Modeling Mental Health Information Preferences During the Early Adult Years: A Discrete Choice Conjoint Experiment

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Published online: 22 Nov 2013.

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Although most young adults with mood and anxiety disorders do not seek treatment, those who are better informed about mental health problems are more likely to use services. The authors used conjoint analysis to model strategies for providing information about anxiety and depression to young adults. Participants (N = 1,035) completed 17 choice tasks presenting combinations of 15 four-level attributes of a mental health information strategy. Latent class analysis yielded 3 segments. The virtual segment (28.7%) preferred working independently on the Internet to obtain information recommended by young adults who had experienced anxiety or depression. Self-assessment options and links to service providers were more important to this segment. Conventional participants (30.1%) preferred books or pamphlets recommended by a doctor, endorsed by mental health professionals, and used with a doctor's support. They would devote more time to information acquisition but were less likely to use Internet social networking options. Brief sources of information were more important to the low interest segment (41.2%). All segments preferred information about alternative ways to reduce anxiety or depression rather than psychological approaches or medication. Maximizing the use of information requires active and passive approaches delivered through old-media (e.g. books) and new-media (e.g., Internet) channels.

Psychiatric disorders are common in young adults with 28% aged 14 to 24 years who meet lifetime criteria for anxiety disorders and 13% for depression (Kessler, 2007). Despite the burden associated with mental health problems (Kessler et al., 2009), many young adults do not receive professional help (Bergeron, Poirier, Fournier, Roberge, & Barrette, 2005; Carragher, Adamson, Bunting, & McCann, 2010; Cheung & Dewa, 2007; Reavley, Cvetkovski, Jorm, & Lubman, 2010; Vanheusden et al., 2009). Although structural and financial barriers limit access (Sareen et al., 2007), utilization is also influenced by the knowledge, attitudes, and beliefs of those who might benefit from mental health services (Gulliver, Griffiths, & Christensen, 2010; Oh, Jorm, & Wright, 2009; Rickwood, Deane, & Wilson, 2007; Sareen et al., 2007; Vasiliadis, Tempier, Lesage, & Kates, 2009). Young adults, for example, may underestimate the prevalence of mental health problems (Bartlett, Travers, Cartwright, & Smith, 2006), fail to identify common difficulties (Burns & Rapee, 2006; Gulliver et al., 2010; Wright, McGorry, Harris, Jorm, & Pennell, 2006), discount the utility of mental health services (Vanheusden et al., 2009), lack confidence in professionals (Oh et al., 2009; Sareen et al., 2007; Schilling, Aseltine, & Gore, 2008; Vanheusden et al., 2008; Vanheusden et al., 2009), or prefer to deal with mental health problems independently (Gulliver et al., 2010).

Health literacy is defined as the knowledge and skill needed to acquire, comprehend, and apply health information (Kelly, Jorm, & Wright, 2007). Low health literacy is linked to less frequent use of screening and preventive strategies, an increase in

the use of hospital and emergency services, and poorer health outcomes (Berkman, Sheridan, Donahue, Halpern, & Crotty, 2011). Those who understand mental health problems and possess the requisite knowledge and skills evidence fewer stigmatizing attitudes (Romer & Bock, 2008) and are more likely to seek help (Kelly et al., 2007; Sareen et al., 2007; Schilling et al., 2008; Shandley, Austin, Klein, & Kyrios, 2010; Vanheusden et al., 2009). Improving mental health literacy during the early adult years remains an important component of a broader health information strategy (Gulliver et al., 2010; Kelly et al., 2007).

Health information may be obtained via either passive exposure or more active search strategies (Longo, 2005). Mental health information, for example, could be delivered to young adults via mass media channels (e.g., television, radio, or newspapers), or more actively sought by speaking to friends, family, or professionals, consulting print media, or searching the Internet. The Internet alows wide (e.g., from home, work, or mobile devices), immediate, anonymous access, permits the focus, complexity, and source of health information to be tailored to the needs and preferences of individual users, can deliver health information flexibly via text or video, enables users to interact with individuals seeking similar information, and can provide on–line support and assistance (Kreps & Neuhauser, 2010; McMullan, 2006).

