

The effectiveness of medical podcasts in raising women's health awareness

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The aim of the study was to evaluate the effectiveness of medical podcast as a novel learning tool for developing Egyptian women's health awareness. 50 female university students were invited to participate in the study using social media advertisements. Online pretests and posttests, one based on a podcast episode regarding vaginal infections, were used to assess changes in knowledge level pre- and post-podcast listening. A second posttest was sent out 2 weeks after the first to assess knowledge retention. Results were analyzed using paired *t*-tests comparing mean scores before and after podcast. The results showed that the average test score increased by 62% ($p < 0.05$). Furthermore, in both groups, there was no significant difference between average scores for posttest 1 versus posttest 2 written 2 weeks later suggested excellent knowledge retention. Podcast increased knowledge on gynecological diseases and is an effective learning tool for health care trainees in women's health. This study emphasizes the role of podcasts as a valuable educational resource within the society. The success of such initiatives will hopefully bolster the effort to correct the lack of provider knowledge in many diseases.

Keywords: podcast, women, health awareness, new media, learning tool.

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Эффективность медицинских подкастов в повышении осведомленности женщин о здоровье

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Цель исследования состояла в оценке эффективности медицинского подкаста как нового учебного инструмента для повышения осведомленности египетских женщин о своем здоровье. В исследовании приняли участие 50 студенток университета, ответившие на объявление об исследовании в социальных сетях. Оценка изменений в уровне знаний включала в себя измерение знаний до и после прослушивания подкаста, темой которого были вагинальные инфекции. Для оценки устойчивости полученных знаний через 2 недели было проведено повторное тестирование. Результаты были проанализированы с помощью парного t-теста, сравнивающего среднюю оценку знаний до и после подкаста. Показано, что средний балл теста увеличился на 62% ($p < 0.05$). Кроме того, в обеих группах не было выявлено существенной разницы между средними баллами по результатам первого и второго тестирования, проведенного 2 недели спустя, что свидетельствует о высоком уровне усвоения знаний. Подкаст расширил знания респонденток о гинекологических заболеваниях и может служить эффективным учебным инструментом медицинских специалистов по охране женского здоровья. В этом исследовании подчеркивается роль подкастов как ценного образовательного ресурса в обществе. Успех таких инициатив способствует устранению недостатка медицинских знаний о заболеваниях у населения.

Ключевые слова: подкаст, женщины, осведомленность о здоровье, новые СМИ, инструмент обучения.

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Introduction

The media and social networks play a fundamental role in providing information to the public during the periods of crises, which were undeniably evident or questioned during the coronavirus pandemic. The health conditions of the pandemic and the state of social distancing imposed an increase in the role of the media to obtain information and follow up on developments about the pandemic, as well as the role of social networks to achieve communication with individuals and obtain the latest developments about the pandemic [7]. With the emergence of the role of electronic media, which has provided a great deal of information, attention to health media issues has begun through modern technologies.

The world is now experiencing a world of technological changes, with new podcasts appearing almost every day. Nearly eleven years ago, the initial idea behind the podcasts was based on using digitally created audio files and listen to them at any time that suited the audience.

Podcast is a means of digital media used globally, which is digital audio files that the user can download to his device or listen to them in applications that have the broadcasting feature.

Many news sites have sought to launch podcast programs in providing various news services to the public to attract the largest number [8].

With the emergence of the role of modern technologies, which provided a great deal of information and opinions, podcast occupied an important position in all areas of political, social and health life, where interest in women's issues in all fields, especially the health field, has increased the percentage of women's use of the Internet in Egyptian society. It is noticeable that many women follow information through modern technologies due to the importance of the role played by Internet radio in the development of health awareness for women. This emphasizes the importance of reaching a clear strategy to achieve the main objective of the new media and a course in the development of health awareness of diseases in order to achieve a benefit for working women.

The review of studies focused on the role of social media in public life has shown that they differ in terms of their use of theories, such as technology acceptance, and research methods. The majority of studies were analytical or field studies on podcast users.

