



# A Behavioral Economic Model of Help-Seeking for Depression

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Accepted: 12 July 2021/Published online: 02 August 2021

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## Abstract

Findings from the clinical psychology literature indicate that many who experience depression do not seek treatment when needed. This may be due to help-seeking models and interventions failing to account for the behavioral characteristics of depression that affect decision making (e.g., altered sensitivity to punishment and reward). Behavioral economics can provide a framework for studying help-seeking among individuals with depression that explicitly considers such characteristics. In particular, the authors propose that depression influences help-seeking by altering sensitivity to treatment-related gains and losses and to the delays, effort, probabilities, and social distance associated with those gains and losses. Additional biases in decision making (e.g., sunk-cost bias, default bias) are also proposed to be relevant to help-seeking decisions among individuals with depression. Strengths, limitations, and future directions for research using this theoretical framework are discussed. Taken together, a behavioral economic model of help-seeking for depression could assist in identifying those who are at greatest risk of going untreated and in creating more effective help-seeking interventions.

**Keywords** Behavioral economics · Clinical psychology · Delay discounting · Depression · Help-seeking

Approximately 20% of adults in the United States experience a depressive disorder during their lifetime (Hasin et al., 2018). Although effective treatments for depression are available, many do not seek professional help when needed (Kamenov et al., 2017; Mojtabai & Olfson, 2006). This problem has persisted in spite of concerted efforts to facilitate help-seeking (i.e., initiating professional mental healthcare such as psychotherapy or medication management; Andersen, 1995; Angermeyer &

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Schomerus, 2017; Gulliver et al., 2012; Siegel et al., 2017). Low rates of treatment use may be due, in part, to help-seeking research failing to account for the effects of depressive behavioral factors on help-seeking decisions. Behavioral economics, which draws on principles of macroeconomics and behavioral science (Rice et al., 2017), provides a framework to account for the behavioral aspects of depression that may affect help-seeking. As such, a behavioral economic approach may lead to interventions that better facilitate mental health care utilization in depressed populations.

## Characteristics of Depression

A number of behaviors or symptoms characterize depressive disorders. In particular, depressed mood and insensitivity to the reinforcing properties of previously enjoyable activities are the core features of the two most prevalent diagnoses, major depressive disorder (MDD) and persistent depressive disorder (PDD; American Psychiatric Association, 2013). These symptoms must persist for most of the day, nearly every day, for at least 2 weeks for MDD or 2 years for PDD. In addition, a number of other symptoms must be present, such as fatigue, sleep disturbances, difficulty concentrating, thoughts of death, changes in appetite or weight, psychomotor changes, and feelings of worthlessness or guilt. Finally, these experiences must cause significant distress or functional impairment.

It is important to note that the diagnostic criteria for depressive disorders allow for substantial heterogeneity in symptoms among individuals with depression. For example, specifiers such as, “with anxious distress,” “with psychotic features,” and “with peripartum onset,” can be added to a diagnosis of MDD or PDD (American Psychiatric Association, 2013). In addition, the etiology of these disorders varies widely, though environmental changes, such as aversive life events or loss of reinforcement, often underlie the condition (e.g., Kanter et al., 2008). For instance, one individual’s symptoms of MDD may result from complications in grieving a loss, whereas another’s may be caused by changes in health status that disrupt daily routines. In addition, there are high rates of comorbidity between depressive disorders and other diagnoses, especially anxiety and substance use disorders (Hasin et al., 2018; Rohde et al., 1991). As such, individuals with depression are highly variable in terms of symptoms and etiology.

In spite of this variability, there are several features that are commonly observed among those with depression. Core cognitive features include negative schemas (negative verbal behavior related to oneself, the environment, and the future; McGinn, 2000), mood-congruent biases (increased sensitivity to aversive stimuli and negative interpretations of ambiguous stimuli; Armstrong & Olatunji, 2012; Everaert et al., 2014; Panchal et al., 2019), and errors in sensitivity to feedback (e.g., minimizing positive information and magnifying negative information; Clark & Beck, 1999). In addition, those with depression often display behavioral features such as increased avoidance of unpleasant stimuli and constriction of behavioral repertoire (i.e., decreased attempts to engage in rewarding behaviors; Dimidjian et al., 2011; Kanter et al., 2008; Kanter et al., 2010), as well as altered sensitivity to punishment and reward (i.e., lack of responsiveness to punishment and lower anticipated and experienced pleasure from rewards; Eshel & Roiser, 2010). Notably, these factors may affect

help-seeking (Brenner et al., 2020; Siegel et al., 2017). As such, help-seeking efforts would likely benefit from using models that account for the core features of depression.

