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Oral Health Providers and Secondary Prevention of Disordered Eating: An Application of the Transtheoretical Model

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Purpose. Although oral health providers have an important role in early identification, referral, and case management of patients with eating disorders, little is reported regarding their current secondary prevention practices. The purpose of this study was to assess readiness among dentists and dental hygienists pertaining to secondary prevention of disordered eating among their patients.

Methods.This study employed a randomized cross-sectional study. Data were collected from 207 dentists and 369 dental hygienists using a self-administered paper and pencil questionnaire. The questionnaire included items derived from constructs from the Transtheoretical Model in addition to demographic information. Five criterion-specific secondary prevention behaviors were assessed with regard to eating disorders: identification of oral manifestations, addressing concerns, prescribing oral treatment, patient referral, and case management.

Results.Generally speaking, the majority of responding dentists and dental hygienists were observed to be in a low state of readiness with regard to the five criterion-specific behaviors. Less than 33% of responding dentists and 43% of dental hygienists reported that they assessed patients for disordered eating, and only 42% of dentists and 44% of dental hygienists prescribed specific home oral health care instructions for patients suspected of eating disorders. Less than 21% of dentists and 20% of dental hygienists currently arranged a more frequent recall program, while less than 20% of dentists and 17% of dental hygienists reported that they referred patients with oral manifestations of eating disorders for treatment. Only 13% of responding dentists and 7% of dental hygienists reported communicating with the patient's primary care provider. Statistically significant differences were observed among oral health providers with regard to assessing their patients for disordered eating ($p = .006$) and communicating with the patients' primary care providers ($p < .001$). In general, more dental hygienists indicated assessing patients for oral manifestations of disordered eating, while more dentists reported communicating with their patients' primary care providers.

Conclusions. Engaging the oral health care provider in secondary prevention of eating disorders is important for decreasing the potential for further damage to the teeth and oral tissue, as well as improving the patient's overall health and quality of life. Although both dentists and dental hygienists play important roles in secondary prevention of eating disorders, increasing the number who engage in consistent secondary prevention practices is essential. Increasing the involvement of oral health care providers in secondary prevention behaviors will involve movement along the continuum of stages (pre-contemplation to contemplation to action to maintenance), while also understanding that movement may take time and involve regression along the way.

Keywords: Transtheoretical Model, eating disorder, secondary prevention

Introduction

Epidemiological studies suggest an increased incidence of eating disorders occurring among developed countries around the world.[1] Current studies have observed a 5% increase in the incidence of eating disorders over the past three decades.[1,2] To attest to the seriousness of this issue, eating disorders were included in a position paper for the American College of Physicians as one of the nine most serious problems affecting adolescents.[3]

Secondary prevention of illness consists of preventive measures that lead to early diagnosis and treatment of the disease or illness, and that prevent the potential for severe pathogenesis.[4] Secondary prevention of eating disorders consists of reducing the rates of the development of a full-blown disorder through early identification, referral, and treatment.[5] Recovery from an eating disorder is partially dependant upon early secondary prevention.[6] Influencing secondary prevention of disordered eating is the ability of various health providers (physicians, dentists, dental hygienists, school nurses) to detect physical and oral manifestations that are the result of the behaviors associated with disordered eating.

The role of oral health providers in secondary prevention of eating disorders is vital, as they are often the first health professionals to observe overt clinical health effects, enabling them also to be first to identify the problem.[7-9] The crucial role of early identification is significant in reducing the development of oral and medical complications, decreasing health care costs, and avoiding death. In addition to early identification of disordered eating, the oral health provider's role extends to management of the oral manifestations of disordered eating, as well as referral to other specialists and involvement in case management with other treatment providers.