The problem of the study

This study aims to explore how women use podcasts as a new form of media to identify diseases, the features and patterns of such use, and which medical podcasts are most frequently used by women. It will involve monitoring the most significant aspects of women's interaction with medical podcasts, including their goals and motivations for this interaction, as well as the most significant medical issues and topics that interest them. The study aims to answer questions about the most significant outcomes achieved through health-related programs, both in light of the abundance of digital technologies available in the field of mass media and communication, and the increasing trust in these technologies due to the growing interest in them and their many advantages for meeting the needs of women.

Podcasts have seen impressive growth over the past few years, and we're eager to keep up with the industry head-on.

In fact, the most populous countries are not necessarily the most podcast-listening countries. Saudi Arabia leads the region with 56% of listeners, then Oman with 14%, the United Arab Emirates, 6%, and Egypt, 5% of listeners. This percentage for Egypt is small in relation to the importance of podcasts as a digital media alternative to traditional radio.

It is clear that the percentage of podcast usage at the global level is that there are no Arab countries, and the highest percentage was in South Korea, 58%, followed by Spain, 40%, then Sweden, 36%, then Australia and United States of America, 33%. (Fig.1) [6].

This is what the results of the studies indicate, which provide general indicators on digital technologies. The results from Khattab's study found that Egyptian youth use podcast technology for the purpose of increasing knowledge [5]. Among the reasons why people choose audiovisual blogs and podcasts, the most important are entertainment (42.6%), favorite music (36.9%), obtaining new information and knowledge (29.5%) as well as expanding life experience (16.7%) [6]. With current events and the ability to understand reality and participate in its activities, new media has become a pivotal part in the process of social change, through its various applications such as social networking and blogging. It has come to play

a major role in educating individuals, developing their cultural and political awareness by providing them with trends and enabling them to contribute to society.

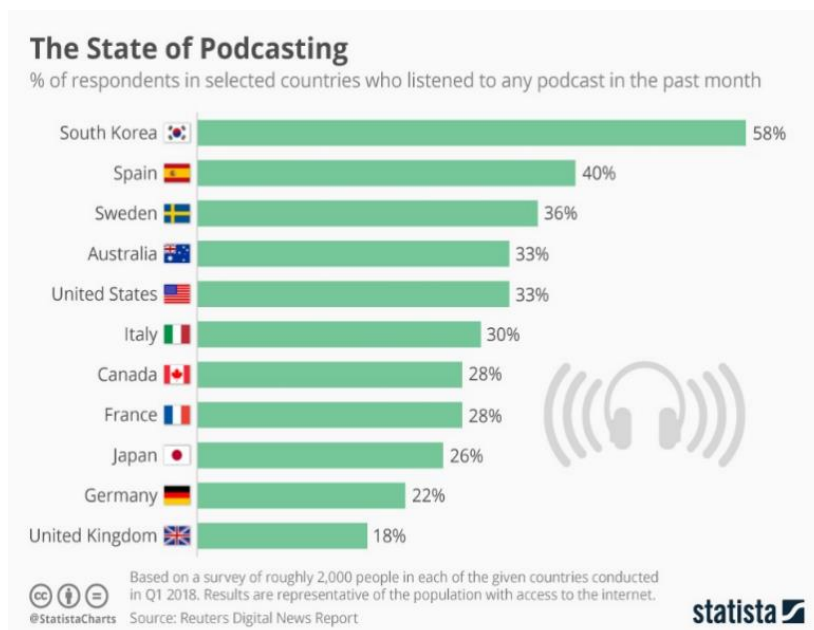


Figure 1. The percentage of podcast listeners in different countries of the world

The data obtained during the Egyptian Household Health Survey in 2021 shed light on an important topic: the obstacles that women may face when seeking medical care. Married women were asked about the following factors that could be a serious problem when they seek advice or treatment for illness: permission to go to receive treatment, money for treatment, the distance to a medical facility, needing to use transportation, unwillingness to go alone, worrying about the lack of a female health professional. Among the most common and significant factors that women face when seeking healthcare are a lack of medicines (54%), and lack of female health service provider (45%). Approximately 28% reported unwillingness to seek care alone, while about a quarter (24%) mentioned the lack of a female health service provider as barrier to receiving care. One in seven identified at least one of these obstacles as a problem [3].

