



A practitioner's guide to persuasion: An overview of 15 selected persuasion theories, models and frameworks

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ABSTRACT

Objective: To provide a brief overview of 15 selected persuasion theories and models, and to present examples of their use in health communication research.

Results: The theories are categorized as message effects models, attitude–behavior approaches, cognitive processing theories and models, consistency theories, inoculation theory, and functional approaches.

Conclusions: As it is often the intent of a practitioner to shape, reinforce, or change a patient's behavior, familiarity with theories of persuasion may lead to the development of novel communication approaches with existing patients.

Practice Implications: This article serves as an introductory primer to theories of persuasion with applications to health communication research. Understanding key constructs and general formulations of persuasive theories may allow practitioners to employ useful theoretical frameworks when interacting with patients.

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1. Introduction

At an interest group session on the theoretical bases of communication in healthcare at the International Conference in Communication in Healthcare (ICCH) in 2007, a practitioner noted that he was aware that the use of theory in health communication, whether in clinical practice or research, was touted as desirable. However, he countered, what references were available for a busy practitioner to obtain a concise overview of theories and models that may be of use in understanding patient behavior, behavior change, or lack of behavior change? This question became the foundation of this manuscript.

Theory in health communication research is used to understand, explain and predict health beliefs, attitudes, intentions, and behaviors of individuals, groups, and mass audiences. Persuasive theories are one subset of theories applicable to health communication; they can be applied at many levels including intrapersonal, interpersonal, organizational, and mass communication. Knowledge of this subset of available theories can assist practitioners in better understanding their interactions with patients as well as patient behavior. Entire textbooks are written,

and courses taught on the topic of persuasion and persuasive theory, but practitioners seldom have the opportunity to engage in such deep study and reflection. This article serves to fill that lacuna by providing a selective overview of persuasion theories and concepts, and referring interested readers to other sources for more extensive explanation and commentaries of these and other theories [1–5].

There are almost as many different definitions of persuasion or persuasive communication as there are persuasion scholars. A common theme throughout these definitions is that “persuasion involves a conscious effort at influencing the thoughts or actions of a receiver” [6]. One definition of persuasive communication attractive in its inclusiveness is Miller's [7]: “any message that is intended to shape, reinforce, or change the responses of another, or others.” Persuasive communication, then, can be viewed as comprising three processes: response shaping, response reinforcing, and response changing.

Response shaping relates to the creation of responses to a new stimulus: prior to exposure to a new stimulus, an attitude toward the stimulus cannot yet exist. Information provision about a new product or an unfamiliar event can constitute response shaping. Practitioners may provide information about a disease, condition, or test unknown to the patient. Patients may be aware of the existence of specific screening tests, but unaware of associated risks and benefits. Response reinforcing occurs when an individual already holds an attitude or is enacting a behavior advocated by the

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Table 1

Persuasive theories, models, and frameworks applicable to the patient-provider context.

Theoretical category	Theories discussed
Message effects models	<i>Message learning approach:</i> “Yale Model of Persuasion” <i>Fear appeals:</i> Protection Motivation Theory Extended Parallel Process Model Language Expectancy Theory
Attitude–behavior approaches	Theory of Reasoned Action/Theory of Planned Behavior Triandis Model of Interpersonal Behavior
Cognitive processing theories and models	Elaboration Likelihood Model Heuristic-Systematic Model Social Judgment Theory
Consistency theories	Balance Theory Cognitive Dissonance Theory Probabilistic Models
Inoculation theory	Inoculation Theory
Functional approaches	Functional Approaches

persuader. Support groups, such as Alcoholics Anonymous, fill the function of being response reinforcing: they exist to reinforce a decision (e.g., sobriety) [8]. Encouraging medication adherence can be response reinforcing: a provider may reinforce accurate and consistent patient behavior. Response changing is the most recognized aspect of persuasion: that of value, belief, attitude, intention or behavior change. A critical factor across all three processes is that persuasion is constrained to intentional behavior. This manuscript provides a necessarily brief overview of 15 theories or perspectives oft identified by their development or scholarly description as persuasive theories: those identifying constructs and variables intended to shape, reinforce, or change the response of others. Table 1 presents the theories discussed in this manuscript.