## Theoretical Models of Help-Seeking for Depression

The majority of research on help-seeking for depression in particular and for mental health concerns more broadly has been based on two theoretical models: the Health Beliefs Model (e.g., Gabriel & Violato, 2010) and Andersen's Behavioral Model of Health Services Use (Behavioral Model; Andersen, 1995). While the Health Beliefs Model focuses on beliefs about mental health problems and mental health care, the Behavioral Model identifies general contextual and personal characteristics associated with seeking help. Here, these theoretical approaches are interpreted with a behavioral perspective.

### Health Beliefs Model

The Health Beliefs Model identifies two sets of conditions that affect help seeking: mental health literacy and attitudinal factors. Mental health literacy includes the ability to recognize or discriminate one's own mental health problems, verbal statements (i.e., beliefs) about treatment and the causes of mental health problems, experience or knowledge of how to access care, and experience and knowledge of how to cultivate positive mental health (Angermeyer & Schomerus, 2017; Jorm, 2012). Attitudinal factors typically include attitudes related to seeking help (i.e., positive and negative overt and covert verbal statements about help-seeking), stigma, and concerns about self-disclosure (Li et al., 2014).

A number of mental health literacy and attitudinal factors have been associated with help-seeking (e.g., Li et al., 2014). For example, in some studies (e.g., Bonabi et al., 2016), the ability to discriminate one's own symptoms of depression were associated with a higher probability of help-seeking. Moreover, knowledge of treatments for depression and proactive statements and rule-governed behaviors regarding seeking help (i.e., positive attitudes) prospectively predicted help-seeking in a community sample with general psychological distress (Bonabi et al., 2016). In a review that primarily included nonclinical samples, failing to discriminate symptoms of depression and engaging in covert verbal statements regarding negative social outcomes for seeking help (i.e., stigma) were also associated with lower likelihood of help-seeking (Gabriel & Violato, 2010).

Among those with depression and anxiety symptoms in particular, however, some studies suggest that verbal statements (i.e., rule-governed behavior) about the efficacy of professional mental health care have not consistently predicted treatment-seeking (Jorm et al., 2000). Likewise, some studies that used quantitative measures of stigma failed to predict help-seeking among depressed individuals in spite of qualitative reports of stigma concerns (Rodrigues et al., 2014). In addition, a review of help-seeking among depressed participants found mixed results for associations of attitudinal factors with help-seeking (Magaard et al., 2017). For instance, there were no significant associations of help-seeking with endorsing stigmatizing statements about mental health problems, but desires to distance oneself from those with mental

illnesses were associated with a lower likelihood of seeking help. Thus, there may be aspects of verbal behavior (i.e., belief-related barriers) that current approaches do not fully capture among those with depression. Indeed, even experimental interventions that have increased positive verbal statements regarding treatment, such as public service announcements advertising psychotherapy, have failed to increase the likelihood of actually seeking help (Gulliver et al., 2012). In fact, such interventions have sometimes led to more negative verbal behavior related to help-seeking among individuals with depression (i.e., higher stigma and lower treatment-seeking intentions; Lienemann & Siegel, 2018; Siegel et al., 2019).

The mixed findings regarding the Health Beliefs Model among those with depression may be due in part to the effects of depressive symptoms on sensitivity to punishment and reward. For instance, even if an individual with depression is led to engage in more positive verbal behavior related to treatment (i.e., positive treatment attitudes), they may still be less likely to seek help due to high sensitivity to the aversive aspects of help-seeking. In addition, an overreliance on secondary factors (e.g., beliefs and attitudes), rather than individualized environmental contexts and experiences that directly influence help-seeking, could hamper prediction. For example, if a person was ridiculed by a family member for previously seeking mental health care, then experiences of social ridicule may more precisely predict lack of seeking help than generic measures of verbal behavior related to the social consequences of treatment (i.e., perceived public stigma).

### **Behavioral Model of Health Services Use**

The Behavioral Model of Health Services Use (i.e., Behavioral Model) is another framework that has been used to study help-seeking for depression. Although there have been variations in the model, the core concepts are most often divided into predisposing factors (e.g., age, education, race and ethnicity), enabling factors (e.g., income, health insurance coverage, social support), and need factors (i.e., perceived and evaluated severity of symptoms; Andersen, 1995; Babitsch et al., 2012). In general, evidence supports unique associations of these factors with help-seeking (Dhingra et al., 2010). However, the directions of the associations have varied by population and context (Babitsch et al., 2012). For example, older adults in the United States have been found to use mental health services less frequently than younger adults overall (Stockdale et al., 2007), but the opposite appears to be true among Latina immigrants in particular (Hochhausen et al., 2011). As such, the nature of these associations may not always generalize across groups.

