

EVALUATING A DEPRESSION DECISION AID

A Randomized Controlled Trial Evaluating the Effects of a Depression Information
Decision Aid

by

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Abstract

Depression is a common mental health problem. This study utilized a randomized, controlled trial design to assess the effect of a new web-based depression information decision aid compared to general depression information available on a well-known website on important factors involved in decision-making: knowledge of depression and treatment options, stigma, help-seeking attitudes, confidence in making a decision, sense of being well-informed, and preference for different treatment options. Introductory psychology students completed pre-, post-, and follow-up assessments in Study 1, and post- and follow-up assessments in Study 2. Overall, the two depression websites yielded similar responses across the measures, and the information decision aid was not superior to general information on the currently available website. Study 1 participants reported less decisional conflict and felt more informed following the review of the website compared to before website review. There were no changes from pre- to post-assessment on knowledge, stigma, or help-seeking attitudes. Study 2 also found few differences between the groups. Participants in this study indicated reduced stigma one-month after website review, which could be due to a delayed effect of the information, or exposure to other sources of information. In addition, decisional conflict increased and participants felt less informed one-month following the review of the website, compared to just after review. This is not surprising given that different treatment options are likely fresh in their minds just after review compared to one-month later. Given the largely negative findings in the two studies, alternative research approaches to comparing information resources are discussed.

Keywords: depression, information decision aid, knowledge, web-based, treatment

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A Randomized Controlled Trial Evaluating the Effects of a Depression Information Decision Aid

In any year about one in twenty Canadians will experience a problem with major depression (Statistics Canada, 2012) making it one of the most common mental health problems in the community. Kessler and colleagues (2005a) found that major depressive disorder was the most prevalent lifetime disorder, affecting 16.6% of the population, with a higher prevalence in females (Kessler, Chiu, Demler, & Walters, 2005b). Depression has a major impact on people's lives. For example, it can lead to a reduction in health-related quality of life (Sobocki et al., 2007) and a higher-than-normal number of missed work days (Birnbaum et al., 2010; Donohue & Pincus, 2007). As depression has serious consequences, it is important to understand how persons with depression respond to an information decision aid providing information concerning treatment options for depression. The purpose of the present study was to explore this question.

Mental Health Literacy

Mental health literacy refers to “knowledge and beliefs about mental disorders which aid in their recognition, management, and prevention” (Jorm et al., 2003, p. 1). Sepucha et al. (2010) reported that individuals may not grasp how well informed they are when faced with medical decisions. This is important because a lack of knowledge about depression has also been associated with a reduced likelihood of seeking help for depression (Jorm et al., 2006). Increasing public knowledge and the use of mental health information has been one of the approaches to improving mental health literacy. Further, these attempts have resulted in more positive attitudes towards help seeking (Coles & Coleman, 2010).

Health literacy has also been explored through the use of information decision aids. A systematic review conducted by McCaffery and colleagues (2013) found that having low levels of health literacy resulted in less communication focused on the patient's needs, which may negatively impact decision-making outcomes such as decisional certainty (McCaffery et al., 2013; see also Sudore, Schillinger, Knight, & Fried, 2010).

Information Needs

Recently, Tlach and colleagues (2015) systematically reviewed 12 studies on information and decision-making needs for schizophrenia and depression. They found that the three most frequently cited information needs were in the area of “basic facts”, “treatment”, and “coping”. These authors also found medication treatment, treatment setting, general treatment issues, and non-medication treatment to be the four most frequently cited decision-making needs. The importance of these topics to patients suggests their relevance for shared decision-making with one's health care provider. These findings also suggest the advantage of using a high-quality information decision aid covering the wide range of topics related to their health concerns to assist patients in meeting their information and decision-making needs.

Furthermore, previous research by our group suggests that currently available information does not address many of the important questions that patients have about managing medical problems such as inflammatory bowel disease (Promislow et al., 2010) and mental health problems (Reynolds et al., 2014). In a study by Bernstein et al. (submitted), we surveyed participants from primary care clinics in Winnipeg to explore the information needs and preferences of the general public concerning treatment options

for depression. Overall, we found that the general public is very interested in accessing information on a wide range of topics, including information on the effectiveness of treatment, the goals or outcomes of treatment, and what happens when the treatment stops, which aligns with the findings by Tlach et al. (2015).

Grime and Pollock (2004) reported that when patients received reading materials on depression, their knowledge improved, and they even showed an increase in treatment adherence. In a review by Sepucha et al. (2013), patient decision aids were found to enhance a patient's decision-making process as well as their decision quality. Furthermore, this group found that decision aids improve knowledge, and that complex decision aids provide a greater knowledge gain than less complex decision aids. Decision aids also lead people to become more confident in their treatment preferences (Sepucha et al., 2013).

Previous research provides limited information about what people want to know when they are considering help for a health problem. Information that is currently available on the Internet tends to focus on a description of the health problem and of the treatment options, but provides little evaluative information based on research evidence. Much of the research to date has focused on information needs around pharmacological treatments (Raynor et al., 2007). However, healthcare providers and the pharmaceutical industry find it challenging to provide written information about medications that patients find useful and usable (Hamrosi, Aslani, & Raynor, 2014). For example, Stewart et al. (2004) reported that individuals did not receive as much information as they would have desired from health professionals following an acute coronary event. Patients who felt that they received information that surpassed their needs felt more satisfied with their

healthcare, and experienced fewer depressive symptoms, than those who felt that their information needs had not been met (Stewart et al., 2004).

Information Decision Aids

The development of information decision aid materials that are focused on the information needs of the public represents an important step toward improving knowledge of important health care choices (Adams & Drake, 2006). An information decision aid is an “intervention for preparing patients for decision-making about professional care options. It supplements rather than replaces the counseling provided by health practitioners” (O’Connor & Jacobsen, 2003, p. 4). The purpose of information decision aids is to allow individuals to play a role in decision-making and to evaluate the benefits and costs of different treatment options (Stacey et al., 2014). Stacey et al. (2014) also made the point that decision aids provide patients with more information and realistic expectations. With some health issues certain treatments are seen as the “gold standard” because of strong scientific evidence supporting their efficacy. For instance, insulin would be considered such a treatment for individuals with Type I diabetes (O’Connor & Jacobsen, 2003). However, with disorders such as depression there is a range of treatment options each with advantages and disadvantages that need to be taken into consideration. This will likely lead to the use of information decision aids that are more complex and include more information about the various treatment options.

Shared decision-making. Shared decision-making occurs when the patient and practitioner arrive at a treatment decision together. Shared-decision making may increase the patient’s (or client’s) adherence to treatment and thus improve clinical outcomes (Raue, Schulberg, Heo, Klimstra, & Bruce, 2009; see also Joosten et al., 2008).

Information decision aids facilitate shared-decision making and allow the patient to make a more informed decision with regards to treatment. Although shared decision-making is beneficial, younger adults are more likely to report participating in shared decision-making compared to older adults (Solberg et al., 2014). Raue et al. (2010) discuss some factors that may account for this including older adults' tendency to accept the physician's dominant role in treatment, to take a more passive role when illness is more severe, and to rely on family members for health-related decisions.

Web-based decision aids. With the increased use of the Internet in the last 20 years, health information has become widely available on the web. In addition, materials for making health care decisions have also become available on the web (Schwitzer, 2002). Schwitzer (2002) discusses four advantages of Internet-based decision aids: (1) the wide availability of resources to anyone with Internet access; (2) the presentation of probability data that can be customized to fit the consumer's needs; (3) the ability to present video-recorded interviews with patients who have experienced the health issue; and (4) the potential to interact with others through a social support network.

There has been some research that compares Web-based to paper-based decision aids. Krist (2007) performed a randomized controlled trial comparing a paper-based prostate decision aid to the same decision aid offered on the Internet. No major differences were found between the two versions. However, those that reviewed either version were more involved in the decision making process, and had more knowledge of prostate cancer, than individuals receiving only the usual care provided to men having a prostate cancer screening. Tomko et al. (2014) also explored differences between a web-based and print-based decision aid for prostate cancer. They found that participants were

more likely to use the web decision aid if they preferred it to paper-based, whereas the paper-based version was used regardless of preference. More than half of the men in this study indicated a preference for the print-based decision aid compared to just over one-third preferring the web-based version. In contrast, in a study with adults ($M_{\text{age}} = 40$ years old) recruited from the community and self-help association websites, Bernstein et al. (submitted) found no significant differences in format preference (paper vs. web) for depression treatment materials. In a review of the effects of online depression information (specifically, BluePages developed in Australia), Griffiths and Christensen (2007) found that interaction with the website led to an increase in depression literacy, a decrease in personal stigma related to depression, and a decrease in help-seeking from non-professional sources (i.e., family and friends).

Model for Evaluating Decision Aids

One of the most commonly used models behind the development and evaluation of decision aids is the Ottawa Decision Support Framework (ODSF; O'Connor, 2006). The ODSF provides an explanation for the connection between patients' decisional needs, decision quality, and decision support (Stacey et al., 2010). The ODSF also provides patients and practitioners with a method of shared decision-making. This framework indicates that decision support (such as the use of a decision aid) can improve the quality of an individual's decision. According to the ODSF, quality refers to both the quality of the decision and the quality of the decision making process. A high quality decision is one that is informed, in concordance with personal values, acted upon, and satisfactory to both the individual and health practitioner (O'Connor et al., 1998). Therefore, practitioners should be sure that patients are informed by assessing their

knowledge of options (and the risks and benefits of each option). In addition, practitioners should aim to increase the agreement between the option decided upon and the patient's values (Sepucha et al., 2013). Assessing the quality of the decisional process involves measuring the patient's ability to: (a) identify the decision to be made; (b) understand and feel educated about the available options and the benefits and potential harms associated with each option; (c) gain clarity about what components of the decision are of greatest personal significance (e.g., harms, benefits, uncertainties); (d) ensure that the health practitioner understands one's values; and (e) participate in the decision making process (Sepucha et al., 2013).

Using the ODSF in the development of the present study places this research in context within the extensive literature on decision support. The ODSF integrates decision support to improve decision quality and the quality of the decision making process.

As information decision aids have been developed to address many areas of health, it is important to have a set of standards in place to guide developers around the creation and evaluation of information decision aids. A team of researchers from the U.S., U.K., Canada, and Australia, created the International Patient Decision Aid Standards (IPDAS) as criteria to determine decision aid quality (Elwyn et al., 2006). The IPDAS consists of a checklist of 64 items in the areas of content, development process, and effectiveness. The most recent *Cochrane Review* of decision aid evaluations used this checklist (Stacey et al., 2014).

Important Factors in Decision Making

Knowledge of depression and treatment options. In the absence of obvious symptoms such as suicidality, young adults have a difficult time recognizing depression (Burns & Rapee, 2006). Burns and Rapee (2006) also found that adolescents view counseling as the most appropriate source of help, and do not view doctors as key sources of help. Furthermore, in a Danish study, people over 40 years of age had negative beliefs about the doctor-patient relationship, and both inaccurate and negative beliefs about antidepressants (Kessing, Hansen, Demyttenaere, & Bech, 2005). Therefore, it is important to provide individuals with accurate information about depression and the treatment options available.

There has been limited research on changes in knowledge after people have reviewed decision aids about a variety of health issues. However, the work that has been done suggests that knowledge increases following participants' review of a decision aid (Anderson et al., 2011; Frosch et al., 2008a; Frosch et al. 2008b; Sheridan et al., 2004; Stacey et al., 2014; Wakefield et al., 2010; Watts et al., 2015). In a *Cochrane Collaboration Review*, Stacey and colleagues (2014) found decision aids to increase knowledge when compared to usual care (which in many studies meant no additional educational materials). Other researchers have used knowledge tests to explore health practitioners' knowledge of health issues, such as catheter-related infections (e.g., Labeau et al., 2009) and medication knowledge (Simonsen et al., 2011). In both of these studies the sample of nurses tested displayed less-than-optimal knowledge of these topics.

In terms of previously developed knowledge tests, Gabriel and Violato (2009) developed a test of depression (and depression treatment) knowledge. This instrument had minimally acceptable internal consistency (Cronbach's alpha of .68) and adequate

validity (88% agreement among experts on the relevancy of the scale's content to measure depression knowledge). The somewhat lower level of internal consistency may be expected in a knowledge test, which assesses a broad area and may contain a range of different content areas. The authors did not explore changes or improvements in knowledge, but instead reported that participants answered an average of 79% of the questions correctly (Gabriel & Violato, 2009). Rogojanski (2013) evaluated the original paper-based version of our group's information decision aid, and also assessed knowledge in an undergraduate sample after reviewing the information decision aid. The internal consistency of the Rogojanski (2013) instrument was low (Cronbach's alpha of .57), but again this is expected with a broad test, as it asked many different questions about depression. Overall, modest improvements in knowledge were found using the Rogojanski assessment measure.

I have built on Rogojanski's study by using a web-based version of this information decision aid. In addition, the knowledge assessment tool developed for this study was somewhat more comprehensive than Rogojanski's (2013) instrument. I have added more general questions about risk factors/causes, signs/symptoms, treatment and treatment providers, and prevention.

Attitudes towards depression and its treatment. There has been limited research on both the public's attitudes and practitioners' attitudes towards people with mental disorders. For instance, a review by Angermeyer and Dietrich (2006) found that the public believes that individuals with psychological problems are in need of help, dependent on others, and unpredictable. It has been found that information campaigns can reduce some of these negative attitudes (Angermeyer & Matchniger, 2005; Hegerl,

Althaus, & Stefanek, 2003). Furthermore, having previous experience with psychological difficulties (either personally or through others) was related to holding more positive attitudes about mental health issues (Angermeyer & Dietrich, 2006).

Gabriel and Violato (2010) reported that many individuals have negative attitudes towards depression and its treatment, and patient attitudes are a significant factor in depression treatment adherence (Lingam & Scott, 2002). Moreover, in a study comparing attitudes held by members of the general public to those held by mental health professionals, both groups provided low ratings of long-term outcomes in different areas of life (including having a good marriage and being a caring parent) for people with mental disorders including major depression and schizophrenia (Jorm, Korten, Jacomb, Christensen, & Henderson, 1999; see also Hugo, 2001). Both groups also viewed those with mental disorders as experiencing more discrimination throughout their lifetimes. Additionally, both professionals and the public rated outcomes as poorer and discrimination as more likely for individuals with schizophrenia than for individuals with depression. Most importantly, these authors also found that general practitioners and mental health professionals provided more negative ratings overall compared to the general public. Results such as those described above are important as professionals' negative attitudes may impact the way they deal with patients (Jorm et al., 1999).