Although oral health providers have an important role in early identification, referral, and case management of patients with eating disorders, little is reported regarding their current secondary prevention practices. DiGioacchino, Keenan, and Sargent assessed 37 oral health providers regarding secondary prevention behaviors specific to eating disorders.[10] This assessment revealed that the majority of the dentists and dental hygienists were not found to be engaged in secondary prevention behaviors specific to eating disorders.[10] Results indicate that only 28% of dentists and 37% of dental hygienists reported assessing patients for oral manifestations of disordered eating behaviors, and only 28% of dentists and 26% of dental hygienists indicated providing patient-specific home oral health care instructions for patients exhibiting oral manifestations of disordered eating behaviors. Less than one quarter of both dentists and dental hygienists participating in this study indicated arranging for a more frequent recall program, making a referral for treatment, and communicating with their patients' primary care providers.[10]

This study adds to the current literature of secondary prevention practices among oral health care providers with regard to eating disorders. The purpose of this study was to assess the readiness among dentists and dental hygienists with regard to the identification of oral manifestations of eating disorders, provision of oral treatment for those with oral manifestations specific to eating disorders, referral of such patients, and case management of persons presenting with disordered eating behaviors.

Theoretical Framework

Integrating various processes of change within a stage approach to behavior change is the basis of the Transtheoretical Model.[11] This model consists of a progression through five stages of behavior change: pre-contemplation (not thinking about adopting the behavior) contemplation (intending to adopt the behavior, but not having made a commitment), preparation (actively planning to adopt the behaviors), action (adopting the behavior for at least six months), and maintenance (adopting the behavior for more than six months), with the understanding that each stage is a temporal dimension with the possibility of regression at any time.[11]

Progression through the stages (eg, pre-contemplation to contemplation to preparation to action to maintenance) is influenced by specific processes of change.[11] These processes of change include intrapersonal, interpersonal, and environmental change activities that increase the readiness for behavioral adoption to occur. For example, as depicted in Table I, processes of change to increase the likelihood of movement from pre-contemplation to contemplation include increasing knowledge of the consequences and severity of the health issue, assessment of barriers and benefits to behavioral adoption, and role clarification. Hence, as applied to the behavioral adoption of eating disorder-specific secondary prevention behaviors among oral health providers, increasing readiness (eg, movement from pre-contemplation to contemplation) would include increasing their knowledge of oral manifestations of eating disorders, perceived seriousness of eating disorders, perceived benefits of secondary prevention, and perceived role in secondary prevention.

Table I. Secondary Prevention of Eating Disorders: Stages of Change for Oral Health Providers

Stage of Change	Description of stage	Processes of change for progression to next stage	Example of necessary factors for movement to next stage
Pre-contemplation	Has no intention of practicing behavior within the next six months	• Increase knowledge of consequence of behavior, severity of health problem, and patient susceptibility of health problem • Assess benefits to and barriers of adopting behavior • Clarify role	Oral health providers: • Are knowledgeable of the oral manifestations of disordered eating behaviors • Perceive their patients to be susceptible of eating disorders, • Perceive severity of disordered eating behaviors • Understand benefits of identification of oral manifestations, patient approach, referral, and oral treatment • Perceive their role in secondary prevention of disordered eating
Contemplation	Intends to perform behavior within the next six months	Clarify values	Oral health providers value holistic approach to patient assessment and treatment
Preparation	Intends to perform behavior within the next 30 days and has taken some behavioral steps in this direction	Develop a plan for change	Oral health providers develop mechanisms for: • Patient identification • Patient approach • Oral treatment • Frequent recall • Patient referral
Action	Has performed behavior for less than six months	• Increase self-efficacy of performing behavior • Support for behavior change • Environmental reengineering • Reinforcement management	Oral health providers are confident in their ability to: • Identify oral manifestations of disordered eating behaviors • Approach a patient suspected of disordered eating behavior • Provide specific home dental care • Refer patient for assessment and treatment
Maintenance	Has changed overt behavior for more than six months	Plan for relapse	Oral health providers have procedures in place for institutionalizing: • Identification of oral manifestations • Oral treatment • Patient approach • Patient referral • Case management Oral health providers have developed positive relationships with other treatment providers

This model has been used for behavior change programming with a variety of health behaviors and target populations. Common applications include the development of tailored messages and programs that match the various stages, thereby enhancing progression through stages toward consistent adoption.[11] Recently, the Transtheoretical Model has been applied in oral health with regard to oral self-care.[12,13] The current study utilized the framework of the Transtheoretical Model to assess readiness among dentists and dental hygienists to perform criterion-specific secondary prevention behaviors regarding identification of oral manifestations of disordered eating, addressing concerns to the patient, prescribing oral treatment, patient referral, and case management.