A number of studies have found evidence supporting the Behavioral Model in the context of seeking help for depression (Magaard et al., 2017). In a national Korean sample, older age and lower income were negatively associated with seeking help among those with elevated depressive symptoms (Kim et al., 2019). Among Australian adults, need factors and social support (an enabling factor) were positively associated with use of mental health services for depression in the previous year (Graham et al., 2017). However, in the United States social support was positively associated with help-seeking for depression among women and negatively associated with help-seeking among men (Andrea et al., 2016). Further, intersections of predisposing and enabling factors, such as socioeconomic status, immigration status, and gender, may also affect

likelihood of seeking help among those with depression (O'Mahony & Donnelly, 2010). On the whole, findings indicate that a number of predisposing, enabling, and need factors from the Behavioral Model are associated with help-seeking for depression, but the nature of these associations is complex.

There have been few experimental attempts to increase depression help-seeking based on the Behavioral Model. This is likely because many of the predisposing, enabling, and need factors are demographic—that is, they are difficult or impossible to manipulate (Magaard et al., 2017). Some evidence, though, comes from examinations of the effects of U.S. health insurance parity laws on mental health services use. Harris et al. (2006) used a large national sample ( $N = 83,531$ ) of private health insurance enrollees to track mental health help-seeking from 2001 to 2003, a period in which some, but not all, U.S. states passed health insurance parity laws. The researchers found that compared to states that did not adopt parity laws, mental health services use after the laws were implemented increased substantially among individuals with elevated psychological distress. Likewise, increases in the use of some behavioral health services were found after national U.S. parity laws were passed in 2010 (Friedman et al., 2017).

These results provide strong evidence for significant increases in help-seeking after enhancing insurance coverage (an enabling factor). It is unclear, however, what effect this has on help-seeking for depression in particular. It may be that individuals with depression would increase their help-seeking at similar rates to what Harris et al. (2006) found among those with general psychological distress. However, depression's effects on sensitivity to consequences could render such efforts less effective in depressed populations. For example, reduced sensitivity to reinforcement could potentially decrease the value of enabling factors and disproportionately increase sensitivity to barriers to seeking help.

### **Strengths and Limitations of the Health Beliefs and Behavioral Models**

The Health Beliefs Model and the Behavioral Model have a number of important strengths. First, the two models identify a wide range of individual and system-level factors associated with help-seeking. This provides several potential targets for help-seeking interventions. In addition, some support for these models has been found in a variety of populations (Angermeyer et al., 2017; Magaard et al., 2017), indicating the generalizability of many of the help-seeking barriers and facilitators they identify.

In spite of these strengths, these models also have limitations in the context of depression. Notably, most studies have not explicitly addressed the behavioral features of depression that may affect sensitivity to help-seeking barriers and facilitators. Further, current approaches to addressing the barriers identified by the Behavioral Model and Health Beliefs Model have had unknown or negative effects on those with depression (e.g., resulting in higher perceptions of stigma and lower help-seeking intentions; Siegel et al., 2017). Taken together, help-seeking research may benefit from more explicitly accounting for changes in behavioral sensitivity to the consequences and contexts that influence help-seeking. This could lead to more accurate identification of those at highest risk of going untreated and to more effective help-seeking interventions.

## **Behavioral Economics: A Theoretical Model Applied to Help-Seeking for Depression**

Behavioral economics draws on traditional economic theory and behavior analysis research on choice and decision making. In particular, traditional economic theory holds that individuals behave in ways that lead to the greatest gains and the fewest losses (Rice et al., 2017). However, findings from the experimental analysis of behavior suggest that suboptimal decisions are common due to differential sensitivity to gains and losses (e.g., overvaluation of losses relative to gains), various parameters of gains and losses (e.g., the amount of delay between an action and its consequences), and individual differences in sensitivity to these parameters (i.e., discounting; see Madden & Bickel, 2010). Research in behavioral economics has also documented additional biases in decision making, such as individuals making suboptimal choices because of previous investments of time or effort (Baker & Nofsinger, 2010).

Past behavioral economic studies have identified broad decision-making differences between individuals with and without elevated depressive symptoms (e.g., Amlung et al., 2019). However, there is also significant variability among individuals in sensitivity to gains and losses, their various parameters, and susceptibility to decision-making biases (e.g., Lv et al., 2021). In addition, discounting processes in particular can be affected by transient characteristics of the current context. For instance, differences in how options are framed (e.g., emphasizing that an option with immediate gain entails forgoing future rewards) and the emotional state of the decision maker can alter sensitivity to delays (Rung & Madden, 2018). As such, behavioral economic processes have both trait (individual differences) and state-like qualities. However, evidence regarding between-group differences is also useful for informing applied help-seeking interventions. In particular, interventions encouraging help-seeking for depression must account for group-level characteristics to optimize effectiveness at the population level. Because of this, the following discussion focuses primarily on evidence related to group-level differences in decision-making processes that may affect help-seeking among individuals with depression.

