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DEVELOPMENT OF NUTRITION EDUCATION MODULES FOR UNDERGRADUATE DIETETIC STUDENTS TO INCREASE COUNSELING SKILLS

By

Jenna Tulane Stephens

A Plan B Report in partial fulfillment of the
requirements for the degree

of

MASTER OF DIETETICS ADMINISTRATION

in

Nutrition, Dietetics and Food Sciences

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UTAH STATE UNIVERSITY
Logan, Utah

2012

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ABSTRACT

Development of Nutrition Education Modules for Dietetic Undergraduate Students to Increase Counseling Skills

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Masters of Dietetic Administration

Utah State University, 2012

Objectives:

(1) To research effective methods for creating computer-assisted instruction for development of counseling skills

(2) Incorporate acquired knowledge into nutrition counseling modules for undergraduate dietetic students to provide increased practice working with real life situations

Intervention: Five modules were created for undergraduate students to better develop their nutrition counseling skills. The modules give students a way to practice counseling theories, methods, and techniques while working with virtual patients in a controlled environment. Research was conducted to assist development of the modules both technically and with content.

Implementation: Modules will be implemented into courses at Utah State University and students will complete each module throughout the semester concurrent with a nutrition counseling course.

Application: With only half (53%) of schools across the country having a dedicated nutrition counseling course, (1) there is a need for another way to educate students on the important skills associated with counseling. Schools could implement online modules such as these to assist students in becoming more proficient in counseling. This paper will summarize research available for counseling theories, skills, and development of modules, and then discuss successful models that have been previously developed.

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List of Acronyms

ADA	American Dietetic Association
CAI	Computer-Assisted Instruction
HBM	Health Belief Model
JADA	Journal of American Dietetic Association
MCQ	Multiple Choice Questions
MI	Motivational Interviewing
SCT	Social Cognitive Theory
TPB	Theory of Planned Behavior
TRA	Theory of Reasoned Action
TTM	Transtheoretical Model and Stages of Change
USU	Utah State University
VP	Virtual Patient

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- Jenna

CHAPTER I

INTRODUCTION

Statement of Problem

Undergraduate students working towards a degree in dietetics will spend their time becoming well rounded in the nutrition field, as there are many potential career paths. Areas of expertise such as clinical work, food service management, public education, sports nutrition and counseling are some such examples. Accredited dietetic programs utilize class time and require coursework by assessing what is needed most to complete an internship, and pass the Registration Exam. Currently, the greatest emphasis for the exam is clinical work, followed by food service management (2). Nutritional counseling is far down on the list, and therefore, often not as much time or resources are allotted to this important skill.

With an ever-growing obesity rate in the United States and the chronic illness that follows, students would benefit from increased exposure to counseling skills, theories, methods, and hands on-practice to become better equipped to work with these patients in the field of dietetics. Dietitians can be instrumental in both prevention and treatment efforts. With limited time and resources in dietetic programs, the development of online nutrition education

modules may help provide a means for students to increase their skills in counseling, and be more effective in helping their patients develop better habits and be able to reach their health goals.

Purpose and Objectives

Purpose

The purpose of this project is to develop online nutrition education modules for undergraduate dietetic students enabling them to work with case studies which would allow development of the skills necessary to be effective in nutrition counseling. A thorough review of literature will guide the development of these modules and make them the most valuable to students.

Objectives

To develop online modules that allow students to practice nutritional counseling with limited time as undergraduates, the objectives include:

(1) Conduct a thorough literature review to determine the most effective methods to develop valuable online nutrition education modules

(2) Develop modules based on actual patients which will assist students in achieving better skills for nutritional counseling

(3) Implement modules for use in dietetics courses at Utah State University, and determine effective evaluation methods for the modules

REVIEW OF LITERATURE

Dietetics Programs

According to the American Dietetic Association, "Development of effective counseling and communication skills is essential for competent dietetics practice" (3). Various challenges, however, exist for dietetic programs to provide adequate experiences for students (3). Accredited dietetic programs across the country struggle with fitting everything into their programs that a future dietitian needs to succeed. The driving force for allotting time to specific areas is the Registration Exam that all graduates must take after their supervised practice/internship to become registered dietitians. Effective 2012, the exam is broken down as follows (2):

- 50% on Nutrition Care for Individuals and Groups, which includes screening and assessment, diagnosis, planning and intervention, and monitoring and evaluation
- 21% on Management of Food and Nutrition Programs and Services, which includes functions of management, human resources, financial management, marketing and public relations, and quality improvement
- 17% on Food Service Systems, which includes menu development, procurement, production, distribution, service, sanitation, and safety, equipment and facility training, and sustainability.

- 12% on Principles of Dietetics, which includes food science and nutrient composition of foods, nutrition and supporting sciences, education and communication, research, and management concepts.

Prior to the new guideline of 2012, 10% was spent on Counseling, Communication, Education, and Research. This section is now combined with the Nutrition Care Process. This may mean even less time and resources are allocated to educating students on nutritional counseling. Research provides evidence that this was already happening and will be discussed below.

Research has been done on dietetic programs across the country and the amount of time they are able to put into nutrition education courses (1). According to one study, about half (53%) have a nutrition education class in their curriculum. The other programs address nutrition education by incorporating this information into other classes in the dietetics program, or a required class in a different department. They conclude that schools need to continually update the materials they are using to help students become proficient in nutrition education, as older resources may not enable as much practice as students would need to address the most recent health concerns (1). The ADA has discussed the need to include "skill development in the didactic nutrition education component, emphasizing the need for developing effective methods for enhancing skill development in dietetics students" (4).

One study, presented as a poster session in *JADA*, was conducted on five internship programs in British Columbia. Researchers conducted a group session on enhancing counseling skills, about half way through the internship. Before the session the students were asked to individually submit any questions, concerns, or issues they had regarding nutrition counseling. The data showed that students did not yet feel confident in a counseling role (5). The concerns they had may apply to students in other programs and can be used to help with development of modules. These concerns included (5):

1. How to establish counseling priorities.
2. How to keep the counseling process focused.
3. How to balance standardized care with individual needs.
4. How to address family dynamics.
5. How to address the multiple, often conflicting, issues arising during a counseling session.
6. How to proceed when the real issue doesn't seem to be about nutrition.
7. How to develop a personal counseling style.
8. How to evaluate counseling effectiveness.

These questions may help guide the development of nutrition education modules, and can help students with similar questions and concerns going into their internships or jobs that require some type of counseling skills.

Why is Counseling Education Important?

Dietitians need to be effective at nutrition counseling to help their clients prevent a variety of chronic illnesses. Many studies have pointed to the benefits of changes in nutrition habits and lowered risk for disease. A study by Carpentier followed 46 volunteers with mild hyperlipidemia. Subjects underwent four weeks of dietary intervention or four weeks of drug intervention. After four weeks reduced LDL and CRP were seen in the dietary intervention group as effectively as a first-generation statin (6). This provides evidence that nutrition counseling can be an effective method for prevention.

A study by Lu and Dollahite in 2011 surveyed dietitians on how much counseling they did at work. Out of 612 respondents, 486 (79.4%) responded that they spent more than 50% of their work week conducting counseling (7). This shows us a large number of dietitians are spending more than half their time on counseling. With obesity rates at an all time high, and continuing to climb (8), it could mean an increased number of dietitians will be providing nutrition counseling.

Statistics for 2008 indicate that 33.8% of adults are obese, and when combining overweight and obese, the number jumps to 68.0% (9). Also, 17% of children and adolescents age 2-19 are considered obese (10). Projections indicate if the trends continue, one-third of children born in the year 2000 will develop Type II Diabetes in their lifetime (8). The clinical recommendations of

the United States Preventative Services Task Force (11) include the use of nutrition education with behavior-oriented counseling to help patients attain the skills and motivation to modify their eating habits. Various theories that promote patient change will be discussed below.

Research by Puri, Bell, and Evers (12) found that certain behavior interventions, such as working with patients in goal setting, tackling barriers of change, preventing relapse, problem-solving, and also self-monitoring can all be useful to the patient in changing their food choices, and all can be achieved as a result of nutritional counseling. "To effectively help patients make lasting dietary changes, dietetic professionals need to be able to implement intensive nutrition counseling (13)". It is critical for dietetic students to be proficient in patient-centered nutrition counseling to be able to effectively and efficiently assist their patients (13).

In a study of 19 randomly selected health journals over a five-year period, from 2000-2005, the most-studied and published theories included Social Cognitive Theory (SCT), the Health Belief Model (HBM), the Theory of Planned Behavior (TPB), the Theory of Reasoned Action (TRA), and the Transtheoretical Model and Stages of Change (TTM), as successful methods (14). Review of the literature suggests that these theories are the most widely applied in health behavior research, and that practitioners find them very useful in guiding intervention efforts. (14). Motivational interviewing can then help facilitate

change within patients using the theories mentioned (15). The theories that Noar has found to be the most widely used will be discussed below, as well as motivational interviewing.

Theories of Counseling

Social Cognitive Theory (SCT) emphasizes that people need to be aware of the health risks in their current medical standing, they need to believe in the benefits if they were to take action, and then set goals to make the needed changes (16). Next, patients need appropriate nutrition and food-related knowledge to accomplish their goals. They also need to develop self-regulation skills to then exercise control over their health-related behaviors for lasting change (17). Contento states, "SCT proposes that personal, behavioral, and environmental factors work in a dynamic reciprocal fashion to influence health behavior" (16). With SCT, it is hypothesized that human behavior is controlled by beliefs about expected outcomes from engaging in behavior or patterns of behavior, and in turn the degree to which someone values the outcomes (16). In nutrition counseling, this theory can be applied by educating patients on behaviors related to food and exercise, and the outcome for their disease or health status. The patient has to believe these changes really will make a difference in their health for them to then make the necessary changes. Another theory for counseling is the Health Belief Model (HBM)

Similarly to the SCT, the HBM is focused on patients' beliefs, and the theory that those beliefs influence patients' health-related actions and behaviors (16). The HBM, states that people's probability of taking a specific health-related action is motivated by their perceptions or beliefs: perceived severity, perceived susceptibility, perceived threat or risk, perceived benefits, perceived barriers, self-efficacy, and cues to action (16). With this model, the job of the nutritional counselor is educating people on the threat or risk to their health, and then providing education.

Several research studies have evaluated behavior change from programs that utilize the HBM. One study was conducted by Gutierrez and Long (18) using the HBM with patients suffering from diabetes and serious mental illness. They sought to determine if the HBM scales were an effective indicator for patients with both diagnoses and their adherence to intervention factors (18). They surveyed 152 veterans who had both diabetes and serious mental illness. They were looking at the seven above-mentioned factors, including perceived threat or risk, perceived benefit, self-efficacy, etc. They found the scales of the HBM to be accurate in predicting patients' adherence to recommended interventions based on perceived threat, risk and benefits (18). This demonstrates to us that patients really do need to understand all aspects of their health: the threats and risks present from their health status, how to overcome the barriers, and the benefits from doing so. If nutrition counselors are able to work with patients

through these perceptions, there is a better chance that they will follow recommended interventions.

The TPB is another important theory for nutrition counselors to understand. This theory asserts that people's behaviors are controlled by their intentions, which are then influenced by attitudes, social norms, and perception of control over the behavior (16). This can be very useful in nutrition when trying to understand someone's food and exercise choices, as well as voluntary health and dietary behaviors (16). With this theory, the actual beliefs, attitudes, and perceptions need to be obtained from the patients themselves, and it is suggested to do this using open-ended questions and motivational interviewing skills (16), which will be covered in greater detail below.

Many studies have been conducted to examine the TPB with groups, looking at the groups intentions and what their behavior is actually like. One study was conducted on college baseball players and their intention to eat a healthful diet, and in turn what their diet actually consisted of using the TPB (19). They administered a survey to 108 players and examined the perceived behavior controls, attitudes, subjective norms, and intentions of the players (19). They were able to conclude that attitudes had the greatest impact on intentions (ß= .383, P<.001, where ß stands for standardized beta). Attitudes were followed by subjective norms (ß=.291 P<.001), and then perceived behavioral control (ß=.269, P<.001) (19). They were able to conclude that players who

had the belief that eating a healthful diet will help athletes focus and improve concentration was statistically significantly as an impact on the intention to eat a healthful diet.

The TRA is another theory that can be used in nutrition counseling. TRA uses three inherent behavioral concepts, intention, attitude, and subjective norm, which are under an individual's own control, to explain and predict human behaviors (20). One step further than TPB, TRA looks at an individual's intentions to perform a behavior and then predicts one's behavior (20). Using this theory in nutrition counseling allows the counselor to evaluate a patient's attitudes, intentions, and subjective norms and use this in predicting a patient's behavior. When the behavior is predicted, the counselor can then work with the patient to change attitudes, intentions, and views on subjective norms in order to see a change in behavior.

The last theory to be discussed using Noar's study of most widely applied health behavior theories (14) is the Transtheoretical Model (TTM) and Stages of Change. The TTM and Stages of Change suggest that behavior change in patients is a process that happens through five stages (21,22). This model differs from others in that it is a model of behavior change, not a model to predict behavior, as discussed above. Nutrition counselors should have a good grasp on these stages of change as they work with patients to identify which

stage they are on, and how to help them move forward. The stages of change include these five stages (15, 16, 22, 23):

1. Precontemplation – In this stage, the patient is not ready to change behavior; they may not even be aware or interested in how a behavior or practice may be affecting their health.
2. Contemplation – The patient is aware in this stage that a problem exists, but is hesitant about the need to change. They may be considering making a change in the future (six months). Here they are struggling with all the barriers to the change that needs to be made.
3. Preparation – Stage three is where the patient is getting ready to change, perhaps within one month. They may have started taking steps in the direction of change. Counseling can be effective here to get patients to start taking immediate action.
4. Action – The patient is making changes in stage four. They may have adopted small changes, and as they see these things can fit into a comfortable lifestyle, they will get ready for more change. Action-oriented strategies are helpful in counseling at this stage.
5. Maintenance – In this last stage, the patient is adapting to new behaviors and avoiding reversion, for a period of roughly six months. They are comfortable with incorporating these changes in their lifestyle. The

patient may still need to put in effort to continue maintaining and avoid relapsing.

Working through these five stages of change with patients helps ensure lasting success in the new lifestyle. Once a counselor has a strong grasp of the stages of change, it can still be challenging to work with patients to successfully move through them, regardless of where the patient is starting. One successful method is using Motivational Interviewing (MI) (15), which will be discussed next.

