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Mental Health Service Use Among Young Adults: A Communication Framework for Program Development

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Abstract Research on mental health service engagement has been dominated by attempts to identify determinants of engagement. Such knowledge is important but incomplete. Once identified, program designers need to use evidence-based principles to design programs to bring about changes in the empirically identified determinants. Research is relatively silent on such principles. This article develops a framework to guide program designers' as they address factors that constrain and/or facilitate engagement. The framework is grounded in communication theory and evidence from related behavioral science research. The literature is summarized and used to generate a check-list of questions to consider when structuring engagement programs.

Keywords Intervention program development · Communication framework · Mental illness

Introduction

Epidemiological studies suggest high lifetime prevalence rates of mental disorders among adults in the United States, with almost half of the population evidencing a mental disorder during their lifetime (Kessler et al. 2005). The most common disorders identified are anxiety disorders (28.8 %), mood disorders (20.8 %), impulse control disorders (24.8 %), and substance use disorders (14.6 %; Kessler et al. 2005). According to the National Comorbidity Study-Replication, three-fourths of all lifetime cases of mental disorders have

their onset before age 24. Depression, anxiety, psychoses, and eating disorders commonly start before age 24, and continue into adulthood (Patel et al. 2007; Paus 2008). Given the presence and persistence of mental health conditions, preventing and/or treating these conditions is critical.

Mental illness often goes untreated. Estimates suggest that only 40 % of those with indicated need in the National Comorbidity Study received consistent treatment (Kessler et al. 2001). Further, young adults and individuals living in urban areas are less likely to have received treatment than those living in rural areas (Kessler et al. 2001). Disparities in mental health service use among racial and ethnic minorities are well documented, with individuals of minority ethnicities being more likely to drop out of treatment (Blanco et al. 2007; SAMHSA 2015; USDHHS 2001). Also, Black young adults, aged 18–26 are less likely than other racial/ethnic group to receive mental health services (Broman 2012). Together, these studies highlight the problems of lack of service access and service disengagement in adulthood and they underscore the importance of developing interventions to encourage adults with mental health conditions to invest in their mental health treatment.

The Treatment and Engagement Puzzles

Treatment of mental disorders in adults presents both treatment and engagement puzzles that must be solved for healing and recovery to occur. The treatment puzzle requires determining the best ways to eradicate the mental health condition(s) that interfere with effective functioning once a person is in treatment. The engagement puzzle concerns how to ensure adults engage in behaviors that are requisite to effective treatment. For example, behaviors such as initiating contact with a professional for purposes of treatment, attending ongoing sessions,

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and taking medication/completing treatment "homework" per protocol. Considerable research has identified factors that impact these engagement behaviors and an impressive array of identified variables are now the focus of programs to promote mental health service utilization in adults (see Lucksted et al. 2015; Munson et al. 2012; Pescosolido 2011). Programs address such factors as stigma, lack of knowledge about how to access services (literacy), efficacy beliefs associated with treatment, perceived trust and credibility of providers, provider warmth, cost, and transportation, to name a few. Building an evidence-base about the determinants of mental health service use is essential because it informs us about what to focus on in efforts to increase service engagement. However, such knowledge addresses only half of the story. Also important is evidence-based knowledge about how to bring about change in the identified determinants of engagement.

Consider the case where a program designer knows, based on research, that self-stigma needs to be addressed to encourage individuals to increase use of mental health services, i.e., self-stigma is an important determinant of service engagement (Corrigan et al. 2013). Exactly how can the program lessen the impact of self-stigma on decisions to use services? Or, suppose a program designer knows that at-risk individuals lack core knowledge about how to access services. What are the best methods a program can use to provide people with that knowledge in ways that resonate with and are memorable to them? Or, if people are unconvinced about the potential efficacy of a treatment regimen, exactly how should one design a program to convince them otherwise? Would adults be more influenced if a peer spoke about the efficacy of a treatment or a program, or if they instead heard a celebrity speak about the value of the treatment through a podcast or YouTube video?

In the above examples, we know we need to address self-stigma, knowledge, and beliefs about treatment efficacy, but how do we do so? What fundamental scientific principles can provide concrete, practical answers to questions about how to bring about change in the determinants of an outcome once those determinants have been identified? It is not enough to suggest to program designers *what* to change to increase engagement; we also need to provide guidance on *how* to change such factors. This article develops a framework to help guide program designers' efforts to change factors that constrain and/or facilitate mental health service engagement and that use in one form or another processes of communication.

Communication Theory and the Many Forms of Service Engagement Programs

Mental health service engagement programs take many forms (Kim et al. 2012). On a community or clinic level, engagement programs typically involve a combination of assessment, outreach, education, crisis coordination, case management, life skills classes, support groups, and transportation support. Some programs are designed to remove barriers that individuals encounter when seeking mental health care (e.g., lack of transportation, long delays in securing appointments) and to motivate reluctant individuals who are in need of treatment to seek and consistently maintain treatment. *Education strategies* seek to impact attitudes, knowledge, and intentions to encourage individuals to engage the mental health system (e.g., psychoeducation models). *Education strategies* alter contexts and environments in ways that encourage individuals to engage the system. Typical contextual targets include the social system (i.e., family), the delivery system, and policy level variables. Almost all interventions aimed at impacting engagement, no matter their form, involve communication of some kind between the program and individuals in the target population. If a policy to reduce the cost of treatment has been implemented, for example, then somehow the benefit of the reduced cost needs to be communicated to potential clients. If individuals lack knowledge about how to access services, then somehow that knowledge has to be communicated to them. Communication, at its heart, involves the exchange of information between individuals and is part and parcel to almost all engagement programs, be they educational, structural, or contextual.

A common refrain among social scientists is that "information programs do not work," which is a gross oversimplification. Imagine if one had to develop an engagement program under the constraint that no information whatsoever be conveyed to a client. The refrain more realistically refers to the idea that information-only, lecture-oriented programs often are inferior to programs that, in addition to providing information, teach skills and invoke active learning through role playing, behavioral rehearsals, and discussion. Nevertheless, even these latter strategies invariably involve communication and information exchange. In addition, programs that adopt a pure information-only approach can be successful depending on the targeted outcome and given that the right information is conveyed in theoretically-driven ways. For example, in the field of transportation safety, the dramatic shift of young children sitting in rear seats as opposed to front seats to reduce injuries due to airbags was largely the result of a public information campaign (see Nichols et al. 2005).

The present article articulates science-based principles of communication that can be used by program designers in the mental health services field. It develops a framework to help guide program designers as they seek to address factors that constrain and/or facilitate service engagement in mental health care. This emphasis does not imply that program facets that do not rely on direct communication (e.g., self-discovery) are not important. Rather, our goal is to improve

the communication aspect of program design by integrating mental health services research with the evidence base from communication and attitude theory.

A Communication Framework

Communication can be thought of in a top-down fashion whereby a source seeks to convey information or messages to a target individual with the idea of shaping that target person's beliefs, attitudes, and behavior. Alternatively, communication can be conceptualized as the mutual exchange of information between individuals as played out in the context of a range of dynamic processes and relationships. Both conceptualizations have merit and both are relevant to engagement in mental health services. For the former, program designers seek to provide knowledge and perspectives to help individuals engage the mental health system. For the latter, programs listen to individuals' needs, build strong relationships with them, and create open channels of communication. This article focuses primarily on top-down theories of communication to help program designers use research to educate and motivate populations. Despite this, we embrace the incorporation of bottom-up communication processes as well. Treatment of both conceptualizations, however, is beyond the scope of this article.