### **Gains and Losses**

Gains and losses refer to the reinforcing and aversive consequences of behaviors, respectively. Individuals frequently experience both gains and losses when seeking help for depression. For instance, there may be increases in quality of life and symptom reduction in addition to financial and time losses associated with paying for and attending healthcare appointments. Notably, gains and losses in a behavioral economic framework could include a wide range of factors from both the Health Beliefs Model and Behavioral Model, such as insurance coverage and income (i.e., monetary losses) and stigma (i.e., social losses).

As previously noted, those with depression often display lower sensitivity to reward and lower responsiveness to punishment (Eshel & Roiser, 2010). This may be especially true for individuals with depression who experience symptoms of anhedonia, or subjective difficulty experiencing pleasure (Borsini et al., 2020). For instance, depressed participants with lower sensitivity to reward in a behavioral choice task (i.e., failing to learn to select options associated with greater rewards) reported higher levels

of anhedonia at a 1-month follow-up (Pizzagalli et al., 2005). Rats with experimentally induced anhedonia symptoms, such as decreased sucrose intake and lower responsiveness to stimulation of reward-related brain regions, also showed impairments in reward learning (Moreau, 2002; Moreau et al., 1996). As such, depressive symptoms may lead to suboptimal decisions by modifying sensitivity to gains and losses. Due to this, those with depression might respond to gains and losses differently from individuals without depression when making help-seeking decisions. In addition, mood-congruent biases among depressed individuals (e.g., increased sensitivity to negative stimuli; Armstrong & Olatunji, 2012; Everaert et al., 2014) and magnification of aversive stimuli and minimization of reinforcing ones (Clark & Beck, 1999) might cause the potential losses of seeking help to have a disproportionate influence on behavior (Siegel et al., 2017). For instance, even if the gains of help-seeking are greater in magnitude than losses, a person with depression who is particularly prone to magnify aversive stimuli and has low sensitivity to reward may have a low likelihood of seeking help.

## **Delay**

Delay is an aspect of gains and losses that may influence decisions to seek help. Delays are a common component of the help-seeking process. For instance, many individuals are placed on waitlists after initially contacting a clinic, and treatment benefits often come only after engaging in treatment for some time (MacDonald et al., 2021). In contrast, there is often little delay in experiencing losses related to seeking help. For example, financial and time losses may be experienced immediately, and discomfort with disclosure and experiences of stigma can be present well before making a full recovery (Corrigan, 2004).

## **Delay Discounting**

The fact that delays are an inherent part of help-seeking is compounded by findings that there are individual differences in sensitivity to delay (i.e., delay discounting; Madden & Johnson, 2010; Mazur, 1987). Delay discounting is the devaluing of an outcome as the delay to its receipt increases. In studies on this topic, researchers pose a series of hypothetical scenarios in which participants choose between a relatively small, immediate monetary reward (e.g., \$10 now) and a larger, delayed monetary reward (e.g., \$100 in 1 day; Rachlin et al., 1991). Over the course of the choices, the smaller, sooner amount can be adjusted incrementally to identify the point at which the individual switches from choosing the larger, delayed amount to choosing the smaller, sooner amount. The midpoint between the amount of the smaller reward when the switch occurred and its amount just prior to the switch is termed the indifference point. This point represents the current subjective value of the larger, delayed reward. When these indifferent points are plotted across different delay periods (e.g., 1 week, 1 month, 6 months), individual differences in sensitivities to delays (i.e., delay discounting rates) can be determined. This same process can also be used to determine sensitivity to delays in experiencing losses by posing questions about preferences between smaller, sooner losses and larger, delayed losses (e.g., a loss of \$10 now versus \$20 in 1 day; Engelmann et al., 2013).



A large literature shows that delay discounting is heightened in those with behavioral health-related challenges such as substance use disorders (e.g., Bickel & Marsch, 2001; Bickel et al., 1999; Heil et al., 2006; Madden et al., 1999; Petry, 2001), obesity (Appelhans et al., 2011; Fields et al., 2011; Rasmussen et al., 2010; Schlam et al., 2013; Weller et al., 2008), chronic gambling (Holt et al., 2003), and with those who struggle with food insecurity (Rodriguez et al., 2021). In addition, delay discounting of gains and losses is steeper among those who are depressed (Amlung et al., 2019; though for an exception, see Lempert & Pizzagalli, 2010). For example, participants with depression, compared to healthy controls, demonstrated stronger preferences for smaller-sooner monetary rewards over larger, delayed ones, and stronger preferences for larger-later monetary losses over smaller, more immediate ones (Engelmann et al., 2013; Mies et al., 2016; Pulcu et al., 2014).

