights lay the groundwork for transformative initiatives that can positively impact the intersection of nutrition knowledge and consumer behavior.

Conflicts of Interests

The authors declare that there are no conflicts of interest.

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Ethical considerations

Ethical clearance for this study was obtained from the LIU SOP research committee (2023RC-033-LIUSOP).

REFERENCES

1. Bassatne A., Harb H., Jaafar B., Romanos J., Ammar W., El-Hajj Fuleihan G. Disease burden of osteoporosis and other non-communicable diseases in Lebanon. *Osteoporos Int.* 2020;31(9):1769–77. Available from: <https://link.springer.com/10.1007/s00198-020-05433-w>
2. Zablith N., Diaconu K., Naja F., El Koussa M., Loffreda G., Bou-Orm I., et al. Dynamics of non-communicable disease prevention, diagnosis and control in Lebanon, a fragile setting. *Confl Health.* 2021;15(1):4. Available from: <https://conflictandhealth.biomedcentral.com/articles/10.1186/s13031-020-00337-2>
3. El-Hajj M., Salameh P., Rachidi S., Al-Hajje A., Hosseini H. Cigarette and Waterpipe Smoking are Associated with the Risk of Stroke in Lebanon. *JEGH.* 2019;9(1):62. Available from: <https://download.atlantis-press.com/article/125905696>
4. Chand S.S., Singh B., Kumar S. The economic burden of non-communicable disease mortality in the South Pacific: Evidence from Fiji. Khan GA, editor. *PLoS ONE.* 2020;15(7):e0236068. Available from: <https://dx.plos.org/10.1371/journal.pone.0236068>
5. Spanakis M., Sfakianakis S., Kallergis G., Spanakis E.G., Sakkalis V. PharmActa: Personalized pharmaceutical care eHealth platform for patients and pharmacists. *Journal of Biomedical Informatics.* 2019;100:103336. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S1532046419302552>
6. Ilardo M.L., & Speciale A. The Community Pharmacist: Perceived Barriers and Patient-Centered Care Communication. *IJERPH.* 2020;17(2):536. Available from: <https://www.mdpi.com/1660-4601/17/2/536>
7. Amara N., Naser A.Y., Taybeh E.O. Patient Satisfaction with Pharmaceutical Services in Jordan: A Cross-Sectional Study. *Jordan J Pharm Sci.* 2023;16(1):1–10. Available from: <https://journals.ju.edu.jo/index.php/jjps/article/view/1030>
8. Bukic J., Kuzmanic B., Rusic D., Portolan M., Mihanovic A., Seselja Perisin A., et al. Community pharmacists' use, perception and knowledge on dietary supplements: a cross-sectional study. *Pharm Pract (Granada).* 2021;19(1):2251. Available from: <https://www.pharmacypractice.org/index.php/pp/article/view/2251>
9. Harahsheh M.M., Mukattash T.L., Al-shatnawi S., Abu-Farha R., Abuhammad S., Jarab A., et al. Community Pharmacists' Perceptions of the most Important Interventions Implemented in Supporting Breastfeeding Women During Maternal Life: A Cross-Sectional Study in Jordan. *Jordan J Pharm Sci.* 2024;17(1):144–50. Available from: <https://journals.ju.edu.jo/index.php/jjps/article/view/630>
10. Singla N., Jindal A., Mahapatra D.K. Role of Pharmacist in Nutrition Management-The Unexplored Path. *Ind J Pharm Pract.* 2023;16(2):83–8. Available from: <https://ijopp.org/article/1001>
11. Douglas P., McCarthy H., McCotter L., Gallen S., McClean S., Gallagher A., et al. Nutrition Education and Community Pharmacy: A First Exploration of Current Attitudes and Practices in Northern Ireland. *Pharmacy.* 2019;7(1):27. Available from: <https://www.mdpi.com/2226-4787/7/1/27>
12. Kelly D., Chawke J., Keane M., Conway H., Douglas P., Griffin A. An exploration of the self-perceived nutrition competencies of pharmacists. *Exploratory Research in Clinical and Social Pharmacy.* 2022;8:100203. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S2667276622001020>
13. Abu-Zaid A.M., Barakat M., Al-Qudah R., Abdalhafez A. The Role of Pharmacists in Patient Counselling for OTC Medication in Jordan: A Cross-Section Study. *Jordan J Pharm Sci.* 2021;14(4):445–54.