The Communication Matrix

Classic conceptualizations of top-down communication distinguish five components of the communication that ultimately impact its effectiveness: (1) the *source*, (2) the *message*, or the communication itself, (3) the medium or *channel* through which the message is transmitted (e.g., face-to-face, texting, over the web, brochures), (4) the *audience*, and (5) the **context** in which the communication occurs. Each of these components has subcomponents. For example, sources of a message may differ in their age, gender, expertise, and trustworthiness. Recipients of communications differ in their age, gender, motivational states, emotional states, past experiences, and expectations. The context or surrounding environment varies in terms of its temporal, physical, social, and cultural features. Variations in these factors represent a dimension of independent variables that can affect the beliefs, attitudes, and behavior of adults in response to a communication. Thus, the impact of a message may vary as a function of characteristics of the source, the message, the channel, the audience, and/or the context.

Communication also involves cognitive processes, each of which can be affected by the five independent variables. For communications to have meaningful impact, individuals must first be exposed to the communication and *attend* to it, they must *comprehend* the message, they must *accept* the communications as valid, and they must *retain* the message. At later points in time, the message contents, or abstractions of them, may need to be accessed from memory, thereby invoking processes of *retrieval*. These processes of exposure/attention, comprehension, acceptance, and retention/retrieval also are fundamental to communication.

We can cross the five variables of communication with the four categories of cognitive processes to form a *communication matrix* that can be used by program designers as a blueprint to think through key issues when designing and scientifically examining dimensions of engagement programs (see Fig. 1). Each cell of the matrix represents a set of key questions that designers should strive to answer, ideally in an evidence-based way, as they evolve communication strategies with their target population. For example, for cell 1, what qualities and characteristics of the source will maximize attention to the message? For cell 7, what qualities and characteristics of the message will maximize comprehension of the message? For cell 15, what are the qualities of the target audience that will facilitate or impede message acceptance and how can these be accentuated/overcome?

When presented with messages, research indicates that individuals interpret them using two distinct but related appraisal systems, a cognitive appraisal system and an affective appraisal system (Jaccard and Levitz 2015). For the former, participants undertake, automatically and without effort, some form of cognitive appraisal of the message itself and the situation in which communication is taking

Fig. 1 The communication matrix

	Source	Message	Context	Channel	Audience
Exposure/Attention	1	2	3	4	5
Comprehension	6	7	8	9	10
Acceptance	11	12	13	14	15
Retention/Retrieval	12	17	18	19	20

place. This might involve noting to themselves who is present in the communication context, what activities are transpiring, what their goals are, characteristics of the source, and so on. Message recipients invariably elaborate cognitive content beyond that contained in the message, including thoughts that are consistent with the message, thoughts that are counter to the message, and thoughts that are irrelevant to the message (Ben-David et al. in press; Eagly and Chaiken 1993). Individuals also undertake some form of affective appraisal during message processing, such as sensing their feelings, their emotional reactions, and the general "affective tone" of the situation. Their actions and reactions to the messages they hear are some function of these joint appraisals. When structuring communication and answering the key questions presented in the matrix, it is important to consider both the cognitive and affective appraisals that people make and to structure messages in ways that minimize thoughts that counter the message, thoughts that are irrelevant, and emotionally charged negative reactions.

This analysis underscores the complexity and challenges for understanding and fostering effective communication between an engagement program and those participating in that program. The complexity is magnified by the fact that the five facets of communication (source, message, recipient, context and channel) can affect each of the cognitive and affective processes differently (as main effects or in complex interaction with one another) and that individuals are often exposed to multiple and sometimes conflicting communications.

Although, there is a paucity of research in the mental health services field on the core questions implied by the communication matrix, there is a great deal of research in the fields of social psychology and communication on them. As such, program designers can draw upon this research to guide their choices. In the next sections, we review major findings from this literature that we believe are useful for mental health services researchers, particularly those professionals developing engagement programs to improve service use behaviors. In the first section, we organize our discussion around the five classes of independent variables described above. In the second section, we review relevant research on cognitive and affective appraisals during message processing. In the third section, we address theories of attitude change with different emphases than those described in sections one and two that program designers may find useful. Finally, we summarize implications for the field of mental health services and make recommendations for future research. The literature surrounding these different sections is voluminous. Our intent is to provide readers with a sense of the major issues being addressed, while also highlighting the relevance of those issues for research on engagement in mental health services. We use specific examples and provide key citations for further consultation and follow-up.

The Five Classes of Communication Variables

Source Variables

A large body of research in social and health psychology has implicated three salient dimensions of source effectiveness, (1) perceived expertise, (2) perceived trustworthiness, and (3) perceived accessibility (Jaccard 2009; Pornpitakpan 2004). *Perceived expertise* refers to the extent to which the source is seen as being informed on the topic at hand and capable of giving good advice. *Perceived trustworthiness* refers to the extent to which the source is seen as having the best interests of the person at heart. *Perceived accessibility* refers to the extent to which the source is seen as easily accessed for assistance. In general, sources perceived as being more expert, trustworthy, and accessible are more effective in bringing about change, everything else being equal (Heppner and Claiborn 1989; Wiener and Mowen 1986).

Many health professionals incorrectly assume that clients naturally attribute expertise and trustworthiness to them. In clinics, trustworthiness can be lessened by beliefs that clinicians want to "get clients in and out" to make more money or to "be done with them" (Jacobs et al. 2006). Trust in providers has also been found to be questioned by youth when they are expected to switch to another provider (Munson et al. 2011). Minority clients may attribute racism to providers, lessening attributions of trustworthiness (Thorburn and Bogart 2005). Also, physicians may be seen as prescribing medications because they are influenced by cozy relationships with pharmaceuticals (Sikor 2006).

Attributions of expertise often are topic specific. Sources seen as having expertise in some domains (e.g., side effects of medications) are not necessarily seen as being expert in other domains (e.g., knowing how to deal with stigma). Accordingly, individuals often seek information and advice from multiple sources. The effects of more distal source characteristics (e.g., gender) on communication effectiveness usually can be traced through their effects on the perceived expertise, trustworthiness, and accessibility. When the source and audience "match" on ethnicity and gender it can increase attributions of expertise and trustworthiness—although not always (Eagly and Chaiken 1993; McGuire 1985). Cues used by people to make inferences of expertise range from directly relevant cues—such as education, status, intelligence, and familiarity with topic—to those that are peripheral, such as attractiveness (more attractive associated with more credibility), height (taller more credible), rate of speech (people who talk quickly seen as more credible), and length of pauses when answering questions (long pauses are associated with less credibility) (Eagly and Chaiken 1993). Trustworthiness cues include expressions of sincerity and cues related to a lack of self-interest in outcomes.

Other source dimensions have been emphasized, such as the power relationship between the source and target (McGuire 1985), source likeability, and the confidence with which sources state their position (Cialdini 2009). Program designers should explicitly consider how sources will be perceived on expertise, trustworthiness, accessibility and likeability and how these can be maximized. Sources can structure interactions so that they establish these attributes in the eyes of the target population. For example, in a counseling setting, an expression by a counselor of sincere interest in a client (authenticity) and statements about his/her success in treating past clients with similar difficulties (expertise) can make a difference.

