The Effect of Age Differences in Motivation on Mental Health Information Processing and Help-Seeking Attitudes and Intentions in Younger versus Older Adults

by

Julie Erickson

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Department of Psychology

University of Manitoba

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Abstract

Changes in motivation and goals over the lifespan as posited by Carstensen's Socioemotional Selectivity Theory (1993) have shown to effect information processing and memory, such that motivation-consistent information is more likely to be remembered and evaluated more positively by young and older adults. The aim of this study was to examine the effect of motivation-consistent mental health information on memory for and evaluations of this information as well as attitudes towards mental health services and intentions to seek these services. An Internet-based sample of 160 younger (18-25) and 175 older adults (60+) were randomly assigned to read a mental health information pamphlet that emphasized motivations relevant to either early adulthood or late adulthood. Participants completed measures assessing memory for and subjective evaluation of the pamphlet, and attitudes towards and intentions to seek mental health services. There was no significant interaction between age group and pamphlet version on any of the variables measured; suggesting that designing and implementing motivation-consistent mental health information for different age groups confers little benefit with respect to information retention, as well as attitudes and intentions toward seeking professional psychological help.

Table of Contents

Introduction……………………………………………………………………….5-13

Literature review…………………………………………………….6-12

Hypotheses…………………………………………………………..13

Method……………………………………………………………………...14-20

Design and participants……………………………………………..14

Materials…………………………………………………………….14-17

Procedure……………………………………………………………17-20

Results………………………………...20-27

Discussion…………………………………………………………………..27-36

Limitations and future directions…………………………………...33-36

References…………………………………………………………………..37-41

Tables 1 & 2………………………………………………………………...42-43

Appendices A-K..………………………………………………..………..44-63

The Effect of Age Differences in Motivation on Mental Health Information Processing and Help-Seeking Attitudes and Intentions in Younger versus Older Adults

Canada, along with other developing nations, is facing significant aging of the population. In 1970, one in ten Canadians were over the age of 65 and by the year 2030, older adults will comprise approximately one quarter of the population (Belanger, Martel, & Caron-Malenfant, 2005). Our aging population will have significant social, economic, and health consequences, including greater demand for complex medical care and additional strain on health care resources (Parker & Thorslund, 2007). In addition to increased physical health concerns, the projected rate of mental health problems in older adults is also expected to rise at a greater rate than in younger adults (Jeste et al., 1999). Unfortunately, individuals over the age of 65 are less likely than younger adults to seek out help from mental health professionals when they need it (Mackenzie, Pagura, & Sareen, 2010). This alarming trend has significant implications for the well-being of older adults and has necessitated research examining barriers to older adults' mental health care utilization.

Mental health literacy has been implicated in the use of mental health services such that greater knowledge of mental illness can facilitate early help-seeking (Kelly, Jorm, & Wright, 2007). Jorm (2000) defines mental health literacy as "knowledge and beliefs about mental disorders which aid their recognition, management or prevention" (p. 396). The availability of reliable and accurate mental health information can help facilitate mental health literacy by, in part, increasing knowledge of symptoms of certain disorders and methods of treatments. However, the effectiveness mental health information can depend on the degree to which the information is memorable and sensitive to the needs of the intended audience (Hammer & Vogel, 2010). Maximally effective mental health information for older adults may involve tailoring

information to emphasize motivations relevant to this particular age group. Carstensen's (1993) Socioemotional Selectivity Theory describes motivational states in relation to perceived time remaining in life and such motivations have been linked to systematic changes in information processing (i.e., memory) and decision making over the lifespan (2006). SST applications have enhanced the effectiveness of health related information (Zhang, Fung, & Ching, 2009), however, the theory has not yet been extended to the presentation of mental health information to older or younger adults.

Socioemotional Selectivity Theory

According to SST all individuals are directed by similar socioemotional goals, such as feeling needed, seeking novelty, and expanding horizons. However, the relative priority of these goals changes throughout the lifespan according the amount of time we perceive remaining in life (Carstensen, 1993). When time is perceived as unlimited, typically in young adulthood, individuals are preparing for a long and uncertain future. As such, goals are expansive in nature and focus on accumulating knowledge, developing new skills, and forming new relationships (Carstensen, 1993). Such goals are pursued even at the expense of emotional well-being. Conversely, when time is perceived as limited, typically in late-life, present-oriented goals related to optimizing emotional well-being become more salient. A present-focused goal orientation typically results in a greater focus on emotionally rewarding relationships and developing expertise in already satisfying areas of life (Carstensen, 2006; Carstensen et al., 2003). Attaining such goals are advantageous for individuals with narrowed time horizons because the benefits are guaranteed and immediate (i.e., emotional well-being), whereas the payoffs of future-oriented goals are at some point in the future and inherently uncertain. While aging and narrowing time-perspectives are inextricably linked, young adults who are primed to

think about life as finite, thus limiting their time perspective, show a greater preference for present-oriented goals than future-oriented goals (Carstensen, 2006). Likewise, older adults whose time horizons are broadened by imagining that their life has been extended by, for example, a miracle medical procedure, display a future-focused goal orientation much like younger adults do (Fung, Carstensen & Lutz, 1999). The influence of time-perspective is not limited to motivational states and goal-orientations but extends to memory, subjective evaluations and decision making in younger and older adults.

SST and Memory

Motivation has long been associated with memory processes. Motives can consciously and unconsciously direct attention and encoding processes such that people are more likely to remember information that is relevant to their goals and forget information that is irrelevant (Blaney, 1986; Carstensen et al., 2003). In the context of SST, memory for information that is consistent with age-related motivations should be greater than memory for information that is inconsistent with age-related motivations. As such, perceptions of limited time remaining in life and thus, prioritization of present-oriented goals, should lead to greater memory for information that is consistent with the need for emotional well-being. Conversely, perceptions of unlimited time remaining in life and resultant emphasis on future-oriented goals should lead to greater memory for information that is consistent with the need for novelty, expansion of horizons, and new relationships. While preliminary findings have evidenced the pervasiveness of this process in late life, young adults do not appear to be biased towards remembering motivation-consistent information. Carstensen and Charles (1994) presented younger and older adults with an incidental learning task of a written narrative. Older adults recalled a greater proportion of emotional information than neutral details. In contrast, young adults recalled equal amounts of

emotional and neutral information. A similar pattern of findings emerged when Fung and Carstensen (2003) presented older and younger adults with an advertisement that contained either an emotionally meaningful or a knowledge-related slogan. Older adults who read an advertisement with an emotionally meaningful slogan were more likely to remember information from the advertisement than older adults who received the advertisement with the knowledge-related slogan. Younger adults, however, recalled equal amounts of information from the advertisement, regardless of the slogan. Zhang, Fung, and Ching (2009) replicated this finding, demonstrating that that older adults remembered more information from an emotion-focused pamphlet than a non-emotion-focused pamphlet, whereas younger adults' recall of information did not differ according to pamphlet version. Thus while age-related motivation appears to affect the recall of motivation-consistent information in late life, this has not been evidenced in young adulthood. Nonetheless, time-perspective seems to affect the processing of information and more specifically, memory for goal-consistent information and this effect may also extend to the subjective evaluation of messages.

SST and Message Evaluation

Communication research has consistently demonstrated that messages that are personally relevant to a specific audience are more likely to be judged favorably and persuasive (Clary, Snyder, Ridge, Miene, & Haugen, 1994; Kreuter, Bull, Clark, & Oswald, 1999; Rimer & Kreuter, 2006). Petty and Cacioppo's Elaboration Likelihood Model (1986) specifies two ways in which information can be persuasive and induce attitude change. First, information can be convincing and effective when it uses cues, independent of the content of the information, that increase the positive evaluation of that information. For example, information presented by a physically attractive speaker is more likely to be evaluated positively than that from a physically

unattractive speaker. However, information can also take a central route to persuasion and be effective because of the quality of the arguments or information provided; which results in a deeper level of cognitive processing of the information (1986). For example, messages that are tailored to emphasize relevant needs and goals of a particular audience have been shown to influence attitudes and future behavior, likely because this information is cognitively processed more thoroughly than irrelevant information (Hammer & Vogel, 2010; Rimer & Kreuter, 2006; Zhang et al., 2009). It seems reasonable then to expect that if younger and older adults are presented information that is consistent with their age-related motivation, they should evaluate that information more positively than material that is inconsistent with age-related motivation, given that motivation-consistent information is would likely be deemed as more relevant and processed more thoroughly than motivation inconsistent information. Moreover, tailoring information to emphasize goals relevant to particular age groups could potentially result in attitudinal and behavioral changes in a specific domain. Very little research has applied SST to presentation of information to reflect age-related motivation and its impact on subjective evaluation of that information or attitude change. Fung and Carstensen (2003) examined the effect of an advertising slogan on subjective evaluation of the advertisements. Older adults who viewed the advertisement with the emotion-focused slogan evaluated the ad more positively than older adults who viewed the advertisement with a knowledge-focused slogan. Young adults, however, did not differ in their evaluations of the advertisements. Zhang and colleagues (2009) adopted a similar methodology but in the context of health promotion. Younger and older adults read a pamphlet detailing the benefits of eating healthy that either emphasized present-oriented, emotional goals or future-oriented, expansive goals. Older adults evaluated the health pamphlet with an emotional appeal more positively and showed a greater intention to eat healthier than

older adults who received the future-oriented pamphlet. Young adults did not differ in their evaluations of the pamphlet versions or their intentions to eat healthier.

