Theories and Intervention Approaches to Health-Behavior Change in Primary Care

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Content: Providers typically rely on health information and their professional status to convince patients to change. Health-behavior theories and models suggest more effective methods for accomplishing patient compliance and other behavior change related to treatment regimens. Behavior modification stresses the remediation of skill deficits or using positive and negative reinforcement to modify performance. Like behavior modification, the Health Belief Model stresses a reduction of environmental barriers to behavior. Social Learning Theory suggests that perceptions of skills and reinforcement may more directly determine behavior. Self-management models put the above theories into self-change actions. Social support theories prioritize reinforcement delivered through social networks, whereas the Theory of Reasoned Action emphasizes perceptions of social processes. Finally, the Transtheoretical Model speaks of the necessity to match interventions to cognitive-behavioral stages. Strategies derived from each of these theories are suggested herein.

Medical Subject Headings (MeSH): health-behavior change, models, primary care (Am J Prev Med 1999;17(4):275–284)

Introduction

Primary care efforts to influence individual patients' behavior can promote enhanced coping with symptoms, adherence to treatment regimens, and engagement in behaviors that will prevent future illness. Primary care providers have traditionally relied on persuading patients to change through "informational power" (sharing facts about health and illness) and "expert power" (using professional credentials at least implicitly to impress the patients with the potential effectiveness of the prescribed behavior change).[1] Yet such persuasional approaches do not fully articulate with current health behavior-change theories and literature showing which applied aspects of these theories are most effective. Although primary care providers cannot assume complete responsibility for providing preventive care, as long as 70% of patients seek their advice on such issues, providers are in a position to begin the educational process and direct the patient to appropriate sources of such information.[2] Awareness of at least the important elements of current behavior-change theories will assist providers in optimizing the effectiveness and efficiency of their interactions with patients.

The current practice of prevention by primary care providers has been less than ideal. The training and clinical practice of physicians, as well as the existing reimbursement mechanisms, continue to be oriented primarily toward the treatment of illness rather than prevention. National advisory groups such as the U.S. Preventive Services Task Force[3] as well as a host of technical working groups have tried to remediate this problem by establishing recommendations and practice guidelines to assist physicians in providing better preventive care. However, the gap between these guidelines and clinical practice is considerable, and it has become clear that traditional dissemination strategies have had little impact on practicing physicians.[4–7] Lomas and Haynes identified a wide range of potential barriers that can affect implementation of practice guidelines, including economic, administrative, and time pressures; educational barriers; barriers related to patient or clinical situations; lack of relevance of some guidelines to practice settings; and physician distrust.[7] Understanding these barriers, and incorporating implementation strategies, are essential to facilitating the practice of prevention by primary care physicians.

Theories and Models

Models and theories such as the Health Belief Model,[8,9] Cognitive/Information Processing,[1] the Theory of Reasoned Action,[10–12,] Social Cognitive (Learning) Theory,[13,14] Social Support Theories,[15] Behavior Modification,[16–20] and Kanfer's Parallel Self-Management Model[21] guide much of current health-promotion re-

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search and practice. The Transtheoretical or "Stages of Change" Model[22] presents a cognitive-behavioral change process not grounded in a specific health-behavior theory. Although cast as distinct, in application, the above theories overlap to a considerable extent.

Many of the theories included above share the following factors: intentions to behave, environmental constraints impeding the behavior, skills, outcome expectancies, norms for the behavior, self-standards, affect, and self-confidence with respect to the behavior. In short, the person must (1) have a strong positive intention or predisposition to perform a behavior; (2) face a minimum of information processing and physical, logistical, and social environmental barriers to performing the behavior; (3) perceive her/himself as having the requisite skills for the behavior; (4) believe that material, social, or other reinforcement will follow the behavior; (5) believe that there is normative pressure to perform and none sanctioning the behavior; (6) believe that the behavior is consistent with the person's self-image; (7) have a positive affect regarding the behavior; and (8) encounter cues or enablers to engage in the behavior at the appropriate time and place.[23] Efforts to change patient behavior via education and counseling must take these factors into account and address those deemed relevant to the individual patients and their health problem. Critical dimensions of each theoretical framework are presented in Table 1. In addition, Figure 1 can help the provider determine which theory may be most applicable for understanding patient behavior and designing interventions at a given treatment phase. Identifying the specific target and goals for behavior change should guide the process of selecting theories applicable to the primary care setting.