In mental health engagement research, topics that have been identified as important include perceptions of the efficacy of treatment, side effects of medications, dealing with stigma, mistrust, hopelessness and the impact of social relationships, among others (Munson et al. 2012). The central question for program design relative to source analysis is "who is best to address such topics?" A related question is how can we capitalize on multiple sources using their respective area(s) of expertise together? Our choice of sources matters and, hence, should be evidence based.

There is a large body of research on the use of peers in mental health programs (i.e., Davidson et al. 1999, 2006). Randomized trials comparing programs provided by peers versus non-peers have tended to find few differences in outcomes as a function of this source characteristic and thus do not yet suggest there is a clear advantage to employing peers over non-peers (see Chinman et al. 2015; Davidson et al. 2006, 2012). We believe a more-fine grained analysis of peer versus non-peer sources using perspectives derived from the communication matrix will shed more light on the use of peers versus non-peers as communication sources. We have found in our prior research that participants find role models who also have "lived experiences" and are trained as mentors (older, wiser, trusted guides) to be a particularly credible and helpful source of information (Munson et al. 2014). They can facilitate attributions of expertise and trustworthiness on key issues while providing important information and perspectives on dealing with mental health challenges (Munson et al. 2014).

Mental health services research has also addressed matching of client and provider by race/culture (Chinman et al. 2000). For example, Blank et al. (1994) compared mental health service use rates as a function of race matching between case managers and clients in a rural community mental health center. They found that same-race dyads showed greater service engagement, although the dynamics varied by the ethnicity of the participants. In a recent meta-analytic review, Cabral and Smith (2011) found client preferences for a clinician of the same race, but, interestingly, reported only weak effects when examining outcome

differences by race matching. Numerous studies have explored the role of mistrust in clinicians and/or the mental health system (Jivangee and Kruzich 2007; Scott et al. 2007).

Commentary on Source Variables

Sources of health related messages can be individuals, groups, organizations, or institutions, but sources are best conceptualized as whoever the receiver of the message imagines the source to be (Sundar and Nass 2001). For example, for messages presented on websites, the source may be ambiguous and subject to interpretation. Research underscores the need to carefully think about the choice of sources when communicating about mental health service engagement and how to structure interactions so that sources establish expertise, trustworthiness, accessibility and likeability. Prior to program formulation, designers might profit from careful pilot research with their target populations to identify how different sources are perceived on each of these dimensions as well as what kinds of information clients prefer from different sources.

Message Variables

Message variables include the content of the message, the structure/style of message presentation, message repetition, and message timing. We consider each of these facets here.

Analyses of message content typically focus on the types of arguments that are contained within a message to convince or motivate people to engage in a behavior. Theorists have elaborated many typologies of arguments, with one typology focusing on argument strength, i.e., the extent to which recipients perceive the arguments being given as "strong" arguments. Evidence indicates, not surprisingly, that carefully processed, strong arguments produce more belief, attitude, and behavior change, everything else being equal (Johnson et al. 2004; Johnson and Eagly 1989). A common approach to identifying strong arguments is to present each argument to individuals representing the target population in pilot testing and then ask them to rate each argument on dimensions of how believable it is, how convincing it is, how new it is, the extent to which it applies to them, the extent to which it is important to them, and how good of a reason it provides for them to embrace the advocated position (Zhao et al. 2011). Such pilot testing is rarely reported in the mental health engagement literature. As an example, one important topic relevant to dealing with stigma of living with a mental health condition surrounds the issue of whether one should disclose or "come out" to others about one's condition (Corrigan et al. 2010, 2013). Arguments relevant to engaging in disclosure can be identified through literature reviews and qualitative research.

The arguments can then be rated for argument strength on the dimensions mentioned above (i.e., how believable it is) so as to better understand how the target population evaluates and thinks about them. Health messages can then be structured with strong arguments for the advocated position. Refutation of opposing strong arguments also can be pursued (see below).

A second typology of message content focuses on the message sensation value (MSV) of a communication (Palmgreen et al. 1991). Messages with high MSV emphasize sensory, affective, and arousal experiences that are "novel, creative, exciting, intense, dramatic, or fast-paced" (Morgan et al. 2003, p. 513). The idea is that individuals who are high in sensation seeking (e.g., individuals at certain developmental stages or with certain mental health problems) will be more responsive to messages with high MSVs and those low in sensation seeking will be more responsive to messages with low MSVs. There is some support for these propositions (Palmgreen et al. 2001), but studies have found effect qualifiers. For example Kang et al. (2006) found that for high risk youth, high MSV messages serve more as distractors that reduce message persuasiveness when argument strength is high; when argument strength is low, high MSV messages facilitate message persuasiveness.

A third facet of message content is the framing of arguments within a message. Framing takes many forms (Levin et al. 1998). One variant, called *goal framing*, focuses on the effects of using messages that stress the positive consequences of performing the desired behavior (a *gain frame*) as opposed to the negative consequences of not performing the desired behavior (a *loss frame*). For example, is it better to stress the benefits of taking one's medication or the adverse consequences of not taking it? Another variant, called *attribute framing*, focuses on the effects of framing the same attribute/consequence in a positive way (gain) or a negative way (loss). For example, one can describe treatment efficacy to people using either success rates or failure rates, such as an 80 % success rate versus a 20 % failure/non-success rate. Framing effects have been infrequently studied in mental health services research (but see Detweiler-Bedell et al. 2013). However, in other contexts there is an impressive array of predictions about when gain frames will be better than loss frames and vice versa. For example, Rothman and Salovey (1997) developed a model that predicts that gain-framed messages are effective for illness prevention and recuperative behaviors, but that loss-framed messages are effective for illness detection behaviors. Although some meta-analyses are consistent with these propositions (Gallagher and Updegraff 2012), the research literature as a whole is mixed. Given this and the fact that few studies have focused on mental health service engagement, it probably is necessary for program designers to resolve framing issues through pilot research.

A fourth message consideration is the complexity of the message. In theory, simple messages are more easily remembered, but they may not be as convincing; complex messages usually are more convincing but not as easily remembered. Anand and Sternthal (1989) offer a response-matching theory that asserts messages are most effective when the amount of cognitive resources required to process the message neither exceeds nor falls short of what the recipient is capable of processing. As such, the ultimate effect of message complexity is tied to characteristics of the target population, such as their education levels and IQ.

Numerous other facets of message composition have been studied. For example, studies of message repetition tend to find an inverted U relationship between the number of message repetitions and attitude/behavior change, such that attitudes change more with increasing repetitions up to a point (~3 repetitions), after which attitudes begin to revert to baseline (McGuire 1985; Reinhardt et al. 2013). Studies of argument ordering have shown primacy effects, recency effects, and the classic bow shaped serial learning effect, with primacy effects tending to be more pervasive (McGuire 1985; Eagly and Chaiken 1993). This favors putting forth one's best arguments first. Research on one-sided versus two sided message structures address whether it is better to consider only reasons in favor of the thesis of a message or, instead, to also refute arguments against the thesis. Research tends to favor inclusion of refutations (Allen 1991; Shen and Bigsby 2012). Linguistic cues have been studied, such as the use of active versus passive structure, hesitations ("um," "er"), use of polite forms ("please," "sir"), rates of speech, as well as aspects of lexical, semantic, and phonological features of language (Hosman 2002). The impact of linguistic variables relative to the already discussed message variables tends to be modest. Also, they are challenging to incorporate independent of one's normal, established speaking habits.

