MISINFORMATION AND KNOWLEDGE GAPS RELATED TO DIABETES IN MEDICAL REHABILITATION PATIENTS
April D Davis, MS, RD, CD, CES; Jill Armstrong Shultz, PhD; Douglas L Weeks, PhD; and Miriam S Ballejos, PhD

Overview
Type 2 Diabetes is a chronic disease in which the body does not properly control blood glucose. It affects more than 23 million adults in the United States. Additionally, over one-third of the individuals who have type 2 diabetes are undiagnosed. A contributing factor to the alarming prevalence of diabetes is very likely a lack of awareness and knowledge. There is substantial need to improve diabetes knowledge among at-risk individuals and patients in order to enhance prevention and management of this disease. Health professionals must appreciate and understand the patient’s level of knowledge for effective self-management education planning.

The medical rehabilitation setting has a higher percentage of individuals at risk for or diagnosed with diabetes, providing an ideal population to test diabetes knowledge. Knowledge assessment among patients in medical rehabilitation can guide diabetes program planning related to self-management of the disease for this high-risk group. Reports of diabetes-related knowledge assessment in this population are absent in the literature. It was the purpose of this study to assess level of diabetes-related knowledge in medical rehabilitation patients using a recently-validated knowledge test: the Diabetes Knowledge Assessment Test (DKAT).

The level of diabetes knowledge, based on mean percent correct, for the study sample as a whole was greater than expected. Trends in the average total test score for subgroups were: participants with diabetes performed better (78%) than those without diabetes (72%), outpatients participants scored higher (77%) than inpatient participants (73%), and females achieved a slightly better score (76%) than males (74%).

No significant differences were found in mean domain scores by diagnosis, patient status, or gender. Participants had a higher percent correct response to items within the disease management and modifiable risk factors; conversely, results from the nutrition, signs, and symptoms, and non-modifiable risk factors domains indicated a need for education with mean scores of ≤70% correct.

Objectives
• To identify levels of knowledge and needs for diabetes education among medical rehabilitation inpatients and outpatients who are at risk for or diagnosed with diabetes.
• To identify patient interpretations and thought processes related to incorrectly answered items on the DKAT (misinformation) through qualitative data collected during a follow-up debriefing with the patient.

Methods

Results

Sample Characteristics
60 patients from St. Luke’s Rehabilitation Institute
• Diagnosis of diabetes (n = 10); At risk for diabetes (n = 30);
• Inpatient rehabilitation (n = 20); Outpatient cardiac rehabilitation (n = 10)
• Female (n = 28; 47%); Male (n = 32; 53%)
• Education: 8th-12th grade (n = 23; 38%); 1-2 years of college (n = 13; 22%); 3-4 years of college (n = 16; 27%); Graduate school (n = 8; 13%)

Levels of Knowledge in the 5 Content Domains (Areas) of the DKAT

<table>
<thead>
<tr>
<th>Domain</th>
<th>Total</th>
<th>DM</th>
<th>No DM</th>
<th>Inpatient</th>
<th>Outpatient</th>
<th>Female</th>
<th>Male</th>
<th>N</th>
<th>% Correct</th>
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<tbody>
<tr>
<td>Disease Management</td>
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<td>91</td>
<td>87</td>
<td>87</td>
<td>91</td>
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<td>87</td>
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<td>69</td>
<td>61</td>
<td>65</td>
<td>62</td>
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<td>87</td>
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<tr>
<td>Total score (%) correct for entire test</td>
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<td>78</td>
<td>72</td>
<td>73</td>
<td>77</td>
<td>76</td>
<td>73</td>
<td>52</td>
<td>88</td>
</tr>
</tbody>
</table>

Knowledge Gaps versus Misinformation in Domains with the Lowest DKAT Scores

Content Analysis in the Nutrition Domain: Patients’ Thought Processes Related to Dietary Sugar

Item 1: Which of these can LOWER the chances of getting diabetes? n = 31
Response Choices: Eating more carbohydrates and less protein; Trading sugar in diet for artificial sweeteners; Taking in more proteins;项目经理 tube a day
Beliefs about how changes in dietary sugar reduce the risk of diabetes
Reducing or modifying sugar (11); Eliminating sugar (10); Reducing excess sugar (7)
Foods or ingredients to eliminate to lower sugar and diabetes risk
Taking out foods that have lots of sugar (like junk food, sweets, candy, soda, sugary treats and bread) (6); Taking out white sugar (5)
Sugar found naturally (in food) does not affect chances of getting diabetes (2)

Item 2: Which of these foods will NOT raise blood sugar? n = 31
Response Choices: Chicken; Fruit; Whole wheat bread; Baked potatoes
Confusion about foods or type of ingredients in foods
Type of natural sugar in fruit does not affect blood sugar (2); Whole wheat does not raise blood sugar because of the fiber it contains (3); A baked potato eaten plain/fried is healthy and not loaded with fat (2)
Self-interpretation of mixed messages

As a patient in the hospital, I eat a lot of fruit, so figured it doesn’t raise blood sugar (1); I’m allowed to eat baked potatoes, so thought it was the answer (1)

Content Analysis in the Signs/Symptoms Domain: Patients’ Thought Processes Related to Blood Glucose

Item 3: Shaking and cold sweats are signs of high blood sugar n = 20
Response Choices: True; False; Don’t Know
Confusion about symptoms of high versus low blood glucose
Self-expressed: ‘got mixed up’; couldn’t remember (8); Demonstrated confusion with response (3); Belief that the symptoms are experienced with both high and low blood sugar (5)
Social connection for information
Messages from media that these are symptoms (2); Heard of people with diabetes that experience these symptoms (3)

Item 4: What is a sign of LOW blood sugar? n = 26
Response Choices: Frequent urination; Blurred vision; Constant thirst; Sweating
Answer based on personal experience
Personally experienced one or more of the other symptoms listed (5); Have never experienced any of these symptoms with hypoglycemia (2)
Social connection for information about symptoms
Heard that diabetes makes people feel thirsty all the time (1); Know people who have said they have these symptoms (6)
Missed the question
Tried to use is limited or no knowledge of signs and symptoms (9); Missed up symptoms for high versus low blood glucose (1)

Conclusions
Both patients with DM and those without (at-risk) in the rehabilitation setting demonstrated knowledge gaps and misinformation, especially in the area of nutrition as it relates to dietary sugar and signs and symptoms as it relates to diabetes.
Patients with DM were not significantly different than those without in their need for education about signs and symptoms of uncontrolled diabetes and hypoglycemia.
Reflex programs may want to prevent diabetes prevention education to all patients.
Future research needs to refine the instrument adapted for this study use as a diabetes screening tool; pre/post measurements for Diabetes Self-Management Education, and for use with type 2 patients solely as the predominant diabetes population.
Knowledge score differences need exploring for other groups such as age, gender-age, or primary diagnosis groups.