Counseling Techniques and Methods

Motivational Interviewing (MI) allows the counselor to provide specific and successful interventions to the client based on the stage of change that they are in (23). MI is a client-centered, directive method of counseling that opens the patient up for exploring change, which is essential to behavior change (24). For permanent change to take place, clients need to work through the stages of change, which MI facilitates (8). MI has been found to be an effective method of counseling for overweight or obese patients, those with type 2 diabetes, and other chronic illnesses (8). Educating dietetic students on these important principles and methods will help them be more successful when working with patients with any number of chronic disease, or in focusing on preventative medicine. With rising rates of obesity, and all-time high levels, students will

inevitably need these valuable skills for treating chronic disease; as the shift continues to preventive medicine, they will be valuable in treating those patients as well. Studies have been conducted on the effectiveness of MI and use in nutritional counseling.

A study was conducted in nine home-care organizations in the Netherlands to determine if basic training for dietitians in MI resulted in changes to the dietitian's counseling style and improvements in their patient's diet and risk levels (25). The study included thirty-seven dietitians working with 209 baseline patients and 142 follow-up diabetes patients. The dietitians were randomly divided into a control group, n=19, or a group to receive the training, n=18 (25), and then each counseled an average of six patients with an average of four to five visits with the dietitian per patient. Dietitians who received the MI training were significantly more empathetic, were better able to show reflection during consults, and they were better at letting their patients talk for the majority of the session (25). Furthermore, they found that the patients of the trained dietitians had significantly lower saturated fat intake levels than the control group (25).

Communication is another aspect of counseling that is important for a dietitian when working with a patient. Research shows that communication, both verbal and nonverbal, is essential for working with and counseling patients (26). They have found that perceptions of dietitians' communication was "highly

important" to their patients' transfer of scientific knowledge, and makes more of an impact than what has previously been believed (26). Furthermore, they found that patients pick up on the nonverbal cues given by the dietitian. They estimate that nonverbal communication may account for 65% of meaning in these interpersonal interactions that take place during counseling sessions, or even in brief patient education (26). Therefore, it is important to understand what nonverbal communication is and how to control nonverbal cues while working with patients.

With the various theories that help with behavior change and the methods and skills that help dietitians be more effective counseling patients, nutritional counseling needs to somehow fit into an already tight curriculum in dietetic programs. Computer assisted-instruction (CAI) and online modules are one way to help educate students while conserving time and resources. CAI will now be discussed, followed by the development of the nutrition education modules to effectively and efficiently provide opportunity for skill-building and practice.

Students and Computer-Assisted Instruction

Research has been conducted in various areas that pertain to the development of CAI, including students' acceptability, learning theories and ways to make certain students succeed with this new style of learning. Two articles in JADA by Evers, Bell, and Puri (12,27) show their work on developing CAI

involving theories and methods of counseling. They were able to use simulations of registered dietitians working with clients, and have utilized various methods to counsel the client. Students who completed the modules were better able to choose the best counseling method for the patient (12). At the beginning of 2008, the American Dietetic Association's president message (27) said, "There is no bigger-picture issue facing ADA and the dietetics profession than adequately educating and preparing practitioners to enter the profession, to succeed, and to advance in their careers." Having students be more prepared to counsel and work with patients will help them succeed and advance in their careers.

A study conducted by the University of Surrey included 41 dietetic students who used a CAI program called STEP-DIET (student training, education and practice for dietetics) to measure how well they learned in that format, as well as what they liked or disliked about the format (29). They found that, in general, students reacted positively to the STEP-DIET program and that it was effective in preparing them for the practical part of their training (29).

In previous publications most students find online learning and CAI to be a good option for education (29). They like the flexibility, and for many it is the only way they can continue their education while also maintaining a job or caring for a family (30). With research showing that students can learn well from CAI, online education appears to be an option for teaching or supplementing nutrition counseling skills.

Online Education as a Viable Option

Most colleges and universities now offer online education, with more than 4.6 million students participating in 2008 (30). "It has been documented that by seeing, hearing, and interacting in the learning process, students improve their learning (31). CAI is a method of education that allows students to work at their own pace, and spend time working through parts of the information that they may find more challenging.

Research by Biasutti from the University of Padova (32) was conducted to see if students learned effectively in the e-learning environment. There were 92 students who enrolled in the online course, and the majority of them were women (M=7, F=85). The goal of this study by Biasutti was not to compare the online modules to a different method of teaching, but to see if students could learn this way. Their results showed that students who completed their online modules scored a mean of 28.39 out of 30 on unit one, a mean of 28.72 out of 30 on unit two, and 27.94 out of 30 on the final exam (32). Questionnaire responses indicated that those who registered for the class were independent learners and very motivated. Their skills as independent learners increased through the time spent on the class. Increasing skills as an independent learner is a useful outcome of the online modules for nutrition counseling to be used for undergraduate students. Research has been done to compare different teaching methods as well. Several of these will be discussed in the next section.

Studies have shown CAI to be an effective teaching strategy, and have also shown that learning is enhanced when CAI is used along with traditional learning methods, such as face-to-face lectures (31). This study demonstrated that supplemental online problem sets, in correlation with lecture classes, are effective at helping students better develop nutrition counseling skills. It has been found that students rate CAI highly, but are reluctant to accept it as the sole teaching method for a subject (29). This may be due to older students being more likely to take online courses and not as comfortable with this new form of learning. Research may be needed to further explore the issue of students and their reluctance to accept CAI as a sole method of teaching.

Rouse (31), states that CAI is built around behavioral and cognitive learning theories. If a behavior is reinforced with a reward, that behavior will increase (31). Teachers use this by giving verbal positive feedback after students demonstrate understanding of course materials. With CAI, the student can receive positive feedback by receiving comments like "great work" after answering questions correctly (31).

Development of Modules

Most of the computer applications in the field of nutrition have been developed primarily for nutrient analysis, and have not been used primarily as instructional tools (4). There is research done in other areas of education

though. Research was done by a company called Virtual Labs (VL), which has tested their interactive modules on a variety of subjects at Stanford on thousands of students, and developed the tools to be used for future module development in any scientific concept (33). They have found that students are more likely to adopt these types of materials because they are constantly surrounded by technology (33). Also, VL has found that "unlike traditional textbooks, educational media is dynamic, easily customizable, and can be designed with an interdisciplinary approach" (33).

VL outlines four steps to development of modules that "can visually stimulate a student and transform learning into an active, engaging process" (33):

1. Visualize difficult and naturally dynamic concepts
2. Promote active learning, problem-solving, and critical thinking with interactive simulations and virtual environments
3. Interact with the content with self-quizzes
4. Access content anytime, anywhere, at any pace

These concepts were then used in the development of the nutrition counseling modules to make them engaging and promote active learning.

The Middle Tennessee State University provides some insight into course development from their work developing a course on nutrition counseling and coaching skills which was taught to upper level undergraduate dietetic students

(34). Their course was a face-to-face format, but has valuable insight for areas to include on modules for independent learning. The course covered various communication skills, including building rapport, understanding nonverbal skills, and use of basic counseling responses (34). It also included the following counseling theories: stages of change, assessment of readiness to change, motivational interviewing, cognitive behavioral theory, stimulus control, and relapse prevention. They also included work on goal setting (34). Students are able to work with patients during the second half of the semester and apply these skills (34). This format is similar to what will be done at USU with students taking the face-to-face course and learning the material, then working with patient case studies through the CAI modules to apply the skills.

Conclusion

Nutrition counseling is an important skill for dietitians to be proficient in. However, due to many areas in dietetics that need attention in undergraduate programs, nutrition counseling does not get much coverage with only 53% of schools having a class devoted to teaching this skill (12). With the rise of chronic illness and the prevention that nutrition counseling can provide, students need to be able to use the different theories of change to promote behavior changes in their patients. These theories may include Transtheoretical Model and Stages of Change (TTM), Social Cognitive Theory (SCT), the Health Belief

Model (HBM), the Theory of Reasoned Action (TRA), the Theory of Planned Behavior (TPB), as well as Motivational Interviewing (MI). With the development of nutrition education modules for online, independent-learning, students can develop skills in nutrition counseling that they need to be successful with behavior change in their patients while schools may not have the time or resources to devote otherwise.

REFERENCES

1. Short JE, Chittooran MM. Nutrition Education: A Survey of Practices and Perceptions in Undergraduate Dietetics Education. *JADA.* 2004;104(10):1601-1604.
2. Commission on Dietetic Registration. *Registered Dietitian (RD) Certification*. 2011. Available at: http://www.cdrnet.org/certifications/rddtr/rdindex.cfm. Accessed December 12, 2011.
3. Evers W, Purri R, Bell C. Performance on Computer-Assisted-Instruction Modules Related to Counseling and Communication Can Affect Knowledge Gained. *JADA.* 2007;107(8-1):A67.
4. Turner RE, Evers WD, Wood OB, Lehman JD, Peck LW. Computer-based simulations enhance clinical experience of dietetics interns. *JADA.* 2000;100:183-190.
5. Traviss KA, Morley C. Dietetic Interns' Issues, concerns and questions about nutrition counseling. *JADA*. 2001;101(9-1):A69
6. Carpentier YA, Komsa-Penkova RS. The place of nutrition in the prevention of cardiovascular diseases (CAD). *E-SPEN*. 2011;6(6):e272-e282.
7. Lu AH, Dollahite J. Assessment of Dietitians' Nutrition Counseling Self-Efficacy and its Positive Relationship with Reported Skill Usage. *J of Human Nutr. and Dietetics.* 2010;23(2):144-153.
8. Walpole B, Dettmer E, Morrongiello B, McCrindle B, Hamilton J. Motivational Interviewing as an intervention to increase adolescent self-efficacy and promote weight loss: Methodology and design. *BMC Pub Health*. 2011; 11:459-467.
9. Flegal KM, Carroll MD, Ogden CL, Curtin LR. Prevalence and Trends in Obesity Among US Adults, 1999-2008. *JAMA*. 2010;303(3):235-241
10. Centers for Disease Control and Prevention. *Overweight and Obesity*. 2011. Available at: http://www.cdc.gov/obesity/data/index.html. Accessed November 11, 2011.
11. US Preventative Services Task Force. Behavioral Counseling in Primary Care to Promote a Healthy Diet: Recommendations and Rationale [review]. *Am J Prev Med.* 2003;24:93-100.
12. Puri R, Bell C, Evers WD. Dietetics Students' Ability to Choose Appropriate Communication and Counseling Methods Is Improved by Teaching

Behavior-Change Strategies in Computer-Assisted Instruction. *JADA.* 2010;110(6):892-897.

13. Horacek TM, Salomon JE, Nelson EK. Evaluation of Dietetic Students' and Interns' Application of a Lifestyle-Oriented Nutrition-Counseling Model. *Patient Ed and Counseling.* 2007;68(2):113-120.
14. Noar SM, Mehrota P. Toward a new methodological paradigm for testing theories of health behavior and health behavior change. *Patient Edu and Counseling*. 2011;82:468-474
15. Ivey AE, Ivey MB, Zalaquett CP. *Intentional Interviewing and Counseling.* 7th ed. Belmont, CA: Brooks/Cole; 2010.
16. Contento IR. *Nutrition Education Linking Research, Theory, and Practice.* 2nd ed. Sundbury, MA: Jones and Bartlett Publishers; 2011.
17. Bandura, A. Health Promotion by social cognitive means. *Health Edu and Behavior*. 2004; 31(2): 143-164.
18. Gutierrez J, Long JA. Reliability and validity of diabetes specific Health Belief Model scales in patients with diabetes and serious mental illness. *Diabetes Research and Clin Practice*. 2011; 92:342-347.
19. Pawlak R, Malinauskas B, Rivera D. Predicting intentions to eat a healthful diet by college baseball players: Applying the Theory of Planned Behavior. *J of Nutr Edu and Behavior.* 2009; 41(5):334-339.
20. Khanna R, Kavookjian j, Scott VG, Kamal KM, Miller LAN, Neal WA. Using the Theory of Reasoned Action to determine physicians' intention to measure body mass index in children and adolescents. *Research in Social and Administrative Pharmacy*. 2009;5:170-181.
21. Bauer K, Sokolik C. *Basic Nutrition Counseling Skill Development*. 1st ed. Belmont, CA: Wadsworth/Thompson Learning; 2002.
22. Wright JA, Velicer WF, Prochaska JO. Testing the predictive power of the transtheoretical model of behavior change applied to dietary fat intake. *Health Edu Research*. 2009;24(2):224-236
23. Gance-Cleveland B. Motivational Interviewing: Improving Patient Education. *J Pediatr Health Care*. 2007;21:81-88.
24. Rollnick S, Miller WR, Butler CC. *Motivational Interviewing in Health Care.* New York, NY: The Guilford Press; 2008.
25. Brug J, Spikmans F, Aartsen C, Breedveld, B, Bes R, Fereira I. Training Dietitians in Basic Motivational Interviewing Skills Results in Changes in their Counseling Style and in Lower Saturated Fat Intakes in Their Patients. *J Nutr Educ Behav.* 2007;39:8-12.

26. Cant RP, Aroni RA. Exporing dietitians verbal and nonverbal communication skills for effective dietitian-patient communication. *J Hum Nutr Diet*. 2008;21:502-511.
27. Evers W, Purri R, Bell C. Performance on Computer-Assisted-Instruction Modules Related to Counseling and Communication Can Affect Knowledge Gained. *JADA.* 2007;107(8-1):A67.
28. Diekman CB. Access, Achievement, Autonomy: The Future of Dietetics Education. *JADA.* 2008;108(1):16.
29. Herriot HM, Bishop JA, Truby H. The development and evaluation of Student Training, Education and Practice for Dietetics CD-ROM: A Computer-Assisted Instruction Programme for Dietetic Students. *J of Human Nutr and Dietetics.* 2004;17(1):35-41.
30. Cohen NL, Carbone ET, Beffa-Negrini. The Design, Implementation, and Evaluation of Online Credit Nutrition Courses: A Systematic Review. *J of Nut. Ed. and Behavior.* 2011;42(2):76-86.
31. Rouse DP. Computer-assisted instruction: An effective Instructional Method. *Teaching and Learning in Nursing*. 2007;2:138-143.
32. Biasutti M. The Student Experience of a Collaborative E-Learning University Module. *Computers and Educ.* 2011;57:1865-1875.
33. Huang C. Designing high-quality interactive multimedia learning modules. *Computerized Medical Imaging and Grapics*. 2005;29:223-233.
34. Bogle G. Design and Development of a Service Learning Course to Teach Nutrition Counseling and Coaching Skills. *JADA.* 2011;111(9-1):A54.

CHAPTER II – ARTICLE FOR PUBLICATION

Brief Summary

Nutrition education modules were developed to assist undergraduate dietetic students in achieving increased counseling skills. With limited time and resources in undergraduate programs, the use of computer-assisted instruction (CAI) can supplement education of this important skill.