Commentary on Message Variables

There will be cases in the design of engagement programs where the intent is merely to provide knowledge necessary to engage the mental health system, such as how to enroll in a program or access services. This situation contrasts with scenarios where one seeks to convince individuals of a position, such as the belief that treatment will make a difference or that stigma should not factor heavily into one's choice to engage. In the case of simple knowledge transmission, the analysis of what argument structures to use is of less import, with the cognitive processes of message attention, comprehension, retention, and retrieval instead becoming paramount (as discussed below). When the focus includes message acceptance as a goal, our review suggests that designers would benefit from preliminary research with their

target populations that explores argument strength using standard scales to measure such strength (Zhao et al. 2011), and that explores the potential benefits of different ways of framing arguments. Structuring messages relative to levels of sensation seeking of the target group as well as their cognitive processing capabilities also is important, indicating the possible need for pilot work to understand such dispositions and abilities. Also important to consider are decisions about message repetition, ordering, and whether to use two-sided or one sided messages (given processing capabilities of the targets).

Audience Variables

Audience variables refer to characteristics of message recipients that impact communication effectiveness. Much has been written about the need for targeted health messages and programs that take into account the special circumstances of different ethnic groups, such as Latinos or African Americans (Kreuter and Haughton 2006; Yoo et al. 2013). Approaches to targeted health messaging tend to emphasize individual difference variables associated with ethnicity, gender, class, and age. Although important, such strategies are seen as simplistic and outdated by modern day marketing and communication frameworks. Segmentation analysis in the field of marketing is traditionally pursued using four variable categories (Kotler et al. 2002), (1) *demographic segmentation*, which divides populations into segments based on variables like age, gender, income, education, religion, ethnicity, and cohort (e.g., generation Y, echo boomers), (2) *geographic segmentation*, which divides populations into segments according to geographical areas, such as states, cities, neighborhoods, (3) *psychographic segmentation*, which divides populations into segments based on class, personality, and lifestyle, and (4) *behavioral segmentation*, which divides populations into segments based on knowledge, attitudes and practices relevant to the product being marketed (e.g., user status, usage rate, readiness for change). Segments for different messaging strategies are defined based on some combination of these variable classes.

Once defined, social marketers choose segments to focus on based on, (1) size of the segment, (2) incidence rates (e.g., higher mental health rates), (3) problem severity (e.g., the impact of poor mental health), (4) defenselessness (the extent to which people in a segment can "take care of themselves"), (5) reachability, (6) responsiveness, (7) resources required to outreach to the segment, and (8) organizational capabilities. Quantitative scores are assigned to each segment based on these dimensions and then combined to yield an overall "potential effectiveness" score and an "efficiency" score for each segment. The decision to prioritize outreach to a given segment is then dictated by effectiveness

and efficiency scores. We are not necessarily suggesting that a marketing oriented approach to segmentation such as the above be used for differentiating messaging strategies and outreach for mental health service engagement. Our general point instead is that the approaches used for targeting population segments in mental health services research are somewhat dated and need upgrading.

Communication theory posits an additional segmentation variable, namely one's need for cognition (Cacioppo and Petty 1982). Need for cognition refers to an individual's chronic tendency to engage in and enjoy effortful cognitive activities. Need for cognition has been found to consistently predict the extent to which recipients focus on the arguments contained within a message as opposed to attending to more peripheral cues (Petty et al. 2009). Messages with high quality arguments have more impact on those high in need for cognition as opposed to those low in need for cognition (Petty et al. 2009). Low need for cognition individuals prefer to get to the bottom line whereas high need for cognition individuals want details and to think matters through. Studies suggest that tailoring message complexity to an individual's need for cognition is an effective structuring strategy (Petty and Evans 2009).

Another critical segmentation variable is the extent to which the topic is seen by the recipient as important to them (Petty and Cacioppo 1990). Research suggests that increased personal importance enhances the likelihood recipients will engage in careful argument processing (Petty and Cacioppo 1986). Interestingly, the personal importance of a topic is not necessarily stable; communicators can manipulate perceived personal importance through statements that emphasize the implications and importance of the topic for the recipient.

McGuire (1985) has argued that messaging strategies should vary as a function of individual difference variables depending on how those variables are likely to jointly affect what he calls message reception (comprehension and recall of message contents) and message acceptance (agreeing with the thesis). For example, education levels of the target audience tend to be positively correlated with message reception (more educated individuals are more likely to comprehend a message and recall its contents), but negatively correlated with message acceptance (more educated people are better at counterarguing). If one's target audience is primarily uneducated, simple messages may be best. If one's target audience is highly educated, message complexity can be maximized to increase the likelihood of message buy-in.

An individual difference variable that has received considerable attention in health messaging is that of sensation seeking. As noted, there is evidence that individuals who are high in sensation seeking respond better to messages with high message sensation value as compared to individuals who are low

in sensation seeking (see Kang et al. 2006). The more general idea underlying this strategy is one of "matching" the message style and structure to the personality of the individual. For example, dominant-submissive individuals have been found to be swayed more by messages and sources who match their levels of dominance-submissiveness (Blankenship et al. 1984; Moon 2002). Similar results have been found for extraversion (Chang 2002), self-monitoring (i.e., image consciousness) (Snyder and DeBono 1985), and cognitive versus affective bias (Edwards 1990; Clarkson et al. 2011). Such matching needs to be researched more in the service engagement area.

Taken to its extreme, segmentation can be reduced to one individual in each segment, with each individual receiving a message unique to the characteristics of that individual. This is referred to as *tailoring* (as opposed to *targeting*, where the focus is on a group of individuals, such as Latinos). Tailoring strategies have received considerable attention in research on communication and hold much promise (Noar et al. 2007). However, the theoretical grounding of tailored messaging is somewhat weak and needs development (Jaccard 2012).

Commentary on Audience Variables

It is evident from the above that one size does not fit all. Program designers need to think about how program messages can be adapted to the needs and characteristics of different audiences. As outreach embraces increasingly sophisticated communication technologies, more elaborate and nuanced segmentation is possible for message design and delivery. For example, access to the internet is widespread among adults (Pew Institute 2013a). This permits the tailored delivery of information to different population segments on a mass basis. Individuals can begin their interactive experiences with a computer/website, for example, by answering questions about background demographics (e.g., gender, education level, ethnicity), short versions of scales to assess need for cognition, sensation seeking, topic importance (see Cacioppo et al. 1984), and measures of other relevant opinions and attitudes. Based on this information, tailored text and videos can be shown to users, ideally in an interactive way. For face-to-face programs, preliminary assessments of the same information can be made at baseline and then interactive content adapted to the background of the individuals based on those assessments. Our main point is that engagement programs need to adopt a "one size does not fit all" perspective and use theory and scientific evidence to approach the tailoring and targeting of health messaging.