2. Persuasion theories applicable to the patient–provider context

Although the response shaping, reinforcing, and changing processes are elucidative when explaining persuasion, individual theories may apply to more than one process. For example, a theory may be useful both for a practitioner encouraging a patient to continue performing a desired health behavior (response reinforcing) and also for a practitioner attempting to change a patient's health behavior (response changing). Therefore, the theories discussed are not delineated based on the three persuasive processes, but rather via often used categories of message effects models, attitude–behavior approaches, cognitive processing theories and models, consistency theories, inoculation theory, and functional approaches [3,6,8–10]. Following a concise overview of each theory, examples of health contexts in which the selected theories have been applied are presented.

2.1. Message effects theories and models

Message effects theories seek to predict “the format and content of messages that produce effects on cognitive, attitudinal, and emotional outcomes (Capella, 2006, p. S265)” [10]. Some theories (e.g., Protection Motivation Theory (PMT)) are considered “value expectancy models,” which assume a fairly rational approach to decision making. These models propose that individuals engage in a cost-benefit analysis, taking into account

the severity of a potential risk, and selecting an action to maximize the expected outcome [11–14].

2.1.1. The message learning approach

Although Aristotle identified the persuasive aspects of source, audience, and words presented (message) in the 4th century B.C., the origins of scientific study of persuasion are attributed to Carl Hovland, who with his colleagues developed the message learning approach, referred to as “The Yale Model of Persuasion” [15]. Hovland, Janis and Kelley identified four underlying processes derived from studies as to how individuals learn [3,15]. A persuasive message must both gain a receiver's *attention* and be *comprehended* by the receiver. A receiver must *yield* to the message, which occurs if the message raises questions in the receiver's mind and identifies incentives for attitude change. Finally, a receiver must *retain* the information in the message for persuasion to occur. These four processes are identified as mediating processes in the message learning approach. The independent variables preceding these processes are the *source* (the originator of the message), *message* (what was said), *channel* (or medium through which the message was delivered), and *receiver* or *recipient* (the person or persons to whom the message was said). Potential outcomes, or “consequent communication effects,” include belief, attitude, and behavior change [3,6,15]. This approach was never formalized as a theory; however, it is of great historical relevance as the persuasive effects of source, message, channel, and receiver are identified in multiple theories. Interested readers are referred to other sources for more extensive discussion of this model [2,3,6,16–18].

2.1.2. Fear appeals

Janis and Feshbach activated scientific interest in using fear (or “fear appeals”) to promote behavioral change in 1953 [19]. Multiple theorists attempted to explain individuals' reactions to threatening messages; their explanations fit in three categories: drive theories, parallel response models, and subjective expected utility models [20]. As the validity of drive models [15,19,21,22] has been largely discounted by quantitative reviews [23,24], they are not presented here. Subjective expected utility models, such as Protection Motivation Theory, suggest that individuals will choose an action or behavior most likely to lead to a reward and avoid a punishment [20,25,26]. Parallel response models such as that proposed by Leventhal [27], and later augmented by Witte [28,29], posit that both an emotional response and a desire to eliminate the danger are triggered upon exposure to a fear appeal.

2.1.2.1. Protection Motivation Theory. Protection Motivation Theory explores the cognitive processes of threat appraisal and coping appraisal, which combine to form one's protection motivation [30,31]. PMT originally proposed perceived noxiousness (harm), perceived susceptibility, and perceived efficacy of the behavioral response as three integral components of an effective fear appeal. The efficacy component was later specified to include both response efficacy (i.e., is the behavior advocated going to reduce the threat?) and self-efficacy (i.e., is the person able to enact the advocated behavior?) [31,32]. According to PMT, one evaluates a threat (threat-appraisal process), and one's ability and alternatives to cope with the threat (coping appraisal process); these combined appraisals form a motivation to protect oneself against the emergent risk. Protection motivation is hypothesized to reach its peak when the threat is both harmful and severe, one feels at risk, the behavior advocated is seen as effective and achievable, to engage in a maladaptive behavior results in little benefit, and one perceives few if any barriers to engaging in the advocated behavior or adaptive response.