Gaps in the Literature

Early and late life time-perspectives and their associated motivations have an apparent impact on information processing and the evaluation of information; however, the literature applying SST to the presentation of information is limited in scope. While commercial and physical health information has been tailored to emphasize age-related motivation, SST has not yet been applied to the presentation of mental health information. Countries worldwide are commissioning mental health promotion campaigns in increasing numbers to improve public knowledge, attitudes and beliefs regarding mental disorders (Nemec, 2005), also referred to as *mental health literacy* (Jorm, 2000). Mental health literacy can aid in the recognition, management and prevention of mental disorders and may help reduce the personal, social, and economic costs of mental illness. Disconcertingly, both younger and older adults are more likely than middle-aged adults to lack knowledge related to mental disorders, such as identifying symptoms of depression and awareness of effective treatments for mental illness (Farrer, Leach, Griffiths, Christensen, & Jorm, 2008). Interventions to increase mental health literacy among young and older adults by providing mental health information have been moderately successful. In particular, tailoring mental health information to the needs and preferences to specific audiences is critical component of efficacious mental literacy interventions (Kelly, Jorm & Wright, 2007). While SST has not yet been applied to the presentation of mental health information, manipulating the time-perspective of this information could potentially help increase its effectiveness and ultimately, mental health literacy. By tailoring mental health information to reflect motivations of different age groups, information may be more likely to

remembered and evaluated positively. Furthermore, mental health information targeted to specific audiences (i.e., men) has been shown to increase positive attitudes towards seeking help from a mental health professional (Hammer & Vogel, 2010). Thus, emphasizing motivations relevant to younger and older adults in mental health information could not only improve memory for that information but also result in more positive attitudes towards seeking help from a mental health professional and greater intentions to do so. However, research has not tested this hypothesis.

A second limitation of the literature on SST and information presentation concerns the tenability of the theory in early adulthood. Although the effect of motivation consistent information is apparent in older adults (i.e., more information is remembered and it is evaluated more positively) the effect of such information on younger adults is elusive. This may, in part, reflect the insufficiency of experimental manipulations to induce significant effects in younger adults. Presenting younger adults with a greater amount of information that explicitly emphasizes future-oriented goals such as meeting people, seeking new experiences, and acquiring information, may increase the strength of the experimental manipulation. Alternatively, the lack of evidence demonstrating the effect of motivation-consistent information on young adults may cast doubt on the tenability of SST in young adulthood. For example, it could be that present and future-oriented goals are equally as relevant and important to individuals in early life and it is only during late life that the relative importance of these goals shifts to focus on present-oriented tasks. If this were the case, we would not expect younger adults to differ in their memory or preference for future-oriented information or present-oriented information.

An additional explanation for why younger adults do not respond to motivation-consistent information to the same degree as older adults is that the underlying mechanisms of

this effect may be unique to late life. For example, the *positivity effect* refers to older adults' tendency to attend to and remember positive information more so than negative information (Carstensen & Mikels, 2005). Older adults' bias towards motivation consistent (i.e., present-focused) information may be due to the inherently positive nature of information emphasizing emotionally rewarding relationships and activities. Thus attention to and memory for present-focused information may be driven, in part, by the positivity effect in late life. Conversely, young adults tend to process negative information more thoroughly and prioritize this information to a greater extent in memory and decision making than positive information (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001). However this 'negativity effect' may not affect the processing of motivation consistent information in early adulthood to the same extent that the positivity effect affects older adults given that future-focused information is, more often than not, not inherently negative. Consequently, young adults may have little reason to attend to or remember future-focused information. Thus, the lack the evidence to date that demonstrates the effect of motivation consistent information on young adults casts doubt on the tenability of SST in early adulthood and necessitates further examination of the degree to which time-perspectives do or do not impact this age group.

The present study will address two major limitations in the literature on SST to date. First, the study will use SST to tailor the presentation of mental health information to younger and older adults. This unique application of SST has the potential to improve the effectiveness of public health information pertaining to mental illness by maximizing the likelihood the information will be remembered and evaluated positively. Exposure to motivation consistent mental health information could also result in more positive attitudes towards mental health services and greater intentions to seek out such services. Second, the study will provide further

clarification of whether the motivation-consistent information is equally as impactful in young adulthood as in late adulthood. This evidence is critical to support the validity of SST in early adulthood as well as practical applications of the theory to mental health literacy promotion.

The Current Study

The purpose of the present study is to determine whether presenting younger and older adults with a mental health information pamphlet that is consistent with their respective age-related motivation affects the recall of this information, subjective evaluations (i.e., perceived usefulness and likability) of the information, attitudes towards seeking help from a mental health professional, and intentions to seek help from a mental health professional. The hypotheses are three-fold:

1) Older adults who read a present-oriented mental health pamphlet will recall more of this information than older adults who read a future-oriented mental health pamphlet. Young adults, however, will not differ in the amount of information they recall from mental health pamphlets regardless of the time focus of information.

2) Older adults who read a present-oriented mental health pamphlet will evaluate it more positively (e.g., likable and useful) than older adults who receive a future-oriented mental health pamphlet, whereas young adults will not differ in their evaluations of the either the present or future oriented pamphlet.

3) Older adults who read a present-oriented mental health pamphlet may demonstrate more positive attitudes towards mental health services and report greater intentions to seek these services than older adults who read a future-oriented mental health pamphlet. No differences in attitudes or intentions to seek help should be observed in young adults based on the pamphlet version read.

Methods

Research Design

I used a 2 (age groups; young and old) x 2 (pamphlet version; present-focused and future focused) between-subjects quasi-experimental design. The dependent variables included memory for pamphlet information, rated usefulness and likability of the pamphlet, attitudes toward seeking mental health services, and intentions to seek help from a mental health professional.

Participants

This sample consisted of 160 young adults between the ages of 16-30 and 175 older adults over the age of 60 (50.5% male). I recruited participants from Amazon Mechanical Turk (AMT); a web-based marketplace in which individuals or companies can post small tasks which require human workers for completion in exchange for payment ranging from $0.01 to $3.00. The majority of users of AMT are female, American, and with higher levels of education and lower income levels than the general U.S. population (Paolacci, Chandler, & Ipeirotis, 2010). The average age of users is 36.0 (min = 18, max = 81; Paolacci et al., 2010). Despite AMT users being, on average, younger, well educated, and in a lower income bracket, users are arguably more representative of the general population than introductory psychology students. In order to ensure that the sample in the present study consisted of equal amounts of younger and older adults, the eligibility criteria on AMT specified that participants must be between the ages of 16-30 or over 60, in addition to being American residents, and native English speakers.

Materials

Mental Health Pamphlet. I created two versions of a pamphlet on depression to reflect different age-related motivations. Both versions contain general information about the symptoms, prevalence, and treatments for depression; however, one version was present-focused

(Appendix A) and accordingly, emphasized the impact of depressive symptoms or treatment on maintaining intimate relationships and emotional well-being (e.g., “Depression can take pleasure out of things that make life worth living, like spending time with loved ones and good friends;” “effective treatment can help you feel like your ‘normal self’ again so you can lead an emotionally meaningful life”). The second pamphlet (Appendix B) version was future-focused and accordingly, emphasized the impact of depressive symptoms or treatment on forming new relationships, having new experiences and acquiring knowledge (e.g., “Depression can take pleasure out of things that make life worth living, like having new experiences, meeting people, and learning things;” “effective treatment can help you feel like your ‘normal self’ again so you can reach your goals for the future”). Content was adapted from several mental health promotion campaigns, including the National Institute of Mental Health’s ‘Real Men, Real Depression’ campaign, the Canadian Psychological Association’s ‘Psychology works’ fact sheets on depression (www.cpa.ca/psychologyfactsheets/depression/), and the Canadian Mental Health Association’s online resources about depression (www.cmha.ca)

Sociodemographic Information and History of Depression. Participants indicated their gender, age, education, income and ethnicity (Appendix C). Three items taken from the Philadelphia Geriatric Centre Multi-level Assessment Instrument assessed self-reported physical health (PGC-MAI; Lawton, Moss, Fulcomer & Kleban, 1982). Higher scores on the three items are indicative of better subjective physical health. Cronbach’s alpha of the three items in this sample was 0.77. Four yes/no items probed participants’ experience of, and help-seeking for, depression in the past year and over their lifetime.

Manipulation Check. To ensure that the pamphlet versions were emphasizing motivations specific to either early or late adulthood, the questionnaire included two manipulation check

items (Appendix D). Participants rated on a seven-point scale the degree to which the pamphlet emphasized the impact of depression on their life in the present and in the future.

