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# Designing an Internet Intervention for Emerging Adults Who Experience Troubled Relationships

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## Abstract

This article describes how the Internet Intervention Model (IIM) was used as an organizing framework to design a theoretically based Internet intervention for emerging adults who experience troubled intimate partner relationships. In the design process, the team addressed six fundamental questions related to the several components of the IIM. Decisions made regarding the design of the intervention based on the six questions are described. We focus in particular on how the intervention is based on the Theory of Emerging Adulthood and the Theory of Narrative Identity.

## Keywords

The number of mental health and behavior change interventions delivered over the Internet has proliferated in recent years (Ritterband & Tate, 2009). Typically Internet interventions can be accessed at any time or location with an Internet connection and offer a variety of benefits over traditional interventions delivered face-to-face. These benefits include increased privacy and anonymity, greater access for geographically remote or disenfranchised persons, elimination of travel to appointments, increased affordability, less time missed from work or school for appointments, shorter waiting lists, and, for some persons, less inhibition of self-expression (Barak & Grohol, 2011; Ritterband et al., 2003; Ritterband & Tate, 2009; Onken & Shoham, 2015).

Despite early resistance by mental health professionals, several reviews and meta-analyses have demonstrated the efficacy of Internet interventions to treat a variety of emotional or behavioral health problems. Internet interventions have been shown to effectively treat addictions (Gainsbury & Blaszczynski, 2011), anxiety and depression (Andersson,

Nordgren, Buhrman, & Carlbring; 2014; Arnberg, Linton, Hultcrantz, Heintz, & Jonsson, 2014; Pennant et al., 2015; Titov, 2011), pain (Cuijpers, van Straten, & Andersson, 2008), chronic somatic conditions (van Beugen et al., 2014), and panic disorder (Richards, Klein, & Carlbring, 2003).

Barak, Hen, Boniel-Nissim, & Shapira (2008) conducted a comprehensive review and meta-analysis of the effectiveness of Internet-based psychotherapy interventions for a variety of problems and concluded that the average effect size for Internet-based treatments (0.53, medium effect) was similar to traditional face-to-face therapy. In addition, the review revealed that Internet-based treatments are more effective for psychological disorders (e.g., post-traumatic stress disorder, panic and anxiety disorders) than for problems that are primarily somatic (e.g., weight loss) and that cognitive-behavioral therapies are better suited to online approaches than are psychoeducational or behavioral interventions.

Although Internet interventions show great promise, little has been written about how to develop them. Ritterband, Thorndike, Cox, Kovatchev, and Gonder-Frederick (2009), for example, argue that much literature is available on the technology of website design, but literature on how to develop theoretically based interventions using online platforms is lacking. To address this gap, they propose the Internet Intervention Model (IIM) to guide the development of Internet interventions aimed at behavior change and symptom improvement. The purpose of this article is to describe how the IIM was used as an organizing framework by our research team to design a theoretically based Internet intervention for emerging adults (EAs) who experience troubled intimate partner relationships. We explain the decisions we have made about the intervention related to the components of the IIM in order to provide insights about salient issues involved in developing Internet interventions aimed at facilitating behavior change.

## The Internet Intervention Model

Ritterband et al. (2009) developed the IIM to guide the development of Internet interventions that are feasible, informed, and testable. They propose that such interventions will facilitate change in the following manner:

> …. the *user*, influenced by *environmental* factors, affects *website use* and adherence, which is influenced by *support* and *website* characteristics. Website use leads to behavior change via different *mechanisms of change* (e.g., knowledge and motivation). Behavior change impacts physiology and target behaviors to bring about *symptom improvement*, and *treatment maintenance* helps users maintain these gains. (p. 19)

The IIM thus consists of nine components: user characteristics, environment, website, website use, support, mechanisms of change, behavior change, symptom improvement, and treatment maintenance. Ritterband et al. (2009) proposed that each component has characteristics that can be observed, evaluated, and manipulated.

In this article, we focus on the three components that posed the greatest challenges for us in designing the intervention: user characteristics, mechanisms of change, and website. Below

we describe the six fundamental questions that arose related to these components. The questions centered on determining the target of change (user characteristics), the mechanism of change, intervention content (website), intervention delivery (website), behavioral prescriptions (website) and user participation (website). We focus on conceptual and clinical, rather than technical, decisions that guided the design of the intervention.