PMT has been applied to health behaviors such as cancer screenings, exercise and healthy eating, condom use, medical

adherence, and safety and environmental issues [33–35]. Despite its broad use, criticisms remain, including critiques noting the concept of fear itself is not explicated in the model [20] or is effectively excluded [28], and that PMT assumes rational information processing, not accounting for habitual behaviors or social and environmental factors.

2.1.2.2. Extended Parallel Process Model. Witte's Extended Parallel Process Model (EPPM), which expanded Leventhal's earlier work [27,36], proposed that a fear appeal message initiates two appraisals. The first is the *threat appraisal* where one assesses both perceived susceptibility and perceived severity of the (health) threat (e.g., consequences of unprotected sex). If perceived susceptibility and severity are low, the EPPM proposes that one will cease to process the message. If perceived susceptibility and severity are high, one is expected to proceed to the *efficacy appraisal*. Here one assesses her self-efficacy and the efficacy of the response being offered. One may consider if she perceives herself able to engage in safer sex by using condoms (self-efficacy) and if she believes that condoms will protect her from sexually transmitted infections and/or pregnancy (response efficacy). A high level of efficacy coupled with a high level of threat is predicted to lead to self-protective action. For a fear appeal to be successful it must instill susceptibility and severity in the receiver, as well as self-efficacy and response efficacy regarding the proposed behavior change.

Initial tests of the EPPM focused on primarily response changing processes in the contexts of HIV/AIDS prevention [29] and promotion of bicycle safety helmets [37]. Subsequent research assessed the influence of fear appeals in breast-self examination [38], HIV/AIDS prevention [39,40], influenza vaccination [41], radon testing [42], and prevention of firearm injury and death [43], among others.

Meta-analyses of fear appeal research suggest no single model is well supported by the research, although fear is generally correlated with attitude and behavior change [23,24,44]. Despite these criticisms, both PMT and the EPPM are widely used to evaluate health interventions, and to identify modifiable factors for future intervention design.

2.1.3. Language Expectancy Theory

Language Expectancy Theory (LET) identifies language as being a “rule governed system” through which individuals develop expectations and preferences for what is considered “appropriate” usage in varying situations [45]. Expectations are largely a function of sociological and cultural norms; preferences tend to be a function of societal standards and cultural values [45,46].

LET proposes that persuasion can be facilitated or inhibited when expectations are violated [45]. Positive violations, facilitating persuasion, can occur if: [1] a communicator enacts a behavior perceived by the receiver as “better” or “more preferred” than expected, or [2] a source initially evaluated negatively behaves in accordance with societal norms, cultural values, or situational demands [45–47]. Negative violations, inhibiting persuasion, occur when the communicator employs language or message strategies considered to be socially unacceptable; the receiver may experience no attitude change, or may change in the opposite direction of that advocated [45–47].

LET has been applied to examine gender differences related to patient compliance and satisfaction with a physician [48,49], and the effects of sun-safety messages for children [50]. Criticisms of the theory include concerns over precise definitions of “expectations,” and call for *a priori* specification of expectations in experimental research. Additional limitations question cultural generalizability; the fact that much empirical testing (with notable exceptions) has been conducted in laboratory settings; the effects

of expectancies over time; and how expectancies relate to sequential messages (e.g., repeated visits to and discussions with a provider about the need to develop and maintain an exercise program) [46]. A theoretical extension of LET, Reinforcement Expectancy Theory [51–53], focuses on the issue of expectancies, and how they may evolve, in such sequential interactions.

2.2. Attitude–behavior approaches

These approaches attempt to predict a behavior from an attitude, or attitudes. Both research and common sense recognize that the attitude–behavior correlation is not perfect; attitudes are one of many variables affecting individual behavior. Entire books have been written about attitudes [4,5]; due to space limitations only three theories are presented here.

