Correlation Between Medication Adherence and Health Literacy

Anne Metzger, PharmD, BCPS, BCACP

Associate Professor, University of Cincinnati

James L. Winkle College of Pharmacy

UNIVERSITY OF Cincinnati

Health Literacy and Medication Adherence

- Personal area of interest in recent years

- Prior research has demonstrated that patients with low health literacy commonly have lower overall health status

- Research question: Is there correlation between low health literacy and medication adherence scores?

Background

- Observational Cohort study in FQHC in New York
- Adults with moderate or severe persistent asthma, ages 60 years and older
- Outcomes were adherence to asthma controller medications, metered dose inhaler (MDI) and dry powder inhaler (DPI) techniques, having a usual asthma physician, and avoidance of four common triggers
- Health literacy was assessed with the Short Test of Functional Health Literacy in Adults
- Individuals with low health literacy had half the rate of adherence compared with those with adequate health literacy (22% vs. 47%, respectively; $p < 0.0001$)

A.D. Federman, M.S. Wolf, A. Sofianou, M. Martynenko, R. O'Connor, E.A. Halm, *et al.* Self-management behaviors in older adults with asthma: associations with health literacy J Am Geriatr Soc. 2014 May ; 62(5): 872–879

UNIVERSITY OF Cincinnati

Background

- Meta-Analysis of 48 articles with health literacy correlation to adherence
  - Studies used differing measurements of adherence and health literacy
  - Studies had different outcomes
- Results
  - The average correlation between health literacy and patient adherence was positive and highly significant ($p < 0.001$)
  - Patients with higher levels of health literacy are more adherent to treatment
  - 14% higher risk of nonadherence [$r = 0.14$, 95% CI = 0.08, 0.19] among patients who have lower health literacy than among patients with higher health literacy

Miller TA. Health literacy and adherence to medical treatment in chronic and acute illness: A meta-analysis. Patient Education and Counseling July 2016. Pages 1079–1086

UNIVERSITY OF
Cincinnati

Research Site

- Five Rivers Health Center
  - Located in Dayton, Ohio
  - Provides both primary and specialty care services to low-income patients
  - Comprehensive medical, dental, laboratory, and prescription services offered
  - Patient Centered Medical Home
  - Serves approximately 15,000 patients in this community.

Routine Medication Reconciliation-Score

Medication Adherence Questions (MAQ)

1. What is your average daily schedule like? How well does taking your HIV medications at this time fit into your daily schedule?
2. How do you remember to take your medications?
3. Do you ever forget to take your medications?
4. How many days a week do you miss a dose?
5. Are you careless at times about taking your medications?
6. When you feel better, do you sometimes stop taking your medication
7. Sometimes if you feel worse when you take your medications, do you stop taking them?

SCORING: *Questions 3-7 (except 4)*: 1 point for each "yes."
Question 4: 1 point for each day. (e.g: missing a dose twice per week = 2 points)

Newest Vital Sign

- Validated health literacy tool
- Based on ice-cream label
- Provides score- maximum of 6 points
  - Score of 0-1 suggests high likelihood (50% or more) of limited literacy
  - Score of 2-3 indicates the possibility of limited literacy
  - Score of 4-6 almost always indicates adequate literacy

Patient Population

- IRB approved by University of Cincinnati Research Board

- 37 patients provided consent for study inclusion, and two were lost due to incomplete documentation (n=35)

  - 16 male patients and 19 female patients.

  - The average age was 52 years, and the median age was 53 years (SD=11.9 years)

UNIVERSITY OF Cincinnati

Results

- 90% of the patients had low health literacy according to the NVS

- A Spearman's correlation coefficient test was used to determine if a correlation between health literacy and medication adherence exists in this patient population

- There was a weak, positive monotonic correlation between health literacy and medication adherence (r_s=0.2, n=35, p=0.264).

- More patients enrolled would be necessary to show a true correlation

UNIVERSITY OF
Cincinnati

Take-Away

- Incorporate literacy-dependent teaching methods to educate patients about their condition in effort to increase adherence behaviors
  - face-to face communication
  - provide health information using language and medical terminology that is completely understood by patients
  - collaborate towards treatment plans that are conducive to patients' lifestyles
- Assess patients' health knowledge and understanding of their medication regimen

UNIVERSITY OF
Cincinnati

Future Research In Progress

- Focus Groups: Adherence Tool Development
- Homeless Clinic Population

UNIVERSITY OF
Cincinnati