Cognitive/Information-Processing Models

These models emphasize the ability of the patient to understand and act on the communication from the provider. As many patients indeed have little or no understanding about critical aspects of clinical encounters, information-processing experts emphasize the need to provide written information, use low-literacy materials, stress the more important information, and check patient understanding.[1]

Strategies

Information comes in many forms. In the primary care setting, providers can present information that is procedural and/or sensory. "Procedural information" concerns how to engage in a specific behavior, while "sensory information" addresses how the person might feel engaging in the behavior.[24] Providers tend to impart procedural information in the form of written literature, although sensory information appears to be a more important factor in preparing to change behavior. The idea that more information is better has not always been found to apply in preventive-counseling situations. For patients attempting to quit smoking, information on various quit-smoking techniques may be helpful; however, providing information on the cravings the patient is expected to experience may better prepare the patient for the change process. Regardless of the manner in which the information is presented, providers who furnish clear explanations and who express positive verbal communication are more likely to observe compliance in their patients.[25]

A second issue concerns the depth of processing engaged in by the patient. Addressing issues related to the prevention of cancer, primary care providers often furnish the client with literature on how to change his/her diet and/or lose weight in order to reduce his/her risk of cancer.[26] This is often done without an initial assessment of how much the client has thought about the issue and how much information he/she has previously received on the behavior change in question. This assessment can be conducted simply by briefly engaging the patient in a conversation about the type of information he/she has read on diet and cancer as well as what information was most appealing to him/her. The provider can then stress the most important information first to ensure deeper processing of this information and a greater commitment to memory.

Finally, throughout this process, it is important to check the extent to which the patient comprehends the material presented to him/her and then restructure presentation of the material based on this level of comprehension. Determining the degree to which this new information fits with preconceived notions about the relationship between his/her behavior and the outcome in question will also help the patient attend to the information.[27]

Health Belief Model

The Health Belief Model holds that health behavior is a function of the perceptions an individual has of vulnerability to an illness and the perceived potential effectiveness of treatment with respect to deciding whether to seek medical attention. Developers of the Health Belief Model[8, 28,29] maintain that health-related behaviors are determined by whether individuals (1) perceive themselves to be susceptible to a particular health problem; (2) see this problem as serious; (3) are convinced that treatment or prevention activities are effective yet not overly costly in terms of money, effort, or pain; and (4) are exposed to a cue to take a health action.

Strategies

One of the first things a provider can do is determine the patient's preconceived notions about the role of

Table 1. Guidelines for provider counseling actions as suggested by health behavior change theories