2.2.1. Theory of Reasoned Action/Theory of Planned Behavior

The Theory of Reasoned Action (TRA) [54,55] and the Theory of Planned Behavior (TPB) [56,57] have enjoyed frequent use as organizing frameworks for numerous attitude and behavior change studies. The TRA aims to explain volitional behaviors, and identifies one's behavioral intention as the immediate precursor and best determinant of behavior. Behavioral intention is composed of one's attitudes toward the behavior and subjective norms. Attitudes are a function of the evaluation of the belief one holds about the behavior and the strength with which each belief is held [54,55]. Subjective norms are composed of normative beliefs, or what is believed to be the expectation of important others (e.g., colleagues, family, etc.), and one's motivation to comply with these others. Individuals weigh their own attitudes against their perceptions of others attitudes; if these attitudes are in discord, they decide how to behave based upon costs and benefits of ascribing more weight to either one's own attitudes or those of others.

The TPB is an extension of the TRA, to allow the theory a wider application by adding perceived behavioral control at the same level as attitudes and subjective norms. Perceived behavioral control comes from Bandura's concept of self-efficacy, and refers to one's perceived ability to perform a given behavior [58–60]. Control beliefs, or the perception of the existence of facilitating or impeding factors to performance of the behavior, and perceived power, the perception of the impact of each factor in facilitating or inhibiting the behavior, determine one's perceived behavioral control.

A comparison of the two theories indicated that the addition of perceived behavioral control (in TPB), significantly increased the amount of variance explained [61,62]. The TRA and the TPB have enjoyed recurring use in health, with studies assessing condom use [63–65], smoking behavior [66,67], drug use [68,69], exercise behavior [70–72], and cancer screening [73].

2.2.2. Triandis model of interpersonal behavior

Triandis' model is similar to the TRA and TPB; it proposes that attitudes and social normative considerations determine behavioral intentions [4,74,75]. However, Triandis separated one's attitude into (1) *affect* toward the act and (2) *value of perceived consequences* of the act (similar to behavioral beliefs in the TRA) and included a “habit” construct, to represent those automatic actions that “occur without self-instruction” (p. 204) [75]. Triandis proposed that the probability of a behavior would be dependent on habits and behavioral intentions. Initial tests of the model discovered that it was no more consistent in predicting intentions and behaviors than the TRA [4,76], although later tests reported the Triandis model accounted for a greater percentage of the variance of exercise intentions [77]. This model continues to be employed in health communication research [78–80], although less frequently than the TRA or TPB.

2.3. Cognitive processing theories and models

Cognitive process models moved from focusing on “variable-oriented” approaches to persuasion, to “process-oriented” approaches [81], seeking to identify the variables leading to persuasion, and to specify the process by which such message aspects influence one’s attitudes. These models recognize that pre-existing attitudes may alter reception of a message and provide a framework to predict and explain how a single message may be processed among multiple receivers.

2.3.1. Elaboration Likelihood Model

The Elaboration Likelihood Model (ELM) was formulated to explain contradictory research findings, specifically the effects of messages on attitude change [82,83]. The literature provided explanations for persuasive effects, yet dissention remained as to the routes through which persuasive messages traveled. The ELM proposed that receivers “elaborate” (i.e., engage in issue-relevant thinking) to varying degrees upon receipt of a message. The ELM posits two processing routes leading to attitude change [82,84,85]. Central processing occurs when one is motivated and able to carefully evaluate the arguments and to scrutinize the quality of messages; the message receiver engages in systematic thinking. In peripheral processing, elaboration is fairly low and the receiver employs a cognitive shortcut to evaluate the message (e.g., is the source of the message authoritative?) [82,84,86].

Despite frequent use, critics question the efficacy of the ELM, particularly regarding what is identified as “single-channel processing” presented in theoretical descriptions of the ELM. Readers are referred to a series of articles published in *Communication Monographs*, for elucidation of the criticisms against the model, and the model originators’ responses [87–90]. Regardless, the ELM remains widely used in health communication research. Studies have hypothesized and tested participant responses to ELM-based mammography messages [91], explored the effects of direct-to-consumer prescription advertising on the elderly [92], and proposed key message elements for inclusion in nutrition information [93]. Other researchers have suggested using elements of the ELM (e.g., issue relevance) in conjunction with existing theories (e.g., TPB) to better predict and explain health behaviors and events [71,94].