Contextual Variables

Message context refers to cues in the immediate environment other than the primary contents of the message that ultimately impact persuasion. There is a large body of research documenting that characteristics and perceptions of the setting in which a message is delivered can impact attitudes and behaviors (e.g., Alvaro et al. 2013). Marketing research distinguishes three types of environmental cues of potential import, (1) design, (2) social, and (3) ambient sensory (Baker et al. 2002). Design cues refer to the physical layout of the setting, including factors such as space, signs, and symbols. Social cues refer to other people in the environment and the activities they are engaging in (Cialdini 2009). Ambient sensory cues refer to those that affect one or more of the five senses (e.g., background noise/music, lighting), typically as they bear on emotions and cognitions. Ambient sensory cues refer to those that affect one or more of the five senses (e.g., background noise/music, lighting, room color), typically as they bear on emotions, and cognitions. As an example, preventive health models include the concept of "cues to action," which refers to physical features of the environment that increase the salience of the target behavior, such as posters or other visual cues (Glanz et al. 2002). A social cue in group-based interventions is the number of people in the group advocating or supporting a position, which then serves as a cue to the validity of that position (Harkins and Petty 1983). Retail stores often manipulate scents (the smell of ground coffee in coffee stores) and background music to impact cognitions about the store, the products within the store, and the attention of shoppers (Morrin and Ratneshwar 2003).

Considerable research has explored the effects of contextual distractions during message processing (Petty et al. 1976). For messages with weak arguments or when individuals are not motivated to process messages, the effects of distractors tends to be minimal or even beneficial if they discourage cognitive counterarguing during processing (Petty and Cacioppo 1986). Distractors often have positive or negative *affective value* associated with them that can transfer to the object of the message. For example, the use of humor (a distractor) tends to enhance attitudes towards advertisements, attention to it, and feelings of positive affect in the recipient (Eisend 2009).

In terms of mental health service engagement research, there has been little research on message contextual factors. To be sure, research on setting effects has been conducted, but these studies focus more on macro level contextual variables, such as outpatient clinics versus emergency rooms versus inpatient units. Some studies suggest participants tend to favor group formats (Munson et al. 2014), while other studies suggest participants prefer individual therapy (Alvidrez and Azocar 1999). Research also has found that providing services in non-specialty contexts (e.g., primary care, college health and wellness programs, community-based settings) may reduce stigma associated with going to a clinic known for mental health care (Ojeda and McGuire

2006). This research is important but we are arguing here for integrating into such analyses a more micro-variable approach.
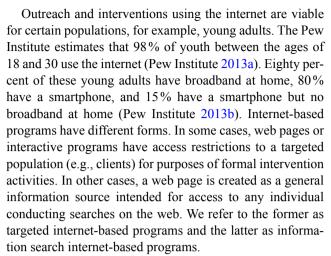
Commentary on Contextual Variables

Engagement programs occur in many contexts. Participants form impressions of programs based on those contexts. For example, people differ in their preferences for individual versus group intervention formats and such preferences can impact how they react to the context they are in—although the literature is mixed as to whether matching preferred and actual formats affects outcomes (Renjilian et al. 2001). Factors as subtle as ambient room temperatures can affect how we evaluate others and think about matters (Griffitt 1971). Research is needed to better understand how contexts impact effectiveness. Program designers should attend to such influences in pilot work, including considering participant preferences for contexts, the physical, social, and ambient sensory facets, and distractors as they bear on message delivery.

Channel Variables

Channel variables refer to the medium through which the message is conveyed, including face-to-face, websites, text messages, telephone, radio, television (such as the use of public service announcements, PSAs), and print media, such as magazines, newspapers, and brochures. Although there is conceptual overlap between channel and contextual variables, channel variables focus on more global choices surrounding communication modalities rather than features of the specific context in which health messages are delivered.

Face-to face interactions are common in engagement programs aimed at improving mental health service use. Research on dyadic communication suggests eight dimensions of communication style related to effective face-to-face interactions, (1) avoiding/dealing with conflict (Canary and Spitzberg 1987); (2) use of appropriate self-disclosure (Jourard 1971); (3) showing empathy/understanding (Weimann 1977); (4) being supportive (Duran 1983); (5) staying calm and relaxed (Duran 1983); (6) being responsive (Cegala 1981); (7) exhibiting effective interaction skills, such as listening respectfully and not interrupting (Clark and Delia 1979); and (8) being direct (Rose 1975). Sources who adopt positive orientations on these dimensions are likely to be more effective communicators, everything else being equal. Face-to-face interactions have the advantage of being able to tailor messages to individuals and being able to address individual questions and needs as the interaction unfolds. However, face-to-face interactions often are costly and limited in their reach of large numbers of individuals.

Outreach and interventions using the internet are viable for certain populations, for example, young adults. The Pew Institute estimates that 98% of youth between the ages of 18 and 30 use the internet (Pew Institute 2013a). Eighty percent of these young adults have broadband at home, 80% have a smartphone, and 15% have a smartphone but no broadband at home (Pew Institute 2013b). Internet-based programs have different forms. In some cases, web pages or interactive programs have access restrictions to a targeted population (e.g., clients) for purposes of formal intervention activities. In other cases, a web page is created as a general information source intended for access to any individual conducting searches on the web. We refer to the former as targeted internet-based programs and the latter as information search internet-based programs.

Targeted internet-based programs have many advantages. They allow flexible times for content access, a sense of being anonymous, and they have the ability to tailor information based on background assessments. They can be graphically rich and engaging, have low costs (though initial costs can be high), and offer the possibility of interactivity. They can be posted on search engines, YouTube, blogs, Twitter, and Facebook, among others. Disadvantages include less control over the context in which the communication takes place, along with difficulty ensuring that the target individual engages in all program components. Examples of effective targeted internet-based intervention programs in the health sciences are described in Bennett and Glasgow (2009). Information search based internet sites abound. A search on Google, for example, using the search term "treatment of depression" yielded 134 million "hits" and in YouTube, it yielded 923,000 videos. Sundar (2000) tested user reactions to and recall of material on web pages that varied on five formats: text only, text stories with pictures, text stories with audio, text stories with pictures and audio, or text stories with pictures, audio, and video. Results favored the mixture of text with pictures over all the other formats. Such comparative research is virtually non-existent in mental health services research.

Texting is also a viable form of outreach to adults, suited to simple communications, including reminders, making salient cognitions and affect experienced during prior more intensive face-to-face interventions, and for providing immediate advice on dealing with difficult or high risk situations. Other uses of mobile phone technologies include video messaging, voice calling, and internet connectivity (Cole-Lewis and Kershaw 2010).

Another form of outreach is the use of PSAs through mass media (television or print advertisements to prevent risky behaviors and promote healthy behaviors). Evidence on the effectiveness of such campaigns is mixed (Hornik 2002; Fishbein et al. 2002), but, overall, not compelling.

Failures of PSA based campaigns often are attributed to underfunding, the limited reach of the messages, and failure to pilot the content to ensure that appropriate cognitions and affect are targeted (Fishbein et al. 2002). PSAs have been used to address stigma issues in mental health for adolescents, but there is little evidence to document their effectiveness (Corrigan 2012).

Commentary on Channel Variables

Channel variables are an important consideration in designing programs to encourage engagement in mental health services. They are fundamental to thinking about issues surrounding outreach, access, sustainability, and efficacy. The choice of channels will be impacted by variables discussed earlier for audience segmentation, such as the ability of the channel to reach large, at-risk population segments, organizational capabilities, the incremental costs of using the channel, and the "match" between the channel and the target population (e.g., there is a poor match between the elderly and texting). Choice of a communication channel is fundamental to program effectiveness.

