

Views of General Population Regarding Development of Health Educational Package About Antibiotics Usage



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ABSTRACT

Background: The general population is responsible for the unreasonable use of antibiotics, which leads to antibiotic resistance. Compliance with antibiotics prescription is still low among the general population due to a lack of knowledge and practice about antibiotics usage. Health education is an effective approach for improving general population health literacy. Shared views between experts and stakeholders in tailoring health education packages increase adherence to the desired health practice. **Aim:** The current study aimed to explore the views of the general population regarding health educational package for antibiotics usage. **Method:** Qualitative phenomenological study design was used to accomplish this study. The convenience sampling technique was used to recruit 77 individuals with ages more than 18 years old. Focus group discussion (FGD) was used to collect data by using FGDS guide that composed of open-ended questions. **Results:** The study revealed that most of the study participants need to know about antibiotics usage through health educational package by presenting simple and relevant content using interactive educational strategies. **Conclusion:** Most of the study participants preferred a health educational package for antibiotics usage with adherence to the principles of designing and implementing effective interactive health educational strategy. It is recommended to build the capacity of general population regarding antibiotics usage through health educational package based on their views.

Keywords: *antibiotics usage, health educational package, general population*

Introduction:

Antibiotics are substances produced synthetically, semi-synthetic, and naturally by microorganisms like bacteria that can kill or inhibit the microbial growth. It is essential medicines in modern healthcare that are playing a critical role in treating bacterial infections. (Kourkouta, L., Koukourikos, K., Iliadis, C., Plati, P., & Dimitriadou, A.2018). The use of antibiotics without doctor prescription is a significant worldwide problem. The prevalence of antibiotics self-medication is estimated to be above 75% in low- and middle-income countries. (Mallah, N., Orsini, N., Figueiras, A., & Takkouche, B. 2022). The World Health Organization (WHO) defines self-medication as “the selection and use of medicines by individuals to treat self-recognized illnesses or symptoms”. (Ateshim, Y., et al 2019) One of the primary causes of the increasing consumption of antibiotics is self-medication due to lack of knowledge, education, and access to healthcare services. (Malik, B., & Bhattacharyya, S. 2019). Many primary healthcare physicians encounter stress from their patients to prescribe antibiotics for illnesses that don't always need them. This pressure comes from patients who are

unaware of the difference between infections caused by bacteria and viruses, such as the flu, the common cold, or a sore throat (Salm, F.,et al 2018). Antibiotics misuse through self-medication causes significant adverse effects, such as antibiotic resistance. (Salsabila, N. N., & Kristina, S. A. 2020). Antibiotics resistance is the ability of bacteria to adapt, grow over time, and develop resistance to the antibiotics. (Hasan, T. H., & Al-Harmoosh, R. A. 2020).

Therefore, it is essential to build the competence of the general population regarding antibiotics usage. The WHO in collaboration with academic partners seeks to overcome antibiotics resistance by increasing public awareness and maintaining the proper use of antibiotics through health education (Burstein, V. R.,et al 2019 and Tangcharoensathien, V.,et al 2021). Health educational package is a standardized educational instrument that is essential for promoting health literacy. The health package combines various forms of multimedia with various teaching strategies that promote and foster recall, understanding, and retention of important data, produce new knowledge, and changing attitudes.

(Abozed, H. W., Abusaad, F. E., & Abd El Aziz, M. A. 2020 and Sawangsri, B. 2016). Health educational packages should be planned and implemented carefully based on the stockholders' views to improve their compliance and achieve the desired effects (West, L. M., & Cordina, M.2019).

Aim of the Study

To explore the views of the general population regarding the development of a health educational package about antibiotics usage.

Method:

Design:

Qualitative phenomenological study design was used to explore in-depth general populations' views toward development of a health educational package about antibiotics usage.

Setting:

The study was carried out at ten primary healthcare centers and one health office in Belqas district. The primary healthcare centers were selected according to geographical distribution of Belqas district that is divided into five lines in rural areas (each line includes two healthcare centers) and one line in urban area (including one health office).

Participants and sampling:

Convenience sampling technique was used in this study to recruit the general population. The study included 77 individuals with an age more than 18 years old.