Introduction

Undergraduate students working towards a degree in dietetics spend their time becoming well rounded in the nutrition field, as there are many potential career paths. Areas of expertise such as clinical work, food service management, public education, sports nutrition, and counseling are some such examples. Accredited dietetic programs utilize class time and designate required coursework by assessing what is most needed to complete an internship and pass the registration exam. Currently, the greatest emphasis for the registration exam is clinical work, followed by food service management (1). Nutritional counseling is far down on the list, therefore, often not as much time or resources are allotted to this important skill.

One way to help prepare students to be confident and competent in providing nutrition counseling is through computer-assisted instruction (CAI),

using computer modules designed to help students practice their counseling skills. Modules include descriptions of virtual patients, and students can walk through simulated counseling sessions and practice their critical thinking and problem-solving skills while reinforcing the theories and methods behind counseling and behavior change. These modules efficiently provide education and practice when the time and resources are not available to dedicate to this important concept.

Why is Counseling Important?

Dietitians need to be effective at nutrition counseling to help their clients prevent and manage a variety of chronic illness. Many studies have pointed to the benefits of changes in nutrition habits and lowered risk for disease. A study by Carpentier followed 46 volunteers with mild hyperlipidemia. Subjects underwent either four weeks of dietary intervention or four weeks of drug intervention. After four weeks, LDL and CRP levels were reduced in the dietary intervention group as effectively as those on a first generation statin (2). This provides evidence that nutrition counseling can be an effective method for prevention.

Dietitians are spending more than half their time counseling (3). A study done by Lu and Dollahite in 2011 surveyed 612 dietitians on how much counseling they did at work. Out of 612 responses, 486 (79.4%) responded that

they spent more than 50% of their work week conducting counseling (3). Dietitians need to be trained and well prepared to provide counseling and education to their patients as so many dietitians spend so much of their time right now providing this service to their patients.

Module Development

The effectiveness of the modules is improved by creating them using a composite of actual patients as the guides to become virtual patients (VP). If the modules were created using imaginary patients, the developer would have to create all the information on their own, and the virtual patients can become too similar. They can start to have all the same problems requiring the same solutions because one only has their own personal background to draw from. Scenarios for the VP should be relevant, realistic, engaging, challenging, and instructional (4). When modules are able to be developed using a composite of actual patients from experience that have real stories, real backgrounds, and problems that don't have to be created, there is a much better amount of variety to include in the modules, meeting the requirements set by Guise et al.

Using a composite of actual patients made for a more "real life" experience when completing the modules because the progression of the patient may not be what the dietitian would have liked to happen during the sessions, but it is how a patient could actually progress. Narrative scenarios such as these encourage reflective experiential learning by focusing on cause and effect, and

the outcome of decisions (4). Students can work through the modules and feel as though they are right there with the patient working with them to get them to succeed. Students get a broader scope of patients and problems and have to work through a wider range of solutions with the modules and variety presented.

Writing Patient Profiles and Questions

When writing patient profiles, there was special attention paid to how much information one would get in the outpatient setting compared to a hospital or clinical setting. Based on previous experience, these modules needed to reflect limited or incomplete backgrounds on the patients, and not resemble the charts a dietitian may see in a different setting. Some patients may be referred to the dietitian after only one visit to the doctor for a quick blood pressure check and may not have additional information. The patient may see other doctors and have all their medical history in other charts that the dietitian would not have access to. The dietitian has to use the counseling skills to get the remainder of the information needed from the patient and include that in the first meeting.

The flow of the modules resembles what a typical counseling session would be like. As students move through the slides, they work through a virtual counseling session. It simulates a dialogue between the patient and dietitian, so the student utilizes theories of counseling as well as problem-solving skills and

communication techniques to complete the questions. Research done on the dynamics in the presentation of CAI and test taking show that items such as multiple windows to click through, text presentations, and interaction in the testing increase the students' learning ability and testing capability (5). Paper and pencil doesn't seem to simulate in the same way as the computer can (5). Based on this research, this method of delivery will help the students succeed and increase their learning.

Multiple choice questions (MCQ) were initially developed in the modules, but were found to not be as effective as free-response questions. It has been estimated that it takes one hour to construct a high quality MCQ (6). Research shows that MCQ more often test factual recall instead of evaluating higher cognitive thinking (6). Also, MCQ didn't allow the freedom and creativity that the free-writing form gives the students. When actually in a counseling situation, the dietitian has to be able to think quickly and problem solve, and free response better practices this skill.

These modules can help students practice these skills while reinforcing the counseling theories that support nutrition counseling. Some MCQ are included for understanding of basic concepts, such as non-verbal communication cues. However, the majority of the questions when the modules were finalized are the free response type or short answer. To help students think through multiple suggestions to give the patient for the same problem, often the question asks

the student to give a certain number of ideas. Through experience it has been found that the first, second, or even third idea may not be accepted by the patient and other suggestions have to be quickly thought of to give to the patient.

Implications for Dietetics Professionals

There are many other possible implications for use of the modules. They could be included in dietetics internships to better prepare those going into an outpatient rotation. They could be used for professional development for practicing dietitians. The modules could be part of continuing education, and completion could count towards credits. They are useful for self study, for those dietitians wanting to improve or practice their skills.

The modules would be useful for dietitians who want to change careers, or maybe have limited options in the job market. For those who move from an ICU position to an outpatient or counseling position may need to refresh their skills quickly and cost effectively.

Practice groups could use the modules to offer their members learning courses or help teach counseling skills for those who haven't learned them in the past. A group like the weight management practice group could benefit from modules focused in this area. There are many uses for modules such as these,

and if others are able to duplicate them, dietitians everywhere will be able to benefit, and so will the patients.

Conclusion

Dietetic programs across the country are struggling to fit everything they want to teach their students into the classes and time allotted. With limitations, they have to focus on what will be covered on the registration exam, which has very little emphasis on nutritional counseling (1). With the rising obesity rate (7) and subsequent chronic illness, dietitians need to be skilled in providing nutrition counseling to see changes in their patients' habits and behaviors (8).

One way to effectively and efficiently provide opportunity for skill building and practice on these important skills is through these nutrition counseling modules and CAI. Virtual patients and CAI is a cost effective way to provide students with a safe, secure, and controlled learning environment to practice counseling and communication skills with feedback, while avoiding consequences to a real patient (9). Giving undergraduate students access to online learning will guide them through real-life situations, and can help them develop the skills they need to be successful with patients. All dietetic programs that do not have the time or resources to adequately prepare students should consider including modules focused on nutrition counseling into their curriculum.

REFERENCES

1. Commission on Dietetic Registration. *Registered Dietitian (RD) Certification*. 2011. Available at: http://www.cdrnet.org/certifications/rddtr/rdindex.cfm. Accessed December 12, 2011.
2. Carpentier YA, Komsa-Penkova RS. The place of nutrition in the prevention of cardiovascular diseases (CAD). *E-SPEN*. 2011;6(6):e272-e282.
3. Lu AH, Dollahite J. Assessment of Dietitians' Nutrition Counseling Self-Efficacy and its Positive Relationship with Reported Skill Usage. *J of Human Nutr. and Dietetics.* 2010;23(2):144-153.
4. Guise B, Chambers M, Conradi E, Kavia S, Valimaki M. Development, implementation, and initial evaluation of narrative virtual patients for use in vocational mental health nurse training. Manuscript submitted for publication. *Nurse Edu Today*. (In Press).
5. Koong CS, Wu CY. An interactive item sharing website for creating and conduction on-line testing. *Computers and Edu.* 2010;55:131-144.
6. Tarrant M, Knierim A, Hayes SK, Ware J. The frequency of item writing flaws in multiple-choice questions used in high stakes nursing assessments. *Nurse Edu in Practice*. 2006;6:354-363.
7. Centers for Disease Control and Prevention. *Overweight and Obesity*. 2011. Available at: http://www.cdc.gov/obesity/data/index.html. Accessed November 11, 2011.
8. Cant RP, Aroni RA. Exporing dietitians verbal and nonverbal communication skills for effective dietitian-patient communication. *J Hum Nutr Diet*. 2008;21:502-511.
9. Stevens A, Hernandez J, Johnsen K, Dickerson R, Raij A, Harrison C, DiPietro M, Allen B, Ferdig R, Foti S, Jackson J, Shin M, Cendan J, Watson R, Duerson M, Lok B, Cohen M, Wagner P, Lind S. The use of virtual patients to teach medical students history taking and communication skills. *The Am J of Surgery*. 2006;191:806-811.

CHAPTER III CONCLUSION

Implications for the Dietetics Professional

The dietetic undergraduate program at Utah State University (USU) conducts exit interviews each semester with its students. An important finding from this evaluation was the recognition of limited class time during the program for developing counseling skills. This problem that was found does not exist only at USU, but at programs across the country. One study (1) shows that only about half of the programs across the country have a nutrition education class in their curriculum, while the rest of the programs rely on the students getting the information they need from other required classes. While acknowledging limited class time and resources, professors in the USU program sought to address these issues through development of online modules for the students to complete during their junior year to help them to develop better counseling skills. These modules, or the steps to develop them, can be used for other programs that don't have the time or resources to dedicate to nutrition counseling. Outlined next will be the steps taken to develop the modules for others to pattern after.

Development of the Modules

Build on What Others Have Found

When beginning the project, it was first discussed to develop modules, and then write about the development of the modules. Modules were to be developed based on a composite of actual patients and real situations in a

counseling setting from experience working with patients. Development was being done based on classes taken in nutrition education and their textbooks (2, 3, 4, 5) as well as years working for a private practice doing nutritional counseling as the sole dietitian for this practice. Working as an outpatient dietitian gave a lot of experience to build upon and unlimited patient examples to rely on for module development.

After a preliminary literature search on information available, it was decided that it would be more efficient to conduct a full literature review to examine previous similar efforts to develop practice modules, and then to further develop the education modules and finalize them. There was an extensive amount of research available with work that had been done previously on developing additional resources for learning about nutritional counseling, development of general CAI, on-line learning, theories of counseling, and module development in dietetics. These resources contributed to the development of all around better, more effective modules.

Research shows some of the reasons that CAI is able to help students learn and be successful (6, 7). Including helping students to visualize difficult concepts, promoting problem-solving and critical thinking with interactive simulations, and accessing the information at any time in any place (8). This information helped to shape the layout of the modules, which will be discussed in greater detail below.

Use Scenarios From ”Real Life”

The effectiveness of the modules is improved by creating them using a composite of actual patients as the guides for the virtual patients (VP). If modules were to be created using imaginary patients, one would have to create all the information on their own, and the patients can become and require the same solutions if drawn only from personal background. Scenarios for the VP should be relevant, realistic, engaging, challenging, and instructional (9). When modules are developed to make up a virtual composite of actual patients from experience that have extensive stories, detailed backgrounds, and problems that couldn’t possibly be created, there is a much bigger amount of variety to include in the modules, meeting the requirements set by Guise, et al.

Using a composite of actual patients made for a more “real life” experience when completing the modules because the progression of the patient may not be what the dietitian would have liked to happen during the sessions, but it is how a patient could actually progress. Narrative scenarios such as these encourage reflective experiential learning by focusing on cause and effect and the outcome of decisions (9). Students can work through the modules and feel as though they are right there with the patient working with them to help them succeed. Students get a broader scope of patients and problems and must work through a wider range of solutions with the modules and variety presented.

Writing Patient Profiles and Questions

When writing patient profiles, there was special attention paid to how much information one would get in the outpatient setting compared to a hospital or clinical setting. With previous experience in both settings, these modules needed to reflect limited or incomplete backgrounds on the patients sometimes given in an outpatient setting, and not resemble the charts a dietitian may see in a different setting. Some patients may be referred to the dietitian after only one visit to the doctor for a quick blood pressure check and may not have additional medical information. The patient may see other doctors and have all their medical history in other charts that the dietitian would not have access too. The dietitian has to use the counseling skills to get the remainder of the information needed from the patient and include that in the first setting.

The students are given an outpatient assessment form, similar to what they may use in the outpatient setting, to take notes on as they get the information from the patient throughout the module. It will help the students learn what information they need from the patient to move forward with counseling. This form is attached (appendices page 92).

The flow of the modules resembles what a conversation would be like. As students move through the slides, they work through a virtual counseling session. It simulates a dialogue between the patient and dietitian, so the student utilizes theories of counseling as well as problem-solving skills and

communication techniques to complete the questions. Research done of the dynamics in the presentation of CAI and test taking shows that items such as multiple windows to click though, text presentations, and interaction in the testing increase the students' learning ability and testing capability (10). Using this research, this method of delivery will help the students succeed and increase their learning.

Multiple choice questions (MCQ) were tried in the modules, but were found to be less effective than free-response questions. It has been estimated that it takes one hour to construct a high quality MCQ (11). Research shows that MCQ more often test factual recall instead of evaluating higher cognitive thinking (11). Also, MCQ didn't allow the freedom and creativity that free-response gives the students. When actually in a counseling situation, the dietitian has to be able to think quickly and problem solve.

These modules can help students practice these skills while reinforcing the counseling theories that support nutrition counseling. Some multiple choice questions are included for understanding of basic concepts, such as describing non verbal communication cues. However, the majority of the questions are the free response type. To help students think through multiple suggestions to give the patient for the same problem, often the question asks the student to give a certain number of ideas. This approach replicates an actual counseling session since the first, second, or even third idea given to the patient may not be

accepted and the dietitian may have to think of other suggestions to give the patient.

Areas of Future Research and Work

The next step for this project will be to get the modules online and useable by the students. USU uses Canvas for their students, and the modules will appear there. The modules have been completed so that someone else other than the creator is able to put them online and have the look be the same (see attached modules in appendices). Showing each slide and what is to appear on them will help for easy conversion.

Once they are available online, the next step for this project would be to evaluate the effectiveness of the modules. First, it would be useful to organize a pilot test group to complete the modules and give suggestions and feedback. This group could consist of senior dietetic students that have completed the classes the modules will be used in or those in the didactic program that will soon be starting their internships. A questionnaire could be used to get uniform feedback from students following their completion of the modules and make changes to the modules.

Next, a study could be conducted on junior and senior dietetic students (n=x) to assess student confidence and competence in the counseling process following completion of the modules. Even though the senior students will have already completed the classes the modules were designed for, they will be

increasing their counseling skills through other classes during the semester and the effectiveness of the modules can still be examined. One way this could be done would be to design a pre- and post-test. At the beginning of the semester, all students would be asked to complete a questionnaire that examines their confidence in counseling and skill level. Senior students would likely report a higher level of confidence than the juniors in the pre-test due to additional coursework completion and experience, so data would need to be analyzed separately to determine the modules' effectiveness.

Through the semester, students could be required to complete the modules with >85% scores before moving on to demonstrate competence. At the end of the semester, students would take the same questionnaire from the beginning of the semester and evaluate to see if scores have improved. Data analysis would then look at the change in confidence level for the students in counseling situations in order to evaluate students' knowledge on behavioral theories, as well as their skill level in techniques and methods for counseling.