Time Perspective and Goals. The validity of SST was assessed using the Future Time Perspective Scale (Carstensen & Lang, 1999; Appendix E; FTPS) in addition to a goal-ranking item. The FTPS is a 10-item measure that assesses the degree to which individuals endorse a future-time focus. Items such as "many opportunities await me in the future" and "I could do anything in the future" are rated on a seven-point scale ranging from 'very untrue' to 'very true.' Higher scores on the FTPS correspond to having a future-time focus whereas low scores correspond to having a present-focus. The FTPS appears to be highly internally consistent ($\alpha = 0.93$) and acceptably stable ($r = 0.70$) over a 4 month test-retest period (Raposo, 2012). The internal consistency of the FTPS in the present sample was consistent with previous research ($\alpha = 0.93$).

Participants also completed a goal-ranking item (Appendix F), which required them to rank eight goals in order of their personal importance. Four goals corresponded to a present focus (e.g., "spending time with loved ones," "engaging in activities I find meaningful") and four goals corresponded to a future-focus (e.g., "meeting new people," "learning new things"). The rankings for the present-focused goals and the future-focused goals were summed to yield two separate scores. A lower the score on either the present-oriented goal items or the future-oriented goal items indicated that these goals were most important. Scores on the FTPS were significantly negatively correlated with the ranking of future-oriented goals ($r = -0.20$, $p < 0.001$); suggesting that individuals who are future-oriented rank this time perspective's associated goals as more important than present-oriented goals. Conversely, scores on the FTPS were significantly positively correlated with present-oriented goal ranking ($r = 0.14$, $p < 0.05$); suggesting that

individuals who are present-oriented rank this time perspective's associated goals as more important than future-oriented goals.

Subjective Evaluation. Two questionnaire items probed subjective evaluations of the pamphlet. Participants rated how much they liked the pamphlet and how useful they found it on a seven-point scale ranging from 'strongly disagree' to 'strongly agree' (Appendix D).

Intentions to Seeking Mental Health Help. I assessed help seeking intentions through a subscale of the Intentions to Seek Counseling Inventory (ISCI) assessing psychological and interpersonal concerns (Appendix G; Cash, Begley, McCown, & Weise, 1975). Participants rated on a seven-point scale how likely they would be to seek help from a mental health professional for ten different issues, such as difficulties with friends, conflicts with family or concerns about sexuality. Item responses were summed to yield a total score; with higher scores indicating greater intentions to seek psychological help. This subscale has good internal consistency, with $\alpha = 0.90$ in the present sample. The ISCI correlates significantly with the perceived significance of a problem as well as general attitudes towards seeking help, suggesting it is a valid indication of intentions to seek counseling (Vogel, Wade, & Hackler, 2007).

I also assessed intentions to seek mental health help indirectly by giving participants the opportunity to receive more information about depression by checking a box and providing their email address at the end of the survey. Individuals requested more information were coded as a '1' and those who did not were coded as '0.'

Attitudes toward Seeking Mental Health Services. I used the Inventory of Attitudes toward Seeking Mental Health Services to measure help-seeking attitudes (IASMHS; Mackenze, Knox, Gekoski, & Maculay, 2004; Appendix H). The IASMHS is a 24-item scale that was adapted and extended from Fischer & Tuner's Attitudes toward Seeking Professional

Psychological Help Scale (1970). Total scores can range from 0 – 96, with greater scores indicating more positive attitudes toward seeking mental health services. The internal reliability of the IASMHS in the present sample was $\alpha = 0.90$. Confirmatory factor analysis supports the presence of three subscales (psychological openness, help-seeking propensity, and indifference to stigma). The IASMHS is able to distinguish between those who have and have not used mental health services in the past and those who would and would not use such services in the future (Mackenzie et al., 2004).

Information Recall. Sixteen forced-choice and open-ended questions assessed memory for pamphlet information (Appendix I). Items were a combination of multiple choice, true/false, and fill-in-the-blank based on information presented in the pamphlet. Participants were given a score out of 27 for the number of correct responses as well as a percentage correct.

Questionnaire Behaviour. The questionnaire included 4 items that assessed participants' self-reported attention, honesty, help sought from others and use of information on the Internet while completing the study (Appendix J). Participants answered questions on the following seven-point scale: 'strongly disagree,' 'moderately disagree,' 'slightly disagree,' 'I don't know,' 'slightly agree,' 'moderately agree,' and 'strongly agree.'

Procedure

I posted a brief description of the study and eligibility requirements online on AMT. A link on AMT directed participants to Qualtrics, an online data collection site where the pamphlet and questionnaire were hosted. Participants who followed the link completed the prescreening questions to ensure they were American, native English speakers, between the ages of 16-30 or 60+, and had not yet completed the study. Participants read the information and consent forms and indicated their consent by checking a box. All users were required to enter their AMT

identification number, which was submitted to AMT to reimburse $3.00 to participants. After entering in their AMT number, Qualtrics randomly assigned participants to receive either the present-oriented or the future-oriented pamphlet. Participants read the pamphlet and then began the online questionnaire. The design of the online questionnaire did not allow participants to view the pamphlet after starting the questionnaire. Further, the instructions specified that participants should not consult information online to complete the outcome measures. Participants completed the sociodemographic questionnaire first, followed by the manipulation check items, subjective evaluation items, rated intentions to seek help, the IASMHS, the pamphlet recall measure, and finally, the questionnaire behavior items. After completing the questionnaire, participants read a brief description of the nature and purpose of the study and the expected results. The description also included online mental health resources. At that point, participants had the option to leave an email address if they would like to receive further information about depression and/or the results of the study.

Data Cleaning. I manipulated the data in four ways in order to maximize its integrity and validity. First, I eliminated data from participants who did not declare their age or did not meet the age cutoffs specified at the beginning of the study. Second, I eliminated data from participants who took less than five minutes to complete the survey. Pilot testing of the questionnaire indicated that approximately 7 minutes were required to complete the survey at a thoughtful yet steady pace. Third, I eliminated data from individuals who completed less than 50% of the questionnaire. Fourth, if participants answered at least 75 percent of the questions for the ISCI or the IASMHS, I statistically replaced their missing data with the mean of the data on that scale or subscale. Finally, I eliminated data from participants who reported dishonest or inattentive responding, or seeking help from the Internet or other people while completing the

study. Specifically, individuals who endorsed 'strongly disagree' or 'moderately disagree' on the items "I answered this questionnaire honestly" and "I was paying attention while filing out this questionnaire" were eliminated. Likewise, individuals who endorsed 'strongly agree' or 'moderately agree' for the items "I had help from other people while completing this questionnaire" or " I used information on the Internet to complete this questionnaire" were eliminated. A total of 19 participants (5% of total sample) were excluded from data analyses based on these criteria.

Results

Sample Characteristics

Sociodemographic characteristics of the sample are displayed in Table 1. The young adults were predominantly White, college-educated, healthy, and making less than $20,000 annually. The older adults sampled were also predominantly White, but the sample had greater variability in education and annual income. However, the majority of older adults were college educated and making at least $20,000 annually. There were significant differences between younger and older adults with respects to annual income ($\chi^2 = 44.15$, $p < 0.001$) and education ($\chi^2 = 39.59$, $p < 0.001$). No other significant differences emerged between age groups with respect to sociodemographic characteristics.

Diagnosis and Help-Seeking for Depression

Participants completed items regarding past-year and lifetime diagnosis of, and help seeking for, depression. Younger and older adults did not differ significantly on any of the items assessing depression diagnosis or help-seeking for depression (all $p \geq 0.67$). Among young adults, 31% had received a diagnosis of depression during their lifetime, compared to 30% of older adults. Past-year diagnoses of depression did not differ between younger and older adults,

with 11% of younger adults and 12% of older adults reporting a diagnosis of depression in the past year. With respect to help-seeking, 42% of younger adults and 46% of older adults reported talking to medical doctor or mental health professional in their lifetime about problems with depression. In the past year, 17% of younger adults and 18% of older adults reported talking to a medical doctor or mental health professional about problems with depression. Young adults and older adults did not differ significantly in their lifetime and past-year help seeking for depression.

Manipulation Check

To determine the extent to which the pamphlets were indeed emphasizing the time-perspectives they were intended to portray, I ran an ANOVA to compare scores on the manipulation check items, with pamphlet version as the independent variables and scores on each of the manipulation check items as the dependent variables. The present-oriented pamphlet was seen as emphasizing the impact of depression on life in the present significantly more than the future-oriented pamphlet, $F(1, 317) = 44.16$, $p < 0.001$. The future-oriented pamphlet was seen as emphasizing the impact of depression on life in the future significantly more than the present-oriented pamphlet, $F(1, 317) = 46.06$, $p < 0.001$. This suggests that both pamphlets were indeed portraying their respective time perspectives.