Once a channel has been selected, program designers need to think about ways of maximally exploiting that channel. For example, if face-to-face interactions have been chosen in the form of group interactions, the initial group session might start with a discussion of guidelines for group interactions that address how to deal with conflict, self-disclosure, being empathic, being supportive, staying calm, being responsive, and being direct. Web based interventions can make use of principles of web design and on-line PSAs can make use of the growing literature on internet advertising. Comparative outreach and intervention success of the global modalities (e.g., internet versus smart phones versus clinic based face-to-face outreach) needs more attention in mental health services research. Finally, Bryant and Miron (2004) review 26 theories of mass communication, which offer useful perspectives on channel effects.

Cognitive and Affective Processes During Communication

Cognitive Processes

At the outset of this article, we referenced cognitive and affective appraisal systems that are relevant to communication effectiveness. In this section, we briefly summarize fundamental principles related to such appraisals as they bear on mental health services.

Attention

It is commonly believed that one way of increasing individuals' attention to a message is to make it vivid. Nisbett and Ross (1980) define information as vivid when it is emotionally interesting, image provoking, and proximate in a sensory, temporal, or spatial way. Taylor and Thompson (1982) reviewed over 45 studies on vividness effects on attitude change and found weak effects. Later, Frey and Eagly (1993) identified scenarios where vividness can subvert message effectiveness. Guadagno et al. (2011) argued that it is important to distinguish between a vivid message and a vivid background for the message. They argue that if all aspects of a communication are vivid, including those not relevant to the judgment at hand, central arguments get lost. Off-message vividness has the effect of distracting recipients from the main points of the communication. Program designers need to ensure that the key points are vivid, not elements of the program that are irrelevant.

People tend to seek out and prefer information that is congenial to their existing attitudes, with the stronger the pre-existing attitude, the more selective the exposure/attention (Hart et al. 2009). Research suggests that people show bias for congenial information messages when they are motivated to defend their attitudes, but they are more balanced in information selection when they are motivated to be accurate (Hart et al. 2009). This suggests that programs will be best served by fostering a "learning" as opposed to "debating" mind set.

Comprehension

Message comprehension has been highlighted in mental health research vis-a-vis emphases on health literacy (Nutbeam 2008). The U.S. Department of Health and Human Services (2000) defines health literacy as "the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions." Research suggests that about 88 % of adults lack the health literacy skills needed to maintain their health (Institute of Medicine 2004; National Center for Education Statistics 2006). Given such low levels of health literacy, it is important that program designers conduct pilot research to evaluate program materials for comprehension and to involve members of the target population in the design of such materials.

Fuzzy-trace theory distinguishes recipient meaning-based representations of information, called *gists*, versus verbatim representations of that information in memory. Gists capture the 'bottom-line' meaning of information. Evidence suggests that information is encoded into memory in both forms—verbatim and gist—and that the two

representations act independently rather than in parallel to impact decision making (Reyna 1995). When thinking in terms of gists, people tend to use simple, few-category representations, such as cognitively translating quantitative risks into having "low," "moderate" or "high" probabilities or viewing a positive consequence as "very good," "moderately good," or "not so good" (Reyna 2012). When gists are extracted from messages, meaning-based distortions can result, leading to miscomprehension (Reyna and Farley 2006; Reyna 2008). When conveying complex information, research suggests that presenting it in a form aligned with gists is more effective for individuals with lower levels of literacy and numeracy (Elwyn et al. 2011).
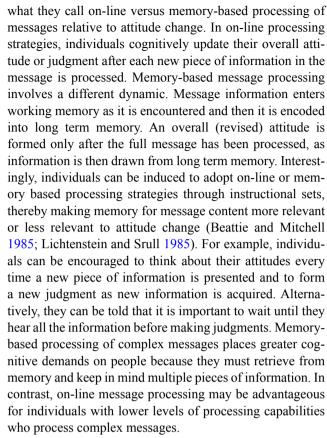
Comprehension research suggests that essential information for low literacy groups be provided at the beginning of the message to improve comprehension (Peters et al. 2007). Health literacy guidelines also stress the strategic use of vernacular rather than formal language to improve attention, comprehension and recall (DeWalt et al. 2010). As an example, qualitative research on mental health service experiences with predominately low-income young adults of color from urban communities has shown that the phrase 'doing you' means—do not get wrapped up in what others think of you, be yourself or 'do you' (Munson et al. 2014). For bi-lingual populations, offering a choice as to which language they prefer to hear messages in has been found to improve comprehension (Hosman 2002).

Acceptance

Acceptance of a message is also critical for program design. During message processing, individuals form thoughts about what they are hearing, also known as elaborations. Individuals can engage in low, moderate or high levels of elaboration during message exposure. Petty and Cacioppo (1986) classify elaborations into three types, (1) those that are positive or consistent with the message theme, (2) those that are negative to the message theme (representing counterarguments), and (3) irrelevant thoughts. Measures of post-message thought listings have been developed and used to gain insights into the kinds of thoughts people report having during message processing (Cacioppo and Petty 1981; Petty et al. 2002). In general, people are more likely to accept a message if the cognitive elaborations that occur with it are favorable as opposed to unfavorable. Pilot research on cognitive elaborations is important as it can yield insight into the bases of acceptance or resistance to arguments.

Short Term Message Retention

Message retention refers to the immediate recall of message contents whereas message retrieval refers to the delayed recall of message content. Hastie and Park (1986) distinguish

what they call on-line versus memory-based processing of messages relative to attitude change. In on-line processing strategies, individuals cognitively update their overall attitude or judgment after each new piece of information in the message is processed. Memory-based message processing involves a different dynamic. Message information enters working memory as it is encountered and then it is encoded into long term memory. An overall (revised) attitude is formed only after the full message has been processed, as information is then drawn from long term memory. Interestingly, individuals can be induced to adopt on-line or memory based processing strategies through instructional sets, thereby making memory for message content more relevant or less relevant to attitude change (Beattie and Mitchell 1985; Lichtenstein and Srull 1985). For example, individuals can be encouraged to think about their attitudes every time a new piece of information is presented and to form a new judgment as new information is acquired. Alternatively, they can be told that it is important to wait until they hear all the information before making judgments. Memory-based processing of complex messages places greater cognitive demands on people because they must retrieve from memory and keep in mind multiple pieces of information. In contrast, on-line message processing may be advantageous for individuals with lower levels of processing capabilities who process complex messages.

Tormala and Petty (2001) found that an individual difference personality variable, namely the need to evaluate, is related to natural tendencies to adopt on-line versus memory based processing of messages. Individuals high in the need to evaluate are more likely to form overall evaluative judgments about objects in their environment as information about those objects is encountered. Tormala and Petty (2001) found weaker recall-attitude correlations for people higher in the need to evaluate (for whom on-line processing is more likely) than individuals lower in the need to evaluate (for whom memory based processing is more likely). The need to evaluate holds promise as a segmentation variable or as a baseline assessment for message tailoring.

