

Impact of Pharmacy Education on *Helicobacter pylori* Diagnosis and Management: A Randomized Controlled Study

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Abstract

Background: *Helicobacter pylori* (*H.pylori*) is one of the most common bacterial infections in the world. It is highly prevalent in developing countries and moderately prevalent in developed countries. This gram-negative bacterium resides in the stomach or the intestines and can cause serious complications or diseases. *H.pylori* can be acquired via direct sources such as uncooked food or poorly sanitized drinking water or indirectly due to bad hygienic practices and other socioeconomic factors. Pharmacists as healthcare providers play an important role in understanding the spread of this problem, how to properly manage cases, screening and testing techniques. This drives the need for the best possible education of future pharmacists utilizing different approaches and modernized ideas.

Aim: The aim of this research was to assess the level of knowledge and the degree of awareness among undergraduate pharmacy students in regards to *H.pylori* infection diagnosis and management before and after delivering an educational pharmacy intervention.

Methods: This pre-post interventional study was conducted at the Faculty of Pharmacy at Applied Science Private University in Amman, Jordan between January and May 2020. During the study period, undergraduate pharmacy students from the third, fourth or fifth year were invited to attend a workshop about *H.pylori* management and diagnosis. After collecting their demographics, participants' knowledge and general awareness were evaluated by answering a questionnaire consisted of 13 questions. Students' perceptions regarding *H.pylori* management and diagnosis and pharmacist role in this field were assessed by determining the level of agreement with each proposed statement by a 5-point Likert-scale. After receiving the educational intervention within the workshop (25-minute educational lecture) for the intervention group and (educational pamphlet) for the control group, students' perceptions about the impact of the educational workshop were assessed by determining the level of agreement with each proposed statement by a 5-point Likert-scale as well. At the end of the workshop participants' ability to distinguish and correctly diagnose actual *H.pylori* cases and closely non-related ones were tested by solving four different cases.

Results: The majority of participating students (n=58, 80.6%) had not been involved in similar workshops previously and almost all of them (n=71, 98.6%) believed that being involved in such educational activity can enhance their ability to manage these cases more properly in the real world. Nevertheless, the majority of students agreed that they have an important role in early case referral, management, patient specific medication tailoring and follow up (n=66, 91.7%). Both educational interventions showed an increase in students' awareness, knowledge, screening and testing techniques and management ability in varying degrees, but with better results after attending the workshop activities. For example, students' knowledge score about *H.pylori* prevalence was significantly higher after the workshop when compared to their score before the

workshop (p-value <0.001). Students in the intervention group scored better results than the control group in distinguishing and diagnosing provided *H.pylori* cases in the workshop 2.2 improvement for the intervention group compared to 1.6 improvement for the control group (p-value= 0.026).

Conclusion: Focused educational efforts within pharmacy students towards subjects with ailments similar to *H.pylori* infection can improve all aspects of dealing with such a problem. Knowledge and awareness of disease spread among others are aspects that can be elaborated on to build a strong base of qualified healthcare providers as an outstanding output of our higher education programs. This in turn can improve the quality and reduce the burden on healthcare systems.

Keywords: *H.pylori*; educational intervention; pharmacy student; awareness; perception; satisfaction.