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Planning a Stigmatized Nonvisible Illness Disclosure: Applying the Disclosure Decision-Making Model

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Abstract

This study applied the disclosure decision-making model (DD-MM) to explore how individuals plan to disclose nonvisible illness (Study 1), compared to planning to disclose personal information (Study 2). Study 1 showed that perceived stigma from the illness negatively predicted disclosure efficacy; closeness predicted anticipated response (i.e., provision of support) although it did not influence disclosure efficacy; disclosure efficacy led to reduced planning, with planning leading to scheduling. Study 2 demonstrated that when information was considered to be intimate, it negatively influenced disclosure efficacy. Unlike the model with stigma (Study 1), closeness positively predicted both anticipated response and disclosure efficacy. The rest of the hypothesized relationships showed a similar pattern to Study 1: disclosure efficacy reduced planning, which then positively influenced scheduling. Implications of understanding stages of planning for stigmatized information are discussed.

Keywords

Efficacy; nonvisible illness; self-disclosure planning; stigma

Self-disclosure is the process of voluntarily revealing personal information in dyadic contexts (Cozby, 1973; Pearce & Sharp, 1973). Self-disclosure decisions involve the consideration of its outcomes as to whether the information revelation incurs costs for self, other, and relationship (Afifi & Steuber, 2009; Derlega, Winstead, & Folk-Barron, 2000). Thus, people need to self-censor disclosure content before revealing while also determining how to and how much to share, and with whom (Petronio, 2002). For example, people who plan to disclose personally stigmatized information will engage in complicated cost and benefit analysis, deliberating their capabilities to share the information, potential social

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rejection, and threats to relationship (Feldman & Crandall, 2007; Greene, 2009; Ragins, 2008).

Motives of disclosures can be diverse, ranging from seeking catharsis or relief (Derlega, Winstead, Mathews, & Braitman, 2008; Hastings, 2000), building intimacy (Altman & Taylor, 1973), to receiving others' support (Derlega et al., 2008). Some disclosures may occur spontaneously at the limits of tolerance to hold what is kept inside (e.g., Geller, 2003). However, spending time for planning has been found to be more common and led to more successful and complex strategies for communicative activities (Berger, 1997). According to Yep, Reece, and Negron (2003), individuals prefer preplanned to unplanned disclosure because they want control over their personal information, unless the goal was to seek immediate relief, catharsis, or need for reciprocity to received disclosure (e.g., Greene, Derlega, Yep, & Petronio, 2003).

Most research examining the disclosure of health-related information suggests factors that contribute to the decision to disclose (Afifi & Steuber, 2009; Derlega, Winstead, Greene, Serovich, & Elwood, 2002; Joachim & Acorn, 2000). A minimal amount of literature has examined the process of planning disclosure once the decision to disclose has been made. Unlike many previous studies, this study particularly aims at examining how people plan their disclosure, instead of exploring their likelihood to disclose. Although a common outcome variable of disclosure enactment is revelation of information, this approach does not explicate how conditions surrounding the disclosure decision are related. In other words, including planning in a disclosure decision model conceptually confirms whether disclosures occur consciously rather than spontaneously, but this has received minimal attention in the literature despite reports that people do plan before they share.

More relevant to the current study, when revealing stigma that has not been publicly recognized, planning strategies for how to control disclosures may be particularly important. Individuals with invisible stigma may not be perceived as having stigma, thus, sharing the stigma may increase concerns about managing newly generated identity (Corrigan, Markowitz, Watson, Rowan, & Kubiak, 2003). To reduce costs of disclosure, possible situations pertaining to disclosure, including the choice of the right recipients and potential rules to regulate the information, may be considered before the revelation (i.e., Petronio, 2002; Ragins, 2008). In sum, the planning of self-disclosure will reflect disclosers' efforts to anticipate outcomes to disclosers themselves but also to ponder the qualifications of the potential recipients to protect information.

In the current study, we propose evaluation of information, closeness, anticipated response, and disclosure efficacy as underlying phenomena influencing planning, followed by the enactment of self-disclosure. The study proposes a model to explore this process of disclosure planning, by applying the framework of the Disclosure Decision-Making Model (DD-MM) (Greene, 2009).

Disclosure Decision-Making Model (DD-MM) and Planning of Self-Disclosure

Greene's (2009) DD-MM outlines the decision for self-disclosure as involving three features: information assessment, receiver assessment, and disclosure efficacy. As one component, individuals assess five aspects of the information possibly to be disclosed, and if they decide that the rewards from disclosing this information content outweigh the risks, they will be willing to consider disclosing the information. In addition, individuals consider potential receivers by evaluating relational quality and anticipated response. Last, disclosers evaluate their ability to disclose (disclosure efficacy) the information. The DD-MM predicts that as disclosure efficacy increases, the individual's likelihood to disclose also increases. This last stage of the decision process includes choosing the setting, timing, channel/mode, and message features. In the following review of literature, each component of decision for disclosure will be described, followed by hypothesized relationships among the components.

Assessing Information

Assessing information is one component of the disclosure process in the DD-MM, and this includes the evaluation of five types of information regarding the health condition (stigma, preparation, prognosis, symptoms, and relevance to others) (Greene, 2009). Although the DD-MM was designed to test the self-disclosure of health information, it was initially tested with information valence (e.g., Venetis et al., 2012). Other studies tested the model with information that is conceptualized as prognosis and symptom uncertainty (Checton & Greene, 2012), and information severity and relevance (Greene, Magsamen-Conrad, et al., 2012). Last, Venetis, Greene, Checton, and Magsamen-Conrad (2015) applied the DD-MM to examine how cancer patients' perceptions of stigma, prognosis, symptoms, and relevance of information affect the avoidance of discussions about their health condition. For this present study, the model will be applied in order to examine self-disclosure of two types of information: stigma from nonvisible illness, one of the five health information components of the DD-MM, and general personal information.