In Egyptian society, audio blogging, particularly medical content, has recently received a lot of attention due to the fact that women often need home consultations because of their constant preoccupation. New media has become more widespread and influential, leading to an increase in individuals' use of this medium in order to enhance their social life. This has raised several questions:

- How does the medical podcast influence women's satisfaction and their health awareness?
- Do podcasts provide women with health knowledge?
- How do medical podcasts influence the attitudes and awareness of women?
- Does medical podcasting contribute to raising awareness of women's health issues?
- What are the reasons and motivations for women's exposure to podcasting technologies?

The relevance and scientific significance of research

The study gains its importance from highlighting the importance of podcasts in satisfying the public's needs regarding health issues and in order to enrich the field of studies on the role that podcasts play in developing women's health awareness. There is a scarcity of studies that dealt with podcasting in Egypt, despite its importance as a means of modern digital media that revolutionized the world of digital radio communications, relying on artificial intelligence techniques. To our knowledge, this is the first work that addresses the effectiveness of medical podcasts in developing Egyptian women's health awareness regarding gynecological diseases.

The theoretical framework of the study

Technology acceptance theory

The technology acceptance model was developed by F.D. Davis in which it is assumed that acceptance of technology is influenced by the beliefs of the person using it. Davis identified two basic factors for technology acceptance: perceived usefulness from using technology and perceived ease of use. Perceived usefulness from using technology refers to "the degree to which a person believes that using a system a specific work organization is comfortable and does not require effort". Perceived ease of use refers to the degree to which an individual believes that using a specific system will improve and improve the performance of his various professional functions and duties within the context of the organization in which he works [1].

The model assumes that individuals' acceptance of technology is determined by perceived benefit and perceived ease of use, and that these two factors determine behavior toward using technology, and therefore actual use of it, are affected by a group of external variables [10].

Applying the model to the research topic. The study relied on the technology acceptance model to identify the extent of individuals' acceptance of podcast technology and its effectiveness in raising women's awareness of gynecological diseases through a group of elements of perceived benefit. Ease of use, because women in general need an easy and reliable means from which they can obtain information.

Theory of uses and gratifications

There were many models and theories that dealt with the impact of means of communication on the behaviors and attitudes of individuals, the most important of which was the approach to uses and gratifications, which focused on how the means of communication respond to the motives and needs of the public. This approach is based on a number of assumptions that were deduced by both Lind Berg and Hulton in 1968 and can be summarized basic assumptions as follows: The audience aims to achieve specific goals through its use of these means positively, because members of the public are active in the communication process, and their use of the means of communication achieves them intended goals that meet their expectations [2].

Therefore, this research depends on the approach of uses and gratifications, which aims to explain how the public uses the media to satisfy their needs.

Thus, it is clear through the current study that the digital media represented in the podcast helped greatly in developing women's awareness of health problems and was an easy way for women to obtain medical information.

This is confirmed by the theory of gratifications and uses, as each means satisfies the needs of individuals and meets their requests. The author believes that using podcasts achieves certain gratifications for women. Podcast enable women to identify women's health diseases, especially in the presence of many obstacles that prevent them for being in healthy environments.

Internet radio has become an important platform for women who have found a way to satisfy their needs. This applies to one of the hypotheses of the theory that sees the audience of communication media to achieve specific objectives through identifying the motives for the podcast use as utilitarian and ritual, and the gratifications achieved from the use of this technology.

The Concepts of the study

Podcast. The Oxford Dictionary recognized the term “podcast” as the word of the year and defined it as a digital radio recording or similar program hosted on the internet until is downloaded to personal video devices. Media researchers define a podcast as a presentation of a digital video or audio file that can be downloaded, has a topic and simple animation program. It works mainly by uploading it to a website and streaming it automatically from a computer This is one of the modern digital media that began to spread in society due to the decline in the role of traditional radio [4].

The Operational Definition: It is internet radio that allows users to obtain a variety of information about health, society, medicine and politics.

The Digital Media. It is the media of the information age. It was born from the union of two prominent phenomena of this era: remote communication and new media, which relies on computers and remote communications to produce, store, and distribute information and entertainment. This characteristic, which provides sources of information and entertainment for the general public easily and at low costs, is shared by both old and new media. The difference is that the new media is able to add a new feature that the old media does not provide: interactivity. Interaction is a new means of communication that responds to the user's speech, just as it happens in the conversation process between two people [9].