## Development of WISER: Writing to Improve Self-in-Relationships

Our research team has designed an Internet intervention called **Wr**iting to **I**mprove **Se**lf-in-**R**elationships (**WISER**) over a 24-month period. The team consisted of senior nurse scientists, a web designer, doctoral nursing students, and early career health professionals. The intervention is designed for EAs aged 18 to 25 years who are experiencing or who have experienced troubled relationships with intimate partners. The proximal outcome of the intervention is an improvement in relational schemas, or how EAs view themselves in regards to their intimate relationships, and the distal outcome of the intervention is a decrease in intimate partner violence.

The intervention aims to serve EAs who have experienced dating violence as well as those who customarily experience conflict in relationships that could lead to dating violence. However, because EAs often reject the term "dating violence" as not applying to their situations (Author, Author, & Stephenson, 2012), we decided to focus the intervention on "troubled" intimate partner relationships rather than only on "violent" intimate partner relationships. We defined a troubled relationship as a relationship with an intimate partner that makes one distressed, anxious, or unhappy. We defined an intimate partner as a person one has dated either seriously or casually or a person with whom one has had a sexual or romantic relationship.

Designing the intervention was an iterative process in which our team moved between developing the therapeutic structures of the intervention and the technical aspects of the website. The design process involved obtaining feedback from an advisory group of EAs; obtaining feedback from a professional advisory board of experts in narrative therapy, expressive writing, and mental health issues in emerging adulthood; reviewing relevant theories and extant empirical research; conducting regular and frequent team discussions; and conducting informal beta-testing within the team. Six fundamental questions that arose during the design of WISER are described below.

### Question 1: What User Characteristic Should be the Target of Change?

User characteristics are the diverse characteristics that research participants or consumers bring to an intervention (Ritterband et al., 2009). Some characteristics are fixed (e.g., age, gender) whereas others are modifiable (e.g., beliefs, attitudes). Interventions often focus on modifiable user characteristics. The IIM lists seven types of user characteristics: disease, demographics, traits, cognitive factors, beliefs and attitudes, physiological factors, and skills.

Before we started to design WISER, we had determined that our population of interest was EAs rather than adolescents. Several dating violence prevention programs had been developed and widely implemented for middle and high school students (Whitaker, Murphy,

Eckhardt, Hodges, & Cowart, 2013; Whitaker et al., 2006), especially the SafeDates© program (Foshee et al., 2005; Foshee et al., 2012; Foshee & Reyes, 2009). However, no such programs are available for EAs. In the emerging adult population, intimate partner relationships are often unstable and exploratory but nonetheless essential to the development of mature relationship skills. In addition, although the prevalence of dating violence begins to decline in this group, the severity of its negative physical and psychological outcomes increase (Muñoz-Riva, Graña, O'Leary, & González, 2009). Emerging adulthood thus offers a critical window of opportunity to enhance the quality of intimate partner relationships and subsequently decrease the risk of dating violence.

Because modifiable user characteristics serve as the targets of change, our team needed to identify what user characteristic in the EA population should be targeted in order to meet the distal goal of decreasing dating violence. Experts had called for innovative dating violence interventions that move beyond psychoeducational curricular targeting knowledge, attitudes, and skills and address more enduring cognitive structures to enhance long-term changes in relationship quality (Whitaker et al., 2006). In response, we called on two theories that provide the foundation of the intervention: The Theory of Emerging Adulthood (Arnett, 2006) and The Theory of Narrative Identity (McAdams & McLean, 2013).

The Theory of Emerging Adulthood (Arnett, 2006) suggests that in industrialized countries individuals in their late teens through mid-20s are a unique developmental group separate from late adolescents (ages 16–17) and young adults (ages 26–35) due to delayed marriage and parenting, high rates of participation in higher education, frequent job changes, and wide acceptance of pre-marital sex and cohabitation. According to the theory, five features mark this developmental period: (1) identity exploration, (2) instability (e.g., frequent job changes and residential moves, multiple romantic partners), (3) self-focus (e.g., few social obligations, duties, and commitments), (4) feeling in-between adolescence and adulthood, and (5) sense of possibilities (e.g., high hopes for the future, chance to move life in favorable direction).