Assumption Check

The assumptions of ANCOVA include normal distribution of data, independence of observations, homogeneity of variance, linear or known relationship between covariates and dependent variables, and homogeneity of regression coefficients (Cohen, Cohen, West & Aiken, 2003). To examine the assumption of normally distributed data, the skewness and kurtosis statistics were obtained for all dependent measure. Skewness and kurtosis are statistical measures

of deviation from normality and ideally, these coefficients should be within the range of -2.00 to 2.00. Indeed, the skewness and kurtosis statistics for all dependent variables were within this range and as such, the assumption of normality is presumed met. The independence of observations assumption is inherent in the experimental design. Levene's test of equality of error variance was non-significant for all ANCOVAs conducted, suggesting the homogeneity of variance assumption was met. To determine whether there was a linear relationship between the covariates and all dependent measures, scatterplots of education and income were plotted separately against all dependent variables for the young adults and older adults separately. Linear relationships were not consistently observed in either age group. For example, income was not linearly related to rated liking or usefulness of the pamphlet in either younger or older adults, which is not surprising given that evaluation of the pamphlets should not be different according to annual income. However, a linear relationship was more apparent among other variables, such as education and attitudes towards seeking professional psychological help among older adults. The inconsistency with which linear relationships were observed between the covariates and dependent variables suggests that this assumption is not met in its entirely. Nonetheless, given a large sample size and the assumptions of normality and independence being met, ANCOVA is arguably robust to violation of this assumption (Johnson, 1993).

In order to meet the homogeneity of regression coefficient assumption, there cannot be an interaction between the independent variable(s) and the covariate. Thus I ran a series of ANOVAs to determine any possible interactions between the covariates (e.g., income and education) and the independent variables (e.g., age and pamphlet version) across all dependent variables (e.g., pamphlet recall, evaluation of pamphlet, attitudes and intentions to seek professional psychological help). There were no significant interactions between the covariates

and independent variables on any of the dependent variables, suggesting the homogeneity of regression coefficient assumption is met.

Validity of SST

To directly assess the extent to which younger and older adults display future and present time perspectives and their associated goals, scores on the FTPS and the goal-ranking item were compared. I ran a t-test to compare younger and older adults scores on the FTPS; which as table 2 indicates, younger adults scored significantly higher on the scale than older adults, t (1, 314) = 106.58, $p < 0.001$. This finding suggests that young adults are significantly more future-focused than older adults. I also compared younger and older adults' rankings of the future-focused goals and present-focused goals. Consistent with SST, younger adults ranked the future-focused goals as significantly more important to them than did older adults, t (1, 314) = 6.93, $p < 0.01$. While younger and older adults did not differ significantly with respect to the importance of present-focused goals, there was a non-significant trend for younger adults to report these goals as being more important, F (1, 314) = 3.12, $p = 0.07$.

Motivation Consistent Information and Memory

The first hypothesis specified that older adults would remember more information from a motivation-consistent mental health pamphlet than a motivation-inconsistent pamphlet whereas younger adults would not differ in their memory for pamphlet information depending on the pamphlet version received. To test this hypothesis I performed an ANCOVA comparing the age group by pamphlet version interaction on the percentage of information recalled from the pamphlet as the dependent measure with income and education as covariates. As reported in table 2, there was no significant interaction between age group and pamphlet version on memory for pamphlet information, F (3, 308) = 1.02, $p = 0.39$. However, there was a statistically non-

significant trend for both younger and older adults to remember more information from the future-oriented pamphlet. Examining the magnitude of the effect size for the hypothesized interaction can help determine whether a non-significant interaction was due to insufficient power or a null experimental effect. Cohen (1988) recommends that partial eta-squared values of 0.01, 0.06, and 0.14, should be interpreted as small, medium, and large effect sizes respectively. Using these criteria, the effect size for the age group and pamphlet version interaction on recall of pamphlet information was very small ($\eta^2_p = 0.001$). There was no main effect of either age group (F (3, 308) = 0.17, $p = 0.91$) or pamphlet version (F (3, 308) = 1.29, $p = 0.27$) on memory for pamphlet information. However, there was a statistically non- significant trend for both younger and older adults to remember more information from the future-oriented pamphlet. The lack of age group differences in the amount of information recalled from the pamphlet is surprising given that older adults tend to be able to hold less information in memory than young adults (Bopp & Verhaeghen, 2005)

Motivation Consistent Information and Pamphlet Liking and Usefulness

The second hypothesis specified that older adults would rate a motivation consistent mental health pamphlet as more likable and useful than older adults who read a motivation-inconsistent pamphlet, whereas young adults would not differ in their liking or perceived usefulness of the pamphlets. To test this hypothesis I performed two ANCOVAs to compare the age group by pamphlet version interaction on rated liking and usefulness of the pamphlet, with income and education as covariates. As shown in table 2 there was no significant interaction between age group and pamphlet version on liking (F (1, 311) = 1.62, $p = 0.20$) or usefulness (F (1, 310) = 1.66, $p = 0.19$) of the pamphlet. However, the means for rated liking and usefulness were in the predicted direction in that younger adults rated the future-pamphlet as more likable

and useful and older adults rated the present-pamphlet as more likable and useful. The effect sizes for the age group and pamphlet version interaction on both rated liking and usefulness were very small ($\eta^2_p = 0.005$). Although there was no main effect of pamphlet version on liking (F (1, 316) = 0.20, $p = 0.65$) or usefulness (F (1, 315) = 0.34, $p = 0.55$) of the pamphlet, there was a main effect of age group on rated usefulness of the pamphlets. Young adults rated the pamphlet they received as significantly more useful than older adults, regardless of the pamphlet version, F (1, 315) = 6.24, $p < 0.01$. However, there was no main effect of age group on the likability of the pamphlets, F (1, 316) = 1.54, $p = 0.21$).

Motivation Consistent Information and Intentions to Seek Counseling

The third hypothesis specified that older adults who read a motivation-consistent mental health pamphlet would report greater intentions to seek professional psychological help compared to older adults who viewed a motivation-inconsistent mental health pamphlet, whereas young adults would not differ in their intentions to seek counseling according to the pamphlet version they viewed. To test this hypothesis I performed an ANCOVA to compare the age group by pamphlet version interaction on scores on the ISCI, covarying by income and education. As reported in table 2 there was no significant interaction between age group and pamphlet version on intentions to seek counseling, F (1, 310) = 1.55, $p = 0.21$. However, the mean scores on the ISCI were in the hypothesized direction such that younger and older adults who received a motivation-consistent pamphlet reported greater intentions to seek psychological help than individuals who received a motivation-inconsistent pamphlet. The effect size of the age group and pamphlet version interaction on intentions to seek help was very small ($\eta^2_p = 0.005$). Additionally, there was no significant main effect of age group (F (1, 315) = 0.40, $p = 0.52$) or pamphlet version (F (1, 315) = 0.00, $p = 0.99$) on intentions to seek counseling. I also ran a

binary logistic regression to determine whether age group and pamphlet version predicted the behavioural measure of intentions to seek help (e.g., request for further information about depression). Logistic regression was deemed appropriate given that the dependent variable (e.g., request for further information about depression) was coded dichotomously. A test of the full model, with age group and pamphlet version, covarying by income and education, predicting request for information, was not statistically significant, χ^2 (5)= 0.58, $p = 0.74$.

Motivation Consistent Information and Attitudes Toward Mental Health Services

The fourth hypothesis specified that older adults who read a motivation-consistent mental health pamphlet would report more positive attitudes toward professional psychological help compared to older adults who viewed a motivation-inconsistent mental health pamphlet, whereas young adults would not differ in their attitudes toward according to the pamphlet version they viewed. To test this hypothesis, I performed an ANCOVA comparing the age group by pamphlet version interaction on IASMHS scores, covarying by income and education. There was no significant interaction between age group and pamphlet version on attitudes toward seeking mental health services, F (1, 309) = 1.30, $p = 0.25$. However, the mean scores on the IASMHS were in the predicted direction such that younger and older adults who received a motivation-consistent pamphlet reported more positive attitudes toward mental health services than individuals who received motivation-inconsistent information. The effect size for the age group by pamphlet version interaction on attitudes toward seeking mental health services was very small ($\eta^2_p = 0.004$) Although there was no main effect of pamphlet version, F (1, 314) = 0.13, $p = 0.71$), there was a main effect of age on IASMHS scores such that young adults reported significantly more positive attitudes towards seeking mental health services than older adults, F (1, 314) = 10.24, $p < 0.01$.

Discussion

Contrary to the hypotheses, older adults who read mental health information which emphasized present-oriented goals did not remember more of this information, evaluate it more positively, or report more positive attitudes towards and intentions to seek help from mental health professionals than older adults who received future-focused, or motivation-inconsistent, information. Young adults behaved consistent with the hypotheses in that those who received future-focused mental health information did also not differ from those who received present-oriented information with respects to memory or evaluations of this information, and attitudes and intentions to seek professional psychological help.

The lack of effect of motivation-consistent mental health information on older adults is counter to other literature suggesting that older adults prefer information that emphasizes emotional well-being, close relationships, and engaging in activities which are personally fulfilling and satisfying (Carstensen, 2006). For example, Zhang and colleagues (2009) found that presenting physical health information to older adults in a way that emphasized the present-oriented benefits of leading a healthy lifestyle resulted significant benefits as far as retaining and evaluating the information and making behavioral changes following reading the pamphlet. Despite the focus on mental health information as opposed to physical health information, the present study was similar in many respects to Zhang et al. (2009). For example, similar sample sizes and age cut-offs were used, wording of the time-focused information in pamphlets was comparable, and similar outcome variables were measured (i.e., memory for pamphlet information, rated usefulness and liking of pamphlets). Despite similar methodologies and materials, the present study did not evidence comparable benefits of motivation-consistent information for older adults.