2.3.2. Heuristic-Systematic Model

A second cognitive processing model is the Heuristic-Systematic Model (HSM) [95], which differs from the ELM by explicitly recognizing dual processing. As opposed to viewing information processing on a continuum, as the ELM seems to suggest (e.g., endpoints of peripheral and central processing), the HSM proposes that these processes occur jointly, or in parallel [95–97]. Systematic processing in the HSM is similar to central processing: one scrutinizes a message, judging the arguments presented to be strong or weak, and gives thoughtful consideration to all information before (or while) making a decision. Heuristic processing draws upon simple decision cues, often termed “rules of thumb,” and occurs when individuals lack motivation or cognitive resources. This processing occurs at a superficial level, allowing the receiver to form judgments based on cues such as credibility, attractiveness, and message length. Heuristic processing may be employed when using heuristics leads to attitudes one can hold with sufficient confidence [98].

The HSM has been applied to risk-related issues such as eating contaminated fish [99] and carbon dioxide [100], where findings indicated that the induction of fear resulted in systematic processing of information. Other scholars utilize the HSM in studies of organ donation [101,102] and in providing risk information in genetic counseling interactions [103].

There have been attempts to extend the HSM to determine predictors of the type of processing. Both the ELM and HSM specify that motivation and ability are key predictors of message processing; the HSM’s “sufficiency principle” states that active processing will occur up until the point where one believes she has reached the necessary level of depth and breadth of understanding [97]. Focus on the predictors of processing within a risk setting found that the difference in the level of understanding one has about a risk and the level of understanding needed to make a decision about the risk was related to one’s use of systematic or heuristic processing [99,104].

2.3.3. Social Judgment Theory

Social Judgment Theory (SJT) focuses on perceptions of how much a message agrees or disagrees with one’s current attitude [105,106] proposing that one’s attitude acts as an anchor, from which messages are interpreted or judged. Three latitudes, together forming a continuum, are proposed: the latitude of acceptance includes the most acceptable position or attitude to an individual, plus other attitudes also judged as acceptable. Latitudes of non-commitment contain those positions discrepant from one’s attitude, but not so much so as to be rejected. Latitudes of rejection are those positions one deems unacceptable, or wrong.

At the moment of message perception, one compares the message to one’s current attitude (i.e., the anchor), which, by definition, is located at the exact center of the latitude of acceptance. If a message falls within the latitudes of acceptance or non-commitment, then the greater the discrepancy (the distance between one’s attitude and the message), the greater the predicted persuasion. A message too discrepant from the receiver’s attitude will fall within the latitude of rejection: no persuasion will occur. If attitudes change or are reinforced due to a message, then one’s latitudes adjust accordingly, the new attitude becomes the anchor.

Assimilation occurs when a receiver perceives a message to be very close to her own attitude; contrast occurs when the message is perceived to be very discrepant from her attitude. Assimilation can reduce the persuasive effect of a message: one may perceive a message as not that different from her own attitudes, causing little need to change. Contrast effects cause an exaggeration of the perceived differences between one’s attitude and the message; further reducing the likelihood of persuasion. If one is highly ego-involved (i.e., the issue is very important) then one’s latitude of acceptance is likely to be narrow, and one’s latitude of rejection is likely to be wide [106,107].

SJT has been called an “incomplete” theory [9] focusing on the position advocated in the message and how clearly the message pinpoints the position, while other possible variables (e.g., argument strength) are ignored. For some SJT has fallen out of favor [9]; others appreciate its discussion of assimilation and contrast effects and the focus on receivers’ attitudes in the persuasion process [108]. SJT has been applied to clinical judgments regarding patients’ coronary heart disease risk [109]; the need for restraint and/or seclusion of psychiatric patients [110]; and team recommendations for discharge housing of stroke patients [111–113]. Recent work notes the need to educate providers to better understand influences on these individual and team decisions.