The Theory of Narrative Identity (McAdams & McLean, 2013) suggests that EAs begin to cement a coherent personal life story that reconstructs the past, envisions the future, and grants a sense of unity, purpose, and meaning to their lives. Part of this story includes relational schemas, which are cognitive structures that organize knowledge and beliefs about relationships (Furman & Simon, 2006; Žvelc, 2009). Relational schemas guide persons' behaviors in intimate relationships and shape their expectations and predictions of the behaviors of their partner (Lilgendahl & McAdams, 2011; Furman & Simon, 1999; Furman & Wehner, 1994). These schemas, which are experienced as narrative life themes, are influenced by early attachment experiences (Furman & Simon, 2006). For example, when early caregivers are attentive to children's needs, the children develop narratives of self-in-relation to others with themes of high autonomy and communion; when early caregivers respond minimally to children's needs, the children develop narratives of self-in-relation to others with themes of high autonomy and low communion; and when early caregivers respond inconsistently to children's needs, the children develop narratives of self-in-relation to others with themes of high communion and low autonomy (Furman & Simon, 2006, Furman & Collins, 2009). As children age, these narratives are revised based on subsequent

experiences and discourse with others, resulting in an increasingly integrated narrative identity (McAdams & McLean, 2013).

Relational schemas that are poorly understood, unarticulated, and incompatible with healthy relationships, such as those associated with problematic early attachment, can lead to a pattern of discord, aggression, and violence in intimate relationships (Author, Author, & Stephenson, 2012). For example, a relational schema that centers on interpersonal control at the expense of intimacy could lead to a pattern of aggression and aloofness in intimate relationships, whereas a relational schema that centers on intimacy at the expense of autonomy could lead to a pattern of victimization in intimate relationships. Based on these theoretical tenets, we decided to target the user characteristic of problematic relational schemas. The underlying assumption of WISER is that a change in EAs problematic relational schemas can disrupt an emergent pattern of troubled intimate relationships, reduce the likelihood of violent behaviors in subsequent relationships, and mitigate the long-term health and social consequences of dating violence.

### Question 2: What Mechanisms Could Best Affect Change in Problematic Relational Schemas?

Mechanisms of change are the processes used to bring about desired effects in user characteristics serving as targets of change (Ritterband et al., 2009). We thus needed to determine how the intervention could effect change in problematic relational schemas. Because the concept of relational schema is based on the Theory of Narrative Identity (McAdams & McLean, 2013), we reasoned that narrative therapy, which is a therapeutic approach focusing on co-constructing life narratives, had the most potential to generate the desired changes.

Narrative therapy, based on the work of Michael White and David Epston (White, 1995; White & Epston, 1990), encourages people to think of their lives as stories so they may replace problem-laden life stories with life stories that are meaningful and fulfilling. Although this therapy has advanced in the past several decades and is now used worldwide (Madigan, 2011; Rodriguez Vega et al., 2011; Vromans & Schweitzer, 2011), four key practices remain central to the approach. The first practice is externalization in which persons are invited to name the problem they wish to address and to see it as an external force amenable to change rather than as an intrinsic and enduring personality trait (e.g., need to control others versus being a controlling person) (White, 1995; White & Epston, 1990). The second practice is identifying oppressive societal messages that fuel the problem so that persons are freed to reject those messages (e.g., messages from the media that men should not express their feelings) (White, 1995; White & Epston, 1990). The third practice is uncovering and building upon unique outcomes, which are moments of insight, strength, or vitality that are at odds with the problem but that might be out of persons' awareness (e.g., an instance in which a person refused to be put-down by a partner) (White, 1995; White & Epston, 1990). The fourth practice is creating new stories that build upon unique outcomes and represent persons' preferred narratives (White, 1995; White & Epston, 1990). Narrative therapy is based on the tenet that if people engage in these four practices, they will be able to

re-author their lives in ways that are more satisfying. We thus decided these four narrative therapy practices would serve as the mechanisms of change for our intervention.

Figure 1 is a model that depicts the theoretical basis of WISER including the targeted user characteristic and the mechanisms of change.