In the context of help-seeking, increased sensitivity to delay (i.e., higher rates of delay discounting) may constitute a significant barrier for individuals with depression. For example, in a choice between the immediate gains of temporary symptom relief through emotional avoidance versus the larger (and delayed) gains of seeking help, a person with depression who is high in delay discounting may favor the former. Likewise, when faced with the choice of an immediate loss (e.g., discomfort during a mental healthcare appointment) and a delayed loss (e.g., future worsening of depressive symptoms), high delay discounting of losses would favor the latter. Some initial evidence has been found related to this. In a clinical population with steep rates of delay discounting (individuals with alcohol use disorder) those who were seeking treatment were lower in delay discounting than those who were not seeking help (Gowin et al., 2019). As such, delay discounting may be relevant in clinical populations with steep discounting rates, which may include many individuals with depression.

## Effort

Although rarely studied explicitly in the help-seeking literature, effort is also likely to play a role in help-seeking for depression. For example, many aspects of initiating treatment (e.g., finding an in-network provider; scheduling and attending appointments) and of depression treatments themselves (e.g., medication compliance, psychotherapy attendance) can be effortful. Indeed, findings regarding the low rate of homework completion in psychotherapy highlight the difficulty of engaging in effortful components of interventions (Garland & Scott, 2002).

## Effort Discounting

As in the case of delays, the observation that help-seeking is effortful is exacerbated by findings that some individuals are highly sensitive to effort (i.e., high effort discounting). Effort discounting refers to the devaluing of rewards as the amount of effort required to receive them increases (Garami & Moustafa, 2020). In other words, individuals who are high in effort discounting are more likely to pursue smaller rewards that require less effort rather than larger, more effortful rewards. For example, Nishiyama (2014) found that as the amount of hypothetical effort required to obtain a monetary reward increased, participants became more likely to forgo the reward. In addition, rates of effort discounting varied among individuals in the study. Although



conceptually related to delay discounting—rewards that require more effort often entail greater delays—measures of effort and delay discounting have been found to load onto distinct factors, indicating that they are independent processes (Białaszek et al., 2019).

On average, those with depression engage in steeper effort discounting than those without depression (Culbreth et al., 2018; Eshel & Roiser, 2010; Shafiei et al., 2012). That is, depressed individuals tend to be more sensitive to increases in effort required to obtain probabilistic monetary rewards and less likely to increase their level of effort to obtain larger, more likely rewards (Treadway et al., 2012). Others (Yang et al., 2014) have also found that higher effort discounting among those with depression is associated with lower levels of subjective pleasure upon receiving rewards, suggesting the role of reduced sensitivity to reinforcement. Although less studied, other factors could also contribute to effort discounting in depression. For example, individuals with depression may attempt to avoid the aversive aspects of expending effort. In addition, those who are depressed may expend less effort due to constriction of behavioral repertoire (i.e., decreased attempts to engage in reinforcing behaviors).

Given the effort required to seek treatment and high rates of effort discounting among individuals with depression, this process may be an especially important consideration when working with depressed populations. For instance, when choosing between the effortful option of seeking help and options that require less effort (e.g., maintaining the status quo, using substances to cope), an individual with depression who is high in effort discounting may choose the latter. Importantly, due to the lower subjective value of effortful gains, effort discounting could cause some to go without help even if they anticipate that treatment would be highly beneficial. As such, accounting for sensitivity to effort may add incremental validity to help-seeking approaches that only measure anticipated gains and losses of treatment.

## **Probability**

The probability of experiencing gains and losses from treatment is another factor that is likely to influence help-seeking. Although treatments for depression have been shown to be effective in general, they are not equally effective for everyone (Kamenov et al., 2017). As a result, the gains of help-seeking (i.e., recovery) are probabilistic. Further, some of the potential losses of seeking help are probabilistic. For instance, even if it is unlikely that a particular individual with depression will be ridiculed for seeking help, the probability of this may be greater than zero and may still exert an effect on help-seeking decisions.