Stigma. Mental health issues are viewed by the public as more controllable by the person experiencing the problem, than are physical health issues. Therefore, there are more stigmatizing attitudes around mental health issues (Corrigan, 2000). Corrigan (2004) makes a distinction between public and private stigma. Public stigma exists when an individual is seen as unacceptable by a group of people, whereas self-stigma occurs

when one views oneself as unacceptable in society (Corrigan, 2004). Corrigan and Penn (1999) suggested three approaches to reducing stigma: protest, education, and contact (i.e., interaction with individuals with mental health issues).

Corrigan and Penn (1999) reported that individuals with more knowledge on mental health issues indicate fewer stigmatizing attitudes, compared to those with less information. A review by Griffiths and Christensen (2007) found online depression information to reduce stigmatizing attitudes and improve depression literacy. Similarly, in a study by Hammer and Vogel (2010) self-stigma was reduced after participants reviewed a depression brochure. In addition, Ke and colleagues (2015) found an educational workshop on mental illness to reduce stigmatizing attitudes (see also Corrigan et al., 2001). Finally, Taylor-Rodgers and Batterham (2014) demonstrated that an online education intervention decreased depression stigma in a sample of young adults (see also Livingston, Cianfrone, Korf-Uzan, & Coniglio, 2014). Together, these results indicate that educating people on mental health issues, such as with the use of an information decision aid, can reduce stigma.

Help-seeking attitudes. A distinction can be made between help-seeking behavior and help-seeking attitudes. Help-seeking behaviour is behaviour that is planned and involves one interacting with a health professional (Cornally & McCarthy, 2011). On the other hand, help-seeking attitudes are one's views concerning seeking assistance from a health professional. Based on data from the European Study of the Epidemiology of Mental Disorders with nationally representative samples from six countries, it was reported that less than half of those with major depression actually receive help from a professional (Fernandez et al., 2007). In addition, in the nationally representative

National Comorbidity Survey-Replication (NCS-R) in the U.S., Wang et al. (2005) found that there is commonly a long delay (6 to 8 years for mood disorders) between the onset of a psychological problem and when people seek help. However, in a cross-sectional study using the NCS and NCS-R, Mojtabai (2007) found that attitudes toward mental health service use are becoming increasingly positive.

There are several important factors related to the likelihood of seeking help including openness (Komiya, 2000), attitudes, stigma (Mojtabai et al., 2011), as well as some demographic predictors (Oliver, Pearson, Coe, & Gunnell, 2005). Cepeda-Benito and Short (1998) found that individuals who self-concealed (i.e., who kept personal information to themselves) had a lower likelihood of seeking psychological help than those who were more open about personal information. Vogel, Wade, and Haake (2006) found that those who experience the least amount of self-stigma are the most likely to seek counseling and other forms of help. However, because depression and its treatment are still associated with some degree of stigma, affected individuals are often reluctant to seek professional help. In a study by Barney, Griffiths, Jorm, and Christensen (2006), individuals thought that others would view them negatively if they sought help from professionals for their depression, and that they would feel embarrassed about seeking this help. This suggests that many people would not want to display such “weaknesses” in the eyes of others. According to Gulliver, Griffiths, Christensen, and Brewer (2010), stigma and embarrassment are among the top reasons why young people do not seek help (see also Yap, Reavley, & Jorm, 2013). Thus, attempting to change the public’s attitudes towards seeking professional help by providing them with information is a key first step in supporting people to pursue effective treatments.

In terms of demographic factors related to help-seeking, Sareen et al. (2007) conducted a study using the U.S. NCS, the Ontario Health Survey, and the Netherlands Mental Health Survey and Incidence Study. They reported a relationship between being female and indicating a greater perceived need for treatment. They also found that individuals of low socioeconomic status indicated a lower perceived need for treatment than those of higher socioeconomic status. In a study comparing cultural differences in the likelihood of seeking professional help, US college students were more likely to seek help than college students from China (Chen & Mak, 2008). In this study both groups were more likely to seek help from a social worker or counselor compared to a psychologist, psychiatrist, or university counseling centre. However, Barney et al. (2006) reported that a random sample of Australian adults were more likely to seek help from their family doctors than from counselors, psychologists, or psychiatrists. Barney et al. (2006) also reported that young people were more likely than older adults to seek help from professionals, which may suggest a generational difference in help seeking.

Vogel and Wester (2003) reported that help seeking attitudes were a strong predictor of intentions to seek help and obtain psychological services. Cepeda-Benito and Short (1998) also found that positive attitudes toward therapy predicted people being more likely to report that they would seek help if they needed it. In a study with college students, Jennings and colleagues (2015) reported perceived stigma and self-stigma to have a negative relationship with help-seeking attitudes (see also Bathje & Pryor, 2011).

Decisional conflict. The ODSF considers decisional conflict (uncertainty one has when presented with competing options that involve loss, risk, or challenge to personal values) as an important aspect of decision-making (Légaré et al., 2006). O'Connor

(1995) developed the *Decisional Conflict Scale*, which assesses one's perception of uncertainty in making decisions as well as the effectiveness of their decision making. In a *Cochrane Collaboration Review*, Stacey and colleagues (2014) found decision aids to lower decisional conflict (using the *Decisional Conflict Scale*) when compared to usual care. In a study evaluating a breast cancer treatment decision aid (Wong et al., 2012), the use of a decision aid was found to decrease decisional conflict, leading to more confidence in decisions regarding breast cancer treatment (see also Banegas et al., 2013). This was also true for patients with respiratory issues (Cox et al., 2011). Therefore, individuals may be more certain and experience less conflict in their treatment decisions after reviewing an information decision aid.

Sense of being well-informed. In informed decision-making, the consumer receives enough information to make an informed decision (Charles, Gafni, & Whelan, 1999). The *Decisional Conflict Scale* developed by O'Connor (1995) contains a three-item, Informed subscale. According to Sepucha et al. (2013), decision aids assist people in feeling more informed and clear about their values. Indeed, Hochlehnert et al. (2006) found that, in their sample, more than 90% of patients found an information tool on chronic pain to be very informative, or informative.

Depression treatment preferences. In a meta-analytic review of patient preference for psychological versus pharmacological treatment for psychological disorders, McHugh and colleagues (2013) found 75% of individuals to prefer psychological treatment approaches. Winter and Barber (2013) reviewed depression treatment preferences and found a preference for psychological over medication

treatments. These authors also found that patients are often interested in alternative treatments such as herbal remedies, and self-help books (Winter & Barber, 2013).

In a study of PTSD treatment preferences by Zoellner, Feeny, and Bittinger (2009) the strongest predictors of preference for either sertraline or prolonged exposure treatment were beliefs related to treatment such as treatment credibility and how much one thinks a treatment will help them. In addition, depression severity was a predictor of preference for counseling over medication in those with depression who were in treatment at the time of the study (Dwight-Johnson, Sherbourne, Liao, & Wells, 2000). Wu et al. (2014) asked breast cancer survivors about depression treatment preferences, if they were having a problem with depression. These researchers found that participants indicated a significantly greater preference for individual counseling compared to medication or support groups. Similarly, Sierra-Hernandez et al. (2014) found that psychiatric outpatients had a greater preference for psychotherapy compared to medication, or no treatment. Similar preferences have been found for individuals with major depression and dysthymia (counseling over medication in both groups; Gum et al., 2006).

In terms of demographic characteristics, findings have been mixed. Some studies have found no differences between racial backgrounds (Khalsa et al., 2011) or gender (Sierra-Hernandez et al., 2014). While others have reported that racial and ethnic minorities indicated a greater preference for counseling compared to White individuals (Givens et al., 2007), and Gum et al. (2006) found females to be more likely to prefer counseling.

A meta-analysis found that when individuals receive their preferred treatment choice, or choose a treatment condition, their clinical outcomes are often better than those of individuals who have not made these choices (Lindhiem, Bennett, Trentacosta, & McLear, 2014). This result complements the findings of an RCT published by Raue, Schulberg, Heo, Klimstra, and Bruce (2009), who reported that 70% of depressed individuals preferred psychotherapy compared to antidepressants (see also Dwight-Johnson, Sherbourne, Liao, & Wells, 2000), and that the strength of this preference was related to both treatment initiation and treatment adherence. Moreover, Gum et al. (2006) found that individuals were more likely to prefer a treatment approach if they had past success with it. A meta-analysis found a modest but significant effect size ($r=.15$, [95% confidence interval, .09,.21]) for improved treatment outcomes when clients receive their preferred treatment, compared to when they do not (Swift & Callahan, 2009).

Purpose of the present study

The present study builds on the earlier work on the information decision aid developed by our team (Rogojanski, 2013; Zacharias, 2014) by evaluating more aspects of the effect of the information decision aid on decision-related knowledge, attitudes, and opinions. Previous research has used assessments of knowledge that were quite limited in content (Gabriel & Violato, 2010; Rogojanski, 2013). In the present study, I developed a more comprehensive knowledge assessment measure.

This study utilized a powerful randomized controlled trial (RCT) design to compare the use of the web-based Informed-choices information decision aid (developed by our research team; www.depression.informedchoices.ca) with a realistic comparison group (Mayo Clinic information which has general depression information;

<http://www.mayoclinic.org/diseases-conditions/depression/basics/definition/con-20032977>). The purpose of this study was to determine whether individuals who have utilized the Informed-choices website differ from those exposed to general depression information available on the Internet with respect to the important factors involved in decision-making discussed above. The goal was to develop an approach to evaluating information decision aids that, if successful, could be applied to information decision aids concerning other health issues.

STUDY 1

Study 1 tested six specific hypotheses based on the decision-making factors discussed above. In particular, I expected that, relative to individuals in the Mayo Clinic information condition, those in the Informed-choices condition would show:

- a greater increase in knowledge of depression and its treatment (*Hypothesis 1*);
- a greater reduction in stigma attitudes towards depression (*Hypothesis 2*);
- a greater improvement in help-seeking attitudes (*Hypothesis 3*);
- a greater reduction in their decisional conflict (*Hypothesis 4*);
- a greater sense of feeling well-informed (*Hypothesis 5*);
- and a greater increase in preference for psychological and pharmacological treatments for depression (*Hypothesis 6*).

It was predicted that the Informed-choices information decision aid would produce greater increases in the outcome variables compared to the Mayo Clinic information because the Informed-choices information decision aid has undergone a systematic development process following the International Patient Decision Aid Standards (Elwyn et al., 2006) and the Ottawa Decision Support Framework (O'Connor,

2006), aimed at developing comprehensive and easily understandable information. The temporal stability (i.e., whether the changes in the measures were maintained over time) of the outcome variables was evaluated by inviting participants to respond to a follow-up survey one-month after the initial data collection session.

Method

Sample

Participants were recruited from the University of Manitoba Introductory Psychology Participant Pool in the summer of 2015. This sample was considered appropriate given the particularly high prevalence of depression in young adults (18 to 25 years of age; Kessler et al., 2005a). Participants were randomly assigned to utilize an information decision aid developed by our research team (the Informed-choices information decision aid), or materials relating to depression and its treatment that are currently available on the Mayo Clinic's website (Mayo Clinic information), to answer specific questions relating to depression and its treatment (see below). A total of 45 participants were included in Study 1 that took place in the summer of 2015. A total of 25 participants were randomly assigned to the Informed-choices condition, and 20 to the Mayo Clinic information condition using freely available randomization software (www.randomization.com).

Procedure

Data collection took place in a computer lab that could accommodate groups of up to 20 participants, each seated at an individual workstation. After the participants reviewed the consent form for the study and provided their consent, they were presented with a pre-assessment including the measures described below, using Survey Gizmo (an

online survey software program). After the pre-assessment, participants received a one page question sheet with a list of questions (usability questions) about depression and depression treatment based on our earlier research on the public's ratings of the importance of information topics (Bernstein et al., submitted). The purpose of the usability questions was to engage the participants in reviewing the content of the website. Participants were asked to write their answers on the question sheet, and had 25 minutes to navigate the assigned website and review information that would help them to answer the questions. If they finished the questions with time remaining, they could use that time to freely navigate the website and review other information that was of interest to them. These usability questions had some similar content to the Knowledge Test questions (described below) because both groups of questions were intended to focus on topics that were judged to be important by members of public. The usability questions were open-ended and allowed participants to provide responses based on the information on the websites (see Appendix B). An example of one of the usability questions is "*What are the two most widely used treatments for depression?*" In comparison, an example of a Knowledge Test question is "*The two treatments for depression that have been studied the most are...*" and participants chose the best of five response options to complete the sentence. A scoring rubric was created to evaluate the answers to the usability questions. The rubric was created by reviewing the two websites and selecting the acceptable answers to each question. In some cases multiple answers were appropriate. One point was provided for each correct response and then the correct responses were summed. The maximum score was 27.

Following the review of their assigned website, participants were presented with a post-assessment survey. The pre- and post-assessment packages each took approximately 20 minutes to complete. The researcher was in the room throughout the procedure to answer any questions and circulated in the room to see that the participants were on task during the procedure.

Participants were also asked to complete a follow-up assessment survey at one-month (via Internet survey provided by a link in an email message), which provided an assessment of the durability of any changes as a result of the intervention.

Participants received three participation credits towards their Introductory Psychology course for the first data collection appointment. They also received a \$10 gift card provided by email if they participated in the 1-month follow-up. This study was approved by the University of Manitoba Psychology/Sociology Research Ethics Board.

Measures

Sociodemographic information. Participants were asked to provide information concerning their gender, age, marital status, education level, country of birth, as well as previous experience with depression and its treatment.

Emotional distress. Participants' emotional distress was assessed using the *Kessler Psychological Distress Scale (K6)*, which is a validated measure of anxiety and depressive symptoms (Kessler et al., 2002). The six-item survey asks the general question "During the past 30 days, about how often did you feel..." "...nervous, ...hopeless, ...restless or fidgety, ...so depressed that nothing could cheer you up, ...that everything was an effort, ...worthless". Items are rated on a 5-point Likert scale ranging from 1 (*none of the time*) to 5 (*all of the time*). The possible values on the sum score of

this scale range from 6 to 30. This scale has good internal consistency with a Cronbach's alpha of .89 (Kessler et al., 2002).