### Question 3: What Content is Needed to Introduce the Mechanisms of Change?

Ritterband et al. (2009) suggested that perhaps the most important feature of the intervention website is the content delivered. They stated that "providing accurate, clear, and simple information is critical to creating and delivering efficacious applications that will be well-received" (p. 21). We were thus challenged to develop content about relational schemas (i.e., the target of change) and the four narrative therapy practices (i.e., the mechanisms of change). Because these ideas can be somewhat complex and abstract, we aimed to present them in a straightforward manner that was relevant to users.

**Relational schema: "Me-in-my-relationships"—**We chose to replace the theoretical term relational schema with the more user-friendly term "me-in-my-relationships." We describe "me-in-my-relationships" to users as "the ways I typically think, act, and feel in relationships" or "the 'me' that I bring into my relationships."

**Four practices of narrative therapy—**We similarly designed content to describe the four practices of narrative therapy (i.e., externalization, oppressive societal messages, unique outcomes, and preferred narratives) in user-friendly language. We refer to each practice as a "WISER Idea" and use colloquial labels for each. Table 1 outlines the four practices or "WISER Ideas," their labels, and language we use to describe each.

### Question 4: How to Best Deliver the WISER Content Online?

Ritterband et al. (2009) indicated that another important feature of Internet interventions is how the content is delivered on the website. Delivery modes can include animations, audio, graphics, text, video, and vignettes. They argued that delivery modes can influence user engagement and enjoyment and the usability of the program. For example, they suggested that vignettes developed for a program have a stronger effect if users identify with the story presented in the vignettes and if the vignettes help normalize the situation for which help is sought. We chose to use actor vignettes as well as downloadable texts to present the WISER content.

**Actor vignettes—**We developed a series of four videos presenting vignettes of actors playing EAs who were experiencing troubled relationships. To ensure that the vignettes were realistic and resonated with users, we created them based on in-depth interviews conducted for a prior qualitative study on dating violence (Author et al., 2010; Author et al., 2012; Author, Author, Stephenson, Cook, & Heckman, 2012). The four vignettes differ in the characters' ethnic origins and sexual orientations and the circumstance of the troubled relationships they describe. For example, they vary on the severity of the troubles portrayed, whether the troubles included physical violence, and whether the troubles were intermittent or constant. In each video, the actor discusses his or her character's troubled relationship as

it relates to one of the four WISER ideas and reads the character's story that reinforces the idea. The videos provide a focus for each session of the intervention.

**Downloadable documents—**In addition, the content is provided in two documents that the users can download from the WISER website. The first document is called a WISER Guide, a one-page infographic that lists the WISER idea for each session, identifies its defining features, and provides examples. The second document is the WISER Handbook, which contains a more detailed discussion of the WISER program, including an expanded discussion of each WISER idea. The handbook also contains additional readings on healthy relationships, dating violence, digital abuse, and lesbian, gay, bisexual, and queer (LGBTQ) relationships.

### Question 5: What Behavioral Prescriptions Can Activate the Mechanisms of Change?

According to Ritterband et al. (2009), behavioral prescriptions are instructions to users on what they can do to address the target problem. We determined that to address problematic relational schemas, we would ask users to write stories that enable them to explore and challenge these schemas. The choice to use story writing was based on a well-established and empirically supported paradigm of therapeutic expressing writing (Pennebaker & Evans, 2014). To activate the four narrative therapy practices, the behavior prescriptions instruct users to write four stories over the course of four weeks that address the four WISER ideas. For example, in Session 1 the following behavioral prescription is presented to users on the website screen after they have watched the first vignette:

> Write a story about a current or past troubled relationship. As Maria does in the Session 1 video, include a bit about the relationship(s) in general and then describe an incident that exemplifies the trouble in the relationship. Include in the story your thoughts about your "me-in-my-relationships" and give it a name like Maria did. Remember, there are no "rights" and "wrongs" to writing the stories – we wish you to tell YOUR story however you want to. We will not evaluate grammar, punctuation, and the like. Most stories are a page or two long, but your story can be as short or as long as you like.

Similar behavioral prescriptions are given for each of the subsequent three sessions. The behavioral prescriptions are also introduced by the actors when they finish reading their stories and included in the WISER Handbook.