Stigma (Model 1)—According to Goffman (1963), a stigma is "an attribute that is deeply discrediting" (p. 3). People with stigma are often preoccupied with negative thoughts about self, which may provoke rumination and psychological aggression (i.e., Lewis, Milletich, Derlega, & Padilla, 2014). Previous studies have found that stigma becomes a major challenge in disclosure or seeking help (e.g., Corrigan, 2004; Holmes & River, 1998; Vogel, Wade, & Hackler, 2007). Perceived stigma can increase an individual's feelings of risk about disclosure, thus tightening one's boundary around the information. Especially for nonvisible stigma, determining whether or not to disclose involves more complicated consideration of disclosure regarding control over information than for visible stigma. Revealing such stigma may put one in the position to manage identity that had been hidden from others, requiring him or her to project strategies for regulating accessibility of information before disclosure (Ragins, 2008).

The DD-MM proposes that the more that individuals assess their information as stigmatized, the more likely it becomes that they spend cognitive effort in considering target response and

their capabilities for revealing (e.g., Greene, 2009). In the DD-MM, feelings of stigma negatively predict disclosure efficacy (which will be reviewed later) (i.e., Greene, Magsamen-Conrad, et al., 2012), but this relationship may be mediated by anticipated response. The model with stigma (Model 1) will be compared to another model with information intimacy (Model 2).

Information Intimacy (Model 2)—When it comes to the examination of the disclosure process, it is worthwhile to compare stages of disclosure planning for different information because the ways that individuals assess conditions for disclosure may be different according to information perceptions (Greene, 2009). Information intimacy is a more generalized information assessment than stigma that may be assessed for particular aspects pertaining to individuals' self-concept (i.e., Fine & Asch, 1988). In diverse disclosure contexts such as the management of relationships and privacy, intimacy of information taps how deeply people reveal information about themselves (e.g., Altman & Taylor, 1973; Petronio, 2002).

Sharing intimate information increases liking and trust by others (Collins & Miller, 1994). At the same time, disclosing this information may expose disclosers to vulnerability. More specifically, disclosing intimate information may encompass concerns not only about how the target will respond to the disclosure, but also about how to share the information with that target. In the DD-MM, after assessing information, individuals anticipate how a target will respond to their disclosure. The following section will discuss the role of receiver assessment in the DD-MM.

Assessing the Receiver

Having a target that is close and supportive is one essential condition to reduce tension from expected negative outcomes (e.g., Derlega et al., 2002). The DD-MM proposes two aspects of receiver assessments that influence disclosure decisions, relational quality, and anticipated response.

Relational Quality—In disclosure contexts, relational quality is an important indicator of how much a target is trustworthy and ready to provide support. Prior research shows that relational quality has been found to be positively associated with disclosure (e.g., Afifi & Steuber, 2009; Vangelisti & Caughlin, 1997). For example, closeness with the target increases the willingness to reveal secrets under certain conditions (e.g., catharsis, the target's need to know, and under the encouragement to reveal the secret) (Afifi & Steuber, 2009). According to Vangelisti and Caughlin, people disclose their information to those to whom they feel attached in part because such disclosure is rewarding in terms of relationship maintenance or development (e.g., Pearce & Sharp, 1973). Furthermore, when people reveal personal information, closeness predicts anticipated response (Checton & Greene, 2012), which then predicts the likelihood of disclosure (Greene, Magsamen-Conrad, et al., 2012).

In short, in disclosure decisions, we assume that maintaining close relationships may be a supplemental condition that influences anticipated target response. Thus, we include in the DD-MM anticipated response as another target evaluative factor contextualized for

disclosure decision making. The following section discusses the role of anticipated response in individuals' perceived abilities to reveal information.

Anticipated Response—Thinking about what to reveal influences the way that disclosers anticipate target responses (e.g., Makoul & Roloff, 1998). People decide what to disclose to whom based on whether they consider their information intimate (Altman & Taylor, 1973), private (Petronio, 2002), or secret (Kelly, 2002). Revealing intimate information makes people focus on regulating their information, because this revelation can increase identity concerns and may challenge impression management (e.g., Afifi & Caughlin, 2006). For instance, to protect themselves, people tend not to reveal their secret to family members when anticipating negative target judgments (e.g., Afifi, Olson, & Armstrong, 2005). Cancer patients avoid discussing topics related to their diseases with someone when anticipating a lack of reciprocal conversation with him or her (Venetis et al., 2015). In addition, patients with stigmatized illnesses such as HIV express concerns about negative attributions of the disease when considering disclosures (Greene, Carpenter, Catona, & Magsamen-Conrad, 2012). Conversely, while disclosers anticipate target response based on what they consider revealing, anticipating the provision of support is likely to positively influence the discloser's confidence in sharing the information. The following section reviews how disclosure efficacy can be contextualized in the disclosure planning process, considering the influence of information and target.

Disclosure Efficacy

The efficacy component of disclosure is rooted on the concept of self-efficacy (Bandura, 1977), a belief in one's capabilities to produce certain outcomes. Efficacy functions to estimate affordable activities, effort for achieving goals, and time needed to sustain the effort in dealing with stressful events, but its effect varies based on social, situational, and temporal circumstances (Bandura, 1977). Greene (2009) posited that, when disclosing personal information to others, people determine whether they have the ability or confidence.

The DD-MM assumes that evaluation of both information and target influences the degree to which disclosers feel confident about revealing the information. For instance, the consideration of individual and relational outcomes when revealing secrets (i.e., the motivation to protect self and others from the revelation) can negatively influence communication efficacy (Afifi et al., 2005). On the other hand, anticipating target support may reduce the fear or burden of talking about sensitive topics at hand. For example, when patients with heart disease disclose symptoms and prognosis, perceived partner support positively influences communication efficacy (Checton & Greene, 2012). Similarly, cancer patients feel increased level of communication efficacy as they perceive greater relational quality with their communication partner (Magsamen-Conrad, Checton, Venetis, & Greene, 2015). Thus, we propose that individuals' consideration of information and target may alter efficacy of self-disclosure. Following this, the DD-MM proposes that the greater the efficacy, the less likely it is that they will ponder details of disclosure (e.g., message features, timing, and location). This effort to consider disclosure details is defined in our model as self-disclosure planning, and the following section discusses planning for self-disclosure as a process in advance of making disclosure decisions.