Methods and Materials

Design

This study employed a randomized cross-sectional study. Data were collected using a self-administered paper and pencil questionnaire mailed to subjects.

Subjects

Subjects consisted of 1,000 dentists randomly selected from the membership list provided by the American Dental Association (ADA) and 1,000 dental hygienists randomly selected from the membership list provided by the American Dental Hygienists' Association (ADHA). Sample size was determined based on statistical significance, available resources, and adequate representation of the population. For a confidence level of 95% and a margin of error of +/-5%, a sample size of 385 would be the minimum sample size for statistical significance.[14]

Two hundred and seventy-four randomly selected participants (111 dentists and 163 dental hygienists) were ineligible to participate because they were listed with incorrect address or were currently not practicing as dentists or dental hygienists, leaving a total of 1,726 eligible participants. Out of the 1,726 eligible dental providers who were selected to participate in the study, 576 returned questionnaires, yielding an overall response rate of 33%. More specifically, of the 889 randomly selected dentists, 207 responded to the survey, resulting in a response rate of 23% for dentists. Of the 837 eligible dental hygienists, 369 responded to the survey, resulting in a 44% response rate among dental hygienists. These response rates are reasonable for this type of survey.[15]

Variables

The questionnaire included constructs from the Transtheoretical Model in addition to demographic variables (gender, race, age, occupation, degrees, degree-granting institution, and location of employment).

Reed and colleagues suggest that assessment of behavioral readiness represented by current stage of behavior is best assessed by the use of a four-item algorithm corresponding to a particular criterion behavior.[16] As such, individuals are then placed in either the pre-contemplation stage (not planning to perform criterion behavior in the next six months), contemplation stage (intending to adopt the behavior, but not having made a commitment), action stage (practicing criterion behavior for six months or less), and maintenance stage (practicing criterion behavior for more than six months). The criterion behaviors for this study included assessing patients for oral manifestations of disordered eating; providing patient-specific home dental care instructions; arranging for a more frequent recall program; referring the patient suspected of disordered eating behaviors for assessment and treatment; and communicating with the patient's primary care provider.

Table II depicts an adaptation of questions and Transtheoretical Model-framed four-item answer categories contained in the survey representing the above-mentioned criterion behaviors. For each criterion-specific behavior, dentists and dental hygienists were instructed to pick the statement that best reflected their current level of routine practice behavior.

Table II. Secondary Prevention Behaviors as Assessed by Transtheoretical Model*

Among the following statements, please check the one that best describes your current activity:

- I am not currently assessing dental patients for disordered eating, and I do not intend to start in the next 6 months
- I am currently assessing dental patients for disordered eating, but only sometimes.
- I am currently assessing dental patients for disordered eating, and have been for at least 6 months.
- I am currently assessing dental patients for disordered eating, and have done so for longer than 6 months.

Among the following statements, please check the one that best describes your current activity:

- I do not currently provide patient specific preventive home-dental care instructions for dental patients suspected of disordered eating, and I do not intend to start in the next 6 months.
- I am currently providing patient specific preventive home-dental care instructions for dental patients suspected of disordered eating, but only sometimes.
- I am currently providing patient specific preventive home-dental care instructions for dental patients suspected of disordered eating, and have been for at least 6 months.
- I am currently providing patient specific preventive home-dental care instructions for dental patients suspected of disordered eating, and have done so for longer than 6 months.

Among the following statements, please check the one that best describes your current activity:

- I am not currently arranging a more frequent recall program for dental patients suspected of disordered eating, and I do not intend to start in the next 6 months.
- I am currently arranging a more frequent recall program for dental patients suspected of disordered eating, but only sometimes.
- I am currently arranging a more frequent recall program for dental patients suspected of disordered eating, and have been for at least 6 months.
- I am currently arranging a more frequent recall program for dental patients suspected of disordered eating, and have done so for longer than 6 months.