## **Probability Discounting**

The effects of probabilistic gains and losses on help-seeking may depend on individual differences in sensitivities to risk and loss (i.e., probability discounting; Green & Myerson, 2010). Probability discounting is a behavioral process that describes changes in the subjective value of gains and losses as the odds for and against their receipt change. This allows for examining both risk and loss aversion. For example, in a probability discounting measure of risk aversion, participants might be asked to indicate a preference for either a 100% chance of receiving \$20 or a 50% chance of receiving \$50 (e.g., Holt et al., 2003). Mathematically, the value of \$50 at 50%

probability is  $\$50 \times 0.50 = \$25$ , and so it is the optimal choice. Opting for the guaranteed \$20 is considered a risk-averse decision because it entails taking a lesser option to avoid the risk of receiving no reward. On the other hand, in a measure of loss aversion participants could be asked to choose between the status quo (i.e., a 100% chance of a gain/loss of \$0) or a gamble with a 50% probability of gaining \$50 and a 50% probability of losing \$40 (Huh et al., 2016). The optimal decision in this case is the gamble ( $\$50 \times 0.50 = \$25$  gain, versus  $\$40 \times 0.50 = \$20$  loss). Thus, those who choose the certainty of a \$0 gain/loss would be considered loss-averse because they make a suboptimal choice in order to avoid a potential loss. Similar to delay and effort discounting, rates of probability discounting vary among individuals (Green & Myerson, 2010).

In considering probability discounting and depression, results have been mixed. Some studies found that depressed participants demonstrated higher risk aversion (Engelmann et al., 2013) and loss aversion (Huh et al., 2016), whereas others have found that those with major depressive disorder (MDD) are equal in risk aversion to healthy controls (Hart et al., 2019). Likewise, Engelmann et al. (2017) found that those with MDD showed no differences from healthy controls in risk or loss aversion, but latency in choices involving losses was higher among those with depression, implying a potential role of mood-congruent biases in decision making (i.e., greater attention to negative information). However, a different experimental probability choice procedure, the Iowa Gambling Task, has consistently found higher risk and loss aversion in depressed individuals, potentially because it specifically captures changes in choice behavior in response to feedback (i.e., sensitivity to punishment and reward; Must et al., 2013). In addition, research in animal models of depression has found higher rates of risk aversion among rats with congenital learned helplessness (i.e., hyperactive lateral habenula; Shabel et al., 2014). Taken together, those with depression may be higher in risk aversion and loss aversion in some contexts, but this may not always be manifest in probability discounting tasks.

In light of the probabilistic outcomes of help-seeking and potential differences in risk and loss aversion among those with depression, probability discounting may also be relevant to depression help-seeking. For example, if alternative strategies to cope with depression (e.g., substance use) are certain to bring gains in the form of temporary alleviation of depressive symptoms, help-seeking may be unlikely if the gains of this option are uncertain. In line with this, one study found that among participants with anxiety disorders, those who had not sought help were higher in self-reported risk aversion than those seeking treatment (Lorian & Grisham, 2011). In the case of loss aversion, help-seeking might also be less likely when there is a potential for loss in addition to gain. In particular, if an individual with depression is highly loss averse, they may opt not to seek help even if the probability of gains is higher than the probability of losses (i.e., disproportionate sensitivity to the probability of losses).

## Consequences to Others

Depression often has significant negative effects on those who are close to the afflicted individual. For instance, family members of patients with depression have reported experiencing isolation, blame, and increased fears of experiencing mental health challenges of their own (Corrigan & Miller, 2004; Highet et al., 2004). Likewise,

individuals often report seeking treatment in order to repair relationship difficulties related to their mental health concerns (Rosen et al., 2013; Suurvali et al., 2010). Indeed, enhancing interpersonal outcomes is the focus of multiple forms of treatment for depression (e.g., couples therapy for depression, interpersonal therapy; Cuijpers et al., 2011; Whisman et al., 2012). As such, the gains and losses experienced by close others as a result of treatment may be an important consideration in help-seeking.

### **Social Discounting**

Prior research has found individual differences in sensitivity to gains and losses experienced by close others (i.e., social discounting; Rachlin & Jones, 2008), which may influence the extent to which these consequences affect help-seeking. In particular, social discounting refers to the tendency to devalue rewards given to others as the amount of social distance between oneself and the recipient increases. For example, social discounting tasks often ask participants to imagine they have made a list of the people who are closest to them emotionally or socially (e.g., in order from 1 to 100; Bradstreet et al., 2012). They then are presented with options such as, “Would you prefer \$40 for you alone, or \$80 for the  $N^{\text{th}}$  person on your list?” Individuals whose preferences quickly shift towards receiving personal gains as social distance increases are considered to be steeper in social discounting than those whose preferences are less affected by increases in social distance.