Planning for Self-Disclosure

Little quantitative research has been done on how people plan disclosure. Yet, the theory of communication privacy management (Petronio, 2002) and many empirical results propose that people share information with careful consideration of its effect on themselves, others, and relationships (e.g., Caughlin & Afifi, 2004; Caughlin & Golish, 2002; Petronio, 2002). According to Berger (1997), planning is a goal-directed process that includes anticipating strategies to coordinate intended interpersonal interactions. Petronio (2002) noted that disclosure of personal information involves the breaking of an information boundary that is strategically regulated by individual criteria to protect privacy. For instance, Petronio, Reeder, Hecht, and Mon't Ros-Mendoza (1996) found that children who have been sexually abused carefully plan disclosure of their secret to manage their information boundaries, navigating circumstances and anticipating target reactions.

This mindful self-disclosure may involve individuals' assessment of situational and interpersonal demands to make the disclosure more acceptable or appropriate. For example, in one study, before confrontation, people engaged in rehearsals, imagining possible messages and target responses (Stutman & Newell, 1990). Moreover, in this study, the less time there was between rehearsal and confrontation, the more people reported greater concern regarding messages, particularly about how to present arguments. Specifically, unlike general personal information, stigmatized information may be falsely attributed to the disclosers' personal nature rather than to external factors, unless sharing such information is normative in a particular context (e.g., Bowman, 2009; Feldman & Crandall, 2007). Thus, to reduce negative outcomes from revealing (e.g., regret or rejection by targets), people may plan disclosure to select the best target, timing, and situation (e.g., Cusick & Rhodes, 1999; Rutledge, 2007).

This study operationalized planning as the time spent to prepare for disclosure because the perceived duration for planning can represent how much people contemplate and potentially wait before disclosure. Then, we expect that people who plan will generally tend to schedule disclosure at an appropriate moment, rather than randomly disclose the information on the spur of the moment (for discussion, see Greene et al., 2003). Based on the review of literature that illustrates the components of disclosure planning, the following section proposes hypothesized relationships among these components.

Hypothesized Model

According to the DD-MM, disclosures involve procedures to assess information, relationship, and abilities to share. Given that self-disclosure of sensitive personal information may include risks of losing face and concerns about relationship, information perceptions are considered to influence costs related to relationship and individuals' self-worth. Thus, based on the theoretical rationale, the following hypothesized paths are proposed (Figure 1).

> *Hypothesis 1a*: Perceiving information as stigmatized (Model 1) or intimate (Model 2) will negatively predict anticipated response.

Hypothesis 1b: Perceiving information as stigmatized (Model 1) or intimate (Model 2) will negatively predict disclosure efficacy.

Hypothesis 2a: Perceived closeness will positively predict anticipated response.

Hypothesis 2b: Perceived closeness will positively predict disclosure efficacy.

Hypothesis 3: Anticipated response will positively predict disclosure efficacy.

Hypothesis 4: Disclosure efficacy will negatively predict disclosure planning.

Hypothesis 5: Disclosure planning will positively predict individuals' intention to choose when to disclose.

Study 1

Method

Hypotheses were tested using data from a cross sectional study in which participants provided self-report data about a nonvisible health condition that they had shared. Participants were recruited through communication courses at a large university in the Northeastern United States. Some participants were students, and others were members of students' social networks.

Participants—The final sample included 204 individuals who completed a survey, with 132 (64.7%) of these female. Participants ranged in age from 18 to 82 (M = 23.67, SD = 11.00). Seventy-two percent of the participants were Caucasian; others were Asian (8.9%), Bi/multiracial (3.9%), African-American (3.9%), Hispanic (2.9%), Middle East/Arab (2.9%), and other (5.9%).

Procedure—The data is a part of a larger study that recruited people for self-disclosure of nonvisible physical and mental health conditions. College students in communication courses at a large university in the northeastern United States recruited individuals who met study criteria in exchange for a small amount of extra credit. Potential participants received a flyer that included example health conditions that meet (e.g., STIs, eating disorders, cancers except skin cancer, and lupus) and did not meet the study criteria (e.g., allergies, migraines, broken bones, and ulcers).[1] Potential participants were encouraged to email researchers if uncertain about eligibility. Upon arriving for study participation, participants were privately screened for inclusion[2] and asked to think about their "specific physical or mental health issue or condition that they may or may not disclose to others," and answer relevant questions. After this, they were asked to "think about one specific person you have told about the specific health condition" and completed self-report measures related to a piece of

[1]Participant eligibility requirements included having a non-visible illness. That is, an illness that most others would not be able to identify without being told. Examples of *and most frequently reported* conditions were mental health conditions (e.g., ADD/ADHD, anorexia/bulimia, and alcoholism) and acquired/behavioral illness (e.g., diabetes, high cholesterol, and sexually transmitted infections); specific conditions are reported in Table 1. Examples of *excluded* conditions were allergies, color blindness, hypertension, and migraines. Participants assessed their health condition as generally stable (M = 2.71, SD = 1.22, with a higher score indicating greater instability).

[2]When participants arrived at the study site (one central location at specific times), they were screened privately by one researcher with medical training. This researcher used three questions related to health conditions and treatments to screen based on inclusion criteria described. If participants qualified for the study, then they proceeded with the consent and filled out the survey.

information that they had shared with the other person. The coding of health conditions that the participants reported[3] resulted in 3 broad categories of nonvisible illnesses (see Table 1), with subcategories.

Participants had known the disclosure targets for an average of seven years (SD = 10 years, range = one month to 60 years). They characterized the status of their relationship as friend (51.4%), dating partner or spouse (26.5%), family member (17.2%), other (3.4%), and co-worker (1.5%).

Measures

Measured variables were stigma, relational quality (closeness), anticipated response, disclosure efficacy, and planning and scheduling of self-disclosure. Confirmatory factor analyses were conducted on scales with more than two items to ensure that they met the criteria of face validity and internal consistency. To confirm unidimensionality (i.e., discriminant validity) and reliability of measures, we conducted the test of parallelism on all scales in the model. CFA reports in this section are for parallelism tests with closeness; the result for closeness is based on the parallelism between closeness and planning. We determined that the model fit the data if x^2/df was less than 3, CFI and NNFI exceeded .90, and RMSEA was less than .10.[4] The data were screened for normality and outliers, and no transformations were needed.