There are several possible theoretical and methodological explanations why motivation-consistent mental health information did not have any significant advantages over motivation-inconsistent information for older adults in this study. First, the present findings may reflect the theoretical flaws in SST, in that older adults may not always adopt a present-focused time perspective and show preferences for the goals associated with this perspective. Accordingly, they may not consistently display patterns in information processing which are consistent with this time perspective. This speculation appears unlikely, however, given that the results of the present study, while non-significant, were in the predicted direction. Older adults who received the present-oriented pamphlet, compared to older adults who received the future-oriented pamphlet, evaluated this information more positively, reported greater intentions to seek psychological help, made a greater number of requests for further information about depression, and reported more positive attitudes towards seeking professional psychological help. Furthermore, FTPS and the goal-ranking item in the present study indicate support for the tenets of SST. Older adults reported being significantly less future-focused and rated future-oriented goals as significantly less important than young adults, which is indeed consistent with SST's predictions and thus decreases the likelihood that the observed findings reflect theoretical insufficiencies alone.

A second reason why present-focused mental health information did not confer any benefits over future-focused mental health information for older adults may stem from the nature of the pamphlet content. The topic of mental disorders, such as depression, inevitably begets a wide range of beliefs and attributions about etiology, amenability to treatment, stigma and possible discrimination. These beliefs are heavily influenced by a wide variety of factors including, but not limited to, previous experience with mental disorders and treatment-seeking.

Thus ‘mental health’ is not a neutral topic by any means and when compared to types of health information (i.e., physical health) it likely elicits more diverse emotional reactions. As a result of focusing the topic of the pamphlet in the present study on depression, emotional reactions to this construct may have blurred any effect of the time-perspective manipulation. For example, younger and older individuals with a history of depression or help-seeking for depression from a mental health professional may have reacted differently to the pamphlet content such that the time-perspective manipulation was rendered ineffective. Nonetheless, younger and older adults did not have significantly different rates of past-year or lifetime depression diagnosis or help-seeking for depression. Further, when exploratory analyses were run with history of depression and help-seeking included as covariates in all ANOVAs, the results of all analyses remained insignificant. This suggests that having a history of a depression diagnosis or help-seeking for depression did not play a role in the lack of significant interaction between age group and motivation consistent information on all dependent measures.

Alternatively, emotional processes specific to late life may have blurred the effect of the time-perspective manipulation on this age group. The aforementioned *positivity effect* may have affected older adults’ response to the pamphlet information in that there was a tendency to remember positive information at the expense of memory for negative information. Due to the negative connotations that depression likely has for many individuals, older adults may have been less likely to remember information from the pamphlet or evaluate it positively, regardless of whether it was present-focused or future-focused. However, if the positivity effect was indeed present for older adults (and thus absent in younger adults), significant age differences in memory for pamphlet information would be expected. Nonetheless, older adults did not differ significantly from younger adults in the amount of information recalled from the pamphlet.

Taken together, these findings suggest that other explanations in addition to the content of the pamphlet, may account for the lack of effect of present-focused mental health information on older adults.

The lack of age differences in memory for pamphlet information is a concerning finding that prompts considerations of broader methodological issues that may also have contributed to the lack of observed effect of motivation-consistent information. For example, several outcome measures may not have been sensitive enough to detect differences between individuals who received motivation consistent versus inconsistent mental health information. The outcome measure assessing memory for pamphlet information may not have had a sufficient ceiling or floor to permit an adequate range of scores with which to compare within age group differences in information retention. Reliable documentation of age differences in memory for visual information combined with the lack of observed age differences in memory for pamphlet information in the present study suggest that the dependent measure assessing memory for pamphlet information was non sufficiently sensitive. Both younger and older adults answered, on average, approximately 50% of the questions correctly on the memory dependent measure, which may indicate that the questions were too difficult and did not result in a valid assessment of older and younger adults' memory for pamphlet information. Similarly, the items probing perceived liking and usefulness of the pamphlet may not have been sufficient to capture subjective evaluations of the pamphlet. Additional questions could have probed subjective evaluation of the pamphlet to a greater extent (i.e., to what extent would you recommend the pamphlet to a friend; how appealing to do find the pamphlet?).

An additional methodological reason why there was no significant effect of motivation-consistent information may be due to the sample of participants. By using the Internet to both

recruit participants and complete data collection there is risk of inattentive or dishonest responding and subject fraud. The quality of the data provided by Amazon Mechanical Turk users has been subject to skepticism (Paolacci, Chandler, & Ipeirotis, 2010). However, comparative studies using AMT in addition to psychology subject pools have found that results replicate, irrespective of the source of data collection (Buhrmester, Kwang, & Gosling, 2011; Paolacci, et al., 2010). This suggests that AMT and, likely, Internet data collection methods in general, are sufficiently reliable to conduct experiments. Despite this, in order to minimize the probability of the observed results solely being due to inattentive or dishonest responding, several items assessed self-reported attention, honesty and independence while completing the questionnaire. Accordingly, participants with suspect scores on these items were eliminated from the analyses. However, there were no measures taken to minimize the risk of subject fraud. Participants may have completed the study more than once in order to receive additional financial remuneration. Furthermore, participants who were not within the age groups specified may have reported being in the age groups in order to participate in the study, despite being ineligible. Other than self-report items which queried participants' age and whether they had completed the survey before, there were no other measures taken to ensure the participant sample was valid. As a result, this may have compromised the validity of the results. Nonetheless, there are two pieces of evidence suggesting the sample was a valid sample of older and younger adults. First, as expected, there were significant differences in income and education between younger and older adults. Second, younger and older adults reported the time-perspectives and goals that are consistent with SST. If the sample was not a valid grouping of younger and older adults, these differences would not have been expected. Together, these findings suggest that the

sample likely consisted of two distinct groups of older and younger adults that the inclusion criteria initially specified.

An additional methodological consideration that may account for the lack of significant effects relates to the lack of statistical power that was observed throughout the analyses. A-priori power analyses based on the effect sizes yield by Zhang et al (2009) indicated that a sample size of 300 adults would be sufficient to achieve statistical significance with a medium effect size. However, the effect sizes yielded in the present study were very small and in order to achieve statistical significance with partial eta squared values of 0.005, very large sample sizes would be required. The poor level of statistical power in this study could imply two possibilities with respect to the effect of motivation-consistent mental health information. First, low power may reflect weaknesses in the experimental design that decreased the probability of observing statistically significant effects. If this is the case, further replications of this study should reconsider the design and effectiveness of the manipulation, the validity of the outcome measures used, and recruitment of a larger sample. However, poor statistical power can also be a result of a null effect size, which may indicate that there is no effect of motivation-consistent mental health information on older adults. In this case, there is very little justification for further examination of SST in the context of mental health literacy. Given that the effect sizes observed in the present study were very small, this is likely not due to poor study design but rather, indicates that there is likely little effect of motivation-consistent mental health information on memory for or evaluations of this information as well as help-seeking attitudes and intentions in younger or older adults.

Limitations

There are a number of limitations to the present study that likely contributed to the lack of significant effects of motivation-consistent information and could be rectified in future research. As alluded to, some degree of experimental control was lost by using an Internet-based sample of participants. While Internet sampling is an efficient and cost-effective means of recruiting a large sample of individuals in a relatively short amount of time, there are inherent risks to data integrity by relying on such samples. Although participants were instructed to complete the survey without help from others or the Internet, participants could have consulted other sources of information to complete the items probing participants' memory for pamphlet information (i.e., prevalence of depression), for example. Furthermore, participants could have completed the survey more than once or participate despite not being within the eligible age ranges. Thus while the use of an online sample expedites data collection, it also increases the probability of erroneous or invalid responding.

Another limitation of the present study is the strength of the manipulation. The small effect size observed may indicate that the pamphlet could have been designed differently so as to portray the time-perspective in a more clear and direct fashion. For example, pictures could have been used that would also reflect broad or narrow time horizons. Additionally, including time-focused phrases more consistently or increasing the length of the pamphlet may have strengthened the manipulation such that time perspective were more clearly identified and influential on participants' processing and evaluation of this information.

Future Research

In light of the findings and limitations of the present study, there are several directions for future research. In order to confirm that motivation consistent mental health information does not have any influence on older adults' memory or evaluations of this information, future

replications of this study should design a mental health pamphlet that manipulates the time-perspective of neutral content, as opposed to information that is potentially emotionally salient. For example, pamphlet content could describe behaviors that promote mental health (i.e., social support, activities that promote mastery or engagement, spiritual involvement) in a present or future oriented fashion instead of focusing on depression per se. This could help clarify whether the positivity effect can potentially confound the influence of motivation-consistent information for older adults when the information is emotionally salient.