Another topic that could be included in future modules for education on nutrition counseling is expanding the diversity and the issues of the patients used for the modules. One specific area could be cultural competence and developing better skills for counseling patients from a variety of cultural groups and ethnicities. A study by McArthur, Greathouse, Smith and Holbert (12) showed that while a large majority of students say they feel generally comfortable

interacting and counseling people from other cultures, nearly 40% responded that they believed clients from other cultural groups should be counseled by dietitians in that cultural group (12). This is another area of dietetics that does not get much class time due to limited time (12), but could easily be incorporated into the modules for students to become more culturally competent.

There are many other possible implications for use of the modules. They could be included in dietetics internships to better prepare those going into an outpatient rotation. They could be used for professional development for practicing dietitians. The modules could be part of continuing education, and completion could count towards credits. They are useful for self study, for those dietitians wanting to improve or practice their skills.

The modules would be useful for dietitians who want to change careers, or maybe have limited options in the job market. For those who move from an ICU position to an outpatient or counseling position may need to refresh their skills quickly and cost effectively.

Practice groups could use the modules to offer their members learning courses or help teach counseling skills for those who haven't learned them in the past. A group like the weight management practice group could benefit from modules focused in this area. There are endless uses for modules such as these, and if others are able to duplicate them, dietitians everywhere will be able to benefit, and so will the patients.

Conclusion/Recommendations

Dietetic programs across the country are struggling to fit everything they want and need to teach their students into the classes and time allotted. With limitations, they have to focus on what will be covered on the registration exam, which has very little emphasis on nutritional counseling (13). Unfortunately, with a rising obesity rate (14), and subsequent chronic illness, dietitians will need to be skilled in providing nutrition counseling to see changes in their patient's habits and behaviors (15).

One way to effectively and efficiently provide opportunity for skill-building and practice on these important skills is through nutrition counseling modules and CAI. Virtual patients and CAI is a cost effective way to provide students with a safe, secure and controlled learning environment to practice counseling and communication skills with feedback, while avoiding consequences to a real patient (16).

Giving undergraduate students access to online learning will guide them through real-life situations, and can help them develop the skills they need to be successful with patients. All dietetic programs that do not have the time or resources to adequately prepare students in counseling should consider including CAI modules focused on nutrition education and counseling into their curriculum.

Future research could be done on the modules to test their effectiveness and make them a refined tool for supplementing nutrition counseling education.

Other areas of dietetics could be put into online modules making online learning a way for students to practice important skills in dietetics and further expand their knowledge in areas that aren't allotted as much time and resources. CAI and online learning have endless possibilities and will help students excel in any career path they may choose.

REFERENCES

1. Short JE, Chittooran MM. Nutrition Education: A Survey of Practices and Perceptions in Undergraduate Dietetics Education. *JADA.* 2004;104(10):1601-1604.
2. Bauer K, Sokolik C. *Basic Nutrition Counseling Skill Development*. 1st ed. Belmont, CA: Wadsworth/Thompson Learning; 2002.
3. Contento IR. *Nutrition Education Linking Research, Theory, and Practice.* 2nd ed. Sundbury, MA: Jones and Bartlett Publishers; 2011.
4. Ivey AE, Ivey MB, Zalaquett CP. *Intentional Interviewing and Counseling.* 7th ed. Belmont, CA: Brooks/Cole; 2010.
5. Rollnick S, Miller WR, Butler CC. *Motivational Interviewing in Health Care.* New York, NY: The Guilford Press; 2008.
6. Rouse DP. Computer-assisted instruction: An effective Instructional Method. *Teaching and Learning in Nursing*. 2007;2:138-143.
7. Biasutti M. The Student Experience of a Collaborative E-Learning University Module. *Computers and Educ.* 2011;57:1865-1875.
8. Huang C. Designing high-quality interactive multimedia learning modules. *Computerized Medical Imaging and Grapics*. 2005;29:223-233.
9. Guise B, Chambers M, Conradi E, Kavia S, Valimaki M. Development, implementation, and initial evaluation of narrative virtual patients for use in vocational mental health nurse training. Manuscript submitted for publication. Nurse Edu Today. (In Press).
10. Koong CS, Wu CY. An interactive item sharing website for creating and conduction on-line testing. *Computers and Edu.* 2010;55:131-144.
11. Tarrant M, Knierim A, Hayes SK, Ware J. The frequency of item writing flaws in multiple-choice questions used in high stakes nursing assessments. *Nurse Edu in Practice*. 2006;6:354-363.
12. McArthur LH, Greathouse KR, Smith ER, Holbert D. A Quantitative Assessment of the Cultural Knowledge, Attitudes and Experiences of Junior and Senior Dietetics Students. *J of Nutr Educ and Behavior.* 2011;11(5):1-9
13. Commission on Dietetic Registration. *Registered Dietitian (RD) Certification*. 2011. Available at: http://www.cdrnet.org/certifications/rddtr/rdindex.cfm. Accessed December 12, 2011.

14. Centers for Disease Control and Prevention. *Overweight and Obesity*. 2011. Available at: http://www.cdc.gov/obesity/data/index.html. Accessed November 11, 2011.
15. Cant RP, Aroni RA. Exploring dietitians' verbal and nonverbal communication skills for effective dietitian-patient communication. *J Hum Nutr Diet*. 2008;21:502-511.
16. Stevens A, Hernandez J, Johnsen K, Dickerson R, Raij A, Harrison C, DiPietro M, Allen B, Ferdig R, Foti S, Jackson J, Shin M, Cendan J, Watson R, Duerson M, Lok B, Cohen M, Wagner P, Lind S. The use of virtual patients to teach medical students history taking and communication skills. *The Am J of Surgery*. 2006;191:806-811.

APPENDICES

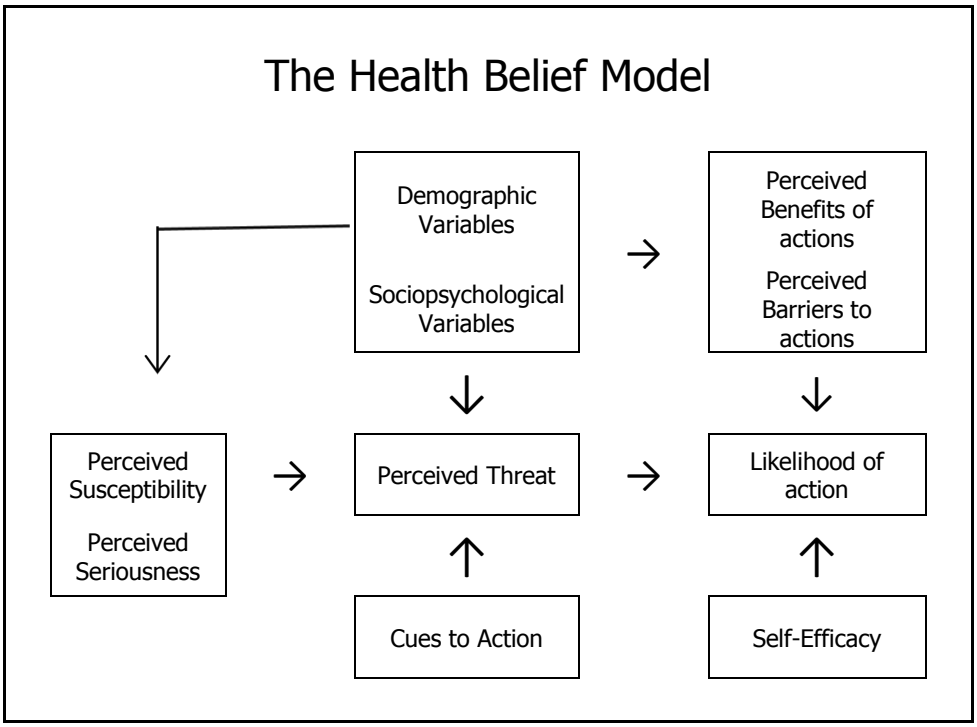
TABLES

Registration Examination for Dietitians
Test Specifications - Effective January 1, 2012
From the Commission on Dietetics Registration – www.cdrnet.org

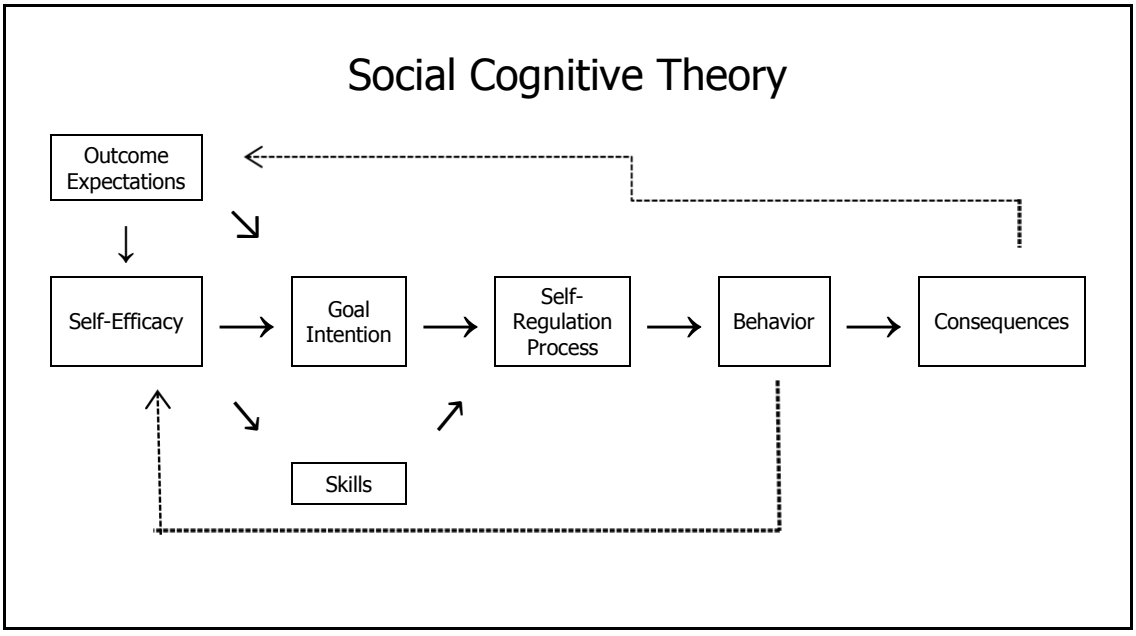
Topic	Percent of Exam
I. Principles of Dietetics	**12%**
A. Food Science and Nutrient Composition of Foods	
B. Nutrition and Supporting Sciences	
C. Education and Communication	
D. Research	
E. Management Concepts	
II. Nutrition Care for Individuals and Groups	**50%**
A. Screening and Assessment	
B. Diagnosis	
C. Planning and Intervention	
D. Monitoring and Evaluation	
III. Management of Food and Nutrition Programs and Services	**21%**
A. Functions of Management	
B. Human Resources	
C. Financial Management	
D. Marketing and Public Relations	
E. Quality Improvement	
IV. Foodservice Systems	**17%**
A. Menu Development	
B. Procurement, Production, Distribution, and Service	
C. Sanitation and Safety	
D. Equipment and Facility Planning	
E. Sustainability	

FIGURES

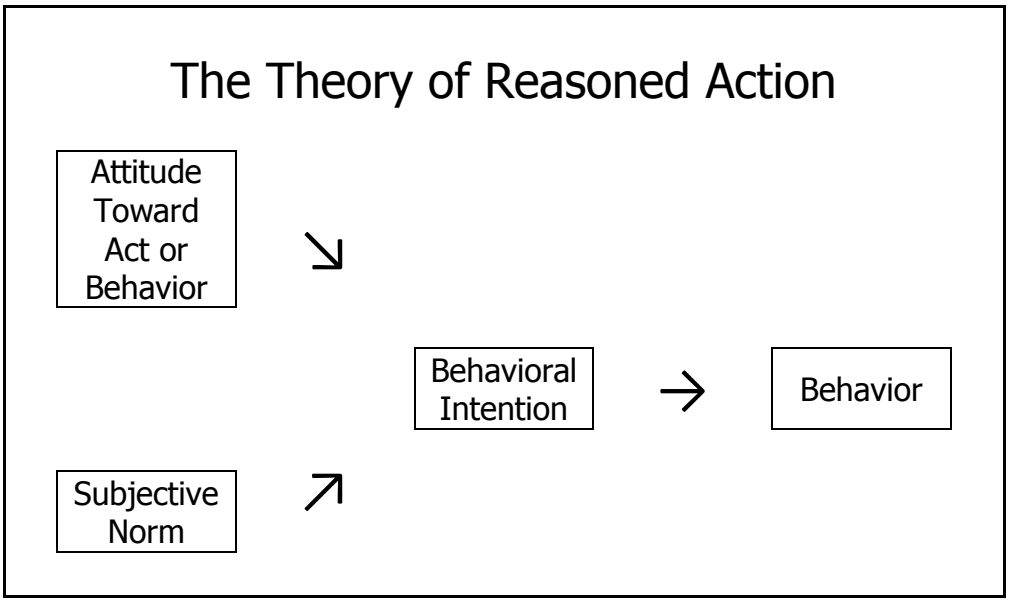
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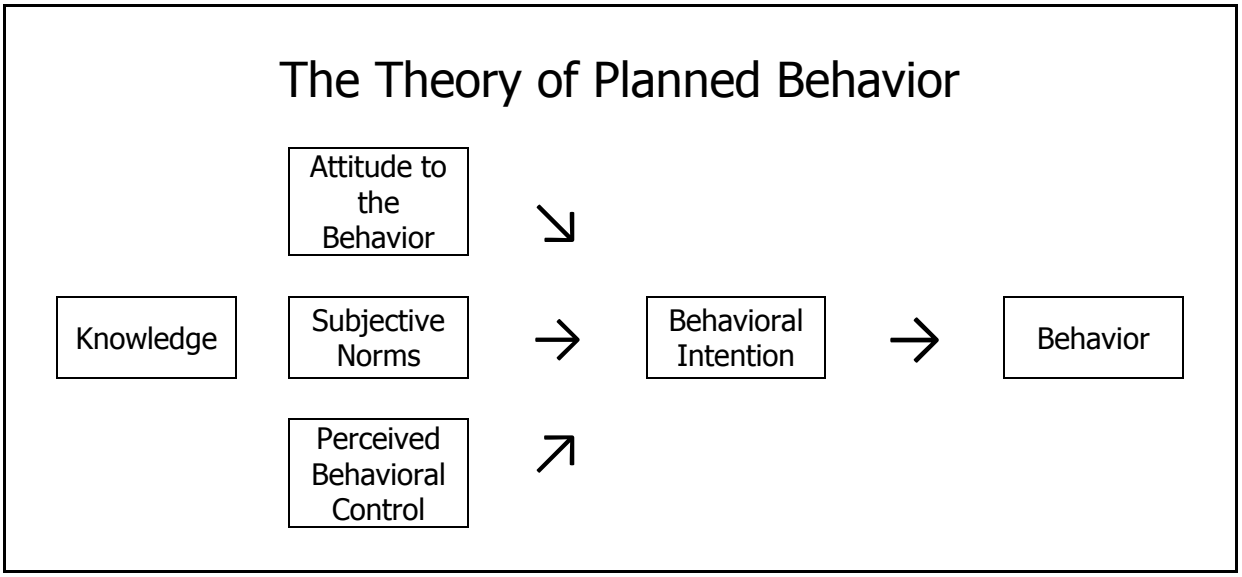
Social Cognitive Theory Model