There is a large literature on patient-physician communication focused on patient immediate recall of diagnoses and treatment instructions (Ley 1988). Studies tend to find poor recall of instructions, even immediately after the doctor-patient interaction. For example, Crichton et al. (1978) found that patients recalled only about 25 % of relevant medication information just after doctor-patient interactions. Silberman et al. (2008) summarize physician (communicator) behaviors that have been found to impact recall. These include (a) repetition, (b) categorization (categorizing or "chunking" information together), (c) summarization, (d) technical term avoidance, (e) importance emphasis, (f) the use of visuals and written materials, patient understanding assessment, (g) patient note

taking, (h) requested restatement, and (i) rationale provision. Program designers might improve recall by invoking these principles.

In sum, in certain cases, recall of message contents is not critical to message effectiveness for changing attitudes. This is more true when on-line message processing of information is the basis for attitude change. However, even for the case of on-line processing, people need to think about and carefully process message contents—they just do so sequentially rather than holistically. Research indicates that attitudes tend to be more stable and resistant to decay when they are derived from message contents as opposed to peripheral cues. The literature on physician-patient interactions offers numerous practical strategies for maximizing message recall that can be effectively used by program designers (Silberman et al. 2008).

Long Term Message Retrieval

Analyses of long term memory retrieval of health messages distinguish between the recall of the specific contents of a message versus the decay/persistence of change in the overall judgment, attitude, or behavior that the message was intended to impact. The factors that impact the two are not necessarily the same. Boninger et al. (1990) found that individuals who are told they will have to talk to or convey to others the contents of a message experience more enduring changes in their attitudes than individuals without such expectations, a phenomena they refer to as *transmitter tuning*. Cook and Insko (1968) found that persistence of the overall attitude was more likely if the newly acquired attitude had many links to fundamental values held by the individual, values that are themselves stable because of their centrality to the individual and his or her identity. Thus, explicitly linking new attitudes to core values can help to maintain those attitudes.

Message encoding refers to the processes by which message information is transformed into memory representations. The strength of encoding is influenced by the extent to which people attend to message information and the extent to which people elaborate its meaning, i.e., the extent to which they interpret the information and connect it with other information. Activities that encourage strong encoding, such as having recipients repeat back in their own words the gists of a message, or elaborate the meaning of message content, ultimately make that information more retrievable from long term memory.

Studies have shown that spacing out exposure to material over a period of hours typically improves the learning of that material due to the need for memories to consolidate at the neural level (Son and Simon 2012). Thus, spaced exposure (also known as distributed learning) tends to be more effective than massed exposure (also known as massed learning).

Retrieval of memories is cue dependent—it is facilitated by "hints and clues" from the external and the internal environment. To the extent that appropriate "cues to action" are present in an environment (per the Health Belief Model), relevant memories will be activated. Forgetting information often occurs not because a memory has disappeared but rather because the cues are ineffective. Program designers need to ensure that the "cues to action" they provide are, in fact, useful cues for information retrieval.

In sum, the factors that affect short term retention of a message also should impact long term retrieval. Having said that, there are different memory systems for the individual pieces of information contained in a health message and the overall attitude or judgment the message is intended to impact. If a program is such that only memory for the overall judgment is relevant, then the focus should be primarily on factors that will prevent decay of that judgment over time (e.g., transmitter tuning, linking attitudes to values, reminders about positive peripheral cues). If it is important for the individual pieces of information to be recalled as well, then practices should be taught to ensure this is the case. Designers need to carefully consider cues that occur in everyday life that can be linked to memories they want to evoke. During information presentation, designers should help people elaborate on the meaning of information and link it to already established knowledge structures. Rehearsal, putting information in one's own words, conveying the information to others, and making information distinct relative to competing information that might interfere with recall all help maximize long term recall.

Based on the above, booster sessions that remind people of the key messages made during an intervention are likely to be helpful. Studies have found that simple reminders of a message topic over a 1 or 2 week period can lead to greater persistence of attitudes (Cook and Insko 1968). For example, Dal Cin et al. (2006) found that including a "friendship bracelet" for participants to wear after an intervention as a reminder of the intervention resulted in significant reductions in problem behavior over a 6 week follow-up. Booster sessions will be more effective to the extent they provide useful cues for retrieving behavior-relevant memories from the original intensive intervention as opposed to using ineffective cues or cues for memories that are not relevant to the target behavior.

Affective Processes

In addition to cognitive processes, affective appraisals during message processing are important. People often attend to their momentary feelings as a source of information when making judgments, essentially asking themselves "how do I feel about this?" (Schwarz 2010). They then incorporate this "information" into their overall judgment or attitude.

Program designers often seek to have participants engage in "fun" activities that generate positive affect on the assumption that positive affect improves message effectiveness. Actually, research suggests that such activities might boomerang and detract from message effectiveness. Individuals in a positive mood state have been found to refrain from engaging in systematic message processing in order not to disrupt the positive feelings they have. A common finding in attitude research is that people in good moods are not impacted as much by argument quality because they tend to pay less attention to the messages (Bless et al. 1992). These mood effects are somewhat labile, however. For example, Wegener et al. (1995) found that people in a positive mood process message information more when they believe that the information will maintain their mood.
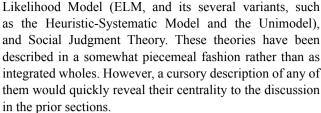
Emotions differ not only in their valence but their degree of arousal. In general, high arousal levels have been found to disrupt information processing, particularly when the task is complex (Humphreys and Revelle 1984). Contextual cues peripheral to arguments tend to have greater impact on attitude change in high versus moderate arousal conditions. Conversely, argument quality has a greater influence in moderate as opposed to high arousal conditions (Sanbonmatsu and Kardes 1988).

Emotions are distinct from moods. Emotions have a referent (e.g., an event we react to), they are short lived, and they typically create intense arousal. Moods lack a referent, are more long lived, and usually are more diffuse. Studies of messages that create fear in people through the use of threats have a long tradition in social psychology (Witte and Allen 2000). Fear appeals seem to have their greatest impact if message recipients are convinced they are personally vulnerable to the negative consequences, and if the messages include a tangible way of reducing threat (Elliott 2005). Fear messages can result in defensive responses to avoid the fear rather than take action, such as paying less attention to the message or attributing the circumstances to someone else (called the third-person effect; DeJong and Winsten 1998).

In sum, affective processing (emotions) operates in complex ways to impact processing of health messages and attitude change. Given the complex dynamics by which emotions and mood impact message processing, it probably is best for program designers to conduct pilot research to identify the role of relevant emotions and mood states during message processing, making adjustments in their approaches to dealing with emotions and moods, accordingly.

Theories of Attitude Change

Our review of attitude change research for program design draws heavily on three popular theories of attitude change, the Yale Communication Program, the Elaboration Likelihood Model (ELM, and its several variants, such as the Heuristic-Systematic Model and the Unimodel), and Social Judgment Theory. These theories have been described in a somewhat piecemeal fashion rather than as integrated wholes. However, a cursory description of any of them would quickly reveal their centrality to the discussion in the prior sections.