2.4. Consistency theories

Consistency theories suggest that when we have thoughts or actions inconsistent with our attitudes or behavior, we are motivated to change as inconsistency is an uncomfortable state. Consistency theories have been applied less in health communication than other persuasive theories; however, increased interest in their potential application has arisen.

2.4.1. Balance Theory

Balance Theory focuses on the triadic relationship involving two people (the perceiver, P), the perceiver's attitude toward another (O, the other individual) and their attitudes toward an object (X, the attitudinal object) [114,115]. The resulting triad can be balanced or unbalanced. If all three possible relationships (PO; PX; OX) are positive, or one is positive and two are negative, the triad is balanced. If all three relationships are negative, or one is negative and two are positive, an unbalanced triad results, often motivating one to alter one of the three relationships [114,115].

In Balance Theory an attraction effect describes those triads with a positive relationship between the two people (P and O), deemed to be more “pleasant” than a negative relationship. An unbalanced triad therefore *could* be perceived as pleasant if the individuals had a positive relationship. The agreement effect arises when both individuals rate the attitudinal object similarly (either negatively or positively); some unbalanced triads could be perceived as pleasant if both P and O agreed in their like or dislike of the attitudinal object (X). Balance Theory predicts that balanced triads are more pleasant than unbalanced ones, but cannot explain the proposed effects of attraction or agreement [16].

Balance Theory is constrained to the triadic format (e.g., P, O, X), and is unable to account for complex beliefs leading to one's attitude toward an object; it can neither account for the variability of belief or attitude strength, nor can it account for message content (i.e., that not all persuasive messages are created equal). The underlying components of Balance Theory are instructive; its lack of current use is likely due to its oversimplification and numerous limitations in prediction and explanation [16].

2.4.2. Cognitive Dissonance Theory

Festinger's Theory of Cognitive Dissonance [116] focuses on the relationships among cognitive elements, or “cognitions,” which include beliefs, opinions, attitudes, or knowledge [9]. Cognitions may be consonant (i.e., consistent), dissonant (inconsistent), or irrelevant to each other. If a cognitive inconsistency of sufficient magnitude is present, then an individual will perceive psychological discomfort, leading to an attempt to restore cognitive balance by reducing or eliminating the inconsistency [8,116,117]. Unlike other consistency theories, Dissonance Theory was proposed to understand and explain how individuals deal with internal psychological conflicts following a decision [8,116].

The magnitude of dissonance determines one's motivation to reduce it. Magnitude is determined by both the importance of the dissonant cognitions and the number, or proportion, of consonant to dissonant cognitions [117]. One can reduce dissonance by: (1) changing an element to make it more consonant; (2) adding additional consonant cognitions, changing the proportion of consonant to dissonant cognitions; or (3) changing the importance of the cognitions [9,116–118]. When reducing dissonance, an individual will choose the easiest route to change. We often seek out information consonant with our current attitudes, and avoid exposure to contradictory information, a process termed selective exposure [119].

Modifications and extensions designed to increase predictive power have been proposed [120–126] however, the best support exists for the original theoretical version [117]. An action-based model of cognitive dissonance has been advanced as a means to understand why cognitive inconsistency arouses the aversive motivational state and why this arousal leads to behavioral and cognitive changes [117].

The motivational interviewing approach, used often in health care, includes a strategy where the interviewer attempts to create dissonance within the patient. This dissonance is then used to encourage the patient to consider both pros and cons of behavior

change [127]. Dissonance Theory remains a viable theory to explore patient's beliefs, opinions, attitudes, knowledge, and behaviors and has been used to study topics such as condom purchases [128], pain reduction [129], and eating disorders [130].

2.4.3. Probabilistic models

Probabilistic models [131–136], based on the rules of formal logic and probability theory, predict beliefs regarding a syllogism's conclusion based on mathematical probability. A belief syllogism is a set of three statements, including two premises that lead to a logical conclusion. For example:

First premise (A): Medication X causes serious side effects.