Depression knowledge and literacy. Two scales were used to assess individuals' knowledge about depression and its treatment, before and after reviewing the information decision aid. The *Knowledge Test* was a more comprehensive version of the knowledge assessment measure used by Rogojanski (2013). I added more general questions about risk factors/causes, signs/symptoms, treatment and treatment providers, and prevention. Two of the new questions were adapted from a depression knowledge test developed by Gabriel and Violato (2009). The internal consistency of the measure used by Rogojanski was low (.57), however this was expected, as it was a broad measure of depression knowledge. The possible values on the sum score of the Knowledge Test used in the present study range from 0 (no correct responses) to 28. The *Depression Literacy Questionnaire* was developed by Griffiths, Christensen, Jorm, Evans, and Groves (2004). This scale asks respondents to indicate whether 22 statements about depression and its treatment are true or false, with higher scores indicating greater depression literacy. The possible values on the sum score of this scale range from 0 (no correct responses) to 22. This scale has moderate internal consistency ($\alpha = .70$) and moderate test-retest reliability (.71; Griffiths, 2016). An example of an item on this scale is "Sleeping too much or too little may be a sign of depression".

Stigma. Griffiths and colleagues (2004) developed an 18-item measure called the *Depression Stigma Scale* that assesses personal (9 items) and perceived (9 items) stigma. The personal and perceived stigma items are essentially the same with a minor wording change. For instance, an item on the personal scale reads, "depression is not a real

medical illness” while the complementary item on the perceived scale reads, “most people believe that depression is not a real medical illness.” I used only the personal items, as I was interested in the participants’ own views about depression, and the items are repetitive. Additionally, previous research on stigma has used the personal stigma scale only (see Gulliver et al., 2012). Items on this scale are rated on a 5-point rating scale from 1 (*strongly agree*) to 5 (*strongly disagree*). The range of values on the sum score of this scale is 9 to 36. Higher scores on this scale indicate more stigmatizing attitudes. This scale has moderate internal consistency, $\alpha = .76$ (Griffiths, Christensen, Jorm, Evans, & Groves, 2004), and acceptable test-retest reliability ($r = .66$; Griffiths et al., 2004).

Help-seeking attitudes. Mackenzie, Knox, Gekoski, and Macaulay (2004) developed the *Inventory of Attitudes Toward Seeking Mental Health Services*, which consists of 24 items regarding one’s attitudes towards help seeking. The items on this scale were rated on a 5-point rating scale ranging from 1 (*Disagree*) to 5 (*Agree*). The range values on the sum score of this scale is 24 to 120. A sample item from this scale is “There are experiences in my life I would not discuss with anyone.” This scale has good internal consistency (Cronbach’s alpha of .87), and high factor loadings (mean factor loading of .53; this includes its three factors: psychological openness, help-seeking propensity, and indifference to stigma).

Decisional conflict and feeling informed. The *Decisional Conflict Scale* developed by O’Connor (1995) was used to assess the degree of certainty around decision-making and how well-informed one feels (in a subscale). Participants were presented with the following instructions before responding to the items: “If you, a family

member, or friend were making a decision about treatment for depression, please answer the following questions by selecting the appropriate number to show the extent to which you agree with each statement.” The total scale contains 14 items (with a range of values from 0 to 56), which can be rated on a scale ranging from 0 (*Strongly Disagree*) to 4 (*Strongly Agree*). This instrument has good internal consistency (average Cronbach’s alpha was .85) and good validity (i.e., it provided significant discrimination between those who accepted/rejected breast cancer screening and those who were delayed/unsure; O’Connor, 1995). The first three items of the *Decisional Conflict Scale* comprise the Informed Subscale.

Treatment preferences. Individuals were asked to rate their preferences for several treatment options for depression. These treatment options included counseling/psychotherapy, medication, exercise, meditation (or yoga), relaxation training, dietary changes, herbal remedies (such as St. John’s Wort), bright light therapy, and self-help book/website. Each of these nine treatment options could be rated on a rating scale ranging from 0 (*Not preferred*) to 8 (*Very preferred*).

Assessment surveys. All of the measures described above were asked at pre-assessment, post-assessment, and follow-up, with the exception of the demographic questions and the *K6*. These two measures were asked at pre-assessment only. The order of the measures in the survey was the order in which they are described above and was the same for all participants.

Analysis

IBM SPSS Statistics Version 23.0 was used to conduct the data analysis. First, the groups were compared with regard to their sociodemographic characteristics

including gender, age, education level, country of birth, and history of depression treatment. These comparisons involved either t-tests (for continuous variables) or chi-square tests (for proportions).

Next, I conducted six separate repeated measures analyses of variance (ANOVA) tests to assess between group (Informed-choices vs. Mayo Clinic information) and within group changes across the first two timepoints – pre and post. I followed that analysis with six separate repeated measures ANOVAs across the post and follow-up assessments. Considering the pre-assessment to the post-assessment data separately from the follow-up data yields more power than had all three timepoints been compared together because the proportion responding to the follow-up survey was relatively small.

Results

Sample characteristics

As can be seen in Table 1, this group of Introductory Psychology students had slightly more females (58%) than males (42%). The average age was 21, and most of the sample was single (89%). Less than half of this sample was born in Canada (42%). One-fifth of this sample had previously received counseling for depression, while more than one-third indicated that they would have benefited from it, but did not receive it. The mean usability question sum score was also similar between the groups and was quite high. This indicates that people were well engaged in the task of reviewing the website. Overall, the participants in the two groups were generally similar in their sociodemographic characteristics.

Main analyses

In examining the dependent variables, the ANOVA findings across the six measures in Table 2 indicate very few differences over time between the Informed-choices group and the Mayo Clinic group. Consequently, the findings do not support Hypotheses 1 to 5 that there would be changes in knowledge, stigma attitudes, help-seeking attitudes, decisional conflict, and feeling informed that would be larger in the Informed-choices group than the Mayo Clinic group. Not only are the findings similar

Table 1

Study 1 Sociodemographic Characteristics of Respondents

	Informed-choices (N=25)	Mayo Clinic (N=20)	Statistical Comparison
Mean age (<i>SD</i>)	21.4 (3.19)	20.9 (1.83)	$t(43) = .573, p = .569$
Female/male proportion	52%/48%	65%/35%	$\chi^2 = .770, p = .380$
Proportion born in Canada	40%	45%	$\chi^2 = .114, p = .736$
Proportion never married & never lived with someone in a marital-like relationship	88%	90%	$\chi^2 = .045, p = .832$
Participants' mean years of education after high school (<i>SD</i>)	2.3 (1.70)	2.4 (1.57)	$t(43) = -.061, p = .952$
Usability questions mean sum score (<i>SD</i>)	21.5 (4.57)	23.2 (3.71)	$t(43) = -1.36, p = .180$
K6 distress scale mean sum score (<i>SD</i>)	8.7 (4.62)	7.7 (4.68)	$t(43) = .688, p = .495$
Previously received a diagnosis of depression	8.0%	10.0%	$\chi^2 = .055, p = .815$
Have received counseling or therapy from a professional for depression (% yes)	24%	15%	$\chi^2 = .563, p = .453$
Was there a time when counseling or therapy from a professional for depression would have been helpful but you did not receive it? (% yes)	44%	30%	$\chi^2 = .927, p = .336$
Have received medication from a doctor for depression (% yes)	8%	15%	$\chi^2 = .551, p = .459$
Was there a time when medication from a doctor for depression would have been helpful but you did not receive it? (% yes)	4%	10%	$\chi^2 = .643, p = .422$

Note. Statistical comparison was considered to be statistically significant if $p < .05$.

Table 2

Study 1 2x2 ANOVA Comparing Dependent Measures Scores of the Informed-choices and Mayo Clinic Groups at Pre- and Post-assessment

Outcome Variable	Informed-choices (N=25) <i>M (SD)</i>		Mayo Clinic (N=20) <i>M (SD)</i>		Statistical comparisons		
	Pre-assessment	Post-assessment	Pre-assessment	Post-assessment	Group	Time	Group X Time Interaction
Knowledge test	25.7 (4.84)	25.2 (4.93)	26.4 (3.42)	25.7 (5.58)	$F(1,43) = .182,$ $p = .672, \eta_p^2 = .004$	$F(1,43) = 2.20,$ $p = .145, \eta_p^2 = .049$	$F(1,43) = .012,$ $p = .912, \eta_p^2 < .0001$
Depression Literacy Questionnaire	15.3 (3.27)	15.3 (3.08)	16.0 (2.66)	14.9 (3.62)	$F(1,43) = .028,$ $p = .868, \eta_p^2 = .001$	$F(1,43) = 2.18,$ $p = .147, \eta_p^2 = .049$	$F(1,43) = 2.62,$ $p = .113, \eta_p^2 = .059$
Depression Stigma Scale ^a	11.7 (5.30)	11.7 (7.14)	12.7 (6.70)	11.0 (7.17)	$F(1,43) = .004,$ $p = .951, \eta_p^2 < .0001$	$F(1,43) = 1.28,$ $p = .265, \eta_p^2 = .029$	$F(1,43) = 1.53,$ $p = .223, \eta_p^2 = .035$
IASMHS	59.5 (10.61)	61.1 (11.78)	58.7 (16.1)	61.1 (14.62)	$F(1,43) = .012,$ $p = .913, \eta_p^2 < .0001$	$F(1,43) = 3.80,$ $p = .058, \eta_p^2 = .083$	$F(1,43) = .148,$ $p = .702, \eta_p^2 = .004$
Decisional Conflict Scale ^b	20.6 (10.52)	13.2 (8.84)	22.9 (9.96)	13.7 (9.27)	$F(1,43) = .314,$ $p = .578, \eta_p^2 = .007$	$F(1,43) = 31.42,$ $p < .0001, \eta_p^2 = .422$	$F(1,43) = .338,$ $p = .564, \eta_p^2 = .008$
Informed Sub-Scale ^c	4.8 (2.79)	2.9 (1.61)	5.6 (3.17)	3.0 (2.14)	$F(1,43) = .424,$ $p = .518, \eta_p^2 = .010$	$F(1,43) = 27.33,$ $p < .0001, \eta_p^2 = .394$	$F(1,43) = .720,$ $p = .401, \eta_p^2 = .017$

Note. Bolded cell indicates statistical significance, where significance is $p < .05$.

IASMHS = *Inventory of Attitudes Towards Seeking Mental Health Services*.

^aHigher scores = more stigma; ^bHigher scores = more decisional conflict (or uncertainty); ^cHigher scores = feeling less informed

between groups, only a few differences were found with exposure to depression information. In examining the first set of comparisons, only two significant differences were found. Participants indicated significantly less decisional conflict immediately following review of the website, than at baseline. This difference had a very large effect size ($\eta_p^2 = .422$) based on Cohen's (1988) recommendations for effect size (small = .01, medium = .06, and large = .14). In addition, participants indicated feeling significantly more informed (lower scores = more informed) immediately following the review of the website. This difference had a very large effect size ($\eta_p^2 = .394$). There were no significant group or interaction differences on the *Decisional Conflict Scale* or its Informed Subscale over the first two time points.

In examining Table 3, participants provided moderate to high ratings of preference for all of the treatment options presented. The mean ratings of various treatment options were very similar between the groups, with all between-group confidence intervals overlapping at pre- and post-assessment. Therefore, Hypothesis 6 is not confirmed, and the Informed-choices group did not indicate a greater increase in preference for psychological and medication treatments compared to the Mayo Clinic information group. There were also no changes in preference from pre- to post-assessment within either group. In looking at the pre-assessment treatment preference results, participants provided higher ratings of exercise, relaxation training, counseling/therapy treatment, meditation/yoga, and dietary changes. Participants provided somewhat lower ratings of bright light therapy, herbal remedies, medication treatment, and self-help approaches. There were also no changes in ratings of treatment preferences from post-assessment to follow-up (data not shown).

Table 3

Study 1 Ratings of Preference for Different Treatment Options

Treatment Option	Mean rating (95% CI)			
	Informed-choices (N=25)		Mayo Clinic (N=20)	
	Pre-assessment	Post-assessment	Pre-assessment	Post-assessment
Counseling/Therapy Treatment	5.76 (5.03, 6.49)	5.92 (5.25, 6.59)	5.20 (4.24, 6.16)	5.70 (4.73, 6.67)
Medication Treatment	4.00 (2.98, 5.02)	3.92 (2.97, 4.87)	3.25 (2.02, 4.48)	4.20 (3.03, 5.37)
Exercise	6.64 (6.12, 7.16)	6.40 (5.64, 7.16)	6.75(5.95, 7.55)	7.30 (6.73, 7.87)
Meditation/Yoga	5.52 (4.77, 6.27)	6.04 (5.34, 6.74)	6.74 (5.99, 7.49)	6.80 (6.08, 7.52)
Relaxation training	6.32 (5.61, 7.03)	6.00 (5.28, 6.72)	6.70 (5.78, 7.62)	7.05 (6.38, 7.72)
Dietary changes	5.36 (4.47, 6.25)	5.68 (4.93, 6.43)	6.25 (5.43, 7.07)	6.45 (5.56, 7.34)
Herbal remedies	4.08 (3.26, 4.90)	5.24 (4.35, 6.13)	3.90 (3.03, 4.76)	4.25 (3.39, 5.11)
Bright light therapy	4.32 (3.54, 5.10)	4.67 (4.05, 5.29)	3.33 (2.45, 4.22)	3.35 (2.36, 4.34)
Self-help book/website	3.88 (2.85, 4.91)	4.60 (3.71, 5.49)	3.75 (2.66, 4.84)	4.75 (3.59, 5.91)

Note. CI = confidence interval. Items were rated on a 9-point rating scale with the following anchors: 0=*not preferred*, 4=*moderately preferred*, and 8=*very preferred*. Non-overlapping confidence intervals indicate significant differences.

Overall, the dependent measures in Table 4 displayed temporal stability with very similar means from post-assessment to follow-up one-month later. The sample sizes were small, however, as there was an attrition rate of approximately 50% at follow-up, so this set of analyses had limited power. In examining the second 2X2 ANOVA comparisons, the groups again responded quite similarly and only one significant difference was found (see Table 4). The one significant difference found was a group by time interaction effect for the *Depression Stigma Scale*, and this difference had a large effect size of ($\eta_p^2 = .233$). Upon further examination, there was a significant main effect of time in the Informed-choices group ($F(1,12) = 5.22, p = .041, (\eta_p^2 = .303)$) but not in the Mayo Clinic information group. Those in the Informed-choices group reported significantly less personal stigma towards persons with depression at follow-up than at

post-assessment. There were no significant group or time differences on any of the dependent variables across the post- and follow-up assessments.