Having said that, there are additional approaches to attitude change that also bear on program design, one of which is called narrative communication. New research has emerged that explores attitude change using narrative accounts (Green and Brock 2000; Hinyard and Kreuter 2007). Narrative accounts rely on stories that raise questions, present conflicts, or depict not yet completed activity. Characters may encounter and then resolve a crisis. A story line, with a beginning, middle, and end, is directly identifiable. Attitude change is pursued through story-telling that evokes imagery, engages the reader in active processing in the context of the story, and that can build links between situational cues and cognitions, emotions and actions. The persuasive influence of narratives is thought to derive from cognitive accessibility and affective processes, as such phenomena are more likely to come to mind than in non-narrative approaches. Narrative strategies also are desirable given theories that suggest long term memory is often organized around story lines (Miller 2003). Interestingly, even when narratives are fictional, they often lead to non-trivial belief and attitude change (Kreuter et al. 2010). This is because the contents are more memorable and individuals rarely "counter argue" themes in them as they become engaged in the story itself. Although this area has a substantial empirical base, narrative strategies are under-used. As program designers construct health messages, we believe that doing so using narrative communication can be effective. For reviews of this communication strategy, see Hinyard and Kreuter (2007) and Kreuter et al. (2010).

Concluding Comments and a Checklist

Research that identifies the determinants of mental health service engagement has been extremely important for the design of programs to increase mental health service engagement. We have argued that identifying such determinants is only half the solution. The other half is using sound, evidence-based principles for bringing about change in those determinants. Unfortunately, this latter facet of mental health service use and engagement has attracted little research attention. This article briefly reviewed research from the literature on communication and attitude change that can be applied to this important facet of program design.

We summarize the core elements of our review in Table 1, which consists of a checklist of the many questions and

Table 1 Checklist of key questions for program design

Source characteristics

  Are sources seen as expert?

  Are sources seen as trustworthy?

  Are sources seen as available?

  Are sources likeable?

  What behaviors can sources engage in to increase the above?

  Do sources express their positions with confidence?

  Are different sources needed for different topics areas?

Message characteristics

  Have strong arguments supporting the message thesis been selected based on empirics?

  What type of message framing is used?

  What is the message sensation value (MSV) of the communication?

  How many arguments are used and how complex can those arguments be?

  How often is the message thesis to be repeated?

  What is the ordering of the arguments chosen and why has that ordering been chosen?

  Are two-sided or one sided argument structures used?

Audience characteristics

  What are the important population segments to differentiate between?

  Which segments have the highest priority for outreach?

  How should the message be tailored as a function of the population segment?

  What are the levels of need for cognition for the target audience?

  What are the levels of sensation seeking for the target audience?

  What are the levels of topic involvement for the target audience?

  What can be included in the context/message to increase topic relevance?

  What are the education levels and processing capabilities of the target audience?

  How do these education levels and processing capabilities limit message complexity?

  What are the key personality matches between messages and individual characteristics?

  Does the targeted mental health condition affect message processing? How?

Context

  How does the target audience view the context in which messages will be delivered?

    What does the target audience see as the positives and negatives of the context?

  Do different population segments in the target population prefer different contexts? How?

  What are the key design features in the environment?

  What are the key social cues operating in the environment?

  What are the key ambient sensory cues in the environment?

  What message distractors are operating in the environment?

Channel

  What are the relative advantages and disadvantages of using face-to-face interaction modalities, internet-based modalities with computers, internet-based modalities with smart phones, text messages, telephone, radio, television, magazines, newspapers, and brochures?

  For each channel, what is the ability of the channel to reach large, at-risk population segments?

  For each channel, what are the organizational capabilities required to use it?

  For each channel, what are the incremental costs of using it?

  How well does each channel "match" the media habits of the target population?

  For each channel, how well can it accommodate the needed message complexity?

  For each channel, how likely is it to be effective?

  For each channel, what evidenced based criteria can used to maximize design quality?

  How can one structure face-to-face programs to encourage positive orientations for dealing with conflict, use of self-disclosure, being empathic, being supportive, staying calm, being responsive, using appropriate interaction management, and being direct?

Table 1 (continued)

Cognitive processes

What central features of the message should be made vivid? Are irrelevant factors vivid?

What steps can be taken to defuse people from feeling they must "defend my position" and instead want to make an informed, accurate decision?

What are the literacy, numeracy, and health-literacy levels of the target population (for purposes of maximizing message comprehension)?

What are the gists of the message and are the gists reflected grammatically in the message?

Is the most essential information presented at the beginning of the message (favoring primacy)?

Is the language used in the message appropriate for the target population?

Are textual materials written at the appropriate reading levels?

For bilingual populations, is a choice of message language provided?

What are message consistent thoughts/elaborations that occur during message processing?

What are message inconsistent thoughts/elaborations that occur during message processing?

Have steps been taken to ensure processing of strong arguments?

Which is better for the audience, on-line message processing or memory based processing? What steps can be taken to encourage one or the other?

Is the target population low or high in the need to evaluate? How does this impact messaging?

Were the principles of physician-patient communication (see text) used to maximize short term (and long term) recall?

Is transmitter tuning a viable strategy?

Can the target attitude be linked to core, stable values of the individual?

What steps can be taken to encourage strong encoding?

Can distributed learning be used to encourage consolidation?

What "cues to action" should be targeted for building associations?

Is a reminder booster session possible? What is the time interval for the booster? What channel should be used for the booster?

What are the most effective reminder cues for the booster to provide? Does the booster include reminders relevant to source expertise and trustworthiness?

Affective processes

What are the relevant emotions and moods that are operating in the messaging situation?

Will there be positive affective transfer as a result of the experienced emotions?

Do recipients perceive these emotions as relevant to the health message?

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issues that program designers who use communication strategies should address as they design programs. These questions are grounded in scientific research and we are confident that if program designers routinely answered them as they formulate their engagement programs, the programs would be that much more effective. We suspect that many program designers already implicitly address many of the questions when they design programs. However, Table 1 systematizes the questions that should be asked and ensures that important design issues are not overlooked. The answers to the questions will not always be readily apparent. Designers may have to conduct preliminary studies, beyond those of identifying determinants of service engagement, to identify the most effective ways of communicating with their target population. The communication matrix in Fig. 1 can be used as a general checklist of questions to answer. Table 1 is a more detailed, concrete checklist.

The need for preliminary research vis-à-vis program design is underscored by two facts. First, the populations that are the target of service engagement programs do not necessarily map onto the populations on whom attitude research has been conducted. Will the same principles and mechanisms apply, for example, to individuals who suffer from mood and anxiety disorders? The fact is, we do not know. It is only through research that we can evaluate the applicability of the principles described in this article to the populations mental health program designers seek to reach. Second, a more careful, detailed examination of the memory, information processing, and attitude change literatures reviewed in this article suggest many exceptions exist to some of the communication principles we identified. To us, this underscores the idea that "one size does not fit all" and that careful, preparatory research is needed to take into account the specific contingencies in a given program implementation. A notable feature of Table 1 is that it is content free in terms of the subject of the communication. It can be applied to any determinant, be it self-stigma, perceived efficacy of a treatment, lack of trust in the mental health system, how to deal with families, and so on. It is a general framework for program design. We hope that this exposure

to communication theory and the checklist in Table 1 will serve as a basis for bringing evidence-based strategies to bear as we design programs to encourage consistent engagement and investment in mental health care for those in need.

Compliance with Ethical Standards

Conflict of Interest Dr. Michelle Munson declares that she has no conflict of interest. Dr. Jaccard declares he has no conflict of interest.

Ethical Approval This article does not contain any studies with human participants or animals performed by any of the authors.

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