### Question 6: How Can User Participation Be Enhanced?

According to Ritterband et al. (2009), effective engagement strategies are key features of Internet interventions. They suggest that participation can be enhanced by personalized or targeted interactions and reinforcements. Personalization involves designing interventions with features that allow users to personally identify with the content and activities of the program. Reinforcement strategies are designed to motivate users to move through a program. Providing feedback is considered a critical reinforcement strategy.

Our team decided to use a human-supported approach to WISER by employing young adult peer counselors, whom we refer to as advisors, to provide personalized responses to the

users' stories. Although using a human-supported approach will increase the cost of the intervention, the team determined it was the optimal approach to ensure that users received a response to their stories that were personalized to their unique situations and to the particular characteristics of their troubled relationships. All advisors have at least a bachelor's degree in a health-related discipline and are trained by the WISER developers. We constructed a template for each advisor response so the responses would contain common elements while allowing the advisors to personalize their responses based on the unique content of the users' stories. The common elements of the responses include a reflection of the essence of the users' stories, an acknowledgment of the use of the WISER idea, and suggestions for considering the WISER idea if it did not appear in the story. For example, the template includes language that structures how advisors are to reflect on the content of the users' stories but allows the advisors to modify the language to reflect the particular plot of the users' stories as well as the unique thoughts and feelings they express.

The team determined that another strategy to keep the users engaged is the use of both automated and personalized email reminders to facilitate their movement through the program. The website is programmed to deliver automatic reminders if the users do not respond to an email within a specified period of time. The advisors can also send personalized emails to participants depending on their progress. For example, if a user completes three of the four session but then does not complete the final assignment, the advisor can send an e-mail message that acknowledges how far the user has come in the program, invites the user to complete the final assignment, and invites him or her to contact the WISER team if "stuck" on the final assignment.

The flow of the users' participation in WISER is illustrated in Figure 2.

## Discussion

The IIM (Ritterband et al., 2009) provided an organizing framework that guided the WISER team and facilitated the design of a theoretically based Internet intervention for EAs who experience troubled relationships and are at risk for dating violence. The development process that we described may help others seeking to design interventions based on theoretical constructs, such as relational schemas, that have not yet been harnessed in mental health or behavior change interventions.

Although much research has been conducted on newly developed Internet interventions, little has been written on how conceptual understandings of behavior change and novel theoretical approaches shape Internet intervention design. One notable exception, which resonates with our work, is an article by Tarzia et al. (2016) that describes the "theoretical journey" (p. 214) they took in developing I-DECIDE, an online healthy relationship tool and safety decision aid for women experiencing domestic violence. They describe the processes by which the Psychosocial Readiness Model (Cluss et al., 2006) provided the basis for a casual model upon which their intervention is based. The model posits that readiness to change is best thought of as a balance between internal and external factors, with the three internal factors being awareness, self-efficacy, and perceived support. The elements of I-DECIDE are thus designed to effect change in these three user characteristics.

Our team made numerous decisions not discussed in this article, including decisions related to the appearance and functionality of the website, strategies to enhance the confidentiality and safety of the program, and the tools to measure our proximal and distal outcomes. Our choice to focus on the theoretical aspects of intervention design in this article is consistent with the results of a systematic review and meta-analysis of Internet interventions that revealed the effectiveness of online behavior change programs can be enhanced by extensive use of theory, incorporation of multiple behavior change techniques, and use of additional methods to communicate with users (Webb, Joseph, Yardley, & Michie, 2010).