1. Cognition and Information-Processing Models
   Assess the extent to which the patient has thought about the issues and how much information he/she has previously received on the topic.
   Present information based on patient's previous experience with the behavior change.
   Stress important information first.
   Provide both sensory and procedural information.
   Provide written information based on the patient's educational level.
   Check for comprehension of material and fit with previous schema.
2. Health Belief Model
   Assess the patient's perceived susceptibility and severity of the outcome and frame the health message according to these perceptions.
   Elicit perceived barriers to the health-behavior change in question and discuss how to overcome these barriers.
   Assess the perceived benefits for engaging in the behavior and incorporate these benefits as reinforcers for behavior.
3. Theory of Reasoned Action
   Determine whether the patient thinks family members and friends endorse the behavior.
   Highlight the social pressure to engage in the behavior if it exists.
   Provide examples of similar others who are currently engaging in the behavior.
   Use specific examples of behaviors when assessing behavioral intentions.
4. Social Cognitive Theory
   Increase self-efficacy for the behavior.
   Provide opportunities for the patient to master the necessary skills.
   Model or provide models of the targeted behavior.
   Ask the patient to rehearse the behavior and provide feedback on his/her performance.
   Address previously failed attempts and explore individual and environmental factors that may have contributed to these unsuccessful attempts.
   Explore successes with other health behavior changes and techniques employed that may generalize to the targeted behavior change.
   Increase outcome expectancies for the behavior.
   Provide information to the patient on the efficacy of the behavior.
   Arrange for the patient to meet a similar other who has experience with the behavior and endorses its effectiveness.
5. Behavior Modification
   Determine whether a skill or performance deficit exists.
   Teach the patient the necessary skills to engage in the behavior.
   Reduce punishment for pro-health behavior.
   Reduce reinforcement for health-damaging behavior.
   Agree on positive reinforcers to be used as behavior change occurs.
   Agree on negative reinforcers to be used when behavior change does not occur.
   Reinforce the behavior by inquiring about its performance.
6. Self-Management
   Teach the patient how to monitor his/her own behavior.
   Help the patient to become aware of internal cues for the behavior he/she is attempting to extinguish.
   Decide on alternative, competing behaviors in which the patient can engage.
   Identify, with the patient, external cues for the behavior.
   Teach the patient how to use external cues to reinforce appropriate behavior or strategies to reduce the likelihood of engaging in inappropriate behavior.
7. Interpersonal and Social-Support Theories
   Convey empathy and understanding for the difficulties of behavior change.
   Provide a private setting in which to repeat and clarify instructions and assess resistance to change.
   Schedule follow-up visits to evaluate the patient's progress and demonstrate commitment to provide support during the change process.
   Engage the family in the targeted behavior.
   Address the entire family to gain commitment from all members for support of the behavior change.
8. Transtheoretical Model
   Assess the patient's stage of change by minimally assessing whether he/she is currently engaging in the behavior or whether he/she has thought about possible changes to improve his/her health.
   Use motivational interviewing techniques such as expressing empathy, providing a menu of options and avoiding argumentation.
   Persons in the precontemplation stage should be made aware of the consequences for not engaging in health-behavior change, be provided the opportunity to share their feelings about their condition and discuss how their behavior affects the rest of the family.
   People who are contemplators should be taught to closely monitor their motivations for engaging in the health-behavior change and explore their ambivalence and reasons they think change might be beneficial.
   Individuals in the preparation stage should be asked to verbalize a commitment to change both to themselves and to their family members.
   Action-stage individuals and those in the maintenance stage should work with the provider to set up rewards for appropriate behavior and stress-management techniques and establish supportive relationships.

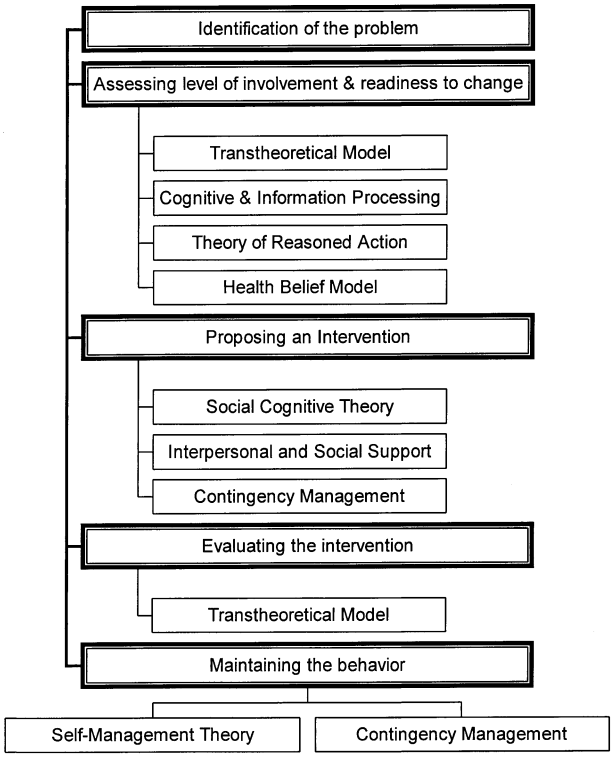

Figure 1. Application of behavioral theories in a primary care interaction by phase of invention.