In addition to altering the content of the mental health pamphlet to determine whether motivation consistent mental health information has any impact on older adults, future replications may wish to include time-manipulations before presenting such information to older or younger adults. It could be that by making particular time horizons salient, motivation consistent mental health information is more effectively remembered and positively evaluated. Using a time-perspective manipulation adopted by Fung & Carstensen (2006), older adults could either have their time horizons broadened or narrowed, followed by reading mental health information that is present-oriented or future-oriented. If older adults who have had their time horizons narrowed remembered more of and preferred the present-oriented information it would suggest that making time perspectives salient is necessary in order for older adults to display information processing biases for motivation-consistent information.

Upcoming research investigating the effect of age differences in motivation on information processing or other cognitive processes may wish to use other indices other than age to determine interactions between time-perspectives and information presentation. Age is often synonymous with time-perspectives in the literature on socioemotional selectivity theory and while age is correlated with time-perspectives, it is not a proxy for perception of time. Indeed

some younger adults can be present-focused and some older adults show a future orientation. Thus in further research, scores on the future-time perspective scale or other self-report measures of time perception would be preferential to use in statistical analyses instead of age in order to yield a more precise and valid indication of the influence of time perspectives and their associated motivations on cognitive processes surrounding information processing.

Future research should further probe the finding that young adults found mental health information (regardless of its time focus) more useful than older adults. Older adults' preferences for mental health information has not yet been explored in a systematic fashion and as a result, there is very little knowledge on what type of mental health information and in which format is beneficial or useful for this age group. Although designing mental health information to emphasize present oriented goals and motivations may not be more useful for older adults, including other information may help increase the utility of mental health information. For example, information about possible drug interactions with psychotropic medications may be more relevant and useful to include for older adults given that they are typically on a greater number of medications than younger adults (Roe, McNamara, & Motheral, 2002). However, the age differences in usefulness of mental health information may be also symptomatic of broader issues with attitudes towards professional mental health help seeking. Older adults in this sample reported having less positive attitudes towards seeking mental health services than younger adults. This finding is concerning mainly due to the fact that it runs counter to the existing body of research on age differences in attitudes towards seeking professional psychological help. Older adults have been shown to have attitudes that are as or more positive than younger adults (Mackenzie, Knox, & Gekowski, 2006; Mackenzie, Scott, Mather, & Sareen, 2008). The finding in this sample that older adults had less positive attitudes towards seeking mental health services

could be an artifact of the nature of the sample (i.e., online, users of AMT), however it could also be indicative of age group differences in attitudes. If this is the case, it is concerning given that attitudes towards seeking mental health services are a significant predictor of getting mental health help and thus older adults may be less likely to seek out and obtain the help they need for mental health issues. However, given that this finding has not been replicated in other research, it should be interpreted with caution.

Conclusion

The perception of time is intimately linked to behavior in both the short and long-term. According to SST (Carstensen, 1993), younger adults are faced with a seemingly unlimited time horizons. As such, preparing for the future is highly relevant and important. Conversely, as older adults are increasingly aware of life's fragility, maximizing well-being in the present-moment becomes of preferential importance. As a result, older adults, and to a certain extent, younger adults, display information processing biases for information consistent with their time-perspectives. The present study, however, was not able to demonstrate that these biases extend to mental health information that is manipulated to emphasize particular time perspectives. While the perception of time can be influential on both goals and motivations that individuals adopt across the lifespan, it may not be necessary to manipulate mental health information according to age difference in time perspectives in order to make it more memorable or beneficial for older adults.

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Table 1

Demographic characteristics by Age Group

	Young (n = 160)	Old (n = 175)	Chi Square
Gender			3.63
Male	68	91	
Female	86	73	
Annual Income			44.15*
Below $20, 000	69 (44%)	30 (18%)	
$20, 000 – $49, 000	61 (39%)	78 (47%)	
$50, 000 – $79, 000	20 (12%)	38 (23%)	
$80, 000 +	7 (5%)	21 (12%)	
Education			39.59*
Less than High School	3 (2%)	11 (7%)	
High School	15 (10%)	35 (21%)	
Some College	76 (48%)	34 (20%)	
College degree	55 (35%)	61 (37%)	
Masters degree and/or Professional degree (MD, JD)	8 (5%)	25 (15%)	
Ethnicity			6.81
White	120 (76%)	133 (80%)	
African American	9 (6%)	9 (5%)	
Hispanic	9 (6%)	7 (4%)	
Asian	12 (7%)	17 (10%)	
Native American or Pacific Island or Other	7 (4%)	1 (1%)	

* $p < 0.001$

Table 2

Descriptive Statistics for Dependent Measures by Age Group and Pamphlet Version

	Young Adults		Older Adults	
	Present Pamphlet (n = 87)	Future Pamphlet (n = 70)	Present Pamphlet (n = 84)	Future Pamphlet (n = 75)
Pamphlet Recall	51.03% (15.75)	54.69% (15.85)	50.20% (19.02)	51.6% (19.45)
Pamphlet Liking	3.64 (0.88)	3.84 (0.71)	3.65 (0.95)	3.56 (0.95)
Usefulness of Pamphlet	4.08 (0.81)	4.17 (0.63)	3.96 (0.98)	3.78 (0.94)
ISCI	34.66 (13.84)	36. 57 (13.73)	37.39 (13.43)	35.46 (12.65)
Request for Information	14.9%	14.3%	16.1%	11.3%
ASMHS	80.97 (13.75)	83.43 (12.68)	77.30 (14.32)	76.39 (15.93)
FPS	52.23 (13.05)	53.88 (10.71)	38.88 (13.14)	38.20 (12.70)
Ranked Future Goals	20.17 (3.56)	19.48 (4.11)	21.33 (4.15)	20.80 (3.26)
Ranked Present Goals	15.41 (3.26)	16.00 (3.88)	14.67 (4.15)	15.20 (3.62)

Note: ISCI = Intentions to Seek Counseling Inventory; ASMHS = Attitudes Toward Seeking Mental Health Services Scale; FPS = Future Perspective Scale; Lower scores on the goal ranking items indicate that the respective goals are more important.

Appendix A

Major Depression

Can presently affect you

- Major depression is an illness that affects a person's thinking, emotions, and daily functioning. **It can negatively impact your quality of life, your relationships with family and friends, and your emotions in the here and now.**
- **Major depression can cut years off your life; keeping you from living fully in the present moment, enjoying time with your loved ones and doing things you find meaningful**
- Major depression, along with dysthymia and bipolar disorder, are mood disorders. They are the second most common mental illnesses in the general population. Only anxiety is more common.
- About 10% of adults over 18 years of age experience major depression at some time in their lives.
- Major depression is among the leading causes of disability worldwide. The economic burden of disability due to major depression in the United States is estimated to be $53 billion
- Major depression is often associated with suicide, which is among the top 20 leading causes of death globally for all ages. Every year, nearly 1 million people die from suicide
- Although this illness is highly treatable, many people do not recognize, acknowledge, or seek help for their depression. As many as 80% of people with mental health problems do not seek professional help
- Risk factors for major depression include: having a parent who experienced major depression, physical illness or disability, death of loved ones, negative life events, negative thinking, and previous episodes of major depression

*Major depression can take pleasure out of things that make your life worth living **now**, like spending time with loved ones and good friends. As a result, it has a resounding impact on close relationships.*

Effective treatment can help you feel like your "normal self" again so you can lead an emotionally meaningful life in the here and now

Make the present moment the best it can be

If you are currently experiencing symptoms of major depression, talk to a mental health professional or your family doctor

To locate treatment providers in your area, please consult:

-**Substance Abuse and Mental Health Service Administration's Mental Health Service Locator**: http://store.samhsa.gov/mhlocator

-**National Register of Health Providers in Psychology's 'Find a Psychologist' Service** http://www.findapsychologist.org

If you are experiencing some of the following symptoms, you may have major depression

- The two primary symptoms of major depression are (1) Feeling sad or "empty" and (2) Lacking interest in activities you once enjoyed. Other symptoms include: (3) Decreasing or increasing appetite; (4) Sleeping more or less than usual; (5) Feeling tired and "slowed down" or restless and agitated; (6) Feeling worthless or guilty; (7) Difficulties concentrating or making decisions; (8) Feeling like life is not worth living.

Major depression can be treated effectively with psychotherapy, medication or a combination of both.