Our research team is now pilot testing the WISER program in a college population and will ultimately test WISER in a randomized controlled trial in a broader group of EAs. WISER could offer an alternative to traditional primary prevention psychoeducational approaches now widely available to adolescents by providing a tertiary intervention for EAs who experience troubled relationships. Our aim is to develop an effective intervention that can disturb the entrenchment of negative relational schema and thus interrupt an emerging pattern of unhealthy and possibly violent intimate partner relationships that can extend well into adulthood.
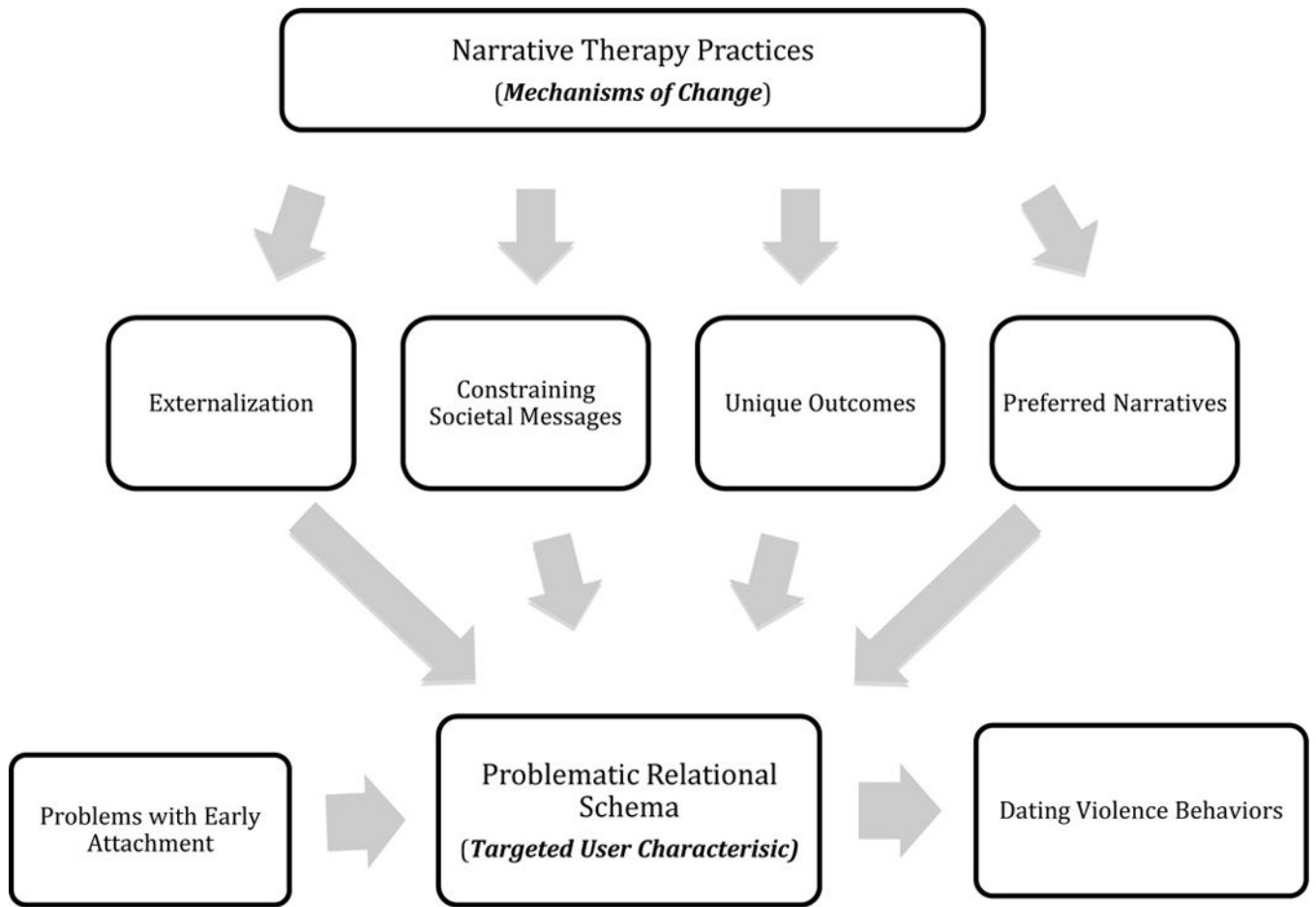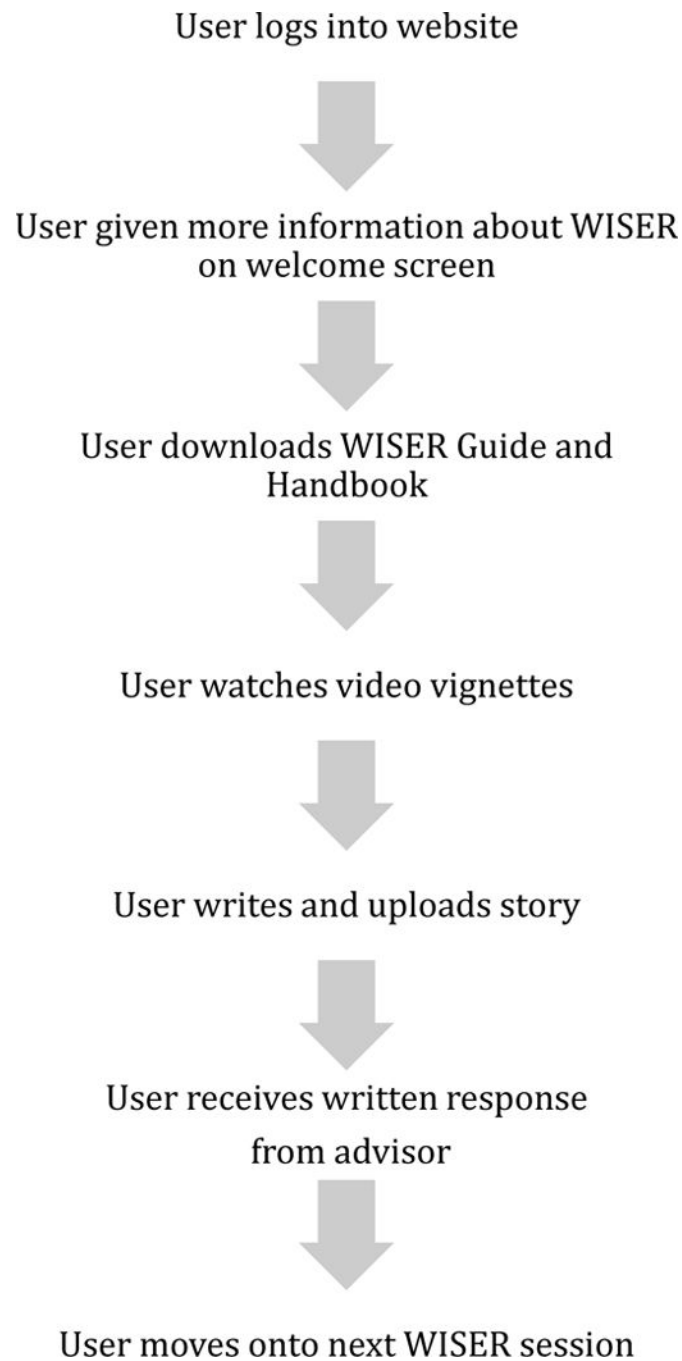
## Acknowledgments