14. Sacks G.S. The Shrinking of Formalized Nutrition Education in Health Professions Curricula and Postgraduate Training. *J Parenter Enteral Nutr.* 2017;41(2):217–25. Available from: <https://aspenjournals.onlinelibrary.wiley.com/doi/10.1177/0148607116685049>
15. Syed-Abdul M.M., Kabir S.S., Soni D.S., Faber T.J., Barnes J.T., Timlin M.T. Role of Nutrition Education in Pharmacy Curriculum—Students’ Perspectives and Attitudes. *Pharmacy.* 2021;9(1):26. Available from: <https://www.mdpi.com/2226-4787/9/1/26>
16. Arfaoui L., Alkhalid A., Alareeshi A., AlSaadi G., Alhendi S., Alghanmi A., et al. Assessment of Knowledge and Self-Reported Use of Nutrition Facts Labels, Nutrient Content, and Health Claims among Saudi Adult Consumers. *J Multidiscip Healthc.* 2021;14:2959–72.
17. Hassan H.F., & Dimassi H. Usage and understanding of food labels among Lebanese shoppers. *Int J Consumer Studies.* 2017;41(5):570–5. Available from: <https://onlinelibrary.wiley.com/doi/10.1111/ijcs.12368>
18. Cronbach L.J. Coefficient alpha and the internal structure of tests. *Psychometrika.* 1951;16(3):297–334. Available from: <http://link.springer.com/10.1007/BF02310555>
19. Spearman C. CORRELATION CALCULATED FROM FAULTY DATA. *British Journal of Psychology,* 1904-1920. 1910;3(3):271–95. Available from: <https://bpspsychub.onlinelibrary.wiley.com/doi/10.1111/j.2044-8295.1910.tb00206.x>
20. Piedmont R.L. Inter-item Correlations. In: Michalos AC, editor. Encyclopedia of Quality of Life and Well-Being Research. *Dordrecht: Springer Netherlands;* 2014. p. 3303–4. Available from: http://link.springer.com/10.1007/978-94-007-0753-5_1493
21. Hameed A., Abdullahi K.O., Yaqoob A. Knowledge of Pakistani Nurses about Theory Practice Gap in Nursing. *PJMHS.* 2023;17(3):40–2. Available from: <https://pjmhsonline.com/index.php/pjmhs/article/view/4235>
22. Vasli P., Dehghan-Nayeri N., Khosravi L. Factors affecting knowledge transfer from continuing professional education to clinical practice: Development and psychometric properties of a new instrument. *Nurse Education in Practice.* 2018;28:189–95. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S147159531730759X>
23. Payán D. D., Sloane D.C., Illum J., Farris T., Lewis L.B. Perceived Barriers and Facilitators to Healthy Eating and School Lunch Meals among Adolescents: A Qualitative Study. *Am J Health Behav.* 2017;41(5):661–9. Available from: <http://www.ingentaconnect.com/content/10.5993/AJHB.41.5.15>
24. Chau M.M., Burgermaster M., Mamykina L. The use of social media in nutrition interventions for adolescents and young adults—A systematic review. *International Journal of Medical Informatics.* 2018;120:77–91. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S138650561830039X>
25. Grunert K.G., Wills J.M. A review of European research on consumer response to nutrition information on food labels. *J Public Health.* 2007;15(5):385–99. Available from: <https://link.springer.com/10.1007/s10389-007-0101-9>
26. Fraser A. The influence of package design on consumer purchase intent. In: Pascall MA, Han JH, editors. Packaging for Nonthermal Processing of Food. 1st ed. Wiley; 2018; 225–49. Available from: <https://onlinelibrary.wiley.com/doi/10.1002/9781119126881.ch10>

تعزيز الخيارات الصحية: تمكين طلاب الصيدلة من سد فجوة الملصقات الغذائية في لبنان

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¹ قسم العلوم الصيدلانية، كلية الصيدلة، الجامعة اللبنانية الدولية، بيروت، لبنان.

ملخص

المشكلة: تمثل الأمراض غير المعدية مشكلة صحية عامة مهمة في لبنان، مما يجعل من الضروري تعزيز التدابير الوقائية مثل الخيارات الغذائية المستتيرة. تلعب الملصقات الغذائية دورًا رئيسيًا في هذا، ولكن هناك انفصال بين المعرفة والاستخدام، حتى بين المتخصصين في الرعاية الصحية.

المنهج التجريبي: بحثت هذه الدراسة المقطعية هذه الفجوة بين 81 طالب صيدلة في بيروت. قام استبيان تم التحقق من صحته بتقييم التركيبة السكانية والمعرفة التغذوية وميزات الملصق التي تؤثر على قرارات الشراء والعوائق التي تحول دون استخدام الملصق.

النتائج الرئيسية: على الرغم من المعرفة الغذائية الشاملة العالية (متوسط الدرجات 82%)، أظهر الطلاب استخدامًا غير متسق للملصقات الغذائية. وكشف التحليل الإحصائي عن اختلافات كبيرة على أساس الجنس في الاهتمام بخصائص منتج معين. والجدير بالذكر أن اختبارات T أظهرت اختلافات بين الجنسين في الأهمية المرتبطة بتاريخ الإنتاج (ع = 0.255) وكمية المنتج (ع = 0.542). وعلاوة على ذلك، أشارت معاملات ارتباط بيرسون إلى وجود علاقة إيجابية بين العام الدراسي والاهتمام بتاريخ الإنتاج ($r = 0.56$)، ($p < 0.001$)، مما يشير إلى زيادة الوعي بمستويات التعليم العالي. **الاستنتاج:** تسلط هذه الدراسة الضوء على الفجوة المستمرة بين المعرفة والممارسة في استخدام الملصقات الغذائية بين طلاب الصيدلة. ومن الضروري إجراء تدخلات تعليمية مصممة لمعالجة فجوات معرفية محددة والحوجز المتصورة.

الكلمات الدالة: محو الأمية الغذائية؛ الفجوة بين المعرفة والسلوك؛ التثقيف الغذائي؛ طلاب الصيدلة؛ الصحة العامة.

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