health behavior change in illness prevention.[25] The simplest technique providers can use is to assess the patient's perceived barriers and benefits to engaging in the behavior.[30,31] The provider can engage in this process by discussing with the patient his/her perception of the pros and cons for engaging in the behavior. A discussion of benefits has been demonstrated to help motivate weight-loss patients to begin exercising and eating a low-fat diet.[31] Discussing the barriers has had differential effects based on the type of intervention. Motivation to lose weight is often diminished when barriers are discussed.[31] However, female patients who are provided an opportunity to discuss the barriers to breast self-examination (e.g., the time it takes to conduct an exam) report more frequent performance of breast self-examination.[32] During a discussion of the barriers, the patient can begin addressing how to overcome some of the obstacles to the performance of the behavior, thereby increasing self-efficacy for its performance.

Cues to action also influence whether a person will be motivated for lifestyle change.[33] Cues can include illness in other family members, information from the media, and concurrent symptoms experienced by the individual. The provider can elicit from the patient potential cues he/she is exposed to on a daily basis and then use these cues as reminders of the potential consequences of failing to change unhealthy behavior practices.

Theory of Reasoned Action

The Theory of Reasoned Action[10] places relatively more emphasis on the concept of "behavioral intention," which in turn can be predicted by the person's expectancies regarding the outcomes of a behavior, attitudes toward the behavior, and normative beliefs the person has with respect to what "influentials" (especially peers) would do in a specific situation.

Strategies

In this case, it is important to assess how the patient views his/her family members' and friends' attitudes about the behavior change. Often patients with weight-management problems are surrounded by people who for various reasons do not believe the patient should lose weight.[34] This creates a problem for the patient as he/she is often motivated to behave similarly to others.[35] Among patients whose behavior is externally controlled (i.e., controlled by luck, chance, and powerful others), the greater the social pressure to engage in a behavior, the more likely patients are to comply with provider recommendations.[36] Thus, the provider should determine whether family members and friends endorse the behavior, highlight these endorsements if they exist, or provide opportunities for the patient to interact or communicate with similar others who are engaging in the behavior.

It is also important to assess the extent to which the person intends to engage in the behavior. Those intending to engage in physical activity are more likely to begin and maintain an exercise program, compared with individuals who report no intention to exercise. Although these results seem fairly straightforward, it is important to note that behavioral intentions must be assessed for each specific behavior targeted for change. Brief measures of behavioral intentions and social normative influences are available in the literature.[36]

Social Cognitive (Learning) Theory

Social Cognitive Theory[13] emphasizes the interactions between a person's cognitions, on the one hand, and his/her behavior on the other, through processes such as self-efficacy and outcome expectancies (or response efficacy). Outcome expectancies, overlapping substantially with parallel concepts in the Theory of Reasoned Action and the Health Belief Model, represent the expectancy that a positive outcome or consequence will occur as a function of the behavior. Self-efficacy (or self-confidence specific to a behavior) is a self-perception of having skills to perform a behavior.

In its previous incarnation, Social Learning Theory,[37] the predecessor of Social Cognitive Theory, added "environment" to a three-part description of "person," "behavior," and "environment" interacting dynamically in a process called "reciprocal determinism." This

additional environmental element reflected Social Learning Theory's roots in behavior analysis.

Strategies

There are several strategies the provider can use to enhance self-efficacy and address issues related to outcome expectancies. Believing that one has the requisite skills to engage in a particular behavior and then mastering these skills is critical for health-behavior change.[38] Providers can teach their patients how to engage in certain preventive measures such as breast self-examination (BSE), which in this case would increase the patient's self-efficacy for detecting a lump.[39] The provider can arrange for the patient to engage in behavioral rehearsal by having her perform BSE on herself in the primary care setting, after being taught by a professional. Primary care providers can also model the behavior or provide a videotaped example of the behavior in order to facilitate learning the new behavior.[30] For example, a provider can model how to inject insulin to a diabetic patient who may be anxious about performing the procedure on him/herself. Or the patient can be provided with a videotape of an individual engaging in the prescribed physical activity and then provided an opportunity to rehearse the new behavior in front of the provider for feedback. Considering the suggestions made by Kottke and his colleagues[40] in the corresponding article on counseling approaches as well as those of others,[41] providers should also consider adopting a team approach to implementing these training practices. Health educators and nurse practitioners can provide the informational and technical support necessary to increase self-efficacy for a behavior, allowing the provider time to reassure the patient of his/her ability to engage in the behavior.