Discussion

The results of this study indicate that there were few changes in the variables with exposure to either information decision aid. No differences were found between the two information sources in influencing knowledge, literacy, stigma, attitudes toward seeking mental health services, decisional conflict, or feeling informed. There are a few potential explanations for the limited differences found between the groups. The pre- and post-assessments were only about 30 minutes apart, and the close timing of the assessments may have been a factor in the similarity of the ratings. By the time participants started the post-assessment they may have been at a point where they were rushing to finish – after about 50 minutes in the computer lab. The overlap in content between the pre- and post-assessment may have resulted in a lower level of interest. It is also possible that they recalled their pre-assessment responses, and tried to respond in a consistent manner in the post-assessment phase.

There were also some ceiling effects on the measures, particularly on the Knowledge Test and the *Depression Literacy Questionnaire*. As stated above, depression is a widely prevalent problem, particularly in the young adult years. It is likely that participants are familiar with depression and its treatments, as they or those close to them may have had problems with depression, which may have been one reason for the ceiling effects on these measures. This sample is not only more educated than others in the same age group in the general population, but also is comprised of students enrolled in an

Table 4

Study 1 2x2 ANOVA Comparing Dependent Measures Scores of the Informed-choices and Mayo Clinic Groups at Post-assessment and Follow-up

Outcome Variable	Informed-choices (N=13)		Mayo Clinic (N=10)		Statistical comparisons		
	<i>M (SD)</i>		<i>M (SD)</i>		Group	Time	Group X Time Interaction
	Post-assessment	Follow-up	Post-assessment	Follow-up			
Knowledge test	27.2 (1.48)	27.2 (1.69)	25.7 (6.58)	26.9 (2.81)	$F(1,21) = .469,$ $p = .501, \eta_p^2 = .022$	$F(1,21) = .794,$ $p = .383, \eta_p^2 = .036$	$F(1,21) = 1.03,$ $p = .321, \eta_p^2 = .047$
Depression Literacy Questionnaire	15.3 (3.07)	16.2 (2.52)	15.8 (2.97)	16.8 (2.30)	$F(1,21) = .256,$ $p = .618, \eta_p^2 = .012$	$F(1,21) = 3.98,$ $p = .059, \eta_p^2 = .159$	$F(1,21) = .006,$ $p = .937, \eta_p^2 < .0001$
Depression Stigma Scale ^a	10.5 (5.95)	8.38 (6.67)	12.4 (6.96)	15.1 (8.24)	$F(1,21) = 2.48,$ $p = .130, \eta_p^2 = .106$	$F(1,21) = .108,$ $p = .745, \eta_p^2 = .005$	$F(1,21) = 6.37,$ $p = .020, \eta_p^2 = .233$
IASMHS	62.8 (11.34)	62.3 (12.70)	62.0 (15.46)	59.5 (18.31)	$F(1,21) = .105,$ $p = .749, \eta_p^2 = .005$	$F(1,21) = .304,$ $p = .587, \eta_p^2 = .014$	$F(1,21) = .171,$ $p = .684, \eta_p^2 = .008$
Decisional Conflict Scale ^b	13.6 (8.39)	15.9 (9.78)	17.4 (10.20)	17.0 (11.20)	$F(1,21) = .379,$ $p = .545, \eta_p^2 = .018$	$F(1,21) = .865,$ $p = .363, \eta_p^2 = .040$	$F(1,21) = 1.22,$ $p = .282, \eta_p^2 = .055$
Informed Sub-Scale ^c	2.6 (1.56)	3.7 (2.63)	3.6 (2.27)	3.9 (3.07)	$F(1,21) = .433,$ $p = .517, \eta_p^2 = .020$	$F(1,21) = 2.72,$ $p = .114, \eta_p^2 = .115$	$F(1,21) = .738,$ $p = .400, \eta_p^2 = .034$

Note. Bolded cell indicates statistical significance, where significance is $p < .05$.

IASMHS = *Inventory of Attitudes Towards Seeking Mental Health Services*.

^aHigher scores = more stigma; ^bHigher scores = more decisional conflict (or uncertainty); ^cHigher scores = feeling less informed

introductory psychology course, which may also lead to high knowledge (and interest) about depression.

Both of the information sources produced favourable effects on decisional conflict and feeling informed. The two significant differences from pre- to post-assessment on *Decisional Conflict Scale* and the Informed Subscale also had very large effect sizes ($\eta_p^2 = .422$ and $\eta_p^2 = .394$ respectively). These findings were not surprising, given that participants likely felt more certain about treatment decisions and better informed just after website review compared to before. The significant interaction effect of the *Depression Stigma Scale* also warrants discussion. Stigmatizing attitudes towards depression decreased for the Informed-choices group not immediately following the review of the websites, but rather after the one-month follow up period. This was an unexpected finding. This could demonstrate a delayed effect of the intervention in the Informed-choices group. The finding of a positive effect on stigma is consistent with previous education interventions showing changes on the *Depression Stigma Scale* (Coppens et al., 2014; Livingston, Cianfrone, Korf-Uzan, & Coniglio, 2014; Taylor-Rodgers & Batterham, 2014). This difference should be interpreted with caution though because of the large number of statistical comparisons and the small sample size.

There were also some non-significant effect sizes within-groups, over time, where there may have been some time differences. There were medium effect sizes from pre- to post-assessment on the Knowledge Test ($\eta_p^2 = .049$) and the *Depression Literacy Questionnaire* ($\eta_p^2 = .049$). The mean sum scores on these measures remained stable in the Informed-choices group across the first two timepoints, but knowledge and literacy actually decreased in the Mayo Clinic group across these timepoints. This could be a

result of participants in the Mayo Clinic group being distracted by other information presented on the Mayo Clinic website or perhaps the information was not presented as clearly on the Mayo Clinic website compared to the Informed-choices website. There was also a medium effect size on the *Inventory of Attitudes Towards Seeking Mental Health Services* from pre- to post-assessment ($\eta_p^2 = .083$). Both groups indicated a trend towards more positive help-seeking attitudes following review of the website compared to before review. Previous research has found greater knowledge to be associated with an increased likelihood of seeking help (Jorm et al., 2006). However, due to the somewhat small sample size the analyses were underpowered. Furthermore, the differences between the groups were limited that I was not confident that increasing the sample size would reveal significant differences. Consequently, I made changes in the research design described in Study 2 below.

STUDY 2

Given the possibility that the limited differences between pre- and post-assessments and between the two groups in Study 1 were due to either the close temporal association between the pre- and post-assessments or to fatigue with repetition of the same extensive set of questions in a short time period, the design for Study 2 was changed. As an alternative method of assessment I chose a post-assessment only design. A post-assessment only design with follow-up allowed for a powerful comparison of the two sources of web information (Informed-choices vs. Mayo Clinic) and an evaluation of whether differences were maintained over time. Advantages of the post-only design include that the participants were still randomly assigned to conditions (reducing the chances of initial group differences; Shadish, Cook, & Campbell, 2001; Trochim, 2006),

and the potential influence of pre-testing on post-testing could be eliminated (Shadish, Cook, & Campbell, 2001; Shuttleworth, 2009). This design does not allow for an evaluation of change in the dependent measures as a result of the information intervention (as there is no pre-assessment). It is possible to consider the likely impact of the information intervention by comparing the pre-assessment findings of Study 1 with the post-assessment findings of Study 2. The degree to which this comparison would be convincing depends on the extent that the samples in the two studies are similar in sociodemographic characteristics. These comparisons would only be suggestive due to the lack of pre-assessment. In Study 2 the random assignment was expected to create reasonably similar groups (as it did in Study 1), and the similarity of the groups was evaluated by comparing the characteristics of participants in the two groups.

Study 2 tested six specific hypotheses. Relative to persons in the Mayo Clinic information condition, at the post-assessment those in the Informed-choices condition would show:

- greater knowledge of depression and its treatment (*Hypothesis 1*);
- less stigma towards depression (*Hypothesis 2*);
- more positive help-seeking attitudes (*Hypothesis 3*);
- less decisional conflict about depression treatment decisions (*Hypothesis 4*);
- a greater sense of feeling well-informed (*Hypothesis 5*);
- and a greater preference for psychological and pharmacological treatments (*Hypothesis 6*).

Similar to Study 1, a follow-up survey was emailed to participants one-month after the data collection session, to evaluate the stability of any observed group differences over time.

Method

Sample

Participants were recruited in the same way from the Introductory Psychology Participant Pool. This sample was recruited during the fall of 2015. I performed a power analysis for Study 2 to determine the sample size required for a power of .80, a significance level of .05, and an effect size of $d = .50$. The analysis yielded an intended sample size of 102. The medium effect size was selected based on the *Cochrane Collaboration* review of the effects of decision aids for treatment of health issues (Stacey et al., 2014). Some of the studies in this review yielded large effect sizes for the increase in knowledge following the review of a decision aid compared to usual care (i.e., no decision aid; Stacey et al., 2014). However, in my study I used a more stringent control group (by using Mayo Clinic information) than many of the studies reported on in the *Cochrane* review. In addition, university students likely have more knowledge about depression, as it is very prevalent, compared to common topics of the studies in the *Cochrane* review, such as breast or prostate cancer. The sample size estimate allowed for a 40% attrition rate at follow-up.

Procedure

This study followed a similar procedure to that outlined in Study 1, except that no pre-assessment measures were completed prior to reviewing the websites. Participants were run in groups of up to 30. As in Study 1, participants were randomly assigned to

groups using randomization software (www.randomization.com). A follow-up survey was emailed to participants one-month after the data collection session, which participants were to complete online. A \$10 gift card was provided to those who participated in the follow-up testing.

Measures

All of the dependent measures described in Study 1 were asked at post-assessment and follow-up except for the demographic questions and the *K6* which were asked only at post-assessment. A second scale was added to assess help-seeking attitudes, called the *Self-Stigma of Seeking Help Scale (SSOSH; Vogel, Wade, & Haake, 2006)*. The *SSOSH* is a brief scale and has a greater focus on the stigma of seeking help from a therapist. The items on this scale can be rated on a 5-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*). The range of values on the sum score for this scale is 10 to 50. An example of an item on this scale is “I would feel inadequate if I went to a therapist for psychological help”. This scale has excellent internal consistency ($\alpha = .90$) and moderate test-retest reliability (.72). The measures in the survey were presented in the following order: Sociodemographic questions, *K6*, *SSOSH*, *Knowledge Test*, *Depression Literacy Questionnaire*, *Depression Stigma Scale*, *IASMHS*, *Decisional Conflict Scale*, and *Treatment Preferences*.

Analysis

Again, SPSS was used to conduct the data analysis. Analyses were conducted in a similar way as in Study 1; that is, demographic information was compared with t-tests or chi-square statistics, and the outcome measures were analyzed using separate repeated measures analyses of variance (ANOVA).

Because I was not there to monitor the data collection at follow-up, I carefully examined the time each person spent on the follow-up survey. Survey Gizmo estimated that a completion time of 13.6 minutes would be required for a survey of this length and the mean completion time was 22.6 minutes. In addition, as a trial, I was able to complete the survey in 12 minutes. Nine respondents completed the follow-up survey in less than 10 minutes, and there was a natural break in the distribution of times at around the 10-minute mark. Zhang and Conrad (2013) found speeding to be an indicator of providing adequate but not accurate responses in order to minimize effort and also of poor quality responses. Therefore, I deleted all participants who completed the follow-up survey in less than 10 minutes, as I considered their data to be of poor quality.

Missing Data

Most variables had few or no missing values; however, some variables had 5-17% of data missing. Tabachnick and Fidell (2013) recommend conducting a missing data analysis on variables that have more than 5% of their values missing. Marital status had 6.6% missing data. I hypothesize that these persons simply did not feel comfortable responding to this question, and so I did not make any changes to this variable. The remaining variables with missing data were from the knowledge questions in the *Depression Literacy Questionnaire* and the Knowledge Test that was created for this study. I hypothesize that participants who did not feel confident in their responses on these questions selected the *prefer not to respond option* (i.e., missing). In this case, respondents were coded as providing an incorrect response to these questions. In looking at the follow-up data, I found a similar pattern of missing data with the knowledge questions. The same approach was taken as with the baseline post-assessment data.

Results

Sample Characteristics

A total of 103 participants were included in the post-assessment and follow-up analyses (Table 5), with 49 in the Informed-choices condition and 54 in the Mayo Clinic Information condition. The participants were not split into two groups of exactly the same size because of the randomization procedures (www.randomization.com was used to generate a random order for the participants who attended each data collection session). Slightly different proportions of participants in each condition responded to the follow-up survey (60% of Informed-choices group and 64% of Mayo Clinic group). As can be seen in Table 5, the samples in each group were quite similar overall. The overall sample was primarily composed of female students (85%), with an average age of 21 years. Of note is the fact that less than half of the participants (37%) in the Informed-choices condition were born in Canada, while more than half (57%) of the participants in the Mayo Clinic information condition were born in Canada. This difference was statistically significant ($\chi^2 = 4.40, p = .036$).