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**Figure 1.**
WISER Theoretical Model

User logs into website

User given more information about WISER
on welcome screen

User downloads WISER Guide and
Handbook

User watches video vignettes

User writes and uploads story

User receives written response
from advisor

User moves onto next WISER session

**Figure 2. User Participation Flow for Each Session in WISER[1]**
[1]Note: Users receive reminder emails if they do not upload their stories within the recommended time frame or do not move to the next session. This illustration represents the steps needed to complete one of the four WISER sessions. While WISER is being tested, there are additional steps, including obtaining informed consent and completing the study instruments, that are not depicted here.

**Table 1**

The WISER ideas

| Narrative Therapy Practice | WISER Idea | Description |
|---|---|---|
| Externalization | Me-in-My-Relationships Problem | My "me-in-my-relationships" might be a problem if it gets in the way of the relationships I want; naming the "me-in-my-relationships" problem can help me address it. |
| Oppressive Societal Message | Constraining Messages About Relationships | Messages from others that I should be a certain way in my relationships; come from society, the media, or friends and family; are often based on my gender; can limit how I act or feel in my relationships |
| Unique Outcomes | Unique Moments in Relationships | A time when my "me-in-my-relationships" problem is not in control; often a moment of strength, insight, or change; can be a thought or an action; allows a glimpse at how my relationships could be |
| Preferred Narratives | My Preferred Relationship Story | You imagine the relationship you desire; your "me-in-my-relationships" problem does not intrude; not necessarily a perfect fairytale relationship; a relationship that you find satisfying or fulfilling |