The Operational Definition: Digital media refers to media through various digital means and the integration of all aspects of life into the technological field. It is an electronic media via the internet and allows its users to communicate and share information, ideas, pictures, and videos in a virtual world through social media platforms.

Study Methodology

This study involved a brief educational intervention to assess knowledge retention. “The Vaginal infections” is a medical podcast on vulvovaginal disease education created by the authors of this study and made available to the public (students, physicians, patients, etc.) via

YouTube podcasting platform¹. This episode was released in January 2024. This podcast episode on common vulvovaginal diseases were selected to be the basis on which the podcast series was evaluated in this study. Data was collected through meetings and online pre- and 2 post-tests before and after podcast listening, respectively.

Students were assigned to listen to episode and take a test on “The Vaginal infections” regarding genital infections. Informed consent was obtained; participation was voluntary, and any postgraduate student was eligible to complete the knowledge tests. Questions were designed by mapping out all content covered in the podcast episode, selecting major topics for assessment. The question design was guided by various standards for writing multiple-choice questions, and level of difficulty was catered toward the intended audience. All the questions were then reviewed by an obstetrics and gynecological staff. The pretest consisted of 6 questions including a consent form. Students were asked to rate their preference for using podcasts as a learning tool compared to other educational resources and to rate podcasts’ overall effectiveness as a medical learning tool. The posttests contained the same 6 knowledge-based questions as in the pretest, in different orders, and 23 questions assessing demographics, evaluating self-rated confidence/knowledge, attitudes toward podcast use, and knowledge-based multiple-choice questions.

To minimize the potential priming effect, participants were not given their scores upon completion of tests and were not informed about the correct answers. The first post-test was completed immediately after podcast listening and the second posttest was sent via e-mail 2 weeks after the first posttest to assess knowledge retention. To reduce the risk of a small sample size and a low study completion rate, which are known limitations of voluntary questionnaire-based studies, a one-week interval was chosen for knowledge retention assessment. Furthermore, 1 week has been reported as an acceptable and commonly used interval for test-retest reliability, with longer intervals not showing significant differences in scores when compared with each other. Pretest and post-test responses were linked using e-mail addresses and visits provided by participants.

Knowledge scores were analyzed using paired t-tests comparing an individual's prepodcast to their postpodcast scores. The self-rated knowledge level and confidence level in patient counseling were also compared before and after posting listening using paired t-tests. Preference for using podcasts as compared to other educational resources and the general effectiveness of podcasts as learning tools were reported as averages before and after podcast listening. Data from questions specifically assessing “The Vaginal infections” podcast series (appropriate for students/audiences and effectiveness as a medical learning tool) were analyzed in Microsoft Excel.

The sample size calculation was based on an effect size of 0.7, which is considered to be a medium expectation of effect and appropriate for educational intervention. Using a p-value of 0.05 or less to claim statistical significance and a power of 80%, and assuming an effect size of 0.7, a minimum sample size of 50 participants per group was determined.

¹ The episode is available here:

https://www.youtube.com/watch?v=fnwrwe8hS_w&list=PLdibKjLcwU0wvhVbM3aHmtgd3HMw-4NTB

Thus, the study population is represented by 50 unmarried postgraduate female students of the Faculty of Arts at Suez Canal University in Ismailia, Egypt. The youth group was chosen because technical innovations are most popular in this age group.

Ethical Considerations: The patient information was private. All participants were asked to give their informed permission, which was validated with a date and time and was written in Arabic. Patient initials were given a number, and only the investigator knew it, to maintain secrecy.

Statistical analysis: performed using SPSS 20.0 for Windows was. For numerical parametric variables, the calculation of range, mean, and standard deviation was involved; for numerical non-parametric variables, ranges, medians, and interquartile ranges were calculated; for categorical variables, quantities and percentages were calculated. The mean difference and its 95% confidence interval (CI) (for numeric parametric variables) are to be used to analyse the difference between two independent groups; for categorical variables, the risk ratio and its 95% confidence interval (CI) can also be used.