Procedure:

Administrative procedure:

Ethical approval was obtained from the Research Ethics Committee of the Faculty of Nursing, Mansoura University for conducting the study. Formal consent was obtained from general population after clarifying the aim of the study and ensuring the confidentiality of data. General population were informed that they had the right to withdraw at any time from the study without giving any reason.

Data Collection:

The researchers-initiated focus group discussions (FGDs) during the period from July 2023 to the end of October 2023. Participants were required to undergo face-to-face interviews using a pre-designed FGDs guide that consisted of five open-ended questions to explore general populations' views regarding suggestions for improving the

competencies regarding antibiotics usage, components, and principles of health educational package. Closed questions were included to describe the sociodemographic characteristics of general population such as age, sex, education, occupation, and residence.

A jury committee of five experts in the field of health education evaluated the content validity of the developed FGD guide. **Face validity:** is concerned with testing the clarity, relevance, and appropriateness of the developed FGD guide. **Pilot study:** on six FGD that included 8 individuals (10%) of the study sample that were excluded from the study sample.

FGDs were conducted according to presence of general population in previously selected primary healthcare centers. Each focus group takes 20-30 minutes. The researchers conducted 11 FGDs (Dti et al., 2016).

Data analysis:

Descriptive statistical analysis was used for the demographic and occupational data by using Stand for Statistical Product and Service Solutions (SPSS) program version 20. Qualitative data was analyzed by thematic analysis to illustrate the collected data. The FGD transcripts were analyzed to conclude the common themes, similarities, and/or variations among general population' views. Data were coded, identified under categories and subcategories, and organized together under common themes. To ensure the validity of the thematic analysis.

Results:

Table (1) shows that 45.5 % of general population aged from 30 to less than 50 years with a mean of 39.8 (9.8) and 64.9% of them are female. Most of them (90.9%) are rural inhabitants, 19.5% of them are housewives and are secondary school graduates.

Table 1 General populations' demographic and occupational characteristics (n=77)

General populations' demographic and occupational characteristics (N= 77)		
Item	N (77)	%
Age		
18< 30	17	22
30 < 50	35	45.5
50 and more	25	32.5
\bar{X} (SD)	39. 8 (9.8)	
Sex		
Male	27	35.1
Female	50	64.9
Residence		
Rural	70	90.9
Urban	7	9.1
Education		
Illiterate	6	7.8
Read & write	5	6.5
Primary	11	14.3
Preparatory	9	11.7
Secondary	15	19.5
Technical institute	10	13
University graduates	12	15.6
Postgraduate studies	9	11.7
Occupation		
Housewives	39	50.6
Government employees	15	19.5
Traders and businessmen	9	11.7
Unskilled and manual workers	14	18.2