Among the following statements, please check the one that best describes your current activity:

- I do not currently make a referral for treatment for dental patients suspected of disordered eating, and I do not intend to start in the next 6 months.
- I currently make a referral for treatment for dental patients suspected of disordered eating, but only sometimes.
- I am currently making a referral for treatment for dental patients suspected of disordered eating, and have been for at least 6 months.
- I am currently making a referral for treatment for dental patients suspected of disordered eating, and have done so for longer than 6 months.

Among the following statements, please check the one that best describes your current activity:

- I am not currently communicating with the primary medical care provider of dental patients suspected of disordered eating, and I do not intend to start in the next 6 months.
- I am currently communicating with the primary medical care provider of dental patients suspected of disordered eating, but only sometimes.
- I am currently communicating with the primary medical care provider of dental patients suspected of disordered eating, and have been for at least 6 months.
- I am currently communicating with the primary medical care provider of dental patients suspected of disordered eating, and have done so for longer than 6 months.

*Adaptation of questionnaire utilized in the current study

Data Collection

Each selected dentist and dental hygienist received an invitational letter explaining the study, a consent form, and a questionnaire with an accompanying self-addressed, stamped envelope. To increase the response rate, a follow-up letter and additional questionnaire were mailed to non-responders two to three weeks after the initial survey. For subjects who did not respond to the initial or second mailing, a third reminder postcard was mailed three weeks after the initial follow-up. Institutional review board approval was granted prior to study implementation.

Data Analysis

Data were analyzed using Statistical Package for Social Scientists Software (SPSS v.10, Chicago, IL). In addition to descriptive statistics, response variables regarding stage of behavior regarding intention to perform behavior were compared to assess significant differences between dental hygienists and dentists using a chi-square test.

Results

Table III depicts the demographic characteristics of study participants. The participant profile included 207 dentists (78.3% male, 19.3% female) and 369 dental hygienists (1.4% male, 98.1% female). The majority of both dentists (86%) and dental hygienists (90.5%) reported themselves as Caucasian. A large number of dentists reported currently practicing in the South or Southeast (27.1%), the Midwest (22.2 %), and the Southwest (20.3 %). The majority of dental hygienists reported

practicing in the Southwest (29.3%) and the Midwest (20.9%), followed by the South and Southeast (17.9%) and Northeast (16.8%). The mean age of responding dentists was 49 years, and the mean age of responding dental hygienists was 41 years. Dentists reported practicing an average of 24 years, while dental hygienists reported practicing an average of 16 years.

Table III. Demographic Characteristics for all Oral Health Providers (n = 576)

Variable	Dentists (n = 207) f(%)	Dental Hygienists (n = 369) f(%)	Total (n = 576) f(%)
Gender			
• Male	162(78.3)	5(01.4)	167 (29.0)
• Female	40(19.3)	362(98.1)	402 (69.8)
Race			
• White	178(86.0)	334(90.5)	512 (88.9)
• African American	1(00.5)	5(01.4)	6 (01.0)
• Asian	11(05.3)	8(02.2)	19 (03.3)
• Hispanic	7(03.4)	8(02.2)	15 (02.6)
• Other	3(01.4)	8(02.2)	11 (01.9)
Region of Practice			
• Northeast	19(9.2)	62(16.8)	81(14.1)
• South/Southeast	56(27.1)	66(17.9)	122(21.2)
• Midwest	46(22.2)	77(20.9)	123(21.4)
• Southwest	42(20.3)	108(29.3)	150(26.0)
• Northwest	33(15.9)	47(12.7)	80(13.9)
Variable	**Mean ± SD**	**Mean ± SD**	**Mean ± SD**
Age	49.33±11.21	41.31±10.20	44.19±11.24
Years of practice	24.18±11.44	16.38±11.68	19.31±12.18

Stages of Behavioral Adoption

Readiness to adopt the five criterion-specific secondary prevention behaviors was assessed among dentists and dental hygienists. Table IV depicts the percentage of responding dentists and dental hygienists within each stage of behavioral adoption with regard to the following criterion-specific secondary prevention behaviors: assessing disordered eating; providing specific preventive home dental care instructions for patients suspected of disordered eating; arranging a more frequent recall program for patients suspected of disordered eating; currently making referrals for treatment for patients suspected of disordered eating; and currently communicating with the primary medical care providers of patients suspected of disordered eating.