Previous experience with the health-behavior change in question should also be addressed with the patient. The provider can explore both failed attempts to change the targeted behavior and success with other types of health behavior change. As a result of time limitations with the patient, providers often make recommendations to their patients to lose weight without first addressing previously failed attempts at weight-loss and current eating habits.[26] Because of past experiences with diets, the patient may doubt his/her ability to lose weight.[31] The patient may have attempted several diets in the past without much long-term success. The provider should address this lack of confidence, and a discussion should ensue about how to construct a plan that is workable for the individual. It is essential that the provider help the patient find strategies for realizing change and provide feedback on the progress toward his/her goal.[30] Past successes with other types of health-behavior change should also be explored to discover potentially generalizable strategies that could be employed in the current effort. Identification of such strategies would also provide evidence to the patient that all past attempts have not been unsuccessful.

In addition to increasing the patient's self-efficacy for a given behavior, the provider should make an attempt to address the outcome expectancies held by the patient for that behavior. For example, the provider should assess the extent to which the patient views smoking cessation as a way to both improve personal attractiveness and reduce the risk of cancer before engaging in a discussion of the short- and long-term benefits of not smoking. It may also help the client to be provided information by similar others on their beliefs concerning the efficacy of a given preventive behavior (i.e., normative influences).

Behavior Modification

According to the branch of learning theory known as Behavior Modification (or more specifically, Behavior Analysis or Contingency Management),[16–19,42] behaviors may or may not occur as a function of either performance or skill deficits. Performance deficits indicate that the person knows how to perform a given behavior and has the skills to do it but chooses not to engage in the behavior because (1) there are too many aversive (or "punishing") consequences for doing so; (2) there are limited, if any, positive consequences for doing so; and/or (3) he/she is receiving positive reinforcement for performing a competing behavior (e.g., acceptance by peers for drinking heavily rather than for being physically active). In the case of dietary change, for example, an individual's efforts may go unnoticed or may even be subject to complaints about low-fat dishes prepared for the family meal, or he/she may not have the shopping and cooking skills necessary for preparing such meals in the first place.

The notion of skill deficits implies that a person might like to perform a given behavior but is limited from the opportunity for doing so by a lack of ability. Remedial efforts are therefore very different for these two types of deficits. Performance deficits imply a need to implement "environmental engineering" by way of altering behavior/consequence relationships in such a way as to strengthen adaptive and weaken maladaptive behaviors. Skills training, in contrast, would be invoked to address specific skill deficits. Behavior analysts give relatively more credence to quantifiable observable behaviors and their environmental determinants and question the scientific relevance of cognitive processes such as knowledge, attitudes, and emotions. In the "triple-term contingency," antecedent stimuli set the stage for the behavior, which in turn is strengthened or weakened by the reinforcing or punishing consequences. This emphasis expands on the importance other health-behavior theories ascribed to environmental barriers and other factors.

Principles of shaping and generalization are central to applied behavioral analysis (ABA). Shaping is the gradual development of a behavior through reinforcement of successive approximations (e.g., reinforcing a novice exerciser for walking 20 minutes three times weekly and then gradually proceeding to longer, more vigorous and more frequent activity). Generalization takes three forms: stimulus (or situational), response (i.e., from one behavior to another), or interpersonal.