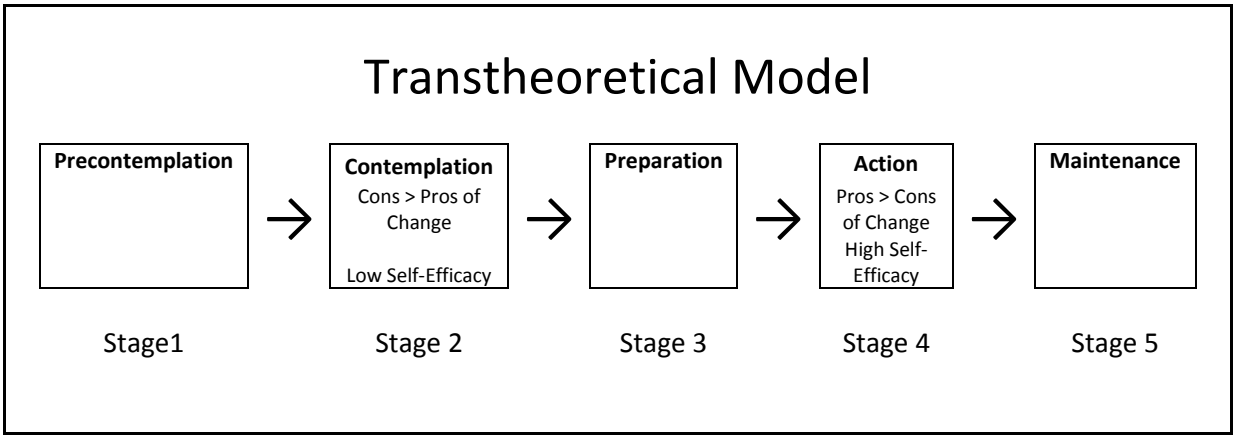
The Theory of Reasoned Action



The Theory of Planned Behavior



Transtheoretical Model



MODULES

MODULE ONE

Slide 1

MP is a 42 y/o white female. Her last vitals were height 5'1.5" and weight 247.2 lbs. She doesn't smoke or drink, and has very limited previous medical history. There is no recent blood work, and she is taking a prenatal multivitamin. She has been prescribed Phentermine for short term use. She has a referral to see you for weight loss.

Slide 2

Right after you walk in the room MP starts talking. She is married, and her husband works full time, while she has recently quit her job. She has four children, a daughter who is almost three, a son who is 18 months, and twins who are eight weeks as of today. She talks really fast and gives you a lot of details.

1. What could the way she is acting tell you? How is she feeling?

Slide 3

1. MP may be nervous about your meeting. She may not know what to expect and her communication is demonstrating that.

Slide 4

Next she tells you that she has met with a dietitian in the past, after her second child. While she was able to lose most of the baby weight, however, it was extremely boring and limited. Now with four kids instead of two, she needs more creativity as her time is much more limited and she is in a different situation.

You walk through a 24 hour recall with her and this is what you have:
Breakfast (9 am): Cereal, maybe cheerios with skim milk
Lunch (12-1pm): Quick sandwich, or mac and cheese with kids
Dinner (6pm): May skip and eat later, or have take out (Chinese) or pizza.
Snacks: Usually she eats at night, which could be a bag of chips or some ice cream. If the babies are up too much during the night, she may eat something more in the middle of the night.

Beverages: water (maybe 32-48oz a day)
No food allergies or religious restrictions

She doesn't exercise right now because after getting up early, staying up late and being up with the kids during the night, she is exhausted. One of them is always up and needs her help.

Slide 5

She tells you with having 4 kids under the age of 3, she has no time to eat a meal, much less prepare one. She asks what she can do for dinner that will fit in with her meal plan, but take zero prep work.

2. What do you suggest? Give her 3-4 dinner ideas to get her started.

Slide 6

2. MP could try to prepare multiple chicken breasts or other proteins all at once, so she could use them over multiple dinners. With that dinner, she could try steamer bags of vegetables to quickly pop in the microwave and add to dinner with zero prep work. She could try to do crock pot cooking, and put everything in the pot in the pot in the morning, and have dinner ready later. She could try to prepare a casserole or some dinner on Sunday when her husband is home and have that one or two nights during the week.

Slide 7

MP and her husband eat carry-out meals fairly often. While she learns to prepare quicker meals and takes some of the dinner ideas you just gave her, she will still have take in occasionally.

3. Give MP three tips for ordering pizza.

4. Give MP three tips for Chinese takeout. What are her best options?

Slide 8

3. When ordering pizza, try to order pizza with a whole wheat crust or a thin crust. Order a large salad or some kind of vegetable on the side to balance out the pizza. Avoid high fat meats such as pepperoni and sausage on the pizza, try for added vegetables, or Canadian bacon as leaner options. Go lighter on the

cheese if possible. A margaritas pizza is a good option because they use lighter cheese, buffalo mozzarella.

4. When ordering Chinese takeout, avoiding deep fried options, such as sweet and sour chicken or egg rolls is helpful. Try to find a restaurant that offers brown rice. Try a soup along with the meal to help fill you up for minimal calories, such as a miso soup. Try to order sauces on the side if possible. Pick lean proteins, such as fish or chicken, and try for dishes with vegetables.

Slide 9

She says to you, "With having the 18 month old and 3 yr old, they only want to eat chicken nuggets, mac and cheese, and peanut butter and jelly. I usually finish their plates because I hate to see the food wasted, and it is already prepared. I don't want to have to prepare two meals".

5. What can you say to help her when the kids do eat things like peanut butter and jelly? How should she handle this?

6. What are some suggestions for kid friendly meals that the kids would like to eat and she can eat too.

Slide 10

5. If she is having leftover foods from the kids all the time, she can work on giving them half servings to start, and if they are still hungry, giving more. She could also work on healthier options with them, giving them half the serving of the chicken nuggets, with vegetable sticks on the side, or fruit servings. Have her find things she can make for herself right along with the kids food, for example, she could make a ham or turkey sandwich for herself while making the kids peanut butter and jelly.

6. She could try different soups for the kids that are packed with vegetables that she would enjoy. She could do turkey hot dogs that the kids would enjoy and would be leaner. She could do different kinds of sandwiches instead of always peanut butter and jelly. She can try to add cut up vegetables or fruit on the side of the meals to encourage the kids to eat more of these.

Slide 11

MP worries she will be hungry when she has to get up during the night with the twins and that she will still snack.

7. What are her best options for grabbing a snack in the middle of the night? Give her 3 ideas to keep on hand.

To help MP not be hungry during the night, you want her to eat every 2-3 hours during the day.

8. What are 3-4 quick and easy snack ideas for during the day?

Slide 12

7. MP needs to have prepared things that take no time during the night so that she doesn't reach for something else. String cheese, 100 calorie bags of almonds, and Greek yogurt would all be good options, with higher protein contents.

8. During the day MP could reach for some of the snacks she has on hand for at night, such as string cheese, almonds, or Greek yogurt. She could also pre chop vegetables on one day so those are quick and easy to reach for (cucumbers, carrots, snap peas, celery, and cherry tomatoes). She could include no sugar added pudding cups, a piece of fruit, or a hundred calorie bag of popcorn.

Slide 13

Working out or exercising is also a big challenge because none of her children seem to sleep at the same time. She says she would like to walk, but with how little they are, it isn't an option, nor is going to the gym.

9. What can she do for Physical activity? Be creative! Give her 3-4 suggestions to try right away.

Slide 14

9. MP can make the most of her house work by doing extras such as lifting something above her head before setting it down, or walking up and down the stairs with a laundry basket a couple extra times. She could invest in 2 lb weights to put on her arms and ankles to burn a little extra as she does things around the house. She could look at doing exercise DVD's that her almost three

yr old could do with her, and she could do while the others are napping. She could do wii fit or something similar, again, while her kids are napping.

Slide 15

She tells you she has been so stressed that by the time the kids are all in bed, she sits down with ice cream each night. She has such a sweet tooth and doesn't think she can give this up.

10. What do you suggest she try? Give MP 3 ideas for sweets she can include that fit in with her healthy eating. Remember to keep it simple, something that won't have to be prepared with a lot of time.

Slide 16

10. MP could try fat free frozen yogurt, skinny cow ice cream, healthy choice fudge bars, or weight watchers ice cream treats. She could also look at no sugar added jello or pudding. She could try fresh fruit, like strawberries, with light whipped topping.

Slide 17

At her first follow up visit, she tells you that even though you have suggested an amount of grain choices for her to eat each day; she has been omitting all but one serving each day to help drop the weight faster.

11. Is this ok for her to do? Why or why not?

Slide 18

11. Cutting out all her allotted grains isn't a good strategy for long term weight loss. It can make her feel deprived, and she may not be getting all the carbohydrates or vitamins and minerals that she needs during the day. Explaining that she will lose weight, and have more energy if she includes those grains may help her feel more comfortable eating the amounts you have recommended.

Slide 19

MP also mentions she didn't drink water all day, and hasn't eaten much because she was so stressed about the weigh in. This statement is concerning to you.

12. What can you say to her to reassure her, and keep her from engaging in these behaviors for her next weigh in?

Slide 20

12. MP needs to stay on her regular eating plan, and continue to drink her water on the days she comes to see you. Reassure her that is more important for you to see than what the number on the scale says. You may tell her she can weigh at home in the morning before eating and that number is a better trend, than the once every two weeks she gets on the scale in your office.

Slide 21

You weigh MP and it is 234 lbs. You realize she has lost 13.2 lbs in just two weeks.

13. Is this weight loss appropriate? Why or why not?

Slide 22

This is a lot of weight loss is 2 weeks, however, sometimes the first couple weeks there is a bigger loss than the rest of the process. Let MP know that for long lasting results, the recommended loss is up to 2 lbs per week, which is safe and effective. Carefully monitor loss at next visit to ensure she is an on safe path for keeping the weight off.

Slide 23

As you review MP's food logs from the last two weeks, which she kept extremely well, you notice that multiple days she didn't have enough grains which you already talked about, but she also had days with no fruit, limited dairy, and days with calories 500 or more under her goal amount. You know it is important for MP to not limit her calories so much, and that she is also at risk for being deficient in nutrients.

14. What nutrient(s) is she at risk for being under on, even with the MVI?

15. How do you discuss with MP the importance of getting the different foods and the calories you have set up for her?

Slide 24

14. She is at risk for being deficient in calcium because a MVI will not contain as much as she needs for the day, maybe only 10-20% of her daily needs. If her MVI doesn't have enough iron in it, she could be at risk for being deficient there as well. You would also want to make sure her MVI has enough Vitamin D in it.

15. You might talk with MP about metabolism functions. If she is consistently taking in fewer calories than recommended each day, her metabolism will slow down, and her body learns to work on less calories. This is the opposite of what you are trying to achieve. This sets her up for failure, as a binge or night out will be worse for her slowed metabolism. Also, discuss what nutrients she is missing and why those are important for optimal health, energy and wellness.

Slide 25

16. What stage of change is MP at after the first couple weeks and why?

Slide 26

MP is at stage four. She has started to implement the changes, but they are not long lasting yet (more than six months), which is why she is at stage four.

Slide 27

Her oldest daughter is turning 3 this weekend, and she is throwing a party for her. She is afraid that she will completely fall off this weekend with the party foods, especially if there is cake. The menu isn't finalized yet, and she needs your help.

17. What suggestions can you give her for the menu? She needs ideas that the kids will like, and a few things she can enjoy as well.

18. Give MP some ideas on how to handle parties in the future. What are some suggestions for staying on track?

Slide 28

17. You might suggest fruit platters to go with dessert so she can have something sweet and avoid the cake. If she really wants cake, discuss moderation with MP, and how to count that in her meal plan. MP might include a veggie tray, with veggies that are fun shaped for the kids, she may include a

big salad for the adults. If MP wanted to do something easy such as pizza for the kids, she could easily order one that is thin crust, loaded with veggies and light on the cheese. Encourage her to have water along with what the kids are drinking, and to look for low sugar beverage options for the kids.

18. Some ideas for MP would include continuing to eat her small frequent meals on the day of a party, don't let her get too hungry before. Eat something small before going; she will make better decisions at the party. Have her survey all the food options before starting, and pick a few to include. Load her plate with any veggies that are offered, as well as lean proteins, and limit the starches. Drink water in between alcohol, and limit the amount of alcohol. Remind her to exercise on the day of the party. All of these can help her have successful nights out without ruining her healthy eating changes.

Slide 29

After this first follow up visit, it is time to make goals.

19. MP starts off goal setting by telling you she would like to lose 12 lbs in the next two weeks. How do you address this, and what is a better goal for weight loss?

20. Keeping in mind SMART goal setting, what 2-3 goals will you set with her for her next visit in 2 weeks?

Slide 30

19. Remind MP that a safe, reasonable, long lasting weight loss goal is around two lbs a week. You want her to be eating healthy and making good decisions, she needs to get in her different servings during the day and not skip. Remind her this isn't a quick fix, but you are looking for long term weight loss that she won't gain back. While she is still losing baby weight, it may be reasonable to set a goal for 4-6 lbs over the next 2 weeks.

20. Eat at least two grain servings each day, Eat at least two dairy servings each day, Eat at least one fruit serving each day, Track intake each day and bring to next visit.

MODULE TWO

Slide 1

In the chart you learn LD is a 31 y/o white female with a history of high blood glucose, high cholesterol, depression, hypotension, asthma, and obesity. Patient was recently admitted to the ER with symptoms of Hyperglycemia. In her chart, glucose labs from three days in the hospital range from 189 to 435.