The amount of health and mental health information available on the Internet has grown exponentially (Kreps & Neuhauser, 2010). Statistics Canada's Internet usage study showed that, between 2007 and 2009, health information searches increased among home Internet users from 59% to 70% (Statistics Canada, 2010). Similarly, the Pew Internet in American Life survey reported that 80% of adult Internet users used the Internet to search for health information (Pew Internet & American Life Project, 2012).

Although Internet use has increased, utilization studies reveal a continuing digital version of the economic and educational inequities that limit access to health information (Cotten & Gupta, 2004; Koch-Weser, Bradshaw, Gualtieri, & Gallagher, 2010; Lee, Ramirez, Lewis, Gray, & Hornik, 2012). In comparison with those using conventional sources (e.g., magazines, television, or radio), for example, those seeking health information via the Internet tend to be younger, better educated, and wealthier (Cotten & Gupta, 2004; Koch-Weser et al., 2010).

Health information search strategies vary as a function of an individual's attitudes, preferences, and personal health goals (Hashimoto & Fukuhara, 2004; Longo, 2005; McMullan, 2006). Information may be sought in an effort to improve health and prevent the onset of disease, recognize the symptoms of an illness, prepare for an appointment, clarify information provided by health professionals, participate in treatment decisions, participate in the delivery of health services, solve health problems independently, or assist friends and family members (Broom, 2005; Lambert & Loiselle, 2007; Longo, 2005; McMullan, 2006; Wald, Dube, & Anthony, 2007). Rains reported that individuals seeking health information on the Internet were less confident in their physicians and conventional media as sources of information (Rains, 2007). Paradoxically, those who were less confident in their physicians were also less likely to trust information obtained on the Internet (Rains, 2007).

Systematic reviews suggest that, in comparison with non–web-based approaches, Internet programs designed to enhance knowledge or change health behavior yield a greater increase in knowledge, health behavior, participation in health services, and health outcomes (Wantland, Portillo, Holzemer, Slaughter, & McGhee, 2004). The effect of health information may vary as a function of the quality of the information available (Wald et al., 2007), an individual's searching skills, the format in which the

information is delivered (Wantland et al., 2004), and the point in a health service or illness at which information becomes available (Broom, 2005; Kroeze, Oenema, Campbell, & Brug, 2008). The usefulness of Internet health information may also vary as a function of its impact on the relationship between patients and health service providers (Broom, 2005; McMullan, 2006; Wald et al., 2007). Although Internet users tend to take a more active role in their health care (Lee, Gray, & Lewis, 2010), the response of health service providers varies considerably. Physicians, for example, may respond to an informed user by asserting their expert position, collaborating in acquiring and understanding health information, or prescribing credible sources (Diaz, Sciamanna, Evangelou, Stamp, & Ferguson, 2005; Wald et al., 2007).

The Present Study

Although health information initiatives must reach a broad audience, they need to adjust to the context in which they are applied (Straus, Tetroe, & Graham, 2011), target selected audiences (Moss, Kirby, & Donodeo, 2009), or be tailored to reflect the attitudes, goals, and preferences of individual users (Kreps & Neuhauser, 2010; Noar, Benac, & Harris, 2007). Potential users need to be included at each step in the process via which research is translated into a dissemination strategy (Gagnon, 2011). This study used conjoint analysis as one component of a project involving young adults in the development of approaches to providing information about mood and anxiety disorders.

Conjoint analysis defines a health information strategy as a set of features or attributes (Orme, 2009; Ryan, Gerard, & Amaya-Amaya, 2007). These might include the *format* in which information is provided, the *time* required to use information, or its expected *impact* on users. Each attribute is described by several levels. The format of health information, for example, could include books, television, radio, or the Internet. Participants state their preferences by choosing between hypothetical options comprising systematically varied combinations of the study's attribute levels. Although these methods are used widely by economists and marketing researchers (Gustafsson, Herrmann, & Huber, 2007; Orme, 2009), they have, only recently been applied to the design of mental health information strategies (Cunningham, Deal, Rimas, Buchanan, et al., 2008; Cunningham et al., 2009).