Strategies

The most functional way of shaping behavior is through contingency management. Once the patient has been taught the requisite skills for the behavior, the provider can then work with the patient to set up reinforcement for appropriate behavior (and extinguish maladaptive behavior). Teaching the patient concretely how to engage in the behavior has been demonstrated to be the most effective approach.[30] For example, the patient can be taught to avoid smoking by engaging in an alternate competing behavior. The provider can then help the patient define specific rewards for not smoking (e.g., getting together with friends for dinner) and mildly aversive consequences for its use (e.g., reporting use to a disapproving significant other). As the patient's behavior is shaped in the given area, the provider can then work with the patient to generalize this behavior to a new situation (e.g., around a group of friends) or to a different targeted behavior (e.g., reducing the amount of alcohol consumed). By teaching the patient various skills, the patient is then free to select those approaches that will ensure continued adherence to the program, thus creating an individualized program.[38]

Reinforcement can also be given by the provider. Providers in primary care settings are often perceived as the most accurate sources of information. Therefore, any verbal reinforcement from them for health behavior change is generally viewed positively and is likely to lead to health-behavior change. Providers who inquire about a woman's practice of BSE and/or who teach women how to perform BSE are perceived as highly reinforcing.[43] In addition, women who receive this type of reinforcement are likely to report practicing BSE more often than women who do not receive reinforcement.

Self-Management

Kanfer[21] suggests that the long-term effectiveness of environment–behavior relationships in modifying individual behavior will depend on the degree to which the individual senses control over his/her behavior-change process. Specifically, individual self-management skills in goal setting, self-monitoring, self-evaluation, and self-reinforcement will translate not only into maintenance of behavior change but also into an ability to generalize that behavior change to novel stimulus conditions and other behaviors. Although the self-management perspective may be deemed too "cognitive" by some behavior analysts to be consistent with an operant perspective, even Skinner[16] suggests that individuals may arrange their own reinforcement contingent on the emission of certain behaviors. By having individuals select behavioral goals consistent with outcome expectancies and current baseline as part of the overall change effort, the behavior and their intentions are operationalized in a manner that allows monitoring of progress, midcourse corrections, and social and/or material reinforcement.

Strategies

Self-management is critical for long-term behavior change. As is the case with managed care, the patient cannot be assured that he/she will have the same provider at subsequent visits. Teaching the patient how to monitor one's behavior is an effective way of attaining self-management. Among these strategies include self-monitoring, goal setting/contracting, modifying the environment, changing the consequences of behavior, and use of internal and external cues. Smoking-cessation efforts in primary care can effectively use contracting, either verbal or written, to set a commitment to change.[44] Patients wanting to lose weight or increase their physical activity are often asked to keep diaries of their behavior in order to track their progress during the behavior change.[45] Although diaries may not serve as accurate assessment measures for research purposes, they do serve to provide the patient with immediate performance feedback. In addition, by simply recording the given behavior, patients have been found to change their behavior in the desired direction[24] and maintain adherence for a longer period of time.[45]

External cues can be set up with the patient to provide a stimulus for the behavior. External cues can come from family members (e.g., asking the spouse to remind the patient to walk every morning) or inanimate objects (e.g., placing stickers on a calendar to remind the patient to perform BSE that week). Cues can also be used to extinguish behaviors. Patients wanting to quit smoking can be taught how to identify internal and external cues that trigger the urge to smoke and respond by either avoiding the cues (e.g., getting out of the situation) or thinking of strategies to cope with the urge to smoke (e.g., distracting oneself with a different activity).[45]

The various self-management strategies require the patient to demonstrate a commitment to behavior change. Specifically, self-monitoring and self-reinforcement require a certain degree of self-discipline and resolution to change. Providers are encouraged to use methods discussed under the Transtheoretical Model to assess the patient's readiness to change the targeted behavior before such strategies are recommended.

Patients who are ambivalent about engaging in the health-behavior change are not likely to benefit from self-management unless it is paired with an externally reinforcing or socially supportive approach.