Table IV. Stages of Change Among Oral Health Providers (n = 576)

Variable	Dental Provider	Stage of Current Behavior				*P* value
		Pre-contemplation n (%)	Contemplation n (%)	Action n (%)	Maintenance n (%)	
Assessing dental patients for disordered eating	Dentists†	83(40.1)	56(27.1)	1(00.5)	67(32.4)	.006*
	Dental Hygienists‡	107(29.0)	104(28.2)	8(02.2)	150(40.7)	
Providing specific home dental care instructions for patients suspected of disordered eating	Dentists	71(34.3)	749(23.7)	6(02.9)	81(39.1)	.766
	Dental Hygienists	119(32.2)	88(23.8)	20(05.4)	142(38.5)	
Arranging a more frequent recall program for dental patients suspected of disordered eating	Dentists	117(56.5)	48(23.2)	4(01.9)	38(18.4)	.853
	Dental Hygienists	201(54.5)	97(26.3)	13(03.5)	58(15.7)	
Currently making a referral for treatment for dental patients suspected of disordered eating	Dentists	116(56.0)	50(24.2)	4(01.9)	37(17.9)	.254
	Dental Hygienists	223(60.4)	84(22.8)	10(02.7)	52(14.1)	
Currently communicating with primary care provider of patient suspected of disordered eating	Dentists	126(60.9)	55(26.6)	2(01.0)	24(11.6)	<.001*
	Dental Hygienists	288(78.0)	54(14.6)	6(01.6)	21(05.7)	

***statistically significant if $p < .05$**
† n=207 dentists
‡ n=369 dental hygienists

As depicted in Table IV, the majority of responding dentists in the study were observed to be in the pre-contemplation or contemplation stages of readiness concerning the five criterion- specific secondary prevention behaviors. With regard to the secondary prevention behaviors of assessing patients for oral manifestations of eating disorders and providing patient-specific home dental care instructions, the majority of dentists were observed to be distributed among three different stages of readiness-pre-contemplation, contemplation, and action. Approximately 40% of responding dentists indicated "not assessing dental patients for oral manifestations of eating disorders and do not intend to start," 27% stated "assessing dental patients for oral manifestations of eating disorders sometimes," and about 32% stated "assessing dental patients for oral manifestations of eating disorders for over six months." With regard to providing patient-specific home dental care instructions for patients suspected of eating disorders, approximately 34% of responding dentists reported "not providing home dental care instructions, and do not intend to," 24% indicated "providing home dental care instructions sometimes," and 39% indicated "providing home dental care instructions for six months or longer."

Less variation in readiness was observed among responding dentists with regard to arranging a more frequent recall program, making referrals, and communicating with patients' primary care providers. With respect to these criterion-specific secondary prevention behaviors, the majority of dentists reported not practicing the behavior with no intention of practicing (pre-contemplation), while others reported practicing the behavior sometimes (contemplation). For example, approximately 57% of dentists reported "not arranging a more frequent recall program, and do not intend to," and 23% reported "arranging a more frequent recall program sometimes." Fifty-six percent reported "not referring patients suspected of eating disorders and did not intend to," while 24% reported referring patients sometimes." Sixty-one percent of dentists reported "not communicating with the patient's primary care provider, and did not intend to," while 27% reported "sometimes communicating with the patient's primary care provider."