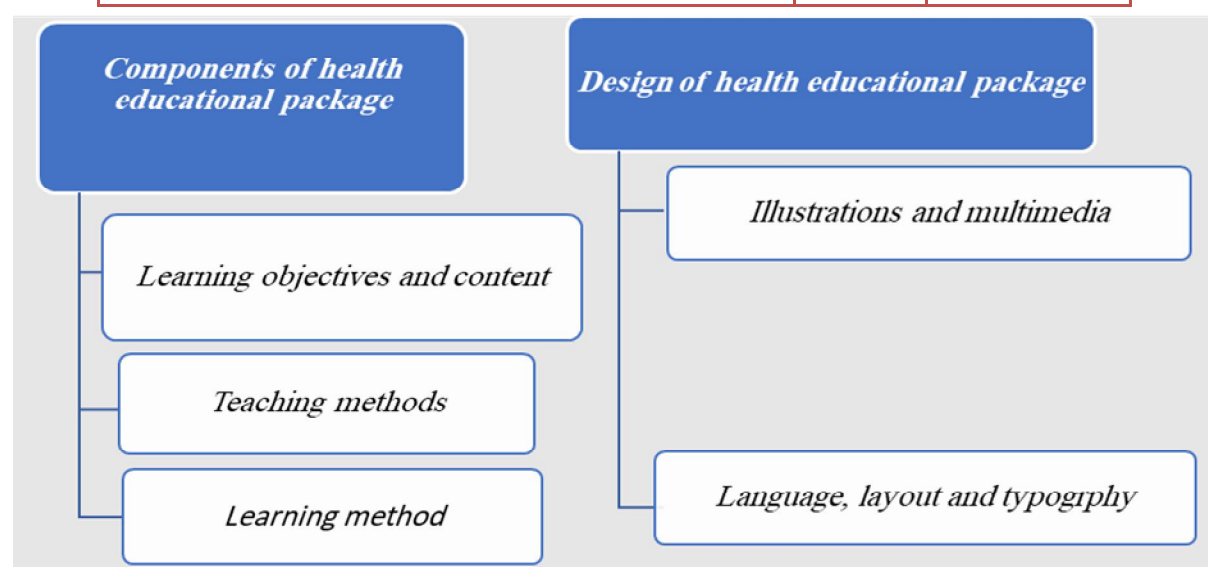


Diagram 1

Themes of focus group discussions among general population regarding suggestions for development of health educational package regarding antibiotics usage, content, and principles of health educational package.

The views of general population related to the development of health educational package about antibiotics usage are illustrated in three main themes: **(Diagram 1)**

First theme: Components of health educational package:

Learning Objectives and Content:

Most of the general population recommended comprehensive information about antibiotics proper usage and misuse. They mentioned the meaning, indications, and contraindications. They are interested in information regarding manifestation of antibiotics' side effects with a focus on antibiotics resistance, allergic reactions and its management. In addition to providing overview about bacterial infection: *"In my view, I need to understand basic information about what an antibiotic is and what is used for"* **(FG10)**. Indeed, the proposed health educational package would thoroughly describe the appropriate storage and disposal of antibiotics. To include importance of proper storage of antibiotics, indicators of antibiotics quality problems, shelf life of antibiotics after opening, general guidelines for storing antibiotics, characteristics of storage place.

"From my point of view, I need content that helps to understand when antibiotics are necessary and when they are no", "I need to get information about antibiotics that will help to make better health decisions regarding the use of antibiotics". "I need information about the principles of using antibiotics, so that I can use antibiotics appropriately and prevent any danger to my family health" **(FG8 - FG9)**, *"we need to explain the correct and incorrect uses of antibiotics, as many people take them for anything, even when they don't need to."* **(FG11)**, *"I need to know the issue of antibiotic resistance causes and impact because I don't realize it poses a significant threat to public health."* **(FG 2-FG 3-FG4)**

"In my opinion, It would be helpful if there are tips on how to clarify the side effects that may occur when using antibiotics and how to deal with it, so the part that I need to know the situations that I can't use antibiotics, and what is the forms of antibiotics", "It's very important to have clear instructions on how to store antibiotics

properly so they don't go bad or lose their effectiveness." **(FG7)**, *"I think there should be information on how to dispose of leftover antibiotics because people don't know how to get rid of them correctly."* **(FG4)**

In continuation "It would be great if there's awareness about the dangers of keeping leftover antibiotics and using them later without consulting a doctor." The most important part we need to be familiar with is whether it's okay to use leftover antibiotics after treatment or not. "I need instructions on the best way to store antibiotics, whether in the fridge or somewhere else." **(FG 5)**, *"I want to know the characteristics of storage place if it is fridge or other place", "From my point of view I need clarification that incorrect use of antibiotics can cause major problems, such as antibiotic resistance."* *"I need to understand that overusing antibiotics unnecessarily weakens the immune system and can negatively affect our overall health."* *Additionally, I need to know how we can avoid misuse, such as not taking antibiotics without consulting a doctor."* and *"It would be great to have a section about what happens when we stop taking antibiotics before completing the full course, and how that can harm us."* **(FG5-FG6-FG7)**

Teaching and Learning Methods

The most of participants proposed the implementation of lectures and interactive sessions at healthcare center.