Second premise (B): Medications that cause serious side effects are dangerous.

Conclusion (C): Medication X is dangerous.

This syllogism specifies how an individual's beliefs ought to relate if they follow the logic of mathematical probability [4]. If one believes completely in the premises, then the expectation is that the identified conclusion will follow. Probabilistic models recognize that a person often does not hold an “all or none” belief in the premises of a syllogism. Rather, beliefs can be gauged through subjective probabilities: one's judgment of the probability that each of the premises is true. Probabilistic models, developed by McGuire [131–134] and Wyer [135,136] focus on how beliefs, and one's conclusion, should change when other probabilistically related beliefs are formed, eliminated, introduced, modified, or made salient [3,4]. When a message causes a change in the perception of truth of the premise, or adds additional premises, corresponding changes to the conclusion are expected. A criticism is that the model is unable to explicitly account for how other variables (e.g., source, contextual factors) may affect relationships in the model [4]. Although not yet applied in health communication, the probabilistic model remains a basic model in persuasion research.

2.5. Inoculation Theory

Unlike other theories and models, which focus on identifying constructs and processes leading to persuasion, Inoculation Theory explains resistance to persuasive attempts. Using the biological analogy for which it is named, Inoculation Theory postulates that people can be activated to build up resistance to future attacks on their beliefs and attitudes by being exposed to weakened versions of the attack messages [137].

McGuire proposed that “cultural truisms,” or those attitudes and beliefs widely shared and seldom attacked would be most vulnerable to attack as people would be unprepared to defend them [137,138]. To effectively inoculate against belief or attitude change, the first step is to warn the receiver that a future attack is possible. This forewarning induces a threat, which motivates the receiver to defend himself against the future attack. The next step is to provide an attack message containing weak arguments (in the original studies, these weak arguments refuted the identified vulnerable cultural truisms) [137–139]. The final step requires that the message receiver defend his original attitude. The inoculation procedure works best when the receiver actively (i.e., generating one's own refutations to the weak attack message) as opposed to passively defends his original attitude (i.e., reading prepared refutational statements). Following this inoculation process, the receiver is ready to resist future strong persuasive attacks and is prepared to defend his original attitudes.

Health contexts in which inoculation interventions have been tested, with varying success, include adolescent smoking initiation [140,141], and adolescent attitudes and behaviors regarding

alcohol consumption [142]. Self-esteem has been identified as a key variable in the inoculation process [141]. Current health-related research using Inoculation Theory is investigating the need for “booster” treatments, and identifying optimal timing of inoculation [140,141,143].

2.6. Functional approaches

In the 1950s and 1960s, theorists focused attention on the function, or motives that attitudes served for those who held them. The assumption of these Functional Theories of Attitudes was that an individual has reasons for the attitudes he holds [144–147]. Individuals can hold the same or similar attitudes for very different reasons; understanding why these attitudes are held provides insight into how they can be reinforced or changed. Persuasive messages targeting the relevant attitudinal function will be more effective than those that overlook or ignore the function [144,145,148–150].

Katz initially proposed that attitudes could serve a *knowledge* function, allowing one to simplify and organize the world and environment in a meaningful way; a *utilitarian* function, also called an *instrumental*, or *adjustive* function, helping to maximize rewards and minimize punishments; an *ego-defensive* function, protecting one's self-concept from internal and external threats; and a *value-expressive* function, which proposed that through attitudes one could express personal values and other critical aspects of one's self-concept.[144] Smith et al. [145] also proposed an *object-appraisal* function, which has been interpreted as a combination of utilitarian and knowledge functions: providing a framework for people to know how to relate to events and objects with which they come into contact. A *social adjustment* function was hypothesized to facilitate, maintain, and/or disrupt relationships with others [4,145].

Research using the functional approach initially was limited, mainly due to the lack of adequate measurement, a deficit filled through Herek's work on attitudes toward stigmatized groups and Shavitt's classifications of open-ended responses [148,151–153]. Varying taxonomies of functions have been presented and explored [4]; research also has explored the links between aspects of personality (e.g., self-monitoring) and attitude functions [154–156].