A similar pattern of readiness was detected among responding dental hygienists, as three different stages of readiness were observed concerning assessing patients for oral manifestations of disordered eating and providing patient-specific home dental care. Twenty-nine percent of dental hygienists reported "not assessing dental patients for oral manifestations of eating disorders and do not intend to start," 28% reported "assessing dental patients for oral manifestations of eating disorders sometimes," and about 41% stated "assessing dental patients for oral manifestations of eating disorders for over six months." With regard to providing patient-specific home dental care for patients suspected of eating disorders, approximately 32% of responding dental hygienists reported "not providing home dental care instructions, and do not intend to," 24% indicated "providing home dental care instructions sometimes," and 39% indicated "providing home dental care instructions for six months or longer."

As with dentists, the majority of dental hygienists in this study indicated either "not practicing" or "sometimes practicing" two of the secondary prevention behaviors. Approximately 55% of responding dental hygienists reported "not arranging a more frequent recall program, and do not intend to," while 26% reported "arranging a more frequent recall program sometimes." Sixty percent of dental hygienists reported "not referring patients suspected of eating disorders and did not

intend to," while 23% reported referring patients sometimes." However, the majority of dental hygienists (78%) reported "not communicating with the patient's primary care provider, and did not intend to."

Although these study results indicate that the majority of dentists as well as dental hygienists in this study were observed to be in a low state of readiness with regard to the five criterion-specific secondary prevention behaviors, statistically significant differences were observed between responding dentists and dental hygienists concerning two secondary prevention behaviors. Study results indicate that a greater number of dental hygienists (42.9%) than dentists (32.9%) indicated being in the action or maintenance stages for assessment of patients for oral manifestations of disordered eating ($p = .006$). In addition, a greater number of dentists (12.6%) than dental hygienists (7.3%) reported currently communicating with the primary care providers of patients indicating disordered eating behaviors ($p < .001$). As depicted in Table IV, no statistically significant differences were observed between dentists and dental hygienists regarding providing patient-specific home dental care instructions for patients suspected of disordered eating ($p = .766$), arranging a more frequent recall program for their patients suspected of disordered eating ($p = .853$), and making referrals for treatment for their patients suspected of disordered eating ($p = .254$).

Discussion

Prevention of eating disorders requires interdisciplinary primary and secondary prevention studies, in addition to the incorporation of multi-level strategies requiring systemic changes at the public policy, institutional, familial, and individual levels.[5] Research in the assessment of secondary prevention of eating disorders requires the application of theoretical frameworks, rationale, and target populations at each level.[5] The purpose of this study was to apply the Transtheoretical Model among oral health providers (at the institutional level) to assess readiness with regard to behavioral adoption of secondary prevention behaviors specific to eating disorders.

The results of this study indicate that, in general, the majority of oral health providers are in a low state of readiness with regard to adopting secondary prevention behaviors specific to eating disorders. This study supports the previous work by DiGioaccchino, Keenan, and Sargent, who found that the majority of dentists and dental hygienists in their study were not involved in the secondary prevention of disordered eating.[10] Additionally, the results of this study indicate that a similar state of readiness exists among responding dentists and dental hygienists with regard to secondary prevention behaviors (the majority being in the pre-contemplative or contemplative stages).

However, differences were observed concerning assessment and communication with patients' primary care providers. The current study observed that more responding dental hygienists than dentists are assessing patients for oral manifestations of eating disorders, and that more dentists than dental hygienists are communicating with patients' primary care providers. These differences in assessment and contact with primary care providers are not surprising, in that the standard practice protocol may be for the dental hygienist to identify and communicate oral manifestations to the dentist, as the dentist is the contact to the patient's primary care provider.

Moreover, the lack of dentists and dental hygienists who refer their patients and participate in case management may be explained by the existing literature that suggests providers are uncertain about how to approach patients they suspect of disordered eating.[17] Approaching a patient about oral manifestations of disordered eating may be perceived as a sensitive topic, and oral health providers may be fearful of patient reaction.

Limitations

The authors recognize the limitations of the current study. The cross-sectional design employed by this study is descriptive in nature. The use of subjects who are members of the ADA and the ADHA exclude oral health care providers who are not members, thus limiting generalizability of the findings. However, random selection of participants and large sample size may decrease potential bias and increase the potential reliability of descriptive findings.

