Literacy-Sensitive Approach to Improving Antibiotic Understanding in a Community-Based Setting

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Background

Antibiotic Usage

- Overuse and misuse of antibiotics contribute to antibiotic-resistant bacterial infections1
- Over 2 million people develop severe antibiotic-resistant infections every year with 23,000 deaths and an estimated $20 billion in healthcare costs1-2
- 45% of patients responding to a telephone survey believed viruses could be treated using antibiotics3
- 47% of adults surveyed do not always take the full course of antibiotics4

Patient Impact

- 46% of adults surveyed call their provider to ask for antibiotics when they have a cold or the flu4
- Unnecessary antibiotics were prescribed 80% of the time when some form of patient pressure was witnessed5
- 46% of patients with URTIs who came to their physician expecting an antibiotic received one, 29% who did not expect an antibiotic received a prescription for one6
- 27% of prescriptions were written for treatment of illnesses for which an antibiotic was not indicated7

Role of Health Literacy

- “…the degree to which an individual has the capacity to obtain, communicate, process, and understand basic health information and services to make appropriate health decisions”8
- Given that approximately 36% of adult Americans were reported to have basic or below basic health literacy skills,9 literacy may play a role in antibiotic use

No studies were identified relating health literacy to antibiotic knowledge or use

Specific Aims

- This study was approved by the University of Oklahoma Health Sciences Center Institutional Review Board

Sample

- 28 eligible, community-dwelling participants from within the Tulsa, OK metropolitan area
- ≥ 18 years old
- English-speaking

Study Design

- Prospective, pre-test post-test study
- Participant sociodemographic characteristics, including a measurement of health literacy, were collected at baseline
- Antibiotic knowledge (perceptions of appropriate use) were collected before and after the educational seminar
- Knowledge index constructed – summation of correct answers

Study Implementation

- An informational flyer with scheduled program times was utilized to recruit participants
- Participants completed:
  - Brief demographic survey
  - The Newest Vital Sign (NVS) health literacy survey
  - 14-item pre-test evaluation of current antibiotic knowledge (randomized to 2/3 of participants = 19)
- All participants received:
  - 30-minute educational PowerPoint presentation
  - 14-item post-test evaluation about antibiotic knowledge

Results

- 19 participants completed the seminar and both pre- and post-tests
- Overall antibiotic knowledge index significantly increased by 2 points (12.95 vs. 10.95, p<0.0011)
- Health literacy (NVS scores) was not significantly correlated with pre-test antibiotic knowledge scores (r=0.24, p=0.22), but was significantly correlated to post-test antibiotic knowledge scores (r=0.62, p=0.0004)
- Test reliability was 0.79 and 0.70 for pre- and post-tests, respectively
- All participants scored lower on subset statements reflecting treatment of viruses

Conclusion

- Patients have limited understanding of bacteria versus viruses and treatment
- Educational programs can improve antibiotic use knowledge
- The educational program may be more effective for those with higher literacy levels

Statistical Analysis

- Descriptive statistics were used to described the sample
- Willcoxon signed rank tests and a dependent samples t-test were used to compare individual and group pre/post antibiotic knowledge scores
- Pearson correlations were used to assess relationship between health literacy and pre-post antibiotic knowledge scores
- Kuder-Richardson 20 (KR20) was used to assess instrument reliability
- Stata 14.1© was used for analyses with a-priori alpha=0.05

References


Disclosure Statement

Authors of this presentation have nothing to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.

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