Interpersonal and Social Support Theories

Effective interpersonal communication between provider and patient can prove key in eliciting valid responses from the patient, assessing their true understanding of treatment recommendations, and providing them the social support necessary to accomplish change. Asking open-ended questions, paraphrasing, avoiding stereotypes of patients, and looking at the whole person rather than just the illness can optimize the quality of the clinical interaction.[1]

Integration within a support network and the informational and emotional support the patient receives from others may not only buffer the individual from the ravages of stress and illness but even prevent the disorder in the first place.[15,46,47] In hectic primary care environments, however, providing social support beyond brief patient counseling is generally a luxury at best, and an individual from a distinctly higher socioeconomic level (as is the case in most provider-patient relationships) is not necessarily the best person to provide such social support. The involvement of family members and friends,[48] volunteers,[49] mutual-aid networks, or "neighborhood helpers,"[50] holds the promise of substantially augmenting the benefits of a therapeutic regimen.[15] For example, peer leaders and lay health advisers have greatly extended the reach of smoking-prevention programs,[51] nutritional-health promotion, and the use of breast and cervical cancer screening in Latino communities.[49,52]

Strategies

Providers, because of their positions of knowledge and authority, can provide reassurance to their patients that behavior change is possible. The provider can also convey empathy and understanding about the difficulties of behavior change while addressing the patient's specific concerns. The primary care setting is generally a private environment in which the provider can maintain the patient's attention, repeat and clarify instructions, and assess any resistance to change. Nevertheless, as noted earlier, providers generally have only 15–20 minutes with each patient, thereby limiting the amount of attention they can give to any one patient. In this case, a team approach is invaluable to provide more intensive assistance to the patient.[53] At minimum, interpersonal support for change can be demonstrated by scheduling follow-up visits to determine how well the patient is adhering to the recommendations[54] or by bringing up the subject during later visits. Engaging in these types of interpersonal interactions with the client is likely to ensure greater compliance with behavior-change recommendations.

Support for change can be elicited from family members or close friends. Adherence is generally higher when family members are involved in the change process.[55] The provider can invite key family members into a discussion with the patient to help address any familial and/or environmental barriers that may exist in the household. Family members can assist by engaging in the targeted behavior with the patient, such as walking with the patient if he/she is told to engage in an exercise behavior.[45] They can also help by modifying their own eating habits along with the patient.[33] Family members can serve as reminders that a commitment has been made to engage in the behavior, as such a commitment to a decisional course has been found to improve adherence.[55]

Transtheoretical Model

An additional error common to many counseling efforts relates to the assumption that most patients are ready to embark on any behavior-change prescription given by a provider.[56] According to Prochaska and DiClemente's[22] Transtheoretical, or Stages-of-Change (SOC), Model, cognitive/behavioral change progresses as the individual moves through the following stages: precontemplation (benefits of lifestyle change are not being considered); contemplation (starting to consider change but not yet begun to act on this intention); preparation (ready to change the behavior and preparing to act); action (making the initial steps toward behavior change); and maintenance (maintaining behavior change while often experiencing relapses).

Recent revisions of the SOC model breaks down the precontemplation stage into unaware (no idea that there is problem behavior), uninvolved (knows that the behavior needs to be changed but does not perceive the problem as salient), and undecided (considering the positive and negative consequences of the behavior change).[57] This modification allows for even greater specificity of the individual's stage and thus how to target behavior change. Although providers will seldom have time to assess individual patients' stage of change with the degree of specificity connoted by the research literature, they are encouraged at least to attend to patient responsiveness to suggestions and match behavioral prescriptions to how "ready" the patient is to change.

Strategies

According to Glanz,[58] there are three major strategies that can be used appropriately in clinical settings that are based on the SOC framework: instructional, motivational, and behavioral. One approach gaining increasing popularity is Motivational Interviewing.[59] It is a technique that can be used to help patients recognize

and act upon their problems. As a patient-centered approach, it challenges the patient in a supportive and self-reflective manner.[60] According to Botelho and Skinner,[61] Motivational Interviewing is most helpful when used within the SOC framework, because "it systematically directs the patient toward motivation for changes; offers advice and feedback when appropriate; selectively uses empathic reflection to reinforce certain processes; and seeks to elicit and amplify the patient's discrepancies about his/her unhealthy behavior to enhance motivation to change."