Stigma—Stigma was measured by five 5-point Likert items that were developed by authors based on prior research, with responses ranging from (1) Strongly Disagree to (5) Strongly Agree. CFAs indicated that five items formed a latent variable, $\chi^2(26) = 47.75$, CFI = .97, $NNFI$ = .96, RMSEA = .06. The items were averaged to form a scale with a higher score indicating greater stigma. Reliability was moderate (α = .84; M = 3.10, SD = 1.00). Sample items included: “I worry about what others think about my health condition,” and “Some people stigmatize my health condition.”

Closeness—Perceptions of closeness were measured by four 7-point Likert items adapted from Vangelisti and Caughlin (1997), with responses ranging from (1) Strongly Disagree to (7) Strongly Agree. CFAs suggested the four items formed one latent variable, $\chi^2(8) = 12.78$, CFI = .99, $NNFI$ = .98, RMSEA = .05. Reliability was moderate (α .76; M = 6.31, SD = .81). Sample items included: “I am close to this person” and “I enjoy spending time with this person.”

Anticipated Response—Anticipated response was measured by seven 5-point Likert items adapted from Derlega et al. (2002), with responses ranging from *(1) Strongly Disagree* to *(5) Strongly Agree*. CFAs indicated that six items formed one latent factor, $\chi^2(34) = 69.67$, CFI = .94, $NNFI$ = .92, RMSEA = .07. Reliability was moderate (α = .72; M = 4.08,

[3]One coder with background in the medical field generated the coding scheme for health conditions; after this, the research team discussed codes and arrived at consensus on any disagreements (less than 5%).

[4]This study used four goodness-of-fit indices to gauge the model fit. The x^2/df adjusts the x^2 statistics for sample size. Model fit was assessed with the comparative fit index (CFI) and the nonnormed fit index (NNFI). The RMSEA accounts for errors of approximation in the population (Bollen, 1989 Hooper, Coughlan, & Mullen, 2008 Kline, 2010). The error variance for each latent variable in the model was fixed to $(1-\alpha)$ (σ^2) to account for unreliability within the measures.

SD = .59). Sample items included: “This person could be of help” and “This person was able to provide support.”

Disclosure Efficacy—Perceptions on disclosure efficacy were measured by two 5-point Likert items developed by authors based on prior research, with responses ranging from (1) Strongly Disagree to (5) Strongly Agree. CFAs indicated that two items formed one latent factor, $\chi^2(8) = 11.27$, CFI = .99, *NNFI* = .98, RMSEA = .05. The items were averaged to form a scale with a higher score indicating that the disclosure efficacy is greater (r = .37; *M* = 3.63, *SD* = .93). Items included: “I am confident that I can share my health information with others if I decide to” and “I have trouble finding the right words when I share my health information (R).”

Self-Disclosure Planning—Self-disclosure planning was measured by three 5-point Likert items developed by authors based on prior research, with responses ranging from (1) Strongly Disagree to (5) Strongly Agree. CFAs suggested that two items formed one latent variable, $\chi^2(8) = 12.78$, CFI = .99, *NNFI* = .98, RMSEA = .05. The two items were averaged to form a scale with a higher score indicating more planning (r = .57; *M* = 2.09, *SD* = 1.01). Items included[5]: “I spent a lot of time planning to tell this person” and “I thought a lot about telling this person.”

Self-Disclosure Scheduling—Self-disclosure scheduling was measured by one 5-point Likert item developed by authors based on prior research, with responses ranging from (1) Strongly Disagree to (5) Strongly Agree. The item was “I scheduled a specific time to share the information with this person” (*M* = 1.84, *SD* = 1.00).

Study 1 Results

Table 2 presents the zero-order correlation matrix for all Study 1 variables. Hypotheses were tested using maximum likelihood structural equation modeling (AMOS 18.0) because it is the most parsimonious method of testing hypotheses. Results of analyses are presented next.

Structural Equation Model Results

Results of the structural equation modeling indicated that our original model adequately fit the data, $\chi^2(8) = 16.38$, *CFI* = .96, *NNFI* = .92, *RMSEA* = .07.[4] The model is presented in Figure 2. H1 was partially supported in that stigma did not influence anticipated response (H1a) but it was negatively associated with disclosure efficacy (H1b). H2 was partially supported. Closeness positively influenced anticipated response (H2a) but not disclosure efficacy (H2b). Anticipated response did not influence disclosure efficacy (H3). H4 was supported as disclosure efficacy led to reduced planning of self-disclosure. Last, H5 was supported, revealing that people who plan disclosure are likely to schedule it. Followed by this first model test with stigmatized nonvisible health condition, we tested it in Study 2 with information intimacy rather than stigma.

[5]In Study 1, the deleted item was, “I told this person on the spur of the moment” (R). In Study 2, the deleted item was, “I spent a lot of time planning to tell this person.”

Study 2

Method

Hypotheses were tested using data from a longitudinal dyadic study in which participants provided self-report data about personal information that they had shared. Individuals (N = 566 or 283 dyads, initially) were asked to bring to the study a person with whom they had previously shared personal information. After this initial study, half of the participants came back to complete the second part of the survey, which investigated additional disclosure with the target that they had brought to the first part of the study. Due to the nature of the model tested, only one-participant's perspective is reported here. Participants were recruited from communication courses at a large university in the Northeastern United States. The data reported here is part of a larger study.

Participants—The final sample included 283 individuals who completed both parts of the data collection, and 3 subjects were deleted for missing data. Of these participants, 195 (69.6%) were female. Participants ranged in age from 21 to 69 (M = 24.22, SD = 4.39). Approximately one-half of the participants were Caucasian (51.4%); others were Asian (24.4%), Bi/multiracial (6.9%), Hispanic (5.1%), Asian-American (4.0%), African-American (2.9%), and other (5.3%).