There has been little research on social discounting among individuals with depression. Only one study has reported associations between depressive symptoms and social discounting: among perinatal women, depressive symptoms were positively associated with social discounting, indicating stronger tendencies to opt for personal gains over gains for others (Bradstreet et al., 2012). However, further evidence is needed to draw generalizable conclusions about the direction of the relationship between social discounting and depression.

Although the association between depression and social discounting is not well understood, this process may still be relevant to help-seeking for depression. For example, an individual with depression who is low in social discounting might be especially likely to seek help in order to benefit individuals who are close to them (e.g., a romantic partner or children). On the other hand, gains for others might have a weaker effect on help-seeking among those who are higher in social discounting. Although not typically examined in social discounting paradigms, it could also be that social discounting of losses is relevant (i.e., devaluation of losses experienced by others as social distance increases). This may be especially true in cultural contexts in which help-seeking can result in negative consequences for one’s family members (Yang, 2007).

### **Additional Decision-Making Biases**

Aside from differential sensitivity to gains, losses, and various aspects of gains and losses (e.g., delay, effort), additional biases studied in behavioral economics may be relevant to help-seeking for depression. For example, past investments of time, effort, or other resources have been found to have significant effects on behavior in human and animal models (i.e., sunk-cost bias; Magalhães & Geoffrey White, 2016; Navarro

& Fantino, 2005). As such, if an individual with depression has invested resources into managing symptoms without seeking help (e.g., through ineffective coping strategies) they may be more likely to persist in this behavior rather than choosing the alternative response of pursuing treatment. In line with this, participants with elevated depressive symptoms were more likely to demonstrate the sunk-cost bias and also reported a higher likelihood of delaying seeking psychological help (Jarmolowicz et al., 2016).

Other biases, such as the familiarity bias (i.e., the tendency to choose options to which one has been repeatedly exposed; Foad, 2010) could also be relevant to help-seeking for depression. For instance, if seeking help is an unfamiliar option in a depressed individual's personal history or cultural context, then they may display a behavioral bias against help-seeking in spite of suboptimal outcomes. Some evidence does suggest that individuals with genetic characteristics associated with depression (e.g., short allele of the 5-HTTLPR gene; Chew et al., 2012) are more likely to engage in the familiarity bias. However, further research is needed to determine whether this is associated with help-seeking.

In addition, default options in an individual's environment could also play a role in help-seeking decisions among those with depression. In particular, the default bias refers to the tendency to select options that represent the status quo (Thaler & Sunstein, 2008). The default bias may be particularly strong when default options have led to positive consequences in the past (Jona, 2018). Because of this, the fact that going without treatment is the default option may result in many individuals with depression failing to "opt in" to seeking help, especially if alternative options have led to some benefits in the past.

In sum, the proposed theoretical model of help seeking for depression is based on three assertions. The first is that help-seeking is determined by (1) the magnitudes of the gains and losses of seeking help; (2) the delays, effort, probabilities, and social distance associated with those gains and losses; and (3) decisional biases associated with other aspects of individuals' past and current contexts (e.g., sunk-cost bias, default bias). Second, individual differences in sensitivity to gains and losses, to their various parameters (e.g., delay, effort), and to other decisional biases affect help-seeking decisions. For example, the effect of effort on help-seeking is conditional upon individual differences in sensitivity to effort. Third, individuals with depression demonstrate group-level differences in sensitivity to gains and losses and to the parameters of gains and losses. They also show differences in susceptibility to certain decisional biases. These group-level differences can decrease the likelihood that those with depression will seek help.

## Strengths and Limitations

There are a number of advantages of using a behavioral economic model to study help-seeking for depression. In particular, behavioral economics identifies mechanisms by which depression affects help-seeking and specific conditions under which help-seeking may occur. For example, lowered sensitivity to reward among depressed individuals appears to contribute to high rates of effort discounting (Culbreth et al., 2018; Eshel & Roiser, 2010), which in turn may affect help-seeking when doing so requires significant effort. In contrast, research using the Health Beliefs Model and Behavioral Model typically relies on broad

predictors of help-seeking (e.g., income, stigma) without attempting to identify the individualized environmental conditions that affect seeking help and depression-related differences in responses to these conditions. Behavioral economics addresses this limitation by considering differences in sensitivity to parameters of gains and losses (i.e., delays, effort, probabilities, and social distance) and attending to additional past and current environmental conditions that affect decision making (e.g., previous exposure to certain options). As such, it offers a more complete model of the determinants of help-seeking.