LD is currently taking Glucophage, 1000mg BID. She doesn't know her family history, patient was adopted. She has recent lab work from the hospital, it is as follows:

Labs	
Comp Metabolic Panel	**Result**
Glucose	160 (high)
Sodium	137
Potassium	4.1
Chloride	103
Carbon dioxide	22
Urea Nitrogen	14
Creatinine	0.65
Calcium	9.6
Protein total	6.9
Albumin	4.3
Globulin	2.6
Bilirubin	0.5
Alkaline Phosphatase	83
AST	20
ALT	28
Lipid Panel	**Result**
Cholesterol	234 (high)
HDL	22 (low)
Cholesterol/HDL ratio	7.1 (high)
LDL	143 (high)
Triglyercides	290 (high)

TSH	2.27
HgbA1C	11.3 (high)

1. From looking at her chart, what are 2 objectives you will go into the session with?

Slide 2

1. You may want to learn what the patient has learned about managing her DM since her diagnosis, and correct any misinformation. You may want to find out how she feels about her diagnosis and if she is ready to change.

Slide 3

When you meet with LD, she is very quiet and doesn't initiate the conversation.

2. You want to find out from her why she is here to see you today. What is a good way to ask this?

Slide 4

2. "Tell me a little about what you are looking for today and how I can help you".

Slide 5

3. Asking what kind of question will give you the most information?
   a. Open-ended
   b. Closed
   c. Short
   d. Paraphrase

Slide 6

3. A. Open-ended. This type of question will give you the most information.

Slide 7

LD tells you she is here to learn how to manage her newly diagnosed DM. She is afraid to eat anything because she has no idea what will affect it.

4. What stage of change would you place LD at based on this statement?

Slide 8

4. LD is at stage three in the stages of change. She has made the appointment to learn more about managing her DM, but she hasn't implemented any changes yet.

Slide 9

You tell her that you want to learn a little more about her and her habits before continuing. You take a height and weight, it is 281 lbs and her height is 66 inches. You notice that when she was admitted to the hospital, her weight was 308 lbs, this means the patient has lost 27 lbs in 1.5 months.

5. How do you feel about a 27 lb weight loss in 1.5 months?

Slide 10

5. It is a very drastic, quick weight loss in a short amount of time, on average about 4.5 lbs per week. While the patient does need to lose weight, the weight loss should be about 2 lbs per week. You will want to monitor her continued weight loss as you set her up on a healthy eating, diabetic diet plan and ensure she loses at a better pace.

Slide 11

LD lives with her boyfriend, they share in the cooking and grocery shopping responsibility. She is unable to give you much of a 24 hr recall right now. She works nights Monday through Friday, and takes a few things to eat with her, mostly chicken or fish, because she heard somewhere that meat was ok for diabetics. She eats when she wakes up in the evening before work, again, usually some sort of meat. She drinks diet pepsi and grape crystal light. She states she has lost a lot of weight quickly because she doesn't know what she is "allowed" to eat.

When you ask about exercise, LD tells you she has hurt her left knee and is limited on the activity she can do. She tries to walk on the weekend with her boyfriend, and she has a horse she rides 1x a week.

6. What do you want to address first with LD and why?

Slide 12

6. First you want to correct the misinformation she has acquired regarding what she is "allowed or not allowed" to eat with her diagnosis. You want to set up a meal plan for her and give her diabetic education. This is first to be discussed because of the amount of weight she has lost so rapidly due to cutting everything out of her diet.

Slide 13

As you start to address education for controlling blood sugars, LD tells you "I want to lose weight and control my blood sugars, but I have tried to lose weight in the past, and it doesn't work."

7. This is what kind of statement?
   a. Affirmative
   b. Discrepancy
   c. Confrontational

Slide 14

7. B. Discrepancy – LD has expressed that she wants to lose the weight, but in the same sentence told you that she doesn't think this is possible.

Slide 15

You respond her previous statement by saying "So I am hearing that you have tried several methods to lose weight in the past, and you don't think this will be any different, is that right?"

8. What kind of a response is this?
   a. Summarization
   b. Close Question
   c. Paraphrase with a check out

9. Write a response you could give to the patient with a check out on the end

Slide 16

8. C. Paraphrase with a Check Out. You paraphrased back what she said, and then asked "is this right?" which is a check out.

9. "So you have tried many ways to lose weight in the past, and you are afraid you won't be able to this time, is that what you are saying?"

Slide 17

LD tells you that is correct, she has tried other methods to lose weight. She also tells you "I never thought about my weight as being dangerous or about my blood sugar levels until I ended up in the hospital. Now I know I need to change something, I just don't know what."

10. From this statement, why would you use the Social Cognitive Theory with LD?

11. What would your next step be in using the Social Cognitive Theory?

Slide 18

10. LD has had external factors affect her and she has realized she needs to change her habits for better health. She has outcome expectations, if she loses weight and controls her blood sugar, she will be in better health and not end up in the hospital again. Social Cognitive theory works in this situation because she doesn't know what needs to be changed or how to do it. If you can work with her through the next steps, you should see changed behavior.

11. The next step in Social Cognitive theory would be to work with LD on Self-Efficacy. She has perceived barriers to change (such as working nights, or not being able to exercise due to injury). After work through these barriers and teaching skills for success, LD can be set up to succeed.

Slide 19

As you further discuss foods and a meal plan with LD, you ask questions to make sure she is understanding and will able to benefit from the education.

12. What kind of question is "Do you like whole grains?"
    a. Open-ended question
    b. Closed question

Slide 20

12. B. Closed Question. Answers are limited with this type of question.

Slide 21

13. What would be an open-ended way to ask her about whole grains?

Slide 22

13. "What do you think about including whole grains in your diet?"

Slide 23

LD says she does like fruit as a snack at work, but isn't sure if she can eat that or not.

14. Should LD eat fruit as a snack at work? How could she include fruit in her diet without spiking her blood sugars?

Slide 24

14. While LD can include fruit in a healthy diabetic diet, it may be better for her blood sugar to eat it with some kind of protein. She could eat almonds, string cheese or cottage cheese with the fruit to help keep her blood sugar more stable.

Slide 25

LD keeps telling you things she has heard from various places regarding nutrition, health and diabetes. Most of what she has heard is not true, such as "diabetics cannot ever eat fruit".

15. What would you tell her about false information, and what are 5 quality sources she can turn too to find correct information?

Slide 26

15. Anyone can put any information on the internet, you have to be careful with what you believe. Turn to credible sources if you want to research and find health information. Some sources are eatright.org, the Academy of Nutrition and

Dietetics, American Diabetic Association, diabetescontrolforlife.com, clevelandclinic.org, or healthnewsreview.org.

Slide 27

The fact that she works nights and has a different eating and sleeping schedule is difficult. She doesn't feel like eating real meals in the middle of the night, but she is sleeping during the day.

16. What are 6-7 suggestions you can give her to help her eat while she is at work and maintain her blood sugar?

Slide 28

16. Some suggestions are: 1. Greek Yogurt with berries, 2. Cottage cheese with half a pear, 3. Cut up raw veggies with low fat dip, 4. Whole wheat pita triangles with Hummus, 5. Half of a turkey and low fat cheese sandwich, 6. 1 oz of Almonds with a string cheese stick, 7. Whole wheat tortilla chips with salsa and ¼ chopped avocado.

Slide 29

You want to give her exercise ideas that she can do even with her injured knee.

17. What are 4 ideas you can give her to help her move that won't make her knee hurt?

Slide 30

17. If she can walk comfortably, she could try to walk either on her breaks, or in the afternoon before going into work. She could try arm exercises with light weights. She could try physical therapy to help her knee improve. If she is able to ride her horse, she could try to include that more frequently. She could try stretching.

Slide 31

LD has learned that her insurance covers only one session a year with you and she doesn't have the funds to come back and pay out of pocket right now.

18. What are 3 short term goals you can set with LD (for the next 2-4 weeks)?

19. What are 3 long term goals you can set with LD (6 months or more) that can help her be successful. Remember SMART goal setting for both set of goals.

Slide 32

18. 1. Track daily intake along with blood sugar levels for better understanding of food and its effects.
2. Take 2-3 meals or snacks to work each night.
3. Exercise 3-4 days per week for 15+ minutes.

19. 1. HgbA1C level under 6.5%.
2. Fasting blood sugar level under 110.
3. BMI under 30.

Slide 33

20. What else can you do or give her to help her succeed without a future visit?

Slide 34

20. You could give her the online resources discussed above, plus any others you have to refer to for future information. If allowed, give her a way to contact you for quick questions in the future, such as an email address. Encourage her, give her goals, and motivation to succeed.

Module 3

Slide 1

RM is a 59 yr old male of African American decent. He has been retired for about six months. He has been working his entire adult life and never had to worry about what he was eating because he was getting plenty of exercise in his line of work as a police officer. He has recently found out he has HTN and slightly elevated Cholesterol, and would like to get both under control with diet and exercise and avoid taking medication. His doctor has allowed this for now and he is on no medications.

Recent Blood Work –
Total Cholesterol – 209
HDL – 34
LDL – 109
Triglycerides – 163
Glucose – 98
HgbA1C – 5.7

Blood Pressure – 132/92

Previous medical history – nothing other than high lipids and HTN

Height – 69" Weight – 239lbs
BMI – 35.2

Slide 2

When RM comes in you start with a dietary recall of what he usually eats –
Breakfast – eggs and bacon or oatmeal with brown sugar and raisins, coffee with cream and sugar
Lunch – Usually out to eat with friends. May grab a burger, Chinese food, or if he is home, he will have a ham and cheese sandwich, usually drinks 12 oz coke with it
Dinner – His wife cooks, usually some kind of protein (chicken or beef are the big ones), a vegetable (corn or green beans are his favorite) and a starch (rice, beans, potato) He will drink another coke here.
Snacks – no snacks during the day, but he will eat something after dinner, either ice cream or chips/pretzels.

Exercise Habits – he wants to start walking, but hasn't started anything since retiring.
Sleep – 6-7 hours a night
Water – maybe 8-12 oz per day, but he doesn't like water

1. What stage of change is RM at when he comes to see you for the first visit, and why would you suggest that stage?

Slide 3

1. RM is at Stage Three on the transtheoretical model. He is preparing to make immediate changes, which is evident from his appointment with the dietitian. At this stage, action-oriented strategies will help him to initiate action.

Slide 4

RM starts out by telling you he wants something structured to follow, which is how he works best.

2. What type of meal plan would you set up for him?

Slide 5

2. As opposed to giving RM general suggestions to change, he may succeed better by giving him a daily calorie limit with amount of fat and cholesterol to stay under, or you could give him servings from each food group to try to get into his diet each day.

Slide 6

As you review over the list of foods he has given you that he eats during the day, there are many options for what to discuss.

3. What would you like to discuss first with him, and what alternatives or ideas can you give to him?

Slide 7

3. RM's lunch seems to be a problem, with how often he is going out to eat, and the choices he is making when he is out to eat. Address alternatives for eating out, such as chicken sandwiches over burgers, chicken and veggie stir fry at the

Chinese restaurant with brown rice, sushi, salads with chicken or fish on them and dressing on the side.

Slide 8

RM states "I believe if I am able to change my eating habits, I can reduce my cholesterol and avoid medication and worsening heart disease".

4. What Theory or Model does this statement align with, and what does that tell you about your interventions or his expected behaviors?

Slide 9

4. His statement is concurrent with the Health Belief Model. RM is looking at the perceived benefits from changing his eating habits against the threat of medication or risk of developing heart disease. RM's cue to action was his blood test results with high cholesterol readings. If you can help RM feel confident in his ability to change his eating habits, there is a stronger likelihood of him changing his eating habits and exercise. Interventions should include education on the benefits of changing his eating habits and increasing exercise, these should be based on scientific evidence, as well as other benefits, such as convenience.

Slide 10

During your session with RM, he seems to be leaning forward in his chair and nodding while you are talking.

5. What does his body language tell you?

Slide 11

*5. His nonverbal cues let you know he is **actively listening** and interested in what you are saying.*

Slide 12

Non verbal cues are important when working with patients. Observing them gives you an idea of how your patient is feeling about the session, and insight into things that they may not be saying. As the dietitian, your patient may be paying attention to your non verbal cues too.

6. List 4-5 non verbal cues you could watch for to get an idea of his interest in what you are talking about or his disinterest.

Slide 13

6. Some nonverbal cues include facial expressions, tone of voice, eye contact, gestures, and touch.

Slide 14

RM tells you about how he is recently retired, and his wife still works. Because she is working, she wants him to help out more around the house, part of which includes some grocery shopping and cooking.

7. Give RM 6-7 recommendations (name brands, be specific) in a variety of food groups he could look for while at the grocery store that will be good picks for his high Cholesterol and/or HTN. (ex. Veggie Straws in place of potato Chips, Sensible portions)

Slide 15

7. Skim Plus milk, Thomas Bagel Thins, Arnolds Deli Flats, Special K chips and crackers, Daisy low fat or fat free sour cream, Sargento low fat cheese, Hebrew National 97% fat free hotdogs, Jennie O Lean turkey and ham slices, Better 'N Eggs Egg substitute, Mrs. Dash Salt substitute, etc.

Slide 16

RM will also need to cook at home, which is something he has never done. He mentions he may just heat up frozen meals as that is all he thinks he can handle.

8. Give RM 3 things to look at on the nutrition label when purchasing frozen meals if he chooses to include them in his diet.

Slide 17

8. RM will want to look at the sodium in the frozen meals, Healthy choice and Lean Cuisine Spa cuisine are some of the lowest. He will want to look at the saturated fat (as low as possible, compare 2 or 3), and check to be sure there is ZERO trans fat. RM will also want to look at the fiber and find one with 4-5+

grams. He also should look at the cholesterol and remember that his total for the day should not exceed 250mg.

Slide 18

9. Now give RM an example of something he could make at each meal time that can be prepared easily and recommend a cooking site, magazine or book he could look for to help him expand his options.

Slide 19

9. RM could look at the American Heart Association's website for recipes, as well as the cookbook they have. He could also look at cookinglight.com for ideas that are fast and easy. Cooking Light also has a magazine he could look at. RM could check out the local library for heart smart cook books without having to purchase one.

RM could easily make an omelet for breakfast using the egg substitute with a variety of vegetables. If he chops up some peppers and onions, he can freeze them and use them over multiple breakfasts, making prep work easy. For lunch, a wrap (on a flat out) or sandwich on the deli flat would be easy. Stick with mustard as a condiment, and try the low fat cheese with low sodium turkey or ham slices. For dinner, encourage RM to use the grill he is already good at and do fish on foil, or a BBQ chicken. He could also try something like shish ka bobs, where he can do the vegetables on the grill as well.

Slide 20

You want to discuss exercise with RM. When you bring the topic up, he slides back in his seat and averts his eyes

10. What does his reaction tell you? Why wouldn't you suggestion 1 hour of exercise 7 days a week based on his reaction?

Slide 21

10. RM's nonverbal reaction may indicate that he isn't ready for a full exercise regimen just yet. He may be nervous to try to include this into his routine as he hasn't ever had to exercise outside of work before. Pg. 5 states that fewer than half of adults engage in recommended levels of physical activity. Suggesting he start exercising 1 hr a day for 7 days a week may be too overwhelming and cause him to not do anything. Try picking with RM a reasonable amount of days

that he feels confident in, with an amount of time that he feels he can commit too. Remind him that some exercise is better than no exercise. Empower him to start exercising. Give him reasonable goals, and you can always increase from there.