Procedure—As part of the recruitment script, individuals were informed that participation involved completing two surveys, separated by about ten weeks. In the first phase of the study, dyads (i.e., participants and the person who came with them) were asked to think about a time when each of them shared personal information with the other. The participants were asked to take a few minutes to think about a situation and to talk briefly with each other to be sure they each remembered being told the specific information. Once dyadic partners agreed on the specific pieces of information, they were separated and each individually completed self-report measures about the agreed upon information (see Table 3). In the survey, participants were also asked to describe types of information that they shared with the target person.[6] One member of the research team created a coding scheme. This researcher and another member coded all messages, and all disagreements were resolved through discussion. The coding of written responses to this question resulted in eight categories of personal information, with sub-categories.

At Time 1, dyads reported that they had known one another for an average of 4 years (SD = 6.07 years, range = one month to 36 years). They characterized the status of their relationship as friend (52.7%), dating partner or spouse (27.1%), family member (9.7%), classmate or roommate (7.6%), and other (2.9%).

Measures

Variables were measured identically to Study 1, except for the information variable that was operationalized as intimacy. Measured variables included information intimacy, relational

[6]Examples of personal information that the participants shared with someone most frequently include family relationships (e.g., family relationships and traditions), self-concept (e.g., mental health and achievements in school), and intimacy/attraction (e.g., sexual relations and infidelity). Topics of information shared in Study 2 are presented in Table 3.

quality (closeness), anticipated response, disclosure efficacy, and planning and scheduling of self-disclosure. Criteria for confirmatory factor analyses and for good model fit were the same as in Study 1.

Information Intimacy—Participants' perceptions of the information shared with the other person were measured with two semantic differential items derived from Vangelisti and Caughlin (1997) with responses ranging from 1 to 7. Participants rated the information as intimate–nonintimate and public–personal. CFAs indicated that two items formed one latent factor, $\chi^2(8) = 21.51$, CFI = .96, *NNFI* = .93, RMSEA = .08. The items were averaged to form a scale with a higher score indicating that the information was more intimate (r = .33; $M = 4.78$, $SD = 1.55$). A sample item was "The information is extremely personal."

Closeness—Perceptions of closeness were measured by four 7-point Likert items adapted from Vangelisti and Caughlin (1997) with responses ranging from (1) Strongly Disagree to (7) Strongly Agree. CFAs indicated that four items formed one latent factor, $\chi^2(8) = 23.76$, CFI = .95, *NNFI* = .91, RMSEA = .08. Reliability was moderate ($\alpha = .72$; $M = 5.91$, $SD = .95$). Items included: "I am close to this person" and "I enjoy spending time with this person.

Anticipated Response—Anticipated response was measured with seven 5-point Likert items adapted from Derlega et al. (2002) with responses ranging from (1) Strongly Disagree to (5) Strongly Agree. CFAs indicated that six items formed one latent factor, $\chi^2(34) = 77.34$, CFI = .95, *NNFI* = .94, RMSEA = .07. Reliability was moderate ($\alpha = .81$; $M = 4.01$, $SD = .65$). Sample items included: "This person could be of help" and "This person was able to provide support."

Disclosure Efficacy—Perceptions of disclosure efficacy were measured by two 5-point Likert items developed by the authors based on prior research, with responses ranging from (1) Strongly Disagree to (5) Strongly Agree. CFAs indicated that two items formed one latent factor, $\chi^2(8) = 17.33$, CFI = .97, *NNFI* = .94, RMSEA = .07. The items were averaged to form a scale with a higher score indicating that the disclosure efficacy is greater (r = .17; $M = 3.66$, $SD = .75$). Items included: "I am confident that I can share information with others if I decide to" and "I have trouble finding the right words when I share my personal information" (R).

Self-Disclosure Planning—Self-disclosure planning was measured by three 5-point Likert items developed by the authors based on prior research, with responses ranging from (1) Strongly Disagree to (5) Strongly Agree. CFAs indicated that two items formed one latent factor, $\chi^2(8) = 23.76$, CFI = .95, *NNFI* = .91, RMSEA = .08. The items were averaged to form a scale with a higher score indicating more planning (r = .33; $M = 2.34$, $SD = 1.01$). Items included[5]: "I told this person on the spur of the moment (R)" and "I thought a lot about telling this person."

Self-Disclosure Scheduling—Self-disclosure scheduling was measured by one 5-point Likert item developed by the authors based on prior research, with responses ranging from (1) Strongly Disagree to (5) Strongly Agree. The item was "I scheduled a specific time to share the information with this person" ($M = 1.68$, $SD = .94$).

Study 2 Results

The criteria for analyses are the same as in Study 1. Table 4 presents the zero-order correlation matrix for all Study 2 variables.

Structural Equation Model Results

Results of the structural equation modeling indicated that our original model did not adequately fit the data, $\chi^2(8) = 29.66$, CFI = .86, *NNFI* = .73, RMSEA = .10.[4] Modification indices recommended the addition of a path from closeness to planning. With this path added, the model fit the data, $\chi^2(7) = 14.00$, CFI = .96, *NNFI* = .90, RMSEA = .06. The model is presented in Figure 3. H1 was partially supported in that information intimacy led to reduced disclosure efficacy but it did not influence anticipated response. H2 was supported; closeness was positively related to anticipated response and disclosure efficacy. H3 was not supported because anticipated response did not influence disclosure efficacy. H4 was supported, revealing a negative path from disclosure efficacy to planning of self-disclosure. Last, H5 was supported as planning resulted in scheduling.

Overall Discussion

This paper extended the Disclosure Decision-Making Model (Greene, 2009) to incorporate post-decision consideration of disclosure planning. Specifically, we tested the relationship between self-disclosure planning and assessments of the information, closeness, recipient, and disclosure efficacy. In addition to testing the model for stigma from having nonvisible health conditions, one designated information component of the DD-MM's information assessment, the paper sought to compare this model to a model using general personal information (i.e., information intimacy) (Greene, 2009). Information assessment was operationalized as stigma in Model 1 and as information intimacy in Model 2. The following will emphasize similarities and differences between the models, followed by limitations and implications for future disclosure studies.