Ramifications

Engaging oral health care providers in secondary prevention of eating disorders is important for decreasing the potential for further damage to the teeth and oral cavity, as well as improving patients' overall health and quality of life. As two of the first health professionals to identify oral manifestations associated with eating disorders, the dentist and dental hygienist are charged with the important task of assuring that the patient receives treatment. Moving dentists along the continuum of low readiness to behavioral adoption of secondary prevention behaviors specific to eating disorders necessitated the application of various processes of change as described in Table I.

Predisposing processes of change are factors antecedent to the behavior that support the motivation and rationale for behavioral adoption, thus creating movement from pre-contemplation to contemplation.[18] As depicted in Table I, predisposing processes include increasing oral health providers' knowledge of oral and physical manifestations of disordered eating behaviors; knowledge and understanding of the complexities of this multi-faceted illness; perception of the severity of disordered eating regarding systemic health issues and well-being; belief in the crucial role they play in the secondary prevention of disordered eating; and belief of the value of secondary prevention of disordered eating.

To effectively assist patients with oral manifestations suggestive of disordered eating, dentists and dental hygienists must have an understanding of eating disorders and establish strong rapport and trust with their patients.[9,19,20] Fear of disapproval from patients may be a primary barrier to patient approach and secondary prevention of disordered eating. Although patients may initially deny their behaviors and their disorders, continued dialogue between patients and oral healthcare providers may elicit disclosure from patients.[6,20] Therefore, it is important that oral health providers be well versed in the psychological complexity of this disorder and mechanisms for referrals, in addition to anticipating difficulties in patient cooperation.[6]

To generate movement among oral health providers from contemplating behavioral adoption of secondary prevention behaviors specific to eating disorders to behavioral adoption, enabling factors must be addressed.[18] These enabling factors include increasing oral health providers' skills and self-efficacy in identification of oral manifestations of disordered eating, patient approach, and communication with primary care providers; decreasing the barriers to secondary prevention behaviors among oral health providers; and providing oral health providers with prepared resource lists and eating disorder-specific home oral health care instruction handouts (Table I). These processes may include the development of specific didactic and experiential course curriculum and continuing education seminars, secondary prevention toolkits, practice protocols, and secondary prevention algorithms.

Lastly, to attain consistency among oral health care providers with regard to eating disorder-specific secondary prevention behaviors, reinforcing factors must be addressed. These processes of change which enable movement from action to maintenance consist of factors that follow the behavior that provide the continuing reward or incentive for behavioral consistency.[18] As described in Table I, reinforcing factors include improved communication among oral health care providers and establishing practice protocol for those identified with oral manifestations of disordered eating behaviors. In addition, improved communication between oral, physical, and mental health care providers is warranted to enable case management and aid with the recovery process.

Conclusions

It is evident from the current study that more oral health care providers are assessing and providing patient-specific home oral health care instructions, but the bridge between assessment to referral and case management is not yet occurring. As previously stated, secondary prevention of eating disorders requires not only identification of oral manifestations and restorative care, but also referral and case management to monitor progression and prevent relapse of eating disorder-specific behaviors.

According to the results of this study, oral health care providers are in a low state of readiness for the adoption of secondary prevention practices specific to eating disorders. Increasing readiness and, ultimately, adoption of eating disorder-specific secondary prevention behaviors among dentists and dental hygienists will involve movement along the continuum of

stages (pre-contemplative to contemplative to action to maintenance), while also understanding that movement may take time and involve regression along the way.

The success of secondary prevention of eating disorders is reliant upon theory-based interdisciplinary research and practice targeted at multiple levels of change (intrapersonal, interpersonal, institutional or organizational, community, and policy). Further institutional level research among oral health care providers should be conducted to support the design, implementation, and evaluation of the previously described Transtheoretical Model processes of change within dental and dental h ygiene curricula, continuing education workshops, and oral health practice protocol, so as to increase the number of dental and dental hygiene providers who regularly engage in the secondary prevention of eating disorders.

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Notes

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