A higher proportion in the Mayo Clinic information condition had previously received a depression diagnosis from a health professional. This difference approached statistical significance ($\chi^2 = 3.58, p = .059$). Some participants had previous experience with depression treatment. While approximately one-fifth had previously received counseling or therapy, approximately one-third acknowledged that there was a time when it would have been helpful to receive counseling or therapy but did not receive it. The proportions that previously received medication or felt they could have benefitted from it in the past were similar between the groups and somewhat lower than the proportions

Table 5

Study 2 Sociodemographic Characteristics of Respondents

	Informed-choices (N=49)	Mayo Clinic (N=54)	Statistical comparison
Mean age (<i>SD</i>)	20.6 (6.03)	21.0 (5.57)	$t(102) = -.36, p = .720$
Female/male proportion	82%/18%	87%/13%	$\chi^2 = .572, p = .450$
Proportion born in Canada	36.7%	57.4%	$\chi^2 = 4.40, p = .036$
Proportion never married & never lived with someone in a marital-like relationship	79.6%	83.3%	$\chi^2 = .239, p = .625$
Participants' mean years of education after high school (<i>SD</i>)	1.1 (1.59)	1.4 (2.14)	$t(102) = -.77, p = .443$
Usability questions mean sum score (<i>SD</i>)	23.4 (3.19)	23.8 (4.16)	$t(102) = -.64, p = .527$
K6 distress scale mean sum score (<i>SD</i>)	7.2 (5.02)	8.0 (5.21)	$t(102) = -.77, p = .446$
Previously received a diagnosis of depression	6.4%	18.9%	$\chi^2 = 3.58, p = .059$
Have received counseling or therapy from a professional for depression (% yes)	16.7%	22.2%	$\chi^2 = .571, p = .450$
Was there a time when counseling or therapy from a professional for depression would have been helpful but you did not receive it? (% yes)	30.4%	29.6%	$\chi^2 = .012, p = .914$
Have received medication from a doctor for depression (% yes)	10.2%	13.2%	$\chi^2 = .190, p = .663$
Was there a time when medication from a doctor for depression would have been helpful but you did not receive it? (% yes)	4.3%	9.3%	$\chi^2 = 1.09, p = .297$

Note. Statistical comparison was considered to be statistically significant if $p < .05$, where bolded cell denotes significant comparison.

indicating this for psychological treatment. The mean usability question sum scores were almost identical between the groups and were quite high. This indicates that people were well engaged in the task of reviewing the website. Overall, the participants in the two groups were generally similar in their sociodemographic characteristics.

Dependent measure associations

Many of the dependent measures were significantly related to one another; however, many of these relationships were small to moderate (see Table 6). As expected, the knowledge measures (Knowledge Test and *Depression Literacy Questionnaire*) were moderately and significantly correlated with one another. Interestingly, the *Depression Stigma Scale* and the *SSOSH* only had a small correlation with one another, suggesting that stigma related to depression and stigma related to seeking help are quite different constructs.

Internal Consistency

The dependent measures used in the present study had good to excellent internal consistency as measured by Cronbach's alpha. The values ranged from .81 on the *Depression Stigma Scale* to .94 on the *Decisional Conflict Scale*.

Main analyses

In examining the dependent variables, the ANOVA findings across the six measures in Table 7 indicated no group differences between the Informed-choices group and the Mayo Clinic group. Consequently, the findings do not support Hypotheses 1 to 5 that there would be differences in knowledge, stigma attitudes, help-seeking attitudes, decisional conflict, and feeling informed between the groups. Time effects (post to follow-up) were found with three of the analyses. Participants indicated significantly less personal stigma towards persons with depression at follow-up compared to post-assessment. This difference had a moderate effect size ($\eta_p^2 = .052$). In addition, participants indicated significantly more decisional conflict around decision-making at follow-up compared to immediately following the website review. This difference had a

Table 6

Study 2 Post-assessment Inter-correlations Between the Dependent Measures

Measure	1	2	3	4	5	6	7
1. Knowledge test	1						
2. Depression Literacy Questionnaire	.38 (.20,.53)	1					
3. Depression Stigma Scale	-.03 (-.22,.16)	-.38 (-.53,-.20)	1				
4. SSOSH	.09 (-.11,.28)	.05 (-.14,.24)	.21 (.02,.39)	1			
5. IASMHS	-.03 (-.22,.16)	.07 (-.13,.26)	-.42 (-.57,-.25)	-.54 (-.66,-.39)	1		
6. Decisional Conflict Scale	-.04 (-.23,.15)	.02 (-.17,.21)	.14 (-.06,.32)	.43 (.26,.58)	-.26 (-.43,-.07)	1	
7. Feeling Informed Sub-Scale	-.07 (-.26,.13)	-.01 (-.20,.18)	.18 (-.01,.36)	.41 (.23,.56)	-.21 (-.39,-.02)	.85 (.79,.90)	1

Note. $N = 103$. SSOSH = *Self-Stigma of Seeking Help*; IASMHS = *Inventory of Attitudes Towards Seeking Mental Health Services*. 95% confidence intervals are in parentheses below the correlations.

moderate effect size ($\eta_p^2 = .079$). Finally, participants indicated feeling significantly less informed at follow-up compared to immediately following the website review. This difference had a large effect size ($\eta_p^2 = .121$). There were no significant group X time interaction effects.

In examining Table 8, participants provided moderate to high ratings of preference for all of the depression treatment options presented. The mean ratings of various treatment options were very similar between the groups, with all between-group confidence intervals overlapping at post-assessment and follow-up. Therefore, Hypothesis 6 is not confirmed, and the Informed-choices group did not indicate a greater preference for psychological and medication treatments compared to the Mayo Clinic

Table 7

Study 2 2x2 ANOVA Comparing Dependent Measures Scores of the Informed-choices and Mayo Clinic Groups at Post-assessment and Follow-up

Outcome Variable	Informed-choices (N=49)		Mayo Clinic (N=54)		Statistical comparisons		
	<i>M (SD)</i>		<i>M (SD)</i>		Group	Time	Group X Time Interaction
	Post-assessment	Follow-up	Post-assessment	Follow-up			
Knowledge test	25.9 (3.62)	26.1 (3.70)	26.6 (2.53)	26.8 (2.46)	$F(1,101) = 1.42,$ $p = .237, \eta_p^2 = .014$	$F(1,101) = .777,$ $p = .380, \eta_p^2 = .008$	$F(1,101) = .064,$ $p = .801, \eta_p^2 = .001$
Depression Literacy Questionnaire	15.7 (3.19)	15.4 (2.84)	16.1 (3.17)	16.0 (3.05)	$F(1,101) = .683,$ $p = .411, \eta_p^2 = .007$	$F(1,101) = .801,$ $p = .373, \eta_p^2 = .008$	$F(1,101) = .098,$ $p = .755, \eta_p^2 = .001$
Depression Stigma Scale ^a	10.3 (6.37)	9.3 (6.54)	9.5 (5.28)	8.7 (4.80)	$F(1,101) = .467,$ $p = .496, \eta_p^2 = .005$	$F(1,101) = 5.50,$ $p = .021, \eta_p^2 = .052$	$F(1,101) = .058,$ $p = .811, \eta_p^2 = .001$
Self-Stigma of Seeking Help Scale ^b	24.7 (7.35)	23.8 (6.76)	26.1 (8.22)	25.2 (8.04)	$F(1,101) = 1.06,$ $p = .305, \eta_p^2 = .010$	$F(1,101) = 2.57,$ $p = .100, \eta_p^2 = .027$	$F(1,101) = .013,$ $p = .910, \eta_p^2 = .000$
IASMHS	58.5 (14.7)	60.2 (13.73)	59.8 (16.16)	61.2 (15.48)	$F(1,101) = .179,$ $p = .673, \eta_p^2 = .002$	$F(1,101) = 1.95,$ $p = .166, \eta_p^2 = .019$	$F(1,101) = .017,$ $p = .898, \eta_p^2 = .000$
Decisional Conflict Scale ^c	18.3 (6.66)	20.8 (9.19)	18.0 (10.27)	19.9 (10.14)	$F(1,101) = .141,$ $p = .708, \eta_p^2 = .001$	$F(1,101) = 8.61,$ $p = .004, \eta_p^2 = .079$	$F(1,101) = .172,$ $p = .680, \eta_p^2 = .002$
Informed Sub-Scale ^d	3.4 (1.20)	4.3 (2.26)	3.5 (2.29)	4.0 (2.33)	$F(1,101) = .083,$ $p = .773, \eta_p^2 = .001$	$F(1,101) = 13.92,$ $p < .0001, \eta_p^2 = .121$	$F(1,101) = 1.24,$ $p = .267, \eta_p^2 = .012$

Note. Bolded cell indicates statistical significance, where significance is $p < .05$.

IASMHS = *Inventory of Attitudes Towards Seeking Mental Health Services*.

^aHigher scores = more stigma; ^bHigher scores = more self-stigma; ^cHigher scores = more decisional conflict (or uncertainty);

^dHigher scores = feeling less informed

Table 8

Study 2 Post-assessment and Follow-up Ratings of Preference for Different Treatment Options

Outcome Variable	Informed-choices (N=49)		Mayo Clinic (N=54)	
	Post-assessment <i>M</i> (95% CI)	Follow-up <i>M</i> (95% CI)	Post-assessment <i>M</i> (95% CI)	Follow-up <i>M</i> (95% CI)
Counseling/Therapy treatment	5.78 (5.21,6.34)	5.57 (4.90,6.24)	5.17 (4.60,5.74)	5.54 (5.00,6.08)
Medication treatment	3.54 (2.90, 4.18)	3.73 (3.14,4.32)	4.11 (3.39,4.83)	3.69 (3.01,4.36)
Exercise	6.76 (6.28,7.23)	6.63 (6.21, 7.06)	6.56 (5.98,7.13)	6.23 (5.77,6.78)
Meditation/Yoga	5.90 (5.26,6.54)	5.82 (5.23, 6.40)	5.93 (5.34,6.52)	5.70 (5.12,6.27)
Relaxation training	6.51 (6.02,7.00)	6.12 (5.58,6.67)	6.09 (5.52,6.66)	5.82 (5.25,6.38)
Dietary changes	5.74 (5.19,6.28)	5.57 (4.90,6.25)	5.69 (5.11,6.26)	5.20 (4.62,5.78)
Herbal remedies	4.41 (3.70,5.12)	4.53 (3.87,5.19)	4.02 (3.42,4.62)	4.13 (3.47,4.79)
Bright light therapy	3.60 (2.94,4.27)	3.72 (3.11,4.34)	3.48 (2.84,4.12)	3.62 (2.94,4.29)
Self-help book/website	3.92 (3.25,4.58)	4.16 (3.44,4.89)	4.32 (3.65,4.98)	3.96 (3.29,4.64)

Note. CI = confidence interval. Items were rated on a 9-point rating scale with the following anchors: 0=*not preferred*, 4=*moderately preferred*, and 8=*very preferred*. Non-overlapping confidence intervals indicate significant differences.

information group. There were also no changes in preference from post-assessment to follow-up within either group. In looking at the post-assessment treatment preference results, participants provided higher ratings of exercise, relaxation training, meditation/yoga, counseling/therapy, and dietary changes. Participants provided somewhat lower ratings of herbal remedies, self-help book/website, bright light therapy, and medication treatment.

In a supplementary analysis I examined the sample characteristics and dependent variable means of all participants who completed the post-assessment measures, whether or not they went on to complete the follow-up survey ($N = 167$). The post-assessment only groups were also very similar to one another (see Table 9). Again, less than half of the participants (43%) in the Informed-choices condition were born in Canada, while

more than half (58%) of the participants in the Mayo Clinic information condition were born in Canada. This difference approached statistical significance ($\chi^2 = 3.74, p = .053$). At post-assessment the mean sum scores on the dependent measures were very similar between the Informed-choices and Mayo Clinic groups, and no between-group differences were found (see Table 10). I also compared the sample characteristics (Table 11) and mean sum scores on the dependent measures (Table 12) of those who completed the follow-up assessment to those who did not. Overall, the two groups were very similar on both demographic characteristics and outcome measures. The group that completed the follow-up assessment provided significantly higher scores on both the Knowledge Test and the *Depression Literacy Questionnaire*.

Table 9

Study 2 Sociodemographic Characteristics of All Respondents to the Post-Assessment

	Informed-choices (N=82)	Mayo Clinic (N=85)	Statistical comparison
Mean age (<i>SD</i>)	20.2 (4.83)	20.5 (4.94)	$t(166) = -.38, p = .706$
Female/male proportion	84%/16%	82%/18%	$\chi^2 = .096, p = .757$
Proportion born in Canada	43%	58%	$\chi^2 = 3.74, p = .053$
Proportion never married & never lived with someone in a marital-like relationship	81.7%	87.1%	$\chi^2 = .909, p = .340$
Participants' mean years of education after high school (<i>SD</i>)	1.4 (1.94)	1.5 (2.31)	$t(166) = -.46, p = .649$
Usability questions mean sum score (<i>SD</i>)	22.9 (3.96)	23.5 (4.13)	$t(166) = -.94, p = .347$
K6 distress scale mean sum score (<i>SD</i>)	7.5 (4.70)	8.0 (5.15)	$t(166) = -.66, p = .508$
Previously received a diagnosis of depression	7.3%	16.5%	$\chi^2 = 3.32, p = .069$
Have received counseling or therapy from a professional for depression (% yes)	16.3%	21.4%	$\chi^2 = .782, p = .377$
Was there a time when counseling or therapy from a professional for depression would have been helpful but you did not receive it? (% yes)	36.4%	29.3%	$\chi^2 = .972, p = .324$
Have received medication from a doctor for depression (% yes)	8.6%	13.3%	$\chi^2 = .842, p = .359$
Was there a time when medication from a doctor for depression would have been helpful but you did not receive it? (% yes)	7.6%	10.7%	$\chi^2 = .546, p = .460$

Note. Statistical comparison was considered to be statistically significant if $p < .05$.

Table 10

Post-assessment Mean Comparisons of Informed-choices and Mayo Clinic Groups

Outcome Variable	Mean (SD)		Statistical Comparison
	Informed-choices (N=82)	Mayo Clinic (N=85)	
Knowledge test	25.37 (4.18)	25.89 (3.90)	$t(166) = -.85, p = .399$
Depression Literacy Questionnaire	14.88 (3.49)	15.51 (3.98)	$t(166) = -1.08, p = .281$
Depression Stigma Scale	10.87 (6.39)	9.52 (5.52)	$t(166) = 1.46, p = .146$
Self-stigma of seeking help	25.23 (7.73)	25.89 (7.51)	$t(166) = -.56, p = .575$
Inventory of Attitudes Towards Seeking Mental Health Services	57.04 (14.73)	59.58 (15.94)	$t(166) = -1.07, p = .289$
Decisional Conflict Scale	17.99 (8.69)	19.07 (9.91)	$t(166) = -.75, p = .456$
Feeling Informed Subscale	3.30 (1.91)	3.75 (2.37)	$t(166) = -1.35, p = .180$

Note. Statistical comparison was considered to be statistically significant if $p < .05$.