Similarities in the Tested Models

Within both models, the proposed paths among information assessment (stigma and information intimacy, respectively), disclosure efficacy, planning, and scheduling were supported. Another similarity was found in the relationship between closeness and anticipated response, showing that closeness was positively associated with expectation of support. Last, neither the relationship between information and anticipated response nor the relationship between anticipated response and disclosure efficacy were significant in either model.

Information and Efficacy—As hypothesized, people who assessed information as more stigmatized (Model 1) or intimate (Model 2) were less confident in revealing the information similar to previous findings. For example, when people revealed individual and family secrets (e.g., Afifi & Caughlin, 2006; Afifi & Steuber, 2009), negative information valence was related to increases in perceived risks from revealing these secrets. This perception of risks from revealing secrets, in turn, led to reduced perceived abilities to communicate about

them (Afifi & Steuber, 2009). Another study reported that cancer patients who were uncertain about their prognosis had a reduced level of communication efficacy towards their partner (Magsamen-Conrad et al., 2015). In a prior test of DD-MM, information severity negatively influenced disclosure efficacy (Greene, Magsamen-Conrad, et al., 2012). Furthemore, in a study applying the DD-MM as a theoretical framework to examine the influence of information assessment (i.e., illness interference) on communication efficacy, patients' and partners' perceptions that the patient's chronic health conditions interfered in their lives negatively influenced their perceived capability to talk about the health condition with partner (Checton, Greene, Magsamen-Conrad, & Venetis, 2012).

Past research has used valence of information to indicate risks of disclosure. However, the valence of information only distinguishes whether information is positive or negative but it does not include contextual conditions to designate risks pertaining to the disclosure. People may be careful about revealing if information is negative but they may also become less confident in sharing with certain targets if the information is private or intimate (e.g., Afifi & Guerrero, 1998; Golish & Caughlin, 2002). For instance, sharing information about one's pregnancy may be hard to do with a colleague in a workplace although the information itself is not considered negative.

The current research adds a theoretical explanation for the association between information intimacy and efficacy in terms of whether people consider intimate about themselves may make them cautious of revealing, which then generates some cognitive effort to regulate the revelation. However, in this study, the proposed mediation of anticipated response for the effect of information assessment on efficacy was not found.

Information, Anticipated Response, and Efficacy—The current results show that the path from information assessment (as conceptualized as either stigma or information intimacy) to anticipated response was not significant in either model. However, this study differs from prior research due to the conceptualization of information assessment. For example, Checton and Greene (2012) found a significant positive association between prognosis uncertainty and partner support. In general, as the information becomes more intimate, disclosure of such information generally raises concerns about protecting self and other (see Afifi & Guerrero, 1998 for discussion). These concerns may drive potential disclosers to focus on the possibility that the target will not be supportive.

A possible explanation for this result may be that our study assesses participants' retrospective reports of anticipated response. Because the receiver had already responded to the information when the discloser attended this study, this timing may affect participants' retrospective assessment of anticipated response in several ways. For example, if the receiver is relatively close to the participant, it is possible that retrospective reports of target response could be assessed as more positive than actual responses because disclosers tend to assess target responses less negatively after rather than before sharing their information (e.g., Caughlin, Afifi, Carpenter-Theune, & Miller, 2005).

Regarding the association between anticipated response and disclosure efficacy, no significant relationship was found in either model. This absence of relationship between

anticipated response and efficacy was also found in Greene, Magsamen-Conrad, et al. (2012), but a significant positive relationship was found in a study with prognosis and symptom uncertainty (Checton & Greene, 2012).

The varied association between anticipated response and disclosure efficacy could indicate that the relation of anticipated response to efficacy and the model fits in general vary as a function of information. This aspect will also need to be examined with the other types of anticipated response such as anticipated outcomes proposed by DD-MM, as anticipated outcomes predicted confidence in target response, which then increased disclosure efficacy in the initial model testing with general information (Greene, Magsamen-Conrad, et al., 2012). The next section discusses disclosure planning as a function of efficacy.

Disclosure Efficacy, Planning, and Scheduling—Based on the DD-MM, the study predicted that disclosure efficacy would negatively predict planning of self-disclosure. Then, planning leads to scheduling for disclosure.[7] These predictions were all supported in both models. When people felt more confident about revealing negative or stigmatized information, they were less likely to plan their disclosure. Next, taking more effort to plan self-disclosure led to scheduling a specific time to disclose the information. Few quantitative studies have explored how people plan and schedule their disclosure. However, overall, consciously planned disclosure (in terms of targets or content) is preferred because it allows control of the information (Greene & Faulkner, 2002; Yep et al., 2003). For instance, when it comes to the disclosure of a secret, mindful disclosure considering content and relationship lets individuals develop appropriate strategies about what to expose or not based on the situation (e.g., Newell & Stutman, 1991).

What has rarely been studied is how planning should be operationalized in disclosure decision processes. Our study empirically verifies self-disclosure planning as a function of information, target assessment, and efficacy. In particular, in Model 1, planning led to scheduling for disclosure, and the model fit was good without any added direct paths to scheduling from any other variables. This finding implies that assessments of information and target qualities do not directly influence scheduling, and that effort dedicated to planning leads to scheduling for disclosure. However, in Model 2 with information intimacy, model fit was improved after a path was added from closeness to planning. The following section will discuss differences between the two models, specifically about the role of target assessment in planning disclosure when information is different.

Differences in the Tested Models

Some differences between models were found. First, the influence of closeness on disclosure efficacy was different across the models. Second, the hypothesized model with stigma (Model 1) fit the data without any additional paths, but the fit of hypothesized model with intimacy (Model 2) became acceptable only after a path was added from closeness to

[7]In the current study, both models were further tested with planning and scheduling items treated as separate factors on a latent planning variable. When the models were tested in this manner, the model fits were generally acceptable compared to the fit of each comparable model in the current study. That is, planning and scheduling may also be considered subparts of a single component in future disclosure decision making for personal and stigmatized information.

planning. The discussion will center on how evaluation of target (i.e., closeness) influences the difference in model fits.