- Antidepressant medications can help alleviate the symptoms of major depression and are available through physicians. Antidepressants work to rebalance the natural chemicals in our brains called neurotransmitters. Medications work on neurotransmitters such as serotonin, norepinephrine, and dopamine.
- The most popular types of antidepressants are called Selective Seretonin Reuptake Inhibitors (SSRIs). These include Prozac, Celexa, Zoloft, and Paxil. SSRIs may cause side effects. They are often temporary but can include heachaches, nausea, insomnia, nervousness, and sexual dysfunction.
- There are a number of types of psychotherapy available for major depression which are typically provided by mental health professionals, such as psychologists, counsellors, or social workers
- *Cognitive-behavioral therapy* (CBT) is the most well-studied psychological treatment for major depression and has the most consistent evidence to support its use. It involves the recognition of negative thinking patterns in depression and correcting these patterns though various "cognitive restructuring" exercises. CBT also involves increasing pleasant activities and overcoming avoidance through efforts to become more engaged in the world. **The skills you learn in CBT can help you lead an emotionally rich life in the here and now.**

Appendix B

Major Depression

Can affect you and your future

- Major depression is an illness that affects a person's thinking, emotions, and daily functioning. **It can negatively affect your quality of life and the ability to expand your horizons and achieve your future goals.**
- **Major depression can cut years off your life; keeping you from reaching your future potential and doing all the things you plan to accomplish**
- Major depression, along with dysthymia and bipolar disorder, are mood disorders. They are the second most common mental illnesses in the general population. Only anxiety is more common.
- About 10% of adults over 18 years of age experience major depression at some time in their lives.
- Major depression is among the leading causes of disability worldwide. The economic burden of disability due to major depression in the United States is estimated to be $53 billion
- Major depression is often associated with suicide, which is among the top 20 leading causes of death globally for all ages. Every year, nearly 1 million people die from suicide
- Although this illness is highly treatable, many people do not recognize, acknowledge, or seek help for major depression. As many as 80% of people with mental health problems do not seek professional help
- Risk factors for major depression include: having a parent who experienced depression, physical illness or disability, death of loved ones, negative life events, negative thinking, and previous episodes of major depression

*Major depression can take pleasure out of things that make your **future** worth living, such as having new experiences, meeting people, and learning things. As a result, it can prevent you from reaching your **future** potential*

Appendix B continued

Effective treatment can help you feel like your "normal self" again so you can reach your goals for the future

Make your future the best that it can be

If you are currently experiencing symptoms of major depression, talk to a mental health professional or your family doctor

To locate treatment providers in your area, please consult:

-**Substance Abuse and Mental Health Service Administration's Mental Health Service Locator**: http://store.samhsa.gov/mhlocator

-**National Register of Health Providers in Psychology's 'Find a Psychologist' Service** http://www.findapsychologist.org

If you are experiencing some of the following symptoms, you may have major depression

- The two primary symptoms of major depression are (1) Feeling sad or "empty" and (2) Lacking interest in activities you once enjoyed. Other symptoms include: (3) Decreasing or increasing appetite; (4) Sleeping more or less than usual; (5) Feeling tired and "slowed down" or restless and agitated; (6) Feeling worthless or guilty; (7) Difficulties concentrating or making decisions; (8) Feeling like life is not worth living.

Major depression can be treated effectively with psychotherapy, medication or a combination of both.

- Antidepressant medications can help alleviate the symptoms of major depression and are available through physicians. Antidepressants work to rebalance the natural chemicals in our brains called neurotransmitters. Medications work on neurotransmitters such as serotonin, norepinephrine, and dopamine.

- The most popular types of antidepressants are called Selective Seretonin Reuptake Inhibitors (SSRIs). These include Prozac, Celexa, Zoloft, and Paxil. SSRIs may cause side effects. They are often temporary but can include heachaches, nausea, insomnia, nervousness, and sexual dysfunction.

- There are a number of types of psychotherapy available for major depression which are typically provided by mental health professionals, such as psychologists, counsellors, or social workers

- *Cognitive-behavioral therapy* (CBT) is the most well-studied psychological treatment for major depression and has the most consistent evidence to support its use. It involves the recognition of negative thinking patterns in depression and correcting these patterns though various "cognitive restructuring" exercises. CBT also involves increasing pleasant activities and overcoming avoidance through efforts to become more engaged in the world. **The skills you learn in CBT can help ensure your future is emotionally rich and meaningful.**

Appendix C

Date of Birth ______________________ Age: ________ years

1. What is the highest level of education you have completed?

☐ Less than high school

☐ High school diploma

☐ Vocational/Technical School

☐ Some college

☐ Bachelor’s degree

☐ Graduate or Professional degree (Masters, PhD, MD, JD)

☐ Prefer not to say

2. What is your total household income before taxes?

☐ Below $20, 000

☐ $20,000 – $29, 999

☐ $$30,000 – $39, 999

☐ $40,000 – $49, 999

☐ $50,000 – $59, 999

☐ $60,000 – $69, 999

☐ $70,000 – $79, 999

☐ $80,000 – $89, 999

☐ $90,000 or more

3. What ethnic group do you identify with?

☐ Arab

☐ Asian/Pacific Islander

☐ Black

☐ Caucasian/White

☐ Hispanic

☐ Indigenous or Aboriginal

☐ Latino

☐ Multiracial

Appendix C continued

☐ Don't know

☐ Prefer not to say

4. How would you rate your overall health at the present time?

☐ Excellent

☐ Fair

☐ Poor

5. Do your health problems stand in the way of your doing things you want to do?

☐ Not at all

☐ A little

☐ A great deal

6. How would you say your health compares with most people you age?

☐ Better

☐ About the same

☐ Not as good

7. I have experienced clinical depression in my lifetime YES / NO

8. I have experienced clinical depression in the past year YES / NO

9. I have sought help for clinical depression in my lifetime. YES / NO

10. I have sought help for clinical depression in the past year. YES / NO

Appendix D

1. The pamphlet I read emphasized the impact of depression on my life in the **present moment** (Circle one)

1	**2**	**3**	**3**	**4**	**5**	**6**
Strongly disagree	*Moderately disagree*	*Slightly disagree*	*I don't know*	*Slightly agree*	*Moderately agree*	*Strongly agree*

2. The pamphlet I read emphasized the impact of depression on my life in the **future** (Circle one)

1	**2**	**3**	**3**	**4**	**5**	**6**
Strongly disagree	*Moderately disagree*	*Slightly disagree*	*I don't know*	*Slightly agree*	*Moderately agree*	*Strongly agree*

3. I liked the pamphlet.

1	**2**	**3**	**3**	**4**	**5**	**6**
Strongly disagree	*Moderately disagree*	*Slightly disagree*	*I don't know*	*Slightly agree*	*Moderately agree*	*Strongly agree*

4**.** I found the pamphlet useful.

1	**2**	**3**	**3**	**4**	**5**	**6**
Strongly disagree	*Moderately disagree*	*Slightly disagree*	*I don't know*	*Slightly agree*	*Moderately agree*	*Strongly agree*

Appendix E

Future Time Perspective Scale

In order to indicate your agreement with the items, please use the following scale:

1	2	3	4	5	6	7
Very untrue						Very true

1. Many opportunities await me in the future.

2. I expect that I will set many new goals in the future.

3. My future is filled with possibilities.

4. Most of my life lies ahead of me.

5. My future seems infinite to me.

6. I could do anything I want in the future.

7. There is plenty of time left in my life to make new plans.

8. I have the sense that time is running out.

9. There are only limited possibilities in my future.

10. As I get older, I begin to experience time as limited.

Appendix F

Goal-ranking measure

Instructions: Rank how important the following items are to you with 1 = *most important* and 8 = *least important*. Drag the items to rank them.

Meeting new people.

Spending time with loved ones.

Learning new things.

Engaging in activities I find meaningful.

Having new experiences.

Achieving financial success.

Doing activities that make me feel happy.

Resolving negative stressors in my life.

Appendix G

Intentions to Seek Counselling Inventory

Please indicate how likely you would be to seek help from a mental health professional (e.g., psychologist, psychiatrist, social worker, counsellor) or family doctor if you were to experience the problems below

1	**2**	**3**	**3**	**4**	**5**	**6**
Very unlikely	*Unlikely*	*Somewhat unlikely*	*Undecided*	*Somewhat likely*	*Likely*	*Very Likely*

1. Relationship difficulties
2. Concerns about sexuality
3. Depression
4. Conflicts with family members
5. Difficulties with romantic partners
6. Difficulties sleeping
7. Feelings of inferiority
8. Difficulties with friends
9. Self Understanding
10. Loneliness

Appendix H

Inventory of Attitudes Toward Seeking Mental Health Services

The term *professional* refers to individuals who have been trained to deal with mental health problems (e.g., psychologists, psychiatrists, social workers, and family physicians). The term *psychological problems* refers to reasons one might visit a professional. Similar terms include *mental health concerns, emotional problems, mental troubles,* and *personal difficulties.*

For each item, indicate whether you *disagree* (0), *somewhat disagree* (l), *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…………………………………………......[0 1 2 3 4]

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……………..[0 1 2 3 4]

3. I would not want my significant other (spouse, partner, etc.) to know if I were suffering from psychological problems………………………...[0 1 2 3 4]

4. Keeping one's mind on a job is a good solution for avoiding personal worries and concerns……………………………………………………[0 1 2 3 4]

5. If good friends asked my advice about a psychological problem, I might recommend that they see a professional…………………………………..[0 1 2 3 4]

6. Having been mentally ill carries with it a burden of shame……………………[0 1 2 3 4]

7. It is probably best not to know *everything* about oneself………………………[0 1 2 3 4]

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……………………………………………………………………...[0 1 2 3 4]