Attitudinal functions related to seat belt use [157], bicycle helmet use [158], safer sexual practices [159], and sexually transmitted diseases have been studied [160]. This research has been less focused on one-on-one interactions (e.g., between a provider and patient); yet understanding *why* a patient holds a particular attitude could be an initial step in assisting that patient in altering an unhealthy behavior.

3. Discussion and conclusion

3.1. Discussion

As it is often the intent of a practitioner to shape, reinforce, or change a patient's behavior, familiarity with theories of persuasion may lead to the development of novel communication approaches with patients. An understanding of fear appeals recognizes that if a patient does not believe that a health risk affects her, or has serious consequences, then she is unlikely to consider or exhibit behavior change. Further, if she perceives a high level of threat, but is unconvinced of the efficacy of the action offered to her (e.g., she does not believe a vaccination will protect her), then behavior change is unlikely to occur. LET reminds us that expectancies may arise in a patient–provider interaction either interpersonally (e.g., the provider exceeds, meets, or falls short of the patient's expectations), or in relationship to actions in which the provider

may be asking the patient to engage (e.g., the patient perceives that the provider is unfairly ordering him to change his exercise habits). Comprehending how expectancy violations may affect the patient–provider relationship may assist the provider in advising his patients.

Attitude–behavior approaches (e.g., TRA, TPB) give the practitioner a framework through which to comprehend why a patient's attitudes and behaviors may be inconsistent: a patient may express the desire to lose weight, yet never report a change in dietary or exercise habits. Recognizing that attitudes only partially explain intentions and overt behavior may remind the practitioner to explore previously unexplored barriers and facilitators to behavior change, for example, discussing family and cultural norms regarding diet and exercise, and identifying who prepares the patient's meals.

A general attentiveness to cognitive processing models may prompt a practitioner to consider a patient's previously held attitudes. The ELM and HSM recognize the crucial importance of motivation and ability and offer explanations regarding a patient's processing of health information. The ELM and HSM can be applied across all three response processes: response shaping may occur if new information is presented; response reinforcement if the message bolsters existing attitudes; and response changing if, due to scrutiny or heuristic cues, the receiver modifies her attitudes. Consistency theories remind the provider that merely offering new information regarding health risks may not cause attitude change: the patient may instead choose to reduce resulting dissonance.

Inoculation theory may be most useful for those practitioners whose patient population includes children and young adults. Practitioners could assist parents in engaging their children in discussions about the risks of certain behaviors (e.g., drug use) resisting what could be tempting situations in the future. A cursory understanding of functional theories reminds us of the importance of discovering why a patient holds a particular attitude before any attempts are made to change it: identifying the reasons for the attitude may assist the provider in devising ways to help the patient alter unhealthy behavior.

3.2. Conclusion

The existence of a myriad of other theories relevant to the healthcare context (e.g., interpersonal or organizational theories) cannot be argued; due to space constraints only selected theories could be elucidated here. Indubitably, a reader will miss a favorite theory in the 15 presented here. The intention of this manuscript was not to provide a comprehensive overview of all theories relevant to health behavior, but to focus on selected persuasion theories applicable to the patient–provider context. By concentrating on theories relevant to response shaping, response reinforcing, and response changing processes, both well known (ELM, HSM) and other often overlooked persuasion theories (e.g., consistency theories) were presented. Certainly, the mere use of a theoretical framework does not guarantee a desired or healthy outcome; theories often do not provide specific guidance regarding how to accomplish a goal, for example, how to best communicate breast cancer risk [161]. However, an awareness of the theories presented herein can assist the practitioner in understanding a patient's attitude and behavior change, or lack thereof.

3.3. Practice implications

This article identifies 15 selected theories relevant to persuasive processes within health communication. Often these theories have been used as frameworks for the development of large-scale interventions; however, even a rudimentary knowledge of these theories may allow a practitioner to better assess and comprehend patient–provider encounters and related outcomes.

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