"In my view, When the content was given during visit healthcare center to obtain health services by physician, dentist, pharmacist and nurse, we are following their instructions". **(FG 1-FG2-FG3-)** *"In my opinion, in the lecture and interactive sessions I can ask questions to a doctor, dentists, pharmacist or nurse directly and have a quick answer to my questions from them."* **(FG4-FG5)**. Some of participants expressed a preference for videos, brochures or pamphlets, and others prefer getting information online through social media as (Facebook and YouTube) as their preferred method, to cover all content. Health care professionals will provide them with the information needed. *"In fact, I prefer a brochure or booklet that I can go back to when I need it". "I prefer videos that provide basic information about how to use antibiotics, and the risks of overuse. I don't always have time to read a long brochure."* **(FG 5-FG6-FG7)** *"I prefer having clear and easily accessible information online, or even on*

social media, so I can quickly go back to the information whenever I need it." (FG 10- FG 11).

Second theme: Design of health educational package:

Illustrations and multimedia:

All participants mentioned that combination of multimedia elements such as diagrams, pictures, and videos is crucial for enhancing comprehension of key information. "I prefer short videos not more than 3-5 min ". (FG2- FG3) "I think the photos should be really clear with bright colors that comfort my eye ". (FG 4- FG 5)."The written information and its background should be really clear and simple, ". (FG9). **Language, Layout, and Typography:** general population stated that..."I prefer simple language and concise content with no medical terms ".... I prefer a limited number of points on a page, and don't like long paragraphs that would discourage reading..." (FG8- FG9-FG10).

Discussion:

Antibiotics resistance is mostly caused by the misuse and overuse of antibiotics. It typically happens because of incorrect views among the general population about antibiotics, false beliefs, and a lack of knowledge (AR, N. K., Nandakumar, U. P., Ahmed, S., Chand, S., & Kolar, R. (2023)). Therefore, healthcare providers play a critical role because they are mainly accountable to promote health education, through encouraging people to comply strictly with their treatment plans (Zamani-Alavijeh, F., Araban, M., Harandy, T. F., Bastami, F., & Almasian, M. (2019)). Health education is a very effective method for educating the general population. The development of a health education package should adhere to efficient criteria while taking the views of the participants into account (Li, W., et al 2020, Jensen et al., 2023). Therefore, the current study aims to explore the views of the general population regarding health educational package for antibiotics usage to ensure the acceptance of this strategy.

The current study emphasized the importance of including the proper use and indications of antibiotics in the content of a health educational package. This is confirmed by McNulty, C. A. et al, 2016 and Zakaria, R., Sutan, R., & Jathe general. 2020, who concluded that health educational package is an effective method for educating the general population regarding antibiotics usage. The participants of the present study suggested that the content should be provided in an easy-to-understand, appropriate, and well-organized manner that is consistent with the

objectives. These suggestions aligned with several studies which indicated that clear, and unambiguous information facilitate concentration on the content (Foster, Shurtz & Pepper et al., 2014; Schlegel, 2020, Mohammed, Ahmed, Mohammed, 2023; Schlegel, 2020).

According to the current results, the general population preferred a health educational package with short videos of high quality and decreased in size to enhance understanding of the content and save time. These results are consistent with Mali, 2013 and Iida et al, 2023 who mentioned that utilizing interactive face-to-face sessions with clinical situations and case studies encourages participants to study, gets them to give constructive comments, and saves time. According to recommendations of the current study, illustrations by using pictures, and tables should be appealing and pertinent to improve the understanding of the content. Lau et al., 2019 agreed with the present results that recommended illustrations using visually appealing techniques and audiovisual assets to make the materials more attractive (Foster et al., 2014; Karahan Okuroğlu & Ecevit Alpar, 2019).

Using bright and symmetrical colors enhances the attraction and understanding of content more than dark colors. These results are consistent with studies that were approved on clear material maintains the eye's attention because of the uniformity of the background, font size, type, and spacing (Mali, 2013; Lau et al., 2019, Rusmanto & Rukun, 2020).

Conclusion

The study concluded that most of the general populations prefer a health educational package that includes information about antibiotics usage with adherence to the effective principles for designing and implementing health educational strategies.

Recommendations

Based on the findings and conclusions drawn from the study, the following recommendations are suggested:

- Designing and implementing a health educational package for improving general populations' competencies regarding antibiotics usage based on their views.
- The package should be easily accessible, using diverse formats such as printed materials, online resources, and interactive tools, to cater to various learning preferences.

- Collaboration with healthcare professionals and community leaders is essential to ensure that the content is culturally sensitive, scientifically accurate, and tailored to the local context.

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