Information, Closeness, and Planning—As expected, our data revealed that people presumed positive responses (i.e., the provision of support) from targets that were close to them, which was also reported in previous DD-MM testing (e.g., Greene, Magsamen-Conrad, et al., 2012). However, closeness positively influenced disclosure efficacy in Model 2 but not in Model 1. Unlike the path in Model 2 with information intimacy, the nonsignificant path from closeness to efficacy in Model 1 with stigma may reflect that information perception critically controls how disclosers differently weigh their revelation capacities and target qualities.

In fact, information and closeness were related in Model 2 (with intimacy) but they did not in Model 1 (with stigma). In addition, in Model 2, the model fit was improved after a path was added from closeness to planning. The positive association between information assessment and closeness in Model 2 demonstrates that people disclose their information selectively to those who are close to them. Related to this, the positive path added between closeness and planning may indicate that people do try to carefully disclose their intimate information with their close acquaintances (e.g., Petronio, 2002), but efficacy does not take an important role in stimulating planning for such disclosure. Compared to the disclosure of intimate information that is not stigmatizing, disclosing stigmatized information pertaining to a nonvisible illness can lead to greater individual risks, such as identity threats (e.g., Afifi & Caughlin, 2006). As a result, the more stigmatized the information, the less confident individuals may become in sharing their information. On the other hand, these individuals' perceived closeness with the target may not significantly influence their disclosure efficacy. That is, in Model 1, compared to perceived risks from revealing stigma, perceived relational quality could have played a less critical role when people planned their disclosure.

Likewise, when planning disclosure, disclosers' spontaneous concerns could be more or less likely to focus on informational versus relational aspects. People may share their information with others who are likely to be supportive of or responsive to the disclosure (e.g., Afifi & Steuber, 2009; Vangelisti & Caughlin, 1997). However, if the revelation involves risks greater than rewards such as target responsiveness, then only thinking about sharing the information may overwhelm potential disclosers. For instance, increased feelings of stigma were related to anticipation of less emotional, informational, and instrumental support (Magsamen-Conrad, 2012).

Given that disclosure efficacy may be influenced by other factors, such as individuals' health conditions, rather than perceived stigma related to nonvisible illness, we further explored whether there was any interaction between stigma and participants' current health condition in influencing efficacy to share the information. In order to address this issue, we conducted a regression analysis using an interaction term of stigma and the current health condition (measured with an item "I often have outbreaks or relapses," with a higher score indicating greater instability). Our regression test revealed no significant association between the interaction term and efficacy. Thus, we conclude that the current health condition may not be significant factor in confounding the impact of stigma on efficacy.

We also examined how stigmatized information exacerbates concerns about revealing. More specifically, the degree to which participants assessed stigmatized information as intimate and important could have also influenced perceived disclosure risks and efficacy. In our study, participants assessed stigma as somewhat less intimate (Study 1; $M = 4.31$, $SD = 1.54$) than personal information (Study 2; $M = 4.78$, $SD = 1.55$), and less important to them (measured by a combination of how much the information is: significant, part of me, and essential to my identity) (Study 1; $M = 4.15$, $SD = 1.33$) than the personal information (Study 2; $M = 4.96$, $SD = 1.49$). All these variables were measured on a seven-point scale with the higher score indicating more intimacy and importance. In addition, our findings showed that information importance was not associated with stigma, $t(202) = .08$, $p = .24$, in Study 1, but was associated with information intimacy, $t(277) = .47$, $p < .001$, in Study 2.

When it comes to the nature of stigma, our hypothesis was that stigma from having some nonvisible illness may harm participants' identity. That is, the stigma related to having nonvisible illnesses could decrease capabilities of disclosing the illness. Prior research reveals that illness-related stigma may pressure people to hide information rather than to reveal it because they anticipate discrimination following stereotyping and attribution of responsibility for a particular condition or disease (Corrigan, 2000; Greene, 2009; Kelly, 2002). As a result, greater stigma may signal increased risk of revealing due to the identity threat. However, our findings show that the reduced efficacy should not be always interpreted in relation to identity concerns from revealing the stigma. In part, this finding may be explained by the wide variety of nonvisible health information that participants revealed in Study 1, some of which conditions may not closely reflect the participants' identity concerns (e.g., heart disease and high cholesterol). Another explanation may be that some factor other than the identity concerns, such as a lack of literacy or uncertainty related to the disease could have negatively affected the disclosure efficacy. For example, when first revealing information about nonvisible illness, people may need to pay more attention to accurately describing information about their illness rather than information that concerns personal matters. More specifically, explaining about nonvisible illness may require more mindful effort to describe health conditions that are not familiar to other people. The contemplation of how to organize and deliver information on complicated health conditions could have reduced people's perceptions of their capabilities of revealing.

Our findings demonstrate that perceived stigma may require more nuanced interpretations of how it influences the consideration of disclosure efficacy and target responsiveness. To better understand boundary conditions surrounding the disclosure planning process, future research will need to further examine how information assessment functions differently, not only in relation to the evaluation of the target but also in relation to practical considerations such as how the information is delivered to the target.

Limitations

Although the data supported many hypotheses, this study has some limitations. The present study used retrospective reports of information already shared. Therefore, we could not model with these data how planning may lead to the likelihood of disclosure planning and scheduling. In terms of the sample, about 70% (Study 1) and 50% (Study 2) of participants

were Caucasian, yet they were drawn outside of the overused college population. Last, recalling information in the research setting may have restricted the options for information that might have been more revealing and also does not explain spontaneous disclosure.

Future Research

Our models overviewed the process leading to self-disclosure, particularly for how these components led to planning of disclosure. Even though the paths among information, anticipated response, closeness and disclosure efficacy were not always consistent between the two models (i.e., one with information intimacy and the other with stigma), these results imply both conceptual and methodological implications for future disclosure research. First, information should potentially be conceptualized across contexts because its assessment could be different depending on its degree of seriousness, the content, or the situation, thus varying the sizes of its relation with other variables in the model. Second, methodologically, covariance models of self-disclosure may provide a better picture of the complicated process of disclosure planning because they enable the inclusion of direct and indirect paths among variables.