Slide 22

RM states "There are no gyms close to my house, I don't think I can get in exercise." You talk with RM and let him know there are many ways he can get in physical activity through the week. Together you brainstorm some easy ideas for him to move more, without having a gym pass.

11. Give 4-5 suggestions of things he could do.

Slide 23

11. RM could try walking, he could look for a used treadmill or elliptical online to have in his home, he could use a Wii, playstation move, or Xbox Kinect and look into the games for those, he could rent exercise DVD's from the library, he could check out the On-demand section with his TV provider, they almost all have free on-demand exercise tapes, if he has Netflix, they have free watch now exercise videos, etc.

Slide 24

RM has only been drinking up to 12 oz of water a day. He tells you he hates water, since he thinks it tastes so boring.

12. What are some suggestions for helping him drink more water through the day. How much water **should** RM be drinking each day, and how much will you recommend he try to get in right away?

Slide 25

12. RM could try some of the products out there such as crystal light or mio that give the water a different flavor. There are many available flavors and options. Encourage RM to keep a water bottle with him through the day. If he really struggles, he could try to have one 8oz glass first thing in the morning, and work towards having one with each of his meals. RM should be drinking about 110oz (wt kg x 30 ml). You may suggest he try to drink 16oz more each day than he as been, so 3-4 cups a day. When he feels comfortable with that, increase more until hitting the target for water.

Slide 26

You are nearing the end of your appointment with RM. You quickly review the topics and ideas you have covered, especially the ones he seemed most excited about. Now you want to set some goals with RM.

13. Keeping in mind SMART goal setting, list 2-3 goals for RM.

Slide 27

13. Example goals:
Goal 1 – To drink 3-4 cups of water each day.
Goal 2 – To exercise 3 days per week for 20 minutes.
Goal 3 – To limit red meat intake to 1 time per week.

Slide 28

At the end of the meeting, RM seems to be excited about the new ideas you have given him.

14. Using the Theory of Planned Behavior, predict some of the changes RM may or may not make based on your suggestions and ideas.

Slide 29

14. RM seems to be willing to try the new dietary and exercise habits you have suggested and discussed. He seems motivated and excited to make these changes. We can predict that he will make these changes as he is motivated to change his habits and he wants to see results. He doesn't want to take any medications, and he knows that this is the way he will be able to avoid them.

Slide 30

One month later RM comes back to see you. He tells you he was able to cut down the times he went out to eat for lunch, he was able to walk 3 days a week for 15 minutes and was able to drink more water each day. He seems excited as he is telling you the changes he has made so far.

15. What stage of change do you think RM is now at and why?

Slide 31

15. RM is now in Stage 4, Action. He has started to engage in new behaviors, and is trying out some of the suggestions he has been given to try. Action-oriented strategies are helpful as RM continues to make improvements in his eating and exercise habits.

Slide 32

After RM tells you about the changes he was able to make already, he tells you about what he intends to work on in the next month, including more exercise, continuing to increase water, and watching what he eats.

> 16. Using stages of change theory predict what will happen in the next month?

Slide 33

16. RM should continue to be in Stage 4, Action as he has shown he can make some of the changes and incorporate them into his lifestyle. He will not be in the maintenance stage yet because that usually means he is practicing the new habits and lifestyle changes for 6 months or longer.

Slide 34

As you go over some of the things you discussed last month, you discover RM is still eating only 1 serving of vegetables each day. Also if they have pasta for dinner, he doesn't eat any.

> 17. What are 3-4 suggestions you can give him to help up his vegetable intake each day. Think of quick, easy ideas and how to eat vegetables more times during the day, rather than just at dinner.

Slide 35

17. RM could try to up the amount of vegetables by including some in his breakfast when he does an omelet. He could add peppers, onions, mushrooms, spinach, tomatoes or any others he likes. RM could get a bag of baby carrots and work on incorporating those as a snack, he could try to eat them with hummus, or a homemade light ranch dip. If he has other vegetables he likes, he could buy them on one day, chop them up right away and put into sandwich

bags in the refrigerator. Now they are ready to eat and can be taken when he is running errands. RM could look into steamer bags of frozen vegetables that he could add to lunch or dinner. They are quick and easy and take no preparation.

Slide 36

You want to push RM to limit his red meat intake as he states he eats red meat at least 3 times a week for dinner, plus some lunches when he orders a burger.

18. What are other protein options you could suggest, including non meat options and how can he include these options in meals? Give at least 5 suggestions.

Slide 37

18. RM can try to vary his dinners by including chicken, pork, turkey, and fish as main options. He can substitute lean ground turkey or chicken for ground beef. RM can try turkey burgers or veggie burgers in place of beef hamburgers. He can use beans or shitake mushrooms as a replacement for meat in dinners, which will fill him up. RM could do omelets or egg sandwiches using the egg substitute for dinner and not only breakfast. He could do whole wheat pasta for dinner with lots of vegetables in it to add bulk. RM could also look into brands such as MorningStar and Boca that will give him alternatives to beef.

Slide 38

As RM is talking to you, you notice he keeps going off topic and telling you stories that have nothing to do with nutrition. You are aware you are getting short on time, and want to cover a couple more items with RM.

19. What can you say to him to regroup the session and bring the focus back tactfully?

Slide 39

19. "RM, I notice we are getting short on time, I still want to set some nutrition goals with you, but do you have any other nutrition questions for me before we do that?"

Slide 40

20. You are at the end of your session time, make 3 goals with RM based on his current stage of change level, and the Theory of Reasoned Action to guess his intentions in the coming month. Remember SMART goal setting.

Slide 41

20. 1. Limit red meat intake to one time per week.
2. Include at least 3 servings of vegetables each day.
3. Exercise 4+ days per week for 20+ minutes.

Slide 42

After you have been meeting with RM for 6 months, he gets his lipid levels checked. They all come back within normal limits through dietary modification only.

21. Using the Health Belief Model, explain how RM might have changed his beliefs related to food and nutrition choices with the results from his work over the past 6 months, and how this might affect his future dietary choices and exercise habits?

Slide 43

21. RM will now have seen his hard work pay off with normal blood lipid levels. This will motivate him to continue making positive changes in his dietary and exercise habits, and to continue with the changes he has already made. With continued results, you can guess that RM will continue to improve his habits, as long as the other factors of the Health belief model, such as perceived benefits and perceived barriers continue to work for him.

Module 4

Slide 1

TJ is an 11y 2m old male. He has a referral to see you for weight loss related to his ADHD and the medication he is taking, Vyvanse. Upon review of the chart you find 8 months ago at 10y 6m TJ was at the 80th percentile for weight (95lbs) and 85th for height. His height has followed the 85th percentile, but his weight is now at the 45th (80lbs). This indicates a 15 pound loss in 8 months. You are concerned about the drastic drop in percentiles and weight in a short amount of time. He is taking only the Vyvanse and has no previous medical history.

1. List 2-3 things you would want to know about him that you may not have obtained from the chart.

Slide 2

1. Going into the appointment you may want to find out more about when TJ started taking Vyvance, any blood work he has had done, and a 24 hr recall.

Slide 3

TJ and his mom come to meet with you. You notice TJ's foot tapping rapidly, his arms folded, and he isn't making eye contact with you.

2. What does his behavior suggest, and what are 2-3 things you can say or do about it?

Slide 4

2. TJ's nonverbal behaviors suggest he is anxious about meeting with a dietitian. To help him feel more at ease you could ask him some questions about what he likes to do, foods he enjoys eating, or other things to get him talking and feeling more comfortable.

Slide 5

Once TJ is feeling more at ease and seems more comfortable you begin by asking about what he usually eats during the day. He and his mom tell you that TJ has no appetite in the morning or even through the day. He has more of an appetite in the evening. This is what he tells you about his day:

Breakfast: May skip, depends on if he feels like eating in the morning. Mom encourages him to take a granola bar. He sometimes has cereal or frozen waffles, not much time for anything else. He drinks juice with his pill right when he wakes up in the morning.

Snack in the morning: May skip, may eat the granola bar packed earlier, take juice box, or maybe a 100 calorie pack of cookies or crackers.

Lunch: Usually buys lunch at school. Will have whatever the hot lunch is. Doesn't like their vegetables, drinks chocolate milk. How much he eats depends on if it is something he really likes or not. Both TJ and mom do not check menu before school to consider options.

Snack: When he gets home from school he will usually have an afternoon snack. This depends on sports though. He may have another hundred calorie pack of crackers, some cookies or chips, maybe pretzels. If he is really hungry (only on a day he didn't take his medication, due to forgetting or a weekend day) he will have a sandwich.

Dinner: Eats traditional dinners with family: pasta, tacos, hamburgers, chicken. They always have a vegetable, and he will sometimes eat that. He just doesn't like spinach.

Snack: Usually doesn't eat after dinner, may have dessert 2-3 times a week.

Beverages: Juice, Milk, some water. No soda.

Exercise: He has gym at school 2x a week, and has sports practice on average 3x a week plus one or two games on the weekend.

> 3. You want to add more calories into TJ's diet, and encourage him to eat more often, list eight suggestions for increasing calories without having to eat a lot more since he doesn't have an appetite.
>
> 4. Also list five snack ideas he can take to school or eat after school that are higher calories and easy for an 11 year old to prepare.

Slide 6

3. You want to power pack throughout the day. Make every bite count by adding calories to it. If he has waffles in the morning, make sure to put butter

and syrup on top. Find a higher calorie granola bar if it is a quick breakfast morning. Try using whole milk and adding powdered milk to it for added calories. Take a bag of nuts to school instead of hundred calorie bags. At dinner, add sauces, heart healthy oils, and cheeses to main courses for easy added calories. Make sure TJ always has a snack with him so he can grab it if he feels hungry. Try to include a snack after dinner more often, like a peanut butter sandwich so he gets more calories when he is feeling hungrier.

4. TJ can take a bag of nuts, trail mix, high calorie granola bar, yogurt with chocolate chips, apple with cheese or peanut butter or try hummus with pita triangles.

Slide 7

As you give suggestions for power packing calories, TJ's mom voices concern over giving him increased calories from fat. She wants him to have a healthy diet and not get too much fat.

5. How can you address this concern?

Slide 8

5. Explain that you want to add heart healthy fats into his diet, such as olive or canola oil on his vegetables, and that you want to increase the protein as well, like with the cheese or nuts. The fats have more calories per gram, so less of those foods equal more calories, which is what TJ needs to include with his limited appetite. Let her know you will monitor him closely, and make sure weight gain is slow and appropriate.

Slide 9

6. While considering TJ's mom's objections to the diet changes, discuss the Health Belief Model and what changes you may or may not see with TJ's diet if the beliefs regarding fat remain the same.

Slide 10

6. If the perceived seriousness of TJ losing weight and falling off the growth curve, and the cues to action from his doctor do not outweigh her reservations about changing his eating habits and adding in foods that she doesn't deem "healthy", we may not see any change in eating habits. TJ cannot make these changes on his own, even with given tools, his mom has to be on board as well.

The perceived benefits need to be strong enough to help her help him with these changes.

Slide 11

7. How would you address the lack of fruit and vegetables in TJ's diet, while understanding they are a low calorie option and his appetite is very limited? How would you discuss the subject with them?

Slide 12

7. Discussing added fruits and vegetables may help his mother make these changes with TJ. Discuss the need for a well rounded, healthy diet, which includes fruits and vegetables. However, we still want to make every bite count, so add dressing to salads, oils or cheeses to cooked vegetables, dips to raw vegetables, and peanut butter, yogurt or cottage cheese to fruit.

Slide 13

TJ's mom wonders if he should stop playing sports because he burns so many calories at practice and games, while not replacing them.

8. What would you say to this, and how can this be handled?

9. What are some things he could take to eat at his games to get the calories he needs, without feeling sick from a full stomach while exercising?

Slide 14

8. Physical activity is still very important as well. Especially since TJ enjoys playing sports, and some studies show it may assist those with ADHD and ADD. The sports can still be included if TJ can make an effort to get in more calories before, during and after the games.

9. TJ needs power packed calories during sports especially. There are products such as GU, which is 100 calories in a very small amount that is perfect for sports. He can also take nuts and dried fruit for during the game. A high calorie granola bar could be an option. After the game is a great time to eat a bigger meal, since this is when TJ has more of an appetite. Have TJ try to remember to eat at his scheduled meal and snack times during the day on sports days as he will perform better when he has eaten.

Slide 15

10. What stage of change would you rate TJ and his mom at, at this point in the meeting? Why?

Slide 16

10. TJ and his mom are around stage three on the stage of change model. They are preparing to make a change, which is evident from their visit with a dietitian. Giving them action oriented strategies will be the most useful to them at this stage.

Slide 17

As you wrap up the session with TJ and his mom, you ask him to track his intake for you so you can assess his food intake, and look for any deficiencies. You want to make goals with TJ related to what you have talked about so far.

11. Using SMART goal setting, set 3 goals for TJ.

Slide 18

11. 1. Eat something small for breakfast every day.
2. Eat at least 1 fruit and 1 vegetable each day.
3. Track TJ's intake every day and bring to next appointment.

Slide 19

Two months later, TJ and his mother return for their follow up visit. TJ comes into the room and sits in the chair closest to you, makes eye contact and immediately starts telling you about some of the new foods he tried.

12. What do his actions and non verbal cues tell you?

Slide 20

12. TJ is much more confident and comfortable at this visit than he was before. He is excited to be there and to tell you what he has accomplished and changed.

Slide 21

You weigh TJ after talking with him about his new foods, and he is now 82 lbs. His previous weight was 80lbs, and his height has remained the same.

13. How would you assess his weight change? Is it enough? Is it a good change?

14. What would you say to TJ and his mom about the weight?

Slide 22

13. It is good that TJ has gained weight, and not lost any more. You would have liked to see at least two pounds per month, but TJ isn't at a dangerous weight, and he has stopped losing weight. It is a positive change, and possibly in the next month you will be able to see improved gains.

14. Give TJ and his mom encouragement and validation for a job well done. They stopped the losing, and made changes to help him gain. Encourage them to keep up the work, and continue in the right direction. Tell them you will discuss additional changes, and problem solve anything that didn't work to see a little more gain by the next visit.

Slide 23

TJ and his mom tell you that while he is doing better at eating more times through the day, he is still not eating breakfast or a morning snack. He has really worked on power packing and not skipping lunch and the afternoon snack.

15. What is something very simple and small that will give him something to start the day with, when he really does not feel like eating? You want him to eat some protein along with the calories. Give 4-5 suggestions.