9. People should work out their own problems; getting professional help should be a last resort………………………………………………………..[0 1 2 3 4]

10. If I were to experience psychological problems, I could get

Appendix H Continued

professional help if I wanted to…………………………………………………………[0 1 2 3 4]

11. Important people in my life would think less of me if

they were to find out that I was experiencing psychological problems…………...[0 1 2 3 4]

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

by themselves…………………………………………………………………..[0 1 2 3 4]

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

professional for psychological problems…………………………………………[0 1 2 3 4]

14. There are experiences in my life I would not discuss with anyone……………[0 1 2 3 4]

15. I would want to get professional help if I were worried or upset

for a long period of time…………………………………………………………..[0 1 2 3 4]

16. I would be uncomfortable seeking professional help for

psychological problems because people in my social or business circles

might find out about it…………………………………………………………..[0 1 2 3 4]

17. Having been diagnosed with a mental disorder is a blot on a person's life…...[0 1 2 3 4]

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………..[0 1 2 3 4]

19. If I believed I were having a mental breakdown, my first inclination

would be to get professional attention……………………………………………..[0 1 2 3 4]

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

would think…………………………………………………………………......[0 1 2 3 4]

21. People with strong characters can get over psychological problems by

themselves and would have little need for professional help……………………...[0 1 2 3 4]

22. I would willingly confide intimate matters to an appropriate person

if I thought it might help me or a member of my family…………………………[0 1 2 3 4]

23. Had I received treatment for psychological problems, I would not
feel that it ought to be “covered up.”…………………………………………...[0 1 2 3 4]

24. I would be embarrassed if my neighbour saw me going into the
office of a professional who deals with psychological problems…………………[0 1 2 3 4]

Appendix I

Based on the pamphlet you read, please answer the following questions. DO NOT go back to view the pamphlet or consult other online sources for information. If you don't know the answer, take your best guess.

Which of the following is NOT a mood disorder?

- Major Depression
- Dysthymia
- Bipolar Disorder
- Obsessive Compulsive Disorder

Approximately what percentage of adults over the age of 18 experience depression during their life time?

- 2%
- 10%
- 20%
- 40%

True or false? Every year 1 million people die from suicide.

- True
- False

The economic costs of depression in the United States are approximately:

- $1 million
- $10 million
- $20 billion
- $53 billion

Mood disorders are the ____________ most common mental disorders.

- First
- Second
- Third
- Fourth

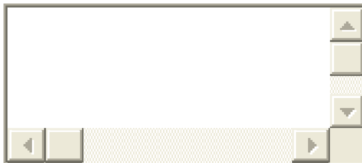
True or false? Depression is highly treatable.

- True
- False

Up to _____ percentage of people **DO NOT** seek help for mental health problems.

- 25%
- 50%
- 80%
- 95%

The pamphlet provided six risk factors for major depression. List as many as you can in the box below.



What are the two primary symptoms of major depression?

- Feelings of sadness and stomach aches.
- Difficulty remembering things and persistent worrying.
- Feelings of sadness and loss of interest in activities you previously enjoyed.
- Seeing or hearing things that other people do not and loss of interest in activities your previously enjoyed.

All of the following neurotransmitters are affected by antidepressants EXCEPT

- Norepinephrine
- Tryptophan
- Dopamine
- Serotonin

What does SSRI stand for?

- Special serotonin reactive inhibitor
- Selective serotonin repressor ingredient
- Serotonin suppressor release instigator
- Selective serotonin re-uptake inhibitor

All of the following are SSRI's **EXCEPT**

- Lorazepam
- Zoloft
- Celexa
- Paxil

The pamphlet mentioned three mental health professionals that provide can psychotherapy. List as many as you can in the boxes below.

1.
2.
3.

The pamphlet mentioned five side effects of antidepressants. List as many as you can in the box below.

What does CBT stand for?

- Cognitive balancing therapy
- Conditional behavior therapy
- Cognitive behavioral therapy
- Corrective behavior therapy

All of the following activities are involved in CBT **EXCEPT:**

- Exploring unconscious conflicts
- Recognizing negative thinking patterns
- Correcting thinking patterns
- Preventing avoidant behavior

Appendix J

1. I was paying attention while I was filling out this questionnaire

1	**2**	**3**	**3**	**4**	**5**	**6**
Strongly disagree	*Moderately disagree*	*Slightly disagree*	*I don't know*	*Slightly agree*	*Moderately agree*	*Strongly agree*

2. I filled out this questionnaire honestly

1	**2**	**3**	**3**	**4**	**5**	**6**
Strongly disagree	*Moderately disagree*	*Slightly disagree*	*I don't know*	*Slightly agree*	*Moderately agree*	*Strongly agree*

3. I had help from other people completing this questionnaire

1	**2**	**3**	**3**	**4**	**5**	**6**
Strongly disagree	*Moderately disagree*	*Slightly disagree*	*I don't know*	*Slightly agree*	*Moderately agree*	*Strongly agree*

4. I used information on the Internet to help me complete the questionnaire

1	**2**	**3**	**3**	**4**	**5**	**6**
Strongly disagree	*Moderately disagree*	*Slightly disagree*	*I don't know*	*Slightly agree*	*Moderately agree*	*Strongly agree*

Appendix K

Information and Consent Form

Title of Study: "The effect of age differences in motivation on mental health information processing and help-seeking attitudes and intentions in younger versus older adults"

Principal Investigator: *Julie Erickson, University of Manitoba, 190 Dysart Road, Winnipeg, Manitoba, Canada, R3T2N2, umeric27@cc.umanitoba.ca*
Research Supervisor: *Dr. Corey Mackenzie, University of Manitoba, 190 Dysart Road, Winnipeg, Manitoba, Canada, R3T2N2, (204)-474-8260, corey_mackenzie@umanitoba.ca*

This consent form 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. Please take the time to read this carefully and to understand any accompanying information.

What am I doing?
This research study is part of my Master's thesis (under the supervision of Dr. Corey Mackenzie) and is examining how mental health information can best be presented to younger and older adults. Two versions of a pamphlet containing information about depression have been created. This study will help determine which pamphlet version is better for younger adults and which version is better for older adults. A total of 300 individuals are being recruited for this study. You are being asked to participate in this study.

What does participating involve?
If you choose to take part in this study, participating will require approximately 30 minutes of uninterrupted time. Participating involves reading a pamphlet containing information about depression. You will then be asked to complete a questionnaire which contains questions about: (a) the pamphlet content (b) what you thought of the pamphlet (c) your attitudes and feelings towards mental health services and professionals and (d) your age, gender, education, income and ethnicity. **When you read the pamphlet and complete the questionnaire, please give it your undivided attention, answer honestly, and refrain from using other sources of information (i.e., other people or websites) to complete the questions**. This is important to ensure the accuracy of my results. All your questionnaire responses will be recorded online.

What are the benefits?
By participating, you are making a valuable contribution to research on mental health and well-being in early and late adulthood and how to best communicate information pertaining to mental disorders. You may directly benefit from the study by learning more about the symptoms of depression and various treatment options available.

Is there any potential for harm?
Participating is low risk. You may feel uncomfortable answering some questions which involve sensitive issues, such as your likelihood of seeking mental health services if you were in need of help. You are free to skip any questions that you feel uncomfortable answering.

How will your information be protected?
No identifying information will be collected for the study's purposes. Your responses on the questionnaire remain completely anonymous. If you would like to receive results of the study, please

leave your email address at the end of the study when prompted. This information will not be linked to your questionnaire responses in any way and will be kept completely confidential**.** Contact information will be kept in a password protected computer database at the University of Manitoba. Only the principal investigator and her research supervisor will have access to it. Your contact information will be destroyed by October 31, 2011.

When will you be reimbursed?
You will be reimbursed when you are finished participating. Amazon Mechanical Turk will credit $3.00 to your account.

What if you want to stop participating?
If you start the study and for any reason want to stop, you are free to do so at any point by closing your web browser, without any negative consequences. You will still receive your reimbursement.

What happens when you are finished participating?
Once you are finished you will receive a detailed description of my study, including my anticipated findings and the opportunity to obtain more information about depression. The contact information of both the investigators will be provided again.

When will you receive the results and where else will the results be presented?
If you request a copy of the results, expect to receive a one-page summary emailed to you by October 31st, 2011. My findings will be reported within my Master's Thesis and will also be submitted for possible publication in an academic journal and conference presentation proceedings.

Your selection of the box below indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to participate as a subject. In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time, and /or refrain from answering any questions you prefer to omit, without prejudice or consequence. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation.

The University of Manitoba Research Ethics Board(s) and a representative(s) of the University of Manitoba Research Quality Management / Assurance office may also require access to your research records for safety and quality assurance purposes.

This research has been approved by the Fort Garry Campus Research Ethics Board Psychologycholgy/Sociology. If you have any concerns or complaints about this project you may contact the Psychology/Sociology Human Ethics Coordinator (HEC), Margaret Bowman, at (204)-474-7122. It is strongly recommended that you print a copy of this consent form for your records and reference.

I consent to participate in this study
I do not consent to participate in this study