Results

From June, 2023, to January, 2024, a total of 50 postgraduate students opened the pretest. Socio-demographic features of the sample are presented in Table 1. All students completed posttest 1 and posttest 2 two weeks later, assessing knowledge retention.

Table 1

Socio-demographic characteristics of the sample

Parameter	N	Parameter	N
Age		Care of knowledge	
<30	16	Always	27
30–35	17	Frequently	12
35–40	17	Rarely	11
Residence		Time passed on social media per day	
Rural	25	< 1 hour	9
Urban	25	1–3 hours	25
Educational level		> 3 hours	16
MD	20	Cause of seeking knowledge through social media other than medical personnel	
PhD	30	Financial problems	12
Occupation		Being busy	22
Employed	31	Embarrassed to discuss these issues	16
Unemployed	19		

Among postgraduate students, the average pretest score before podcast listening was 30% and the average posttest score after podcast listening was significantly improved at 92% ($p < 0.05$), which is 62% increase (see Table 2).

Table 2

Differences in the average assessment of knowledge before and after listening to the podcast

	Pretest	Posttest 1	P-value
Average score (%)	30%	92%	<0.05

As regards the average knowledge score, average knowledge on podcast topic, average confidence to counsel others about podcast topic, average rating for effectiveness of podcast as a learning tool, average acceptance of podcast for its audience, the extent to which Podcasts satisfy women's health needs, possibility to recommend the podcast to their friends and attitude about podcasts impact on changing health behavior, there was no difference in these scores after the posttest and compared to after posttest 2 (Table 3).

Table 3

Comparative analysis of podcast ratings in posttest 1 and posttest 2

	Posttest 1	Posttest 2	P-value
Average score (%)	92%	91%	>0.05
Average knowledge on podcast topic	4.5/5	4.4/5	>0.05
Average confidence to counsel others about podcast topic	4.6/5	4.7/5	>0.05
Average rating for effectiveness of podcast as a learning tool	4.4/5	4.5/5	>0.05
Average acceptance of podcast for its audience	5/5	5/5	>0.05
The extent to which Podcasts satisfy women's health needs	4.5/5	4.6/5	>0.05
Would you recommend the podcast to your friends?	4.5/5	4.7/5	>0.05
Does the podcast have an impact on changing health behavior?	4.3/5	4.4/5	>0.05

Discussion

The problem of the study has crystallized in identifying the role of digital media, especially podcasts, in developing women's health awareness towards gynecological diseases.

The subject was addressed in the light of the theory of uses and gratifications. We find that the approach to uses and gratifications is characterized by many elements, the most important of which is — the concept of the audience (active). The audience is looking for the appropriate media content to meet his needs. This audience controls the choice of the means that provide them with this content or information and therefore applies to the current research in terms of choosing the podcast in obtaining information.

The theory of technology acceptance relied on the technology acceptance model to identify the extent to which individuals accept podcast technology and its effectiveness in raising women's awareness of gynecological diseases through a set of useful elements perceived ease of use because women in general need an easy and reliable way from which they can get information.

Within the framework of the interpretation process, in accordance with the theories of study, the results from field study confirmed the following: the podcast can play a significant role in shaping public opinion on health issues in Egypt. Most study participants received essential information about the issue through the podcast, and large part of the sample changed their minds after listening the podcast about this issue. The opinions of sample participants confirmed their confidence in the podcast and information and opinions shared on it.

The results of the current study are in line with some of the findings from previous studies on social media and its role in shaping public opinion, especially those that focus on how to influence public opinion through new media. Therefore, the researcher believes that her study is unique in the fields of health and the social sciences in general, and sociology and communication and media studies in particular.

Conclusion

As new technologies are incorporated into medical education, their effectiveness needs to be evaluated. “The Vaginal infections” has been shown to be an effective educational resource for vulvovaginal disease. This project emphasizes the role of podcasts as a valuable modern learning tool in the field of gynecology and in medicine in general. This will inform future podcast development, providing a new avenue for helping optimize medical education. With the success of “The Vaginal infections” as a novel learning tool, we hope to see an increase in knowledge on managing vulvovaginal disease to ultimately improve patient outcomes and quality of life, correcting this large gap in women's health care.

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