Table 11

Study 2 Sociodemographic Characteristics of Those Who Responded to Follow-up and Those Who Did Not

	Responded to follow-up (N=103)	No follow-up (N=64)	Statistical Comparison
Mean age (<i>SD</i>)	20.8 (5.77)	19.7 (2.83)	$t(166) = -1.64, p = .103$
Female/male proportion	84%/16%	81%/19%	$\chi^2 = .293, p = .589$
Proportion born in Canada	48%	56%	$\chi^2 = 1.19, p = .276$
Proportion never married & never lived with someone in a marital-like relationship	82%	89%	$\chi^2 = 1.69, p = .193$
Participants' mean years of education after high school (<i>SD</i>)	1.2 (1.90)	1.8 (2.44)	$t(166) = 1.81, p = .072$
Usability questions mean sum score (<i>SD</i>)	23.6 (3.72)	22.6 (4.49)	$t(166) = -1.53, p = .127$
K6 distress scale mean sum score (<i>SD</i>)	7.6 (5.11)	8.0 (4.65)	$t(166) = .513, p = .609$
Previously received a diagnosis of depression	13%	11%	$\chi^2 = .106, p = .745$
Have received counseling or therapy from a professional for depression (% yes)	20%	18%	$\chi^2 = .129, p = .719$
Was there a time when counseling or therapy from a professional for depression would have been helpful but you did not receive it? (% yes)	30%	37%	$\chi^2 = .507, p = .476$
Have received medication from a doctor for depression (% yes)	12%	10%	$\chi^2 = .213, p = .645$
Was there a time when medication from a doctor for depression would have been helpful but you did not receive it? (% yes)	7%	13%	$\chi^2 = 1.57, p = .210$

Note. Statistical comparison was considered to be statistically significant if $p < .05$.

Table 12

Study 2 Post-assessment Comparisons of Those Who Responded to Follow-up and Those Who Did Not

Outcome Variable	Mean (SD)		Statistical Comparison
	Responded to Follow-up (N=103)	No Follow-up (N=64)	
Knowledge test	26.26 (3.10)	24.63 (5.06)	$t(166) = -2.33, p = .022$
Depression Literacy Questionnaire	15.90 (3.17)	14.06 (4.32)	$t(166) = -2.95, p = .004$
Depression Stigma Scale	9.85 (5.81)	10.70 (6.26)	$t(166) = .891, p = .374$
Self-stigma of seeking help	25.45 (7.81)	25.77 (7.31)	$t(166) = .263, p = .793$
Inventory of Attitudes Towards Seeking Mental Health Services	59.16 (15.40)	57.00 (15.34)	$t(166) = -.876, p = .382$
Decisional Conflict Scale	18.13 (9.50)	19.22 (9.07)	$t(166) = .734, p = .464$
Feeling Informed Subscale	3.42 (2.10)	3.73 (2.26)	$t(166) = .866, p = .377$

Note. Statistical comparison was considered to be statistically significant if $p < .05$.

Discussion

Overall, no differences were found between the two information sources in influencing knowledge, literacy, stigma, attitudes toward seeking mental health services, decisional conflict, or feeling informed. There is likely a lot of overlap in content between the two information sources, which led to similar responses to the dependent measures. There were, however, a few differences found over time. Mean scores on the *Depression Stigma Scale* significantly decreased one-month later compared to just after website review. This was not expected, and may have been a result of a delayed effect of the information. However, previous research has found information to lead to a reduction

in stigma attitudes (Taylor-Rodgers & Batterham, 2014). Not surprisingly, decisional conflict increased and participants felt less informed at follow-up compared to post-assessment. Treatment options are likely freshest in their minds just after reviewing information compared to one-month later, leading to more certainty and a greater sense of feeling informed just after review.

Participants in Study 2 had high knowledge as indicated by scores on the Knowledge Test and *Depression Literacy Questionnaire*. The sample in this study is more educated than the general young adult population, so high scores on these measures are not surprising as this group likely had high knowledge about depression and its treatment prior to study enrollment. While less than half of the Informed-choices sample were born in Canada, and more than half of the Mayo Clinic information sample were born in Canada, no differences were found between groups on the dependent measures.

General Discussion

There has been limited research on knowledge, attitudes, and opinions after individuals review an information decision aid (see Stacey et al., 2014 for a *Cochrane* review). The research in this area on mental health information decision aids such as one focused on depression has been even more limited (Loh et al., 2007). Although neither Study 1 nor Study 2 indicated any differences on the key dependent measures between the Informed-choices and Mayo Clinic information websites, it did provide some information on the impact of depression information. Study 1 showed that participants reported less decisional conflict and felt more informed following the review of the website compared to before website review. Study 2 found participants to have increased decisional conflict and participants felt less informed one-month following the review of

the website, compared to just after review. These results are to be expected, as reviewing information on depression treatment would hopefully make one feel more informed and certain about the treatment options that exist and the benefits and risks of each option. Moreover, one would likely be most informed and certain about their decisions immediately following the website review, compared to one-month later.

The finding of no difference between the two sources of information raises several questions. It may be that while the two sources of information have different characteristics and different development processes, there is really no difference in the quality of the information. On the other hand, it may be more effective to make judgments about quality when there is a direct comparison between two (or more) sources of information. Yaari, Baruchson-Arbib, and Bar-Ilan (2011) conducted a qualitative study with undergraduate and graduate students, where each student concurrently compared five Internet articles on their credibility. They found coverage, scope, and length to be important criteria when evaluating online information.

Sample characteristics. Of note is that approximately 10% of the samples in both studies indicated a previous diagnosis of depression from a health professional. This is slightly lower than the young adult lifetime prevalence of depression (15%) in the general public as indicated by Kessler et al. (2005a), but almost double that of the 12-month prevalence (6.7%; Kessler et al., 2005b). The sample in the present study was of university students, which may not be representative of the general population of young adults. However, there is a high prevalence of depression in the young adult years, and there was a very high proportion of females in this sample, and females are diagnosed with depression more often than males (WHO, 2016). In addition, nearly one-fifth of the

sample had previously received psychological treatment for depression, an even higher proportion than those who received a diagnosis. Some people may receive counseling or therapy for depression without a formal diagnosis. Some may have had depression that did not meet full diagnostic criteria. Almost one-third of the sample indicated that there was a time that they might have benefitted from psychological treatment for depression but did not receive it. As mentioned above, a European study found less than half of those with major depression actually receive help from a professional (Fernandez et al., 2007), which likely also holds true for those who experience depressive symptoms and do not have a formal diagnosis. Fewer individuals (approximately 10%) reported previously receiving medication to treat depression, which is expected as previous research (and the present study) has shown people to prefer psychological over pharmacological treatments (McHugh et al., 2013).

Depression knowledge and literacy. On the knowledge test created for this study, participants in Study 1 (on average) provided the correct responses to almost all of the questions. Participants' knowledge scores also remained high one month later. This is slightly higher than the knowledge depressed persons had, in response to Gabriel and Violato's (2009) knowledge test (they answered 79% of their questions correctly). It is not surprising that the sample in the present study had high knowledge means, as they are more educated than the general population within this age range and motivated to take a psychology course. Previous research has reported greater knowledge to be associated with an increased likelihood of seeking help (Jorm et al., 2006). However, the Knowledge Test was not positively correlated with help-seeking attitudes in the present study. Again this may be related to possible ceiling effects in the Knowledge Test –

scores with a narrow range (skewed towards high scores in this case) have lower correlations with other measures. Rogojanski's (2013) study found a modest increase in depression knowledge after participants reviewed the Informed-choices information decision aid, but the present study did not. It may be that participants in the present study focused on the topics covered by the usability questions when reviewing the website, while Rogojanski asked participants to review all of the content of the Informed-choices information decision aid. Although there was some overlap between the Knowledge Test questions and the usability questions, there was no change in Knowledge Test scores (scores were almost identical) from pre- to post-assessment in Study 1. This suggests that the usability procedure did not have a lot of impact on the results of the Knowledge Test.

Another possible explanation is that I followed recommendations for creating knowledge assessment tools (Fincher & Nesbit Jr, 2015; Ward & Murray-Ward, 1999), which suggest avoiding tricking respondents with confusing alternatives. An example of tricking respondents would include response options such as "both A and C are correct" or including options with double negatives. Therefore, in some cases the correct (or incorrect) response options in the Knowledge Test developed for this study may have been quite obvious.

Participants also provided a relatively high number of correct responses on the *Depression Literacy Questionnaire*, which are similar to the means on this scale found in previous research. Perry et al. (2014) invited high school students (13-16 years old) to review a mood disorders educational tool called HeadStrong, which involved an information booklet and slideshow. They found HeadStrong to increase depression literacy by 3 points from pre-test to post-test. In addition, Gulliver and colleagues (2012)

examined the effectiveness of a web-based educational resource covering depression and anxiety in elite athletes (mean age of 26). They also found depression literacy to increase from pre-test to post-test. This increase had a large effect size ($g = .90$). The scores in our sample were very close to the scores in these previous studies at post-test. Swannell and McDermott (2015) found that being male, having low emotional intelligence, and a history of medication use to be predictors of low *mental* health literacy for depression. Due to the low proportion of males and those with previous use of medication treatment in this study, it would have been challenging to adequately assess if these were also predictors of low literacy in this study.

Stigma. Participants in Study 1 indicated a moderate level of depression stigma before and following the review of the online information tools. Study 2 participants indicated slightly less depression stigma than Study 1 participants. The level of depression stigma in both studies was similar to the level of stigma found in an earlier study with young adults after exposure to a depression, anxiety, and suicide online education intervention (Taylor-Rodgers & Batterham, 2014). Study 1 found a significant group by time interaction on the *Depression Stigma Scale* from post-assessment to follow-up. Study 2 found a reduction in depression stigma one-month after reviewing online depression information. One explanation for this stigma reduction is that there could have been a delayed effect of the exposure to the web information. It is also possible that participants were exposed to other sources of depression information such as in their introductory psychology course during the one-month period.

Previous research has found information campaigns (Angermeyer & Matchniger, 2005), educational workshops (Ke et al., 2015), and online information to lead to

decreases in stigmatizing attitudes (Finkelstein & Lapshin, 2007; Livingston, Cianfrone, Korf-Uzan, & Coniglio, 2014; Taylor-Rodgers & Batterham, 2014). Using a national sample of Australian adults, Griffiths, Christensen, and Jorm (2008) found personal stigma to be positively correlated with being male, having lower education, and being born outside Australia. Psychological distress, less experience with depression, and low depression literacy were also positively correlated with personal stigma in the Griffiths et al. study. Again, the low proportion of males and the present sample being more educated than the general population within this age range, did not allow for these analyses. Knowledge of depression stigma predictors can assist in tailoring depression information to the groups mentioned above that may be vulnerable to developing stigmatizing attitudes (Hammer & Vogel, 2010). Previous research has found stigma to be one of the major barriers to seeking help (Gulliver, Griffiths, & Christensen, 2010), and a particular barrier for help seeking for depression (Barney et al., 2006). Lower stigma may increase the likelihood of seeking help (Coppens et al., 2013).

Help-seeking attitudes. Stigma about seeking help (separate from stigma about the condition) may also be a factor in the willingness to seek help. Vogel, Wade, and Haake (2006) reported that college students who experience lower self-stigma had more positive help-seeking attitudes (according to the *Attitudes Toward Seeking Professional Psychological Help Scale*) and greater intentions to seek help (according to the *Intentions to Seek Counseling Inventory*). The scores on the *Self-Stigma of Seeking Help Scale* at post-assessment and follow-up in Study 2 were quite similar to scores on this scale in previous studies, however, previous studies with college students did not involve exposure to an intervention (Jennings, 2015; Vogel, Wade, & Haake, 2006).

Overall, the participants in this study indicated moderately positive help-seeking attitudes based on their *IASMHS* scores, and these attitudes were comparable to help-seeking attitudes of college students in earlier research (Mackenzie, Knox, Gekoski, & Macaulay, 2004). However, help-seeking attitudes were less positive compared to an older, community sample (Mackenzie et al., 2004). This suggests that young adults may be more affected by the barriers to seeking help such as stigma. This further underscores the importance of methods to eliminate such barriers. The stability of help-seeking attitudes over time is consistent with previous research (Gulliver et al, 2012).

Decisional conflict. Study 1 showed that decisional conflict decreased and feeling informed increased from pre- to post-assessment. Study 2 participants' certainty about making depression treatment decisions and their sense of feeling informed went down one-month following the website review, which is not surprising. Participants likely felt the most certain and informed immediately following the website review, as the different treatment options are fresh in their minds at that time, compared to one-month later. Some studies have reported an association between low health literacy and greater decisional uncertainty (McCaffery et al., 2013; Sudore et al., 2010). However, this relationship was not found in this study, which could be due to the grouping of the depression literacy scores at the higher end of the range, resulting in reduced correlations.

The mean total scores (Banegas et al., 2013) and mean item scores on the *Decisional Conflict Scale* are similar to those reported in previous research. In a study by Légaré, O'Connor, Graham, Wells, and Tremblay (2006), after patients met with a family physician to discuss treatment options for a variety of general medical problems, patients reported an average *DCS* item score of 1.36, which is similar to what was found in this

study. Scores in the present study were also similar to those reported in a meta-analysis by Sun (2005).

Treatment preferences. The overall pattern of responses to the various treatment options was very similar between the two groups. As expected, medication treatment was of less interest to respondents, which is consistent with previous research (Jorm et al., 2005; Raue et al., 2009; Sierra-Hernandez et al., 2014). Additionally, a greater number of participants in this sample had previous experience with psychological compared to medication treatments. Gum and colleagues (2006) found that depressed individuals were more likely to prefer a treatment approach if they had past success with it. Participants in the present study also provided high ratings for lifestyle-related treatment options such as exercise, relaxation training, and dietary changes. Previous research has found that the public prefers and believes in the effectiveness of such approaches (Jorm et al., 2005). However, there is little research support for some of these preferred treatments and the information in the Informed-choices information decision aid is intended to make more information available in these areas. This is important because when individuals receive their preferred treatment choice, or choose a treatment condition, their clinical outcomes are often better than those of individuals who have not made these choices (Lindhiem, Bennett, Trentacosta, & McLear, 2014; Raue et al., 2009). A meta-analysis by Swift and Callahan (2009) found a greater improvement in treatment outcomes when clients receive their preferred treatment, compared to those who do not receive their preferred treatment. This not only suggests the importance of using a treatment option aligned with one's preferences, but also the effect preference has on clinical outcomes.