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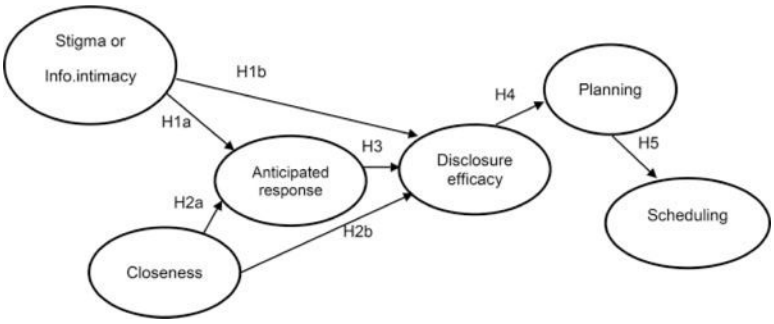

Figure 1.
Hypothesized model for both studies.

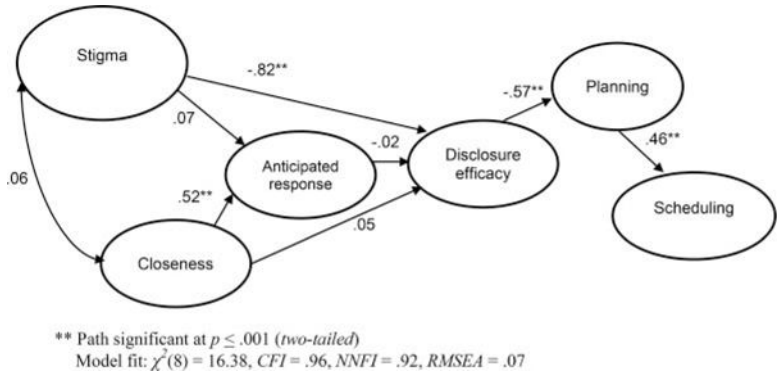

Figure 2.
Tested model for Study 1.

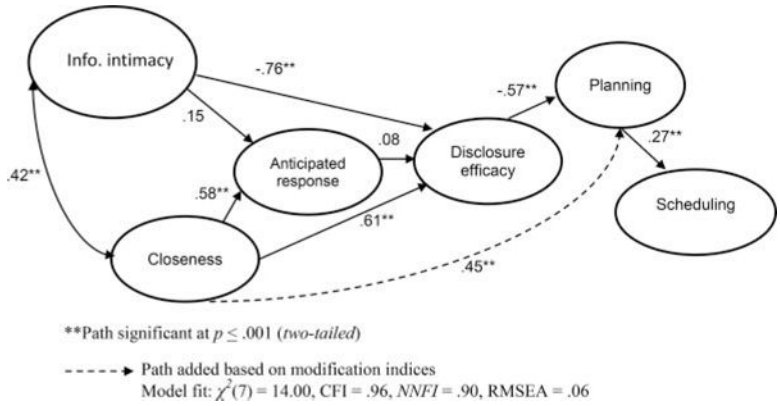

Figure 3.
Tested model for Study 2.

Table 1

Types of nonvisible illness shared with another person (study 1).

Information Type	Frequency	%
Mental Health		
ADD/ADHD	40	20.4
Anorexia/Bulimia	25	12.8
Alcoholism	17	8.7
Bipolar	11	5.6
Other	6	3.1
Acquired/Behavioral		
High cholesterol	24	12.2
Sexually transmitted disease	19	9.7
Diabetes	12	6.1
Other (Hyperthyroidism, anemia, and lupus)	18	9.2
Congenital/Genetic		
Heart condition	6	3.1
Crohn's disease, cystic fibrosis, and sickle cell anemia	4	2.0
Other health conditions (birth deformity, arthritis, inner ear disorder, kidney problems)	14	7.1
Total	196	100.0

Note. Incomplete data excluded (total $N = 204$).

Table 2

Zero order correlation matrix for all study 1 variables ($N = 204$).

	1	2	3	4	5	6
1. Stigma	—					
2. Closeness	.05		—			
3. Antic. Resp.	.08	.38**	—			
4. Disc. Effic.	−.56**	−.03	−.08	—		
5. Planning	.35**	−.05	−.03	−.38**	—	
6. Scheduling	.16*	−.04	−.01	−.23**	.49**	—

* $p \leq .05$.

** $p \leq .01$ (*two-tailed*).

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Table 3

Types of personal information shared with another person (study 2)

Information Type	Frequency	%
Family		
Family relationships	43	16.5
Traditions or stories	12	4.6
Self-concept		
Mental health	22	8.4
Grades or achievement in school	13	4.9
Self-image	9	3.4
Intimacy/attraction		
Sexual relations	17	6.5
Infidelity or extramarital affairs	14	5.4
General attraction, feelings for friends, or unwanted advances	11	4.2
Romantic relationships		
Dating partners or romantic relationship (positive and negative information)	30	11.5
Relationship with others		
Personality conflicts: problems in nonintimate relationships or problems with roommates	20	7.7
Work issues or conflict with a co-worker	7	2.7
Illegal/Moral issues		
Stealing, lying, or car accidents	14	5.4
Physical health		
Illness or injury	12	4.6
Substance use		
Abuse of alcohol or problems with drug	8	3.1
Other		
Personal matters (death, finances, or plans for future)	20	7.7
Other stigmatized information	9	3.4
Total	261	100.0

Notes. For parsimony, subcategories less than 2% not listed.

Incomplete data excluded (total $N = 280$).

Table 4

Zero order correlation matrix for all study 2 variables ($N = 280$).

	1	2	3	4	5	6
1. Intimacy	—					
2. Closeness	.25**	—				
3. Antic. Resp.	.25**	.49**	—			
4. Disc. Effic.	−.16**	.15*	.08	—		
5. Planning	.24**	.17**	.13*	−.13*	—	
6. Scheduling	.07	−.04	−.02	−.10	.28**	—

* $p \leq .05$.

** $p \leq .01$ (*two-tailed*).

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