16. What can you say to help motivate TJ and let him know that eating in the morning is important for him, as well as not losing any more weight?

Slide 24

15. TJ could try half a bagel with peanut butter and jelly, a smoothie with Greek yogurt, whole milk and some berries, a boiled egg, high calorie granola bar, or a piece of toast with a slice of cheese on it. Any of these snacks he could take out the door with him to eat on the way to school if he was short on time.

16. Discuss with TJ how much easier school will be in the morning if he has some fuel to go on. He will be able to focus even better and perform better when he eats something. He can get some of the good things he needs each day in the morning and be off to a better start than if he skips. Remind him it can be small, but if he can get in the habit of grabbing something to eat, it will help him each day.

Slide 25

As you review TJ's food logs, you notice that there are still many low fat/fat free options, such as fat free yogurt, skim milk, and light dressings. There are not very many calorie dense foods on his logs. You remember his mom's objection to adding fat into his diet at the last visit.

17. What stage of change is she at regarding these choices? Why?

18. What can you say to educate her on healthy fats, as well as the need for TJ to not lose any more weight? What can they include that she will feel more comfortable with? Give 5-6 suggestions for him to try.

Slide 26

17. TJ's mom is between stage 2 and 3 when it comes to this particular change. This may be a change she will make as a last effort if it is absolutely needed, but not before then. She will make other recommended changes first. She may have some deep rooted beliefs about fat in the diet, and is having a hard time making this change.

18. Discuss with her the concerns she has regarding full fat options in TJ's diet to find out why she is holding back in this area. Talk about mono, poly and saturated fats and the differences in how they affect cholesterol levels. Let her know that nuts, olives, avocados, and certain oils (canola and olive) are calorie dense, but heart healthy and can be a great addition to any diet. This is a crucial time in growth for TJ and you don't want him to fall behind. These foods with more fat fit into his diet nicely because they are calorie dense and he

doesn't have to eat as much to get the calories he needs. Have her focus on the monounsaturated fats, and include those options to help her feel better about adding in fats.

Slide 27

You want TJ to continue tracking what he is eating since he says that is what reminds him to eat during the day. He is eating 1-2 vegetables each day and 1 fruit, which is encouraging because at his last visit he wasn't eating any at all, and you think the tracking is reminding him of the various things he needs each day.

19. How can you motivate him to continue with the tracking, when it feels like additional homework to him and he really does not want too?

Slide 28

19. Let TJ know what a great job he did with the tracking and why it was important that he did it. Let him know that you are able to review it and see that his body is getting all the things he needs, such as enough calcium, which helps his bones grow and stay strong. Encourage him with how much better he is doing now, compared with when you first met with him. Ask him if he can keep doing it until your next appointment so that you are able to see how much progress he is making and all the great changes he makes.

Slide 29

It is time to schedule another appointment with TJ and his mother.

20. How soon do you want to see him again and why? What encouraging words do you have for them as they leave and what do you want to remind them is important from this session and the one before?

Slide 30

20. You want to see TJ in two more months. TJ didn't gain as much as you would have liked, and he is still missing breakfast and eating low fat and fat free options. However, he did make some good changes and he is gaining weight. You know with TJ's age that he may start getting taller as well which would increase how much he needs to eat, so you don't want to go to long before your next visit. Encourage TJ and his mom with what a great job they did, all the positive changes you saw this visit, and remind them to continue tracking, eating every 2-3 hours, and really power packing everything TJ eats to make every bite count for more.

Module 5

Slide 1

HR is a 48 year old female who was recently diagnosed with Celiac Disease. She has very little previous medical history, only seasonal allergies. She is not taking medication, but is taking a MVI and Omega 3 fish oil. There is nothing else remarkable in her chart. Blood work is within normal limits.

When your patient made the appointment, they told her you would want to know what she eats during the day. She wrote down what she ate yesterday, and it looks like this:

Breakfast: pancakes and juice

Lunch: Sandwich and fruit with soda

Dinner: chicken, green beans and rice

After dinner: ice cream

1. What are some questions you would like to ask her to understand better her daily intake? What are you missing from her 24 hr recall?

Slide 2

1. You want to find out the amounts of the different foods that HR supplied. You want to know more details such as what kind of sandwich, what kind of soda, what goes on her pancakes. What kind of pancakes and bread is she doing right now? Is she drinking any water during the day? Is this a typical day for her?

Slide 3

As you ask for details on her food intake, you find out more about the types of food she is eating, you realize she isn't incorporating gluten free products such as gluten free bread into her diet, she is still eating gluten on a daily basis.

2. What would be a good way to ask her about her choices and why she hasn't found a gluten free option yet?

Slide 4

2. "Can you tell me a little about your experience with gluten free products so far?"

Slide 5

When you ask about the regular bread and pancakes, she says "I don't want to eat gluten free bread. It won't taste good, and I love grain products. It isn't fair that I have to have a gluten free diet. Can't I just keep eating gluten?"

3. How would you respond to her statement regarding gluten free products not tasting good?

4. How would you address her question about just continuing to eat gluten?

Slide 6

3. Let her know that there are new gluten free products coming out on a regular basis. There are so many options, and if she tries one she doesn't like, there are many other brands and options she can try. Some of the options become better tasting as you include them more and learn their flavors. There are many alternatives to wheat, and she can try to find the ones she prefers.

4. It is not a good idea to continue eating gluten with Celiac disease. The gluten destroys the villi in her small intestine and leads to unpleasant digestion symptoms, as well as mal absorption of important vitamins and minerals. This can lead to deficiencies, and overall poor health.

Slide 7

HR's previous statement, "I don't want to eat gluten free bread. It won't taste good, and I love grain products. It isn't fair that I have to have a gluten free diet. Can't I just keep eating gluten?"

5. Based on this statement, what stage of change is HR at? Why would you put her at that stage?

Slide 8

5. Based on this statement, HR is at stage two on stages of change model. She is aware of the disease and what she needs to do to change. However, she doesn't want to change, and the pros of changing are not outweighing the costs (ex. giving up gluten). She needs motivation to be able to make changes, and move to stage 3.

Slide 9

6. Would you use the Health Belief Model, Social Cognitive theory, or another counseling theory to plan your intervention and nutrition education with HR? Why would you pick that particular one?

Slide 10

6. One may choose to use the Health Belief Model when working with HR. Helping her to understand the seriousness and consequences of not treating her disease is a first step. She also needs to understand the benefits that come from eliminating gluten and she needs strategies for overcoming the barriers related to this. With confidence that she can in fact have a healthy, enjoyable diet that is gluten free she will be set up to succeed. This model is simple and fits with HR's situation. It is a good starting place to get her making small simple changes.

Slide 11

7. Using the Health Belief Model, how would you approach educating HR on her diagnosis of Celiac Disease and the importance of dietary changes?

Slide 12

7. Using the Health Belief model, it is important to discuss with HR the seriousness of Celiac Disease, and the health consequences that go along with continued consumption of gluten. It may be useful to show her a demonstration if one is available to make the damage being done in her intestines more real to her. She may need to be educated on what the vitamins and minerals not being absorbed do in her body, such as help with energy, or bone health.

Slide 13

HR tells you she doesn't have the time or money to try every different brand of bread, pasta, pancakes etc that are gluten free to find one that tastes good. She wants some brand names and recommendations to try.

8. What can you give her to get her started? Give 5 gluten free products she can try to add into her diet (Such as a gluten free bread, pancake mix, snack food, side dish, cereal and/or pasta).

Slide 14

8. Tell HR that when she finds a substitute to wheat that she likes (ex. Almond flour) she will have a better idea of foods she likes just by checking the ingredients. In the mean time, she can try Van's gluten free waffles, Mission's gluten free tortillas, Larabar gluten free granola bar, Bob's Red Mill Flours (many varieties available), Chex Cereal, and Garden of Eatin' chips and crackers.

Slide 15

HR doesn't seem interested in the conversation, and shoots down most of your suggestions. She seems to be a picky eater, with a diet based on grains and resents her diagnosis. She just wants to take a pill and continue eating like she always does. You are getting frustrated but don't want to let that show.

9. What are some non verbal cues you could be giving that express your frustration?

10. What can you do gather your thoughts and try to help HR?

11. What is a way you can let HR know you empathize with what she is going through, and that you truly want to help her?

Slide 16

9. Facial expressions, body language (the way you are sitting, moving arms or legs, tapping foot, etc), eye contact or movement, and also tone of voice.

10. Try to take a couple deep breathes and remember to not take it personally. You are there to help her, but you can only do so much. Continue to be supportive and give advice, but if she doesn't want to change, you can't make her. If she is really getting to you, it may be a good idea to step outside of the

room to get a sample or handout and give yourself a minute to compose again. Remind yourself that what she is going through is difficult and while you may not see a lot of progress after this visit, she will have the tools to change when she is ready.

11. You may say something like "I understand this seems unfair and is not something you want to have to deal with. What would you like to talk about that will help you with changes you feel comfortable with?"

Slide 17

Towards the end of the session you wonder if HR will even return for her follow up.

12. What are some simple goals you can set with her that won't be overwhelming and will help her in this difficult process?

Slide 18

12. Some simple goals, such as trying 1-2 new gluten free products, looking into a Celiac website or support group, or looking at foods she already eats and loves that don't contain gluten would be good places to start.

Slide 19

HR makes a follow up appointment for 2 months after you first met with her, even though you asked her to return in 2-3 weeks. She first tells you "I am still having a hard time with the fact that I can't eat gluten anymore. However, for 2 weeks I stuck completely to the gluten free plan you gave me. I felt so much better than I have felt for a long time. Instead of eating the gluten free stuff, I just didn't eat grains. Is that ok?"

13. What would you tell her about not eating grains at all?

14. What are 4-5 choices she can include to get enough carbohydrates that are not her favorites foods turned gluten free, such as bread (example: sweet potatoes)

Slide 20

13. Traditional "grains" are ok to cut out, as long as she is getting enough carbohydrate during the day. Discuss feeling deprived by not eating any of the things she loves, and that it is easier if you have options. Encourage her to continually try new foods that are gluten free so she always has options. This will help her succeed.

14. Winter squash, beans, fruits, dairy products, rice, quinoa, cous cous, or corn are all good options.

Slide 21

HR's previous statement "I am still having a hard time with the fact that I can't have gluten anymore. However, for 2 weeks I stuck completely to the gluten free plan you gave me. I felt so much better than I have felt for a long time. Instead of eating the gluten free stuff, I just didn't eat grains. Is that ok?"

15. What stage of change is she at now and why? What is most helpful at this stage?

Slide 22

15. HR is at stage four in the stages of change. She has made some changes, and saw the benefits from those. It has been short term though, action oriented strategies will be helpful as she continues to make more changes and progress to long term.

Slide 23

Using the Theory of Planned Behavior, you know that HR will not have lasting changes if her attitudes and perception of her control over her eating habits don't change.

16. How can you help to change HR's attitude about a gluten free diet?

Slide 24

16. You can continue to give HR advice and recommendations regarding gluten free products, recipes and brands to work toward changing her attitude about the diet. The more options she has, and as she tries a few products that she enjoys, she will be able to change her attitude more and more. Also, as she

feels better and sees the benefits from the diet change, it will be easier to continue eating gluten free.

Slide 25

Since HR has recently been diagnosed with Celiac Disease, and has had a hard accepting her diagnosis, you want to give her some tools to help out.

17. What are 2-3 websites, cookbooks or online tools you can recommend to her to help with meal preparation or finding good gluten free products?

18. What is a website or two she can visit to get ideas and support for handling Celiac Disease?

Slide 26

17. Cookbook such as "Gluten Free Every Day" has quick and easy recipes. Glutenfreegirl.com has many easy recipes. She can check blogs, and even just regular recipe sites, such as allrecipes.com have many gluten free options and ideas.

18. Celiac.org, by Celiac Disease Foundation is a highly recognized group when it comes to Celiac awareness and information. Celiac.com also has help and information available.

Slide 27

HR doesn't remember any of the goals you set last time. Now that HR has made some changes and tried to eat gluten free for a couple weeks, you feel that she can handle new goals.

19. How will you help her set goals for this time that she will be able to follow through with?

20. What are 2-3 goals you could set with HR? Remember SMART goal setting.

Slide 28

19. Make sure that HR is involved in the goal setting process and that she decides what goals she wants to set. Write the goals down, and ask HR to put them somewhere she can look at them and remind her of what she is working on.

20. *1. Try one new gluten free product each week.*
2. Track Intake, and any digestion symptoms
3. Eat 2 fruits per day and 3+ vegetables.

Outpatient Nutrition Assessment Form

Date:_____ Time:_____

Client Name:_____

Referring Clinician:_____

Precounseling Food Log Submitted Yes/No

Subjective Info

Reason(s) for Visit:_____

Goals:_____

Current Eating Pattern *(typical foods eaten, CHO, protein, fat, fruit/vegetables, restaurant food)*

Breakfast:_____

Lunch:_____

Dinner:_____

Snacks:_____

Beverages:_____

Allergies and Food Sensitivities:_____

Dietary Limitations: _____

Time/Prep Issues:_____

Sleep Patterns:_____

Stress/Environmental Issues:_____

Weight History:_____

Family Support: _____

Exercise Patterns *(time, day, duration, type)*:_____
_____
_____

Objective Info

Sex:_____ Age:_____ Height:_____ Current Weight:_____

Med Hx:_____

Family Hx:_____

Medications, Supplements, OTC:_____

Labs:

Glucose:_____ Albumin:_____ BUN:_____ Creatinine:_____

Sodium:_____ Potassium:_____ Cholesterol:_____ Triglycerides:_____

Hemoglobin:_____ Hematocrit:_____

Other:_____

Assessment

BMI:_____ Target Weight:_____ Estimated Time to Reach Goal:_____

Estimated Nutrition Needs:

Total kcal:_____ kcal/kg:_____

Protein (g):_____ % kcal:_____ g/kg:_____

CHO (g):_____ % kcal:_____

Fat (g):_____ % kcal:_____

Fiber (g):_____

Na max (mg):_____

Fluid Ml:_____ cups:_____ mL/kg:_____

Additional Information:_____

Primary Dietary Issues:_____
_____
_____
_____
_____

Plan

Foods/Ideas to Emphasize:_____

_____

_____

Foods to Limit:_____

_____

Foods to Avoid:_____

_____

Other Notes:_____

_____

Handouts Given:_____

Rx to Achieve Goals:_____

Understanding, Motivation, Ability to Follow Recommendations:

o Good o Fair o Poor

Goals *(specific eating pattern, weight loss, clinical/biochemical parameters, etc)*:_____

_____

_____

o No Plan/Menu o Meal Plan

Research Tasks:_____

_____

Food Log for_____ Days

Follow-up Date and Topics: _____

_____

Dietitian's Name (Print)_____

Dietitian's Signature_____

Date_____