Limitations

This study has a few clear limitations. First, there was no baseline assessment in Study 2. Therefore, it cannot be concluded that attitude or knowledge scores changed as a consequence of exposure to the information. However, there was a strong comparison between the websites. There are also some features of the samples in this study, which may limit the generalizability of the findings. In Study 2 there was a very high proportion of female participants. Previous research has found females to have more positive attitudes towards seeking help (Oliver et al., 2005). Perhaps, attitudes may have been less positive had the sample contained more males. In addition, this sample was more educated and younger, on average, than individuals in the general population with depression. Results of this study may also have been different had people with other educational backgrounds participated (i.e., those not enrolled in an Introductory Psychology course). For instance, someone in a trades program might be less familiar with psychological issues and indicate more stigmatizing attitudes.

Another limitation is that this study did not sample from a clinical population. Because the Introductory Psychology Participant Pool was used for recruitment, I may not be able to generalize these findings to individuals with clinical depression, and only a small proportion of the sample was found to be severely distressed according to *Kessler's Psychological Distress Scale*. A sample with depression would likely have experience with one or more treatments for depression. On the other hand, about 10% of the respondents had received a diagnosis of depression themselves and many had received help for depression in the past and indicated that there were times when they would have benefited from help for depression. Even more of the participants likely had friends or

family members who have experienced problems with depression. In real-life situations, individuals may involve other people (such as family or friends) when making decisions about a health issue. In the present study, individuals completed the survey by themselves and were not influenced by others, which may limit the ecological validity (or real world generalizability) of this study.

Strengths

Despite the limitations of this study, it has some advantages. One major strength of this study is the randomized controlled trial design, which is considered the gold standard when designing intervention studies (Chalmers, 1981). In my study participants were randomly assigned to the condition (Informed-choices or Mayo Clinic information). Participants were exposed to the web-based materials in a laboratory situation in which the extent of their exposure to the information was well controlled. The situation allowed me to determine whether the information decision aid had an impact (and whether there is a difference in impact between the two websites) on the seven main factors discussed above.

Future Directions

In discussing the results of Study 1, I considered that pre- and post-assessments close together in time could lead to carry over effects that could influence the assessment of change over time. Very few differences were found between the two websites in the evaluations in Study 1 and Study 2. A design that might be helpful in this situation would be to carry out a pre-assessment well before the exposure to the intervention so that carry over effects would be less likely. One approach would be to have participants complete the pre-assessment one-week before the lab session (where they would review

the website). The post-assessment would occur immediately after exposure to the information and there could be a follow-up assessment one-month later (as in Studies 1 and 2). This design would require a relatively large number of participants to allow for attrition at each step (especially between post-assessment and follow-up). There would also be an issue of whether participants responded to the pre-assessment by searching out sources of information to inform themselves about the areas covered in the pre-assessment. This could be explored, however, by a brief assessment about the issue at the start of the lab session. There has been some research about the effect of information on knowledge, attitudes, and opinions (Gulliver et al., 2012; Perry et al., 2014; Taylor-Rodgers & Batterham, 2014), but more is needed in this area.

Another direction to build on this study is to compare the responses of one group of participants to the two different websites (using a within-subjects design). An analogy would be that when you evaluate a new car, any new car seems impressive. When a lower-end car (Chevrolet) is compared to a high-end car (Lexus) differences in evaluations emerge. Using the same participants would allow for more clear judgments as to whether the characteristics of one resource were evaluated more positively than the other. Using this design, it will be possible to examine whether students find any differences in the clarity, balance, trustworthiness, and helpfulness of the different websites. As mentioned above, this design has been utilized with university students in previous research (Yaari, Baruchson-Arbib, & Bar-Ilan, 2011). The DISCERN tool, which has been used previously in website evaluation, could also be utilized in this design (Charnock, Shepperd, Needham, & Gann, 1999; Kumar, Subramani, Veerapan, & Khan, 2014). Ademiluyi, Rees, and Sheard (2003) found the DISCERN tool to have

moderate internal consistency and minimally acceptable to moderate inter-rater reliability.

A final direction for further research in this area is to evaluate an anxiety disorders information decision aid developed by the Mobilizing Minds Research Group. As this website is in development, a study examining this information decision aid would help to inform its development. A series of studies in this area might begin by asking questions such as, What information do persons with anxiety disorders typically receive when they are considering treatment options for anxiety disorders? How do they receive this information? Have they received information that consumers judge to be important? Additionally, a study on the anxiety disorders information decision aid will ask questions about the clarity, balance, trustworthiness, and helpfulness of the different information topics. Therefore, the present study provides a foundation for other studies in the area of information decision aid evaluation and knowledge translation.

Conclusions

Little is known about the attitudes and opinions of young adults following the review of depression information, even though the prevalence of depression is high in the young adult years (Kessler et al., 2005a). Understanding these attitudes and opinions can assist in revising information decision aids to ensure that they are most effective for this highly affected group. Overall, participants' review of the two depression websites led them to make similar responses to the survey. Although the Informed-choices website has undergone a systematic and rigorous development process and may provide more balanced information topics than Mayo Clinic's website, participant attitudes and opinions about depression and its treatment were similar regardless of the website

reviewed. While it is true that reviewing a website on depression and its treatment for 25 minutes may not drastically change the way people think about depression and seeking help, online resources are a useful first step to raise awareness and lower the stigma that surrounds depression and mental health issues in general. More work is also required in developing approaches to evaluate the quality of web-based information in work with populations that need and are likely to use such information.

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Appendix A



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Consent Form

Title of Research: Evaluating the effects of a depression decision aid

Student Researcher: Matthew Bernstein, B.A. (Hons)
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Research Supervisor: John Walker, Ph.D.
Department of Clinical Health Psychology, University of
Manitoba
Telephone: (204) 237-2055
Email: john.walker@umanitoba.ca

This consent form, a copy of which will be left with you for your records and reference, is only part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, you should feel free to ask the student researcher or his supervisor. This study has been approved by the Psychology/Sociology Research Ethics Board.

Purpose of the Study:

The purpose of this study is to examine the effect of a web-based decision aid focused on depression and treatments for depression on decision-making factors.

Study Procedures:

As a participant in this study you will:

1. Be randomly assigned (assigned by chance) to one of two websites focusing on depression and treatment of depression: “Informed-choices” or “Mayo Clinic information”.
2. Receive a list of questions about depression and depression treatment and then navigate and review information on the website to answer these questions (25 minutes).
3. Complete a post-assessment survey (about 30 minutes) with questions about depression and its treatment. You will complete all parts of the study at the University of Manitoba.

Questions covered in the surveys include: background information (such as age, gender, education, marital status, and race/ethnicity); current level of distress; and questions about depression and its treatment.

You will also be asked if you would be willing to participate in a follow up survey in 1 month. If you agree to participate we will ask your name and email address and send the survey to you by email.

Potential Costs and Benefits of the Research:

It will take you about 60 minutes to complete all components of the main study. If you decide to participate in the follow-up survey one month later that will take another 20 minutes. Benefits of this study include enhancing our understanding of the effect of (depression) decision aids on peoples' knowledge, attitudes, and opinions. You may directly benefit by learning more about depression and its treatment.

Potential Risks of the Research:

Some participants may be experiencing problems with depression or anxiety around the time they participate in this program. There is a small chance that reading about mental health problems such as depression could trigger distress among some participants. Given this concern, all participants will be provided with a list of helping resources available at the end of the survey. There will be no physical risks to these participants.

Participant Compensation:

If you chose to participate in this study, you will receive 2 participation credits towards your Introductory Psychology course. If you participate in the follow up emailed survey one month later you will receive a gift card worth \$10.

Voluntary Participation:

Participation in this research is voluntary and your decision to participate or not participate will not influence your grade at in your Introductory Psychology course.

Freedom to Withdraw:

It is your choice whether or not to participate in this study. Participation is voluntary and you may withdraw at any time with no penalty. You will still receive 2 participation credits if you choose to withdraw. If you decide to withdraw from participation in this research, the information in your survey will be destroyed.

Confidentiality:

Information gathered in this research study may be published or presented in public forums, but your name and other identifying information will not be used or revealed. If you decide to participate in the follow up survey, we will ask for your name, address, and email address. Your name and contact information will not be connected to your question responses. If you wish to receive the results of this study, you may provide your email, or home address on the final page of this form. The file with identifying information will be stored on a locked USB drive, and stored in Dr. Walker's locked office. The names and addresses will be stored for 12 months after the follow-up research is completed, and then it will be destroyed. The University of Manitoba may look at your research records to see

that the research is being done in a safe and proper way. No information that could identify specific participants will be included in any reports of the findings from this study.

Questions or Concerns:

If you have any questions about this study, please do not hesitate to contact Mr. Matthew Bernstein at umbernsm@myumanitoba.ca, or his research supervisor, Dr. John Walker at (204) 237-2055 or john.walker@umanitoba.ca.

For questions about your rights as a research participant, you may contact The University of Manitoba Research Ethics Board Office at (204) 474-7122.

Do not sign this consent form unless you have had a chance to ask questions and have received satisfactory answers to all of your questions.

Statement of Consent:

I have read this consent form. I have had the opportunity to contact one of the researchers if I had any questions, and had my questions answered in language that I understand. The risks and benefits of this research have been explained to me. I understand that a copy of this consent form will be provided to me. I understand that my participation in this study is voluntary and that I may choose to withdraw at any time. I freely agree to participate in this research study.

I understand that information regarding my personal identity will be kept confidential, but that confidentiality is not guaranteed. By signing this consent form, I have not waived any of the legal rights that I have as a participant in a research study.

I, _____ (print name), have read the above information and hereby consent to participate in this study.

Participant's Signature

Date (day/month/year)

Summary of results: I wish to receive a summary of the results at the conclusion of the study as indicated below:

Email: Yes ___ No ___ If yes provide your email address: _____

Mail: Yes ___ No ___ If yes provide your mailing address:

I, the undersigned, have fully explained the relevant details of this research study to the participant named above and believe that the participant has understood and has knowingly given their consent.

Printed Name: _____

Signature: _____ Date: _____

Role in the study: _____

Appendix B

Usability Questions

Instructions: Please use the [Depression – Informed Choices OR Mayo Clinic] website to answer these questions. Spend **25 minutes** reviewing the information.

We are evaluating the website, so please use only that website and do not visit other websites. If you answer all of the questions and have time left over, please review other information on the website.

Please write clearly and give your answers in point form.

1. What are 3 things you noticed on the home page?
2. What are 3 risk factors for depression?
3. What are 3 symptoms of depression?
4. What are the 2 most widely used treatments for depression?
5. What are 3 other kinds of treatment for depression?
6. What is a herbal medicine sometimes used for treatment of depression?
7. What is a nutritional supplement sometimes used for treatment of depression?
8. What is the worst possibility if someone does not receive treatment for depression?
9. What are 3 other things that could happen if someone does not receive treatment for depression?
10. If you were having problems with depression, what are three types of professionals that you could speak to about getting help?
11. What is a lifestyle change that may be helpful if someone is having problems with depression?
12. Now that you have gone through the website, what are 3 important facts that you remember about the content?

When you have completed the answers to these questions please use the remaining time to continue to review the material on the website.

Appendix C

Survey

Demographics and Treatment History**Date:** _____**Age:** _____**1. Gender:** Male Female**2. a) Were you born in Canada?** Yes No Prefer not to respond**b) If you were not born in Canada, what region were you born in?** United States Mexico South America, Central America, or the Caribbean Europe Africa Asia**c) How many years have you lived in Canada? _____****d) How many years of your education were primarily in English? _____****3. Marital Status:** Married or living with someone in marital-like relationship

- Never married & never lived with someone in a marital-like relationship
- Separated
- Divorced or formerly lived with someone in a marital-like relationship
- Widowed

4. How many years of education have you completed in the following areas?

College/Technical/Business/Vocational/Nursing (non-university):

0 1 2 3 4 5 6

University program: 0 1 2 3 4 5 6 7

5. Please select which of the following best describes your employment status (select all that apply):

- Student full-time
- Student part-time
- Employed full-time
- Employed part-time

6. What is your current faculty?

- University 1
- Faculty of Arts
- Faculty of Science
- Asper School of Business
- Engineering
- Kinesiology and Recreation
- Nursing
- Architecture

Other: _____

7. Have you ever seen a healthcare professional because you were depressed?

Yes

No

8. Have you ever received a diagnosis of depression by a healthcare professional?

Yes

No

9. If yes, who did you receive this diagnosis from?

Family doctor

Psychiatrist

Psychologist

Counselor

Nurse practitioner

Other (specify):

10. Thinking about your past experiences, was there a time when you received counseling or therapy from a professional (such as a counselor, therapist, or doctor) for depression?

Yes (1) No (2) Not sure (3) Prefer not to respond (4)

11. Thinking about your past experiences, was there a time when it would have been helpful to receive counseling or therapy from a professional (such as a counselor, therapist, or doctor) for depression, but you did not receive it?

Yes (1) No (2) Not sure (3) Prefer not to respond (4)

12. Thinking about your past experiences, was there a time when you received medication prescribed by a doctor for depression?

- Yes (1) No (2) Not sure (3) Prefer not to respond (4)

13. Thinking about your past experiences, was there a time when it would have been helpful to take medication prescribed by a doctor for depression, but you did not receive it?

- Yes (1) No (2) Not sure (3) Prefer not to respond (4)

14. Thinking about your past experiences, was there a time when you received a treatment for depression that was not counseling or medication?

- Yes (1) No (2) Not sure (3) Prefer not to respond (4)

If yes, please specify:

The following questions ask about how you have been feeling during the **past 30 days**. For each question, please mark the rating that best describes how often you had this feeling.