In addition, the behavioral economic model's focus on environmental characteristics and altered sensitivity to consequences highlights potential ways that health-care providers, administrators, and policy makers can facilitate help-seeking. For example, providers and administrators could work to optimize the gains and losses of seeking help by improving treatment effectiveness, minimizing delays in referral and intake procedures, and reducing the cost and effort required to initiate and engage in services. Leveraging certain decisional biases to favor help-seeking (e.g., organization-level opt-out programs for mental wellness screenings; Eisenberg et al., 2012) could also be effective. Further, policy-level changes to mitigate accessibility issues such as transportation difficulties (Ganuza & Davis, 2017) and discriminatory laws (Grzanka et al., 2020) may decrease the losses, delays, and effort required to achieve treatment-related gains.

Although the behavioral economic model has significant strengths, it also has limitations, in particular in terms of implementation. In particular, this theoretical model may be less accessible to some clinicians, administrators, and researchers who do not have a background in behavioral economics. The Behavioral Model and Health Beliefs Model are readily understood because their concepts are based on commonly used terms (e.g., stigma, insurance coverage) and often involve straightforward relationships between barriers and help-seeking. However, the behavioral economic model focuses on several factors simultaneously, which could result in more complex quantitative models (e.g., examining interactive effects of depressive symptoms, perceived gains and losses, and individual differences in rates of discounting). Some of the terminology is also less familiar, such as "discounting." As such, it is important for help-seeking researchers who use a behavioral economic approach to provide accessible explanations of results in practical terms in order to increase utility for a broad audience.

## **Research Recommendations**

Given the dearth of studies on behavioral economics and help-seeking, especially in the context of depression, there are a number of priorities for future research with this theoretical model. Importantly, the effects of individual differences in discounting rates need to be examined among those with depression. For instance, the effects of effort discounting on help-seeking have not been studied in any population, and the role of social discounting in help-seeking and depression is largely unknown. Research that examines how combinations of various types of discounting affect help-seeking for depression may also be useful. For example, individual differences in delay discounting and probability discounting could have interactive effects (i.e., help-seeking may be especially unlikely among individuals who strongly devalue gains that are delayed *and*

probabilistic; Cox & Dallery, 2016). Finally, additional research is needed to test the associations of decision-making biases, such as the default bias, with depression and help-seeking.

Research at a more basic level is also needed. For instance, investigations of the effects of depression on sensitivity to the gains and losses of seeking help have yet to be conducted. In addition, it remains untested whether a depressive state alters sensitivity to the delays, effort, probabilities, and social distance associated with help-seeking gains and losses. Further, proposed associations among concepts in the behavioral economic model (e.g., probability discounting as a moderator of the effects of probabilistic gains on help-seeking) remain untested.

Finally, interventions based on the behavioral economic model need to be tested to determine their relevance to applied help-seeking efforts. A number of interventions could accommodate to the behavioral economic characteristics of depressed populations. For example, experimentally lowering delays and effort associated with seeking help (e.g., by streamlining intake procedures) may mitigate the effects of high rates of delay and effort discounting. Other possibilities include public service announcements that emphasize the short-term benefits of seeking help (e.g., assistance in problem solving, the presence of a supportive listener) in order to appeal to depressed individuals who are high in delay discounting. Likewise, emphasizing the personal losses from not seeking help rather than the gains of seeking help could be particularly useful in light of high rates of loss aversion among those with depression (Lueck, 2017). Furthermore, highlighting the benefits to close others that result from seeking help, as well as the potential negative effects on others of not seeking help, could be effective depending on rates of social discounting.

Other interventions could address additional decision-making biases that may reduce the likelihood of depressed individuals seeking help. As an example, experimentally increasing exposure to depictions of help-seeking (e.g., speaking with a mental health-care provider about mental health concerns) could leverage the familiarity bias in favor of seeking treatment. Interventions could also take advantage of the default bias by structuring environmental contexts such that help-seeking is the default option. For example, creating opt-out mental health screenings and triage within educational settings might increase help-seeking among those with elevated depressive symptoms (Eisenberg et al., 2012).

In addition, testing the effects on help-seeking of modifying state sensitivity to gains, losses, and their various aspects (e.g., delay) may be useful. For instance, imagining the future in detail has been found to cause short-term reductions in delay discounting rates (i.e., episodic future thinking; Koffarnus et al., 2013; Rung & Madden, 2018). As such, advertisements that provide detailed descriptions or illustrations of the long-term consequences of seeking help (or of going without help) might facilitate help-seeking by temporarily reducing rates of delay discounting. Further, studies could test whether various types of message framing alter the impact of help-seeking interventions (Rung & Madden, 2018). For example, emphasizing that long-term gains are sacrificed by going without help may reduce delay discounting rates and result in a higher likelihood of pursuing the long-term benefits of treatment.



## Declaration

**Ethical Approval** This study is exempt from ethics approval because it does not involve human or non-human animal subjects.

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