Providers wanting to engage a patient in any type of behavior change need to assess the patient's readiness to change. (See Lipkin and Prochaska's[62] website [www.uri.edu/research/cprc] for a series of questions used to assess the patient's stage of change.) According to Clark and his colleagues,[31] patients in the precontemplation stage generally have no intention of losing weight in the next 6 months. Those in the contemplation stage are considering weight loss within the next 6 months but are not prepared to engage in a weight-loss program. Persons in the contemplation stage are considering weight loss but are currently undecided on the issue. Individuals in the preparation stage intend to lose weight within the next 30 days and are likely to benefit from training efforts. Those in the action stage are engaging in weight-loss behaviors and are also good candidates for specific interventions. Finally, patients in the maintenance stage need assistance in preventing relapse and consolidating gains. Similar levels of intention to change have been observed in physical-activity intervention with providers.[53,63] Individuals in the contemplation stages are more likely to benefit from cognitive approaches to increase their motivation for engaging in behavior change. This can include discussing the benefits of weight loss and providing written materials illustrating the steps necessary to begin the change process.[31] Those in the remaining stages are more likely to benefit from behavioral-skills training, such as learning how to eat low-fat meals.[31] Creating an awareness of the benefits of physical activity for those in the contemplation stages and providing specific information to all others on how to increase physical activity (e.g., by being more active around the house) result in higher physical-activity scores overall.[63] Differences in the strategies that should be employed based on the stage of change suggest that attempting an active intervention with an individual who has no intention of changing his/her behavior is not likely to result in behavior change. Similarly, simply providing tips for how to become physically active would not be salient to an individual already engaged in physical activity. By identifying the person's level of commitment to change, the provider can use his/her time to target behavior change using the most effective strategy for that stage.

As noted earlier, it may be difficult to assess the patient's stage of change in a primary care setting. Efforts, however, are currently being undertaken to provide physicians with a more feasible approach to assessing physical activity[53,63,64] and weight loss[31] stage of change in a primary care setting. Nevertheless, most research suggests that the advice given by providers is most effective when it stems from discussion about the patient's lifestyle and when it supports the person's internal motivation for the behavior.[30] This patient-centered approach is more likely to yield beneficial results in health-behavior change efforts, and thus some attempt should be made to determine where the patient is in the process. (See Clark et al.[31] for a brief measure of weight-loss stage of change applicable to a primary care setting.)

Conclusion

As noted earlier, clinicians can optimize patient behavior-change efforts by ensuring that the patients (1) have a strong positive intention to perform the behavior; (2) face a minimum of barriers to performing the behavior; (3) perceive themselves as having the requisite skills; (4) believe that reinforcement will follow the behavior; (5) believe that there is normative pressure to perform and none sanctioning the behavior; (6) believe that the behavior is consistent with their self-image; (7) have a positive affect regarding the behavior; and (8) encounter cues or enablers to engage in the behavior.[23] Incorporating these theory-based tenets into one's practice is not a substitute for professional judgment. Rather, it should be used as a tool to help promote effective and efficient use of resources[65] and to facilitate lifestyle changes in the patient. The need for the systematic practice of prevention has been definitively established and incorporated in health system policies.[3,66,67] Most studies demonstrate that realistic and effective health-behavior change efforts in the primary care setting require no more than a few minutes.[25,31] Successful disease-prevention initiatives do require, however, a multifaceted approach, incorporating strategies to change behavior in patients, health practitioners, and society. Individuals can reduce their risk of disease by making lifestyle choices consistent with good health. Primary care physicians can facilitate health promotion and disease prevention through counseling, immunization, and screening. Programs such as the government-sponsored "Put Prevention into Practice" are intended to assist physicians in the practice of prevention by promoting the use of an education and resource kit based on the U.S. Preventive Services Task Force. The materials are aimed at patients, providers, and the office/clinic system. The program is currently being evaluated.[68]

Persuading primary care providers to practice preventive medicine is very demanding.[33] Providers often doubt their own abilities to help patients engage in

health-behavior change.[25,30,69,70] We argue, however, that any counseling on lifestyle changes without a theoretically sound basis may well not be worth the providers' efforts. It is hoped that this brief introduction to various theories and associated strategies will provide those working in primary care settings with some useful information for their practice.

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