During the past 30 days, about how often did you feel ...	All of the time (1)	Most of the time (2)	Some of the time (3)	A little of the time (4)	None of the time (5)
1. ...nervous?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. ...hopeless?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. ...restless or fidgety?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. ...so depressed that nothing could cheer you up?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. ...that everything was an effort?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. ...worthless?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Self-stigma of Help-seeking Scale

1. I would feel inadequate if I went to a therapist for psychological help.

1-----2-----3-----4-----5
 (Strongly disagree) (agree and disagree equally) (Strongly agree)

2. My self-confidence would NOT be threatened if I sought professional help.

1-----2-----3-----4-----5
 (Strongly disagree) (agree and disagree equally) (Strongly agree)

3. Seeking psychological help would make me feel less intelligent.

1-----2-----3-----4-----5
 (Strongly disagree) (agree and disagree equally) (Strongly agree)

4. My self-esteem would increase if I talked to a therapist.

1-----2-----3-----4-----5
 (Strongly disagree) (agree and disagree equally) (Strongly agree)

5. My view of myself would not change just because I made the choice to see a therapist.

1-----2-----3-----4-----5
 (Strongly disagree) (agree and disagree equally) (Strongly agree)

6. It would make me feel inferior to ask a therapist for help.

1-----2-----3-----4-----5
 (Strongly disagree) (agree and disagree equally) (Strongly agree)

7. I would feel okay about myself if I made the choice to seek professional help.

1-----2-----3-----4-----5
 (Strongly disagree) (agree and disagree equally) (Strongly agree)

8. If I went to a therapist, I would be less satisfied with myself.

1-----2-----3-----4-----5
 (Strongly disagree) (agree and disagree equally) (Strongly agree)

9. My self-confidence would remain the same if I sought help for a problem I could not solve.

1-----2-----3-----4-----5
 (Strongly disagree) (agree and disagree equally) (Strongly agree)

10. I would feel worse about myself if I could not solve my own problems.

1-----2-----3-----4-----5
(Strongly disagree) (agree and disagree equally) (Strongly agree)

Knowledge Test

1. In any one year, about what proportion of people have problems with depression?
 - a. 1/2
 - b. 1/50
 - c. 1/20
 - d. 1/100

2. Which of the following is a risk factor for depression?
 - a. depression as a teen or child
 - b. abuse of alcohol or illegal drugs
 - c. chronic illness such as cancer
 - d. all of the above are risk factors of depression

3. Life stress can contribute to the development of depression.
True or False.

4. Excessive use of alcohol or recreational drugs (such as marijuana) can contribute to the development of depression.
True or False.

5. Which of the following is NOT a recognized cause of depression?
 - a. biological factors, such as genes
 - b. psychological factors, such as marital problems
 - c. social factors, such as loss of a job
 - d. social factors, such as going on a date

6. In what age range is depression most common?
 - a. under 14 years of age
 - b. 15 to 24 years
 - c. 25 to 35 years
 - d. 35 to 55 years
 - e. 56 and over

7. How long should symptoms of depression (e.g., sadness, loss of interest, changes in sleep or appetite) last before they can be classified as clinical depression?
 - a) 3 days or longer
 - b) 1 week or longer
 - c) 2 weeks or longer
 - d) 1 month or longer
 - e) 6 months or longer

8. All depressed people have the same symptoms.
True or False.
9. Clinical depression is solely the result of a chemical imbalance in the brain.
True or False.
10. Which of the following is NOT a possible life impact of having depression?
 - a. missed work days
 - b. wanting to spend more time with family and friends
 - c. chronic fatigue
 - d. sleep difficulties
 - e. hard to do day-to-day activities
11. Which of the following is *not* a known risk factor for depression?
 - a) Cultural or religious background
 - b) Family history
 - c) Stressful experiences during childhood
 - d) Stressful experiences during adulthood
 - e) Drug and/or alcohol abuse
12. The two treatments for depression that have been studied the most are:
 - a. Medication treatments and counseling or psychotherapy
 - b. Medication treatments and art therapy
 - c. Medication treatments and energy therapies
 - d. Counseling or psychotherapy and art therapy
 - e. Counseling or psychotherapy and energy therapies
13. Which of the following persons CANNOT make a diagnosis of depression?
 - a. psychiatrist
 - b. psychologist
 - c. family doctor
 - d. naturopathic doctor
14. If someone was having a problem with depression, which of the following people could they talk to?
 - a. family member
 - b. psychologist
 - c. friend
 - d. family doctor
 - e. all of the above
15. Psychotherapy can help many people with depression. Which of the following statements about psychotherapy is FALSE?
 - a. both individual and group therapy provide an opportunity to express and discuss thoughts and feelings with the therapist
 - b. therapy may help to resolve life issues that may contribute to depression

- c. all depressed individuals benefit from psychotherapy
 - d. in psychotherapy, negative, and self-defeating thoughts can be replaced by more positive, realistic thoughts
16. How long does it generally take for someone to feel better (i.e., less depressed) from psychotherapy or counseling for depression?
- a) 1 session
 - b) 8 to 20 sessions
 - c) 1 session per week for 1 year
 - d) 2 sessions per week for 1 year
 - e) 1 session per week for 2 years
17. Getting samples of newer drugs from your doctor is a good way of reducing the cost of your medication.
True or False.
18. What is the main difference between brand name and generic drugs?
- a) They have the same composition for the active ingredients, but the inactive ingredients may differ.
 - b) Health Canada regulates generic drugs less than brand name drugs.
 - c) Generic drugs are more expensive than brand name drugs.
 - d) Generic drugs are cheaper than brand name drugs because they are inferior to brand name drugs.
 - e) Generic drugs are of lower quality than brand name drugs.
19. When taking an antidepressant medication, how long after you feel better should you continue to take the medication in order to prevent relapse of symptoms?
- a) A minimum of 3 months
 - b) A minimum of 6 months
 - c) A minimum of 9 months
 - d) A minimum of 12 months
 - e) A minimum of 18 months
20. Weight loss is a common longer-term side effect for antidepressant medications.
True or False.
21. Personality changes is a common longer-term side effect for antidepressant medications.
True or False.
22. Shakiness is a common longer-term side effect for antidepressant medications.
True or False.
23. Flattened mood is a common longer-term side effect for antidepressant medications.
True or False.

24. Reduced sexual functioning is a common longer-term side effect for antidepressant medications.

True or False.

25. How long does it generally take for someone to feel better (i.e., less depressed) when they are taking an antidepressant medication on a daily basis?

- a) 1 to 3 hours
- b) 3 to 4 days
- c) 2 to 3 weeks
- d) 4 to 6 months
- e) 9 to 12 months

26. The best way to discontinue the use of antidepressant medication is to:

- f. Stop taking the medication on your own (“cold turkey”)
- g. You can never stop taking the medication once you have started it
- h. Consult with your physician or psychiatrist to help you gradually reduce and eventually stop the medication
- i. Gradually reduce your dose of the medication on your own
- j. All of the above are good ways of discontinuing your medication

27. Self- help treatments are just as effective as psychotherapy and/or medication.

True or False.

28. For most people, what usually happens when they have had depression that has continued for a few weeks and they do not receive treatment?

- a. The depression will remit (i.e., go away) within several years
- b. The depression will remit within a week
- c. The depression will never remit without treatment
- d. If the depression has not gone away after 6 months, it is unlikely to improve
- e. There is no research on what happens to depression without treatment

Depression Literacy Questionnaire

1. People with depression often speak in a rambling and disjointed way.
 True
 False
 Prefer not to respond

2. People with depression may feel guilty when they are not at fault.
 True
 False
 Prefer not to respond

3. Reckless and foolhardy behaviour is a common sign of depression.
 True
 False
 Prefer not to respond

4. Loss of confidence and poor self-esteem may be a symptom of depression.
 True
 False
 Prefer not to respond

5. Not stepping on cracks in the footpath may be a sign of depression.
 True
 False
 Prefer not to respond

6. People with depression often hear voices that are not there.
 True
 False
 Prefer not to respond

7. Sleeping too much or too little may be a sign of depression.
 True
 False
 Prefer not to respond

8. Eating too much or losing interest in food may be a sign of depression.
 True
 False
 Prefer not to respond

9. Depression does not affect your memory and concentration.
 True
 False
 Prefer not to respond

10. Having several distinct personalities may be a sign of depression.
 True
 False
 Prefer not to respond

11. People may move more slowly or become agitated as a result of their depression.
 True
 False
 Prefer not to respond

12. Clinical psychologists can prescribe antidepressants.
 True
 False
 Prefer not to respond

13. Moderate depression disrupts a person's life as much as multiple sclerosis or deafness.
 True
 False
 Prefer not to respond

14. Most people with depression need to be hospitalized.
 True
 False
 Prefer not to respond

15. Many famous people have suffered from depression.
 True
 False
 Prefer not to respond

16. Many treatments for depression are more effective than antidepressants.
 True
 False
 Prefer not to respond

17. Counselling is as effective as cognitive behavioural therapy for depression.
 True
 False

Prefer not to respond

18. Cognitive behavioural therapy is as effective as antidepressants for mild to moderate depression.

True

False

Prefer not to respond

19. Of all the alternative and lifestyle treatments for depression, vitamins are likely to be the most helpful.

True

False

Prefer not to respond

20. People with depression should stop taking antidepressants as soon as they feel better.

True

False

Prefer not to respond

21. Antidepressants are addictive.

True

False

Prefer not to respond

22. Antidepressant medications usually work straight away.

True

False

Prefer not to respond

Depression Stigma Scale

1. People with depression could snap out of it if they wanted.

Strongly disagree disagree neutral agree strongly agree

2. Depression is a sign of personal weakness.

Strongly disagree disagree neutral agree strongly agree

3. Depression is not a real medical illness.

Strongly disagree disagree neutral agree strongly agree

4. People with depression are dangerous.

Strongly disagree disagree neutral agree strongly agree

5. It is best to avoid people with depression so you don't become depressed yourself.

Strongly disagree disagree neutral agree strongly agree

6. People with depression are unpredictable.

Strongly disagree disagree neutral agree strongly agree

7. If I had depression I would not tell anyone.

Strongly disagree disagree neutral agree strongly agree

8. I would not employ someone if I knew they had been depressed.

Strongly disagree disagree neutral agree strongly agree

9. I would not vote for a politician if I knew they had been depressed.

Strongly disagree disagree neutral agree strongly agree

Inventory of Attitudes Towards Seeking Mental Health Services

The following questions are concerned with your attitudes towards seeking mental health services.

For each item, indicate whether you disagree (0), somewhat disagree (1), are undecided (2), somewhat agree (3), or agree (4).

1. There are certain problems which should not be discussed outside of one's immediate family.

Disagree somewhat disagree undecided somewhat agree agree

2. I would have a very good idea of what to do and who to talk to if I decided to seek professional help for psychological problems.

Disagree somewhat disagree undecided somewhat agree agree

3. I would not want my significant other (spouse, partner, etc.) to know if I were suffering from psychological problems.

Disagree somewhat disagree undecided somewhat agree agree

4. Keeping one's mind on a job is a good solution for avoiding personal worries and concerns.

Disagree somewhat disagree undecided somewhat agree agree

5. If good friends asked my advice about a psychological problem, I might recommend that they see a professional.

Disagree somewhat disagree undecided somewhat agree agree

6. Having been mentally ill carries with it a burden of shame.

Disagree somewhat disagree undecided somewhat agree agree

7. It is probably best not to know *everything* about oneself.

Disagree somewhat disagree undecided somewhat agree agree

8. If I were experiencing a serious psychological problem at this point in my life, I would be confident that I could find relief in psychotherapy or counseling.

Disagree somewhat disagree undecided somewhat agree agree

9. People should work out their own problems; getting professional help should be a last resort.

Disagree somewhat disagree undecided somewhat agree agree

10. If I were to experience psychological problems, I could get professional help if I wanted to.

Disagree somewhat disagree undecided somewhat agree agree

11. Important people in my life would think less of me if they were to find out that I was experiencing psychological problems.

Disagree somewhat disagree undecided somewhat agree agree

12. Psychological problems, like many things, tend to work out by themselves.

Disagree somewhat disagree undecided somewhat agree agree

13. It would be relatively easy for me to find the time to see a professional for psychological problems.

Disagree somewhat disagree undecided somewhat agree agree

14. There are experiences in my life I would not discuss with anyone.

Disagree somewhat disagree undecided somewhat agree agree

15. I would want to get professional help if I were worried or upset for a long period of time.

Disagree somewhat disagree undecided somewhat agree agree

16. I would be uncomfortable seeking professional help for psychological problems because people in my social or business circles might find out about it.

Disagree somewhat disagree undecided somewhat agree agree

17. Having been diagnosed with a mental disorder is a blot on a person's life.

Disagree somewhat disagree undecided somewhat agree agree

18. There is something admirable in the attitude of people who are willing to cope with their conflicts and fears *without* resorting to professional help.

Disagree somewhat disagree undecided somewhat agree agree

19. If I believed I were having a mental breakdown, my first inclination would be to get professional attention.

Disagree somewhat disagree undecided somewhat agree agree

20. I would feel uneasy going to a professional because of what some people would think.

Disagree somewhat disagree undecided somewhat agree agree

21. People with strong characters can get over psychological problems by themselves and would have little need for professional help.

Disagree somewhat disagree undecided somewhat agree agree

22. I would willingly confide intimate matters to an appropriate person if I thought it might help me or a member of my family.

Disagree somewhat disagree undecided somewhat agree agree

23. Had I received treatment for psychological problems, I would not feel that it ought to be "covered up."

Disagree somewhat disagree undecided somewhat agree agree

24. I would be embarrassed if my neighbor saw me going into the office of a professional who deals with psychological problems.

Disagree somewhat disagree undecided somewhat agree agree

Decisional Conflict Scale [O'Connor]

At some point in your life you could be having serious problems with depression. You would have to make choices about whether to seek professional help and about what type of help to seek. There is a range of different treatments available for depression including medication treatment, counseling or therapy treatment, and alternative treatments such as herbal medicines. Please answer the following questions by indicating the extent to which you agree with each statement if you were making choices about **treatment options for depression**.

		Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
1.	I know which options are available to me.	0	1	2	3	4
2.	I know the benefits of each option.	0	1	2	3	4
3.	I know the risks and side effects of each option.	0	1	2	3	4
4.	I am clear about which benefits matter most to me.	0	1	2	3	4
5.	I am clear about which risks and side effects matter most to me.	0	1	2	3	4
6.	I am clear about which is more important to me (the benefits or the risks and side effects).	0	1	2	3	4
7.	I would have enough information to make a choice.	0	1	2	3	4
8.	I am clear about the best choice for me.	0	1	2	3	4
9.	I feel sure about what to I would choose.	0	1	2	3	4
10.	This decision would be easy for me to make.	0	1	2	3	4
11.	I would feel I made an informed choice.	0	1	2	3	4
12.	My decision would show what is important to me.	0	1	2	3	4
13.	I would be satisfied with my decision.	0	1	2	3	4
14.	I would be confident that I could make the right decision.	0	1	2	3	4