Conjoint analysis makes at least four contributions to the design and study of health information strategies. First, those seeking mental health information are confronted with competing sources (Rains, 2007) and conflicting messages (Ipser, Dewing, & Stein, 2007; Reavley & Jorm, 2011). Because health information decisions are complex, this approach is more likely to elicit the heuristics influencing the choices young adults actually make (Shah & Oppenheimer, 2008). Second, multiattribute choices reduce social desirability biases (Kreuter, Presser, & Tourangeau, 2008; Tourangeau & Yan, 2007; Wahlberg, 2010) and reveal attitudes that are not detected by conventional surveys (Caruso, Rahnev, & Banaji, 2009; Phillips, Johnson, & Maddala, 2002). Third, although multicomponent health information strategies are likely to be more effective (Webb, Joseph, Yardley, & Michie, 2010), financial constraints may limit design complexity. The time demands associated with complex health information strategies, moreover, may limit utilization (Cunningham, Deal, Rimas, Buchanan, et al., 2008; Lambert & Loiselle, 2007). Conjoint methods could improve the effectiveness of a mental health information strategy by estimating the value of potential components and ensuring the inclusion of features that are most important to young adults. Last, participation in the design of health information strategies is associated with improved outcomes (Kreps & Neuhauser, 2010). More

generally, health services that are consistent with user preferences improve adherence and outcome (Adamson et al., 2008; Swift, Callahan, & Vollmer, 2011). We began with the following research question:

> Research Question 1: What is the relative importance of 15 attributes of a mental health information strategy for young adults?

Several hypotheses were also derived. Research suggests considerable variation in the depth, complexity, and degree of effort individuals are willing to devote to the acquisition of health (Lambert & Loiselle, 2007) and mental health information (Cunningham et al., 2008). In the present study, therefore, we postulated the following:

> Hypothesis 1: Latent class analysis will yield segments of partici-
> pants differing with respect to the time and effort
> they would devote to mental health information.
> Hypothesis 2: Consistent with previous research, membership in
> action-focused segments willing to devote more time
> and effort to the acquisition and use of health infor-
> mation would be higher among women (Cheung
> & Dewa, 2007; Cotton, Wright, Harris, Jorm, &
> McGorry, 2006), those with more education (Gonzalez,
> Alegria, Prihoda, Copeland, & Zeber, 2011; Have,
> Oldehinkel, Vollebergh, & Ormel, 2003; Vasiliadis
> et al., 2009), lower emotional distress (Cunningham
> et al., 2008; ten Have et al., 2010), and experience
> with mental health problems (Corrigan et al., 2001).

Health information preferences are also influenced by attitudinal and moti-vational factors (Kreps & Neuhauser, 2010; Longo, 2005). The Theory of Planned Behavior (Armitage & Conner, 2001; Godin, Belanger-Gravel, Eccles, & Grimshaw, 2008; McEachan, Conner, Taylor, & Lawton, 2011), for example, predicts that the time participants would devote to health information would be influenced by antici-pated benefits (attitudes), the influence of important individuals (subjective norms), confidence in one's ability to use information (perceived behavioral control), and the degree to which participants intend to actually seek information (intent). The applica-tion of this model to the design of Internet health services is associated with improved outcomes (Webb et al., 2010). According to the Theory of Planned Behavior, we pos-tulated that, in comparison with segments preferring passive approaches, participants preferring active health information strategies would do the following:

> Hypothesis 3a: Anticipate greater benefit to the acquisition of men-
> tal health information.
> Hypothesis 3b: Expect more encouragement to use mental health
> information.
> Hypothesis 3c: Report more confidence in their ability to use mental
> health information.
> Hypothesis 3d: Report a greater intent to use mental health information.

Given increased Internet use (Day, Carey, & Surgenor, 2006; Kreps & Neuhauser, 2010; Pew Internet & American Life Project, 2012; Statistics Canada, 2007), an interest

in self-help strategies (Gulliver et al., 2010), and the importance of peer influences during the early adult years, we postulated that participants would do the following:

>   Hypothesis 4a: Prefer information delivered by a new-media (Internet) strategy rather than by an old-media approach based on books, pamphlets, radio, and television.
>
>   Hypothesis 4b: Prefer active options including self-assessments, self-monitoring, and step-by-step strategies for managing anxiety and depression.
>
>   Hypothesis 4c: Prefer recommendations by young adults who had experienced anxiety or depression rather than by professionals.

Method

Conjoint Survey Development

Survey design and analysis was informed by the recommendations of the International Society for Pharmacoeconomics and Outcomes Research (Bridges et al., 2011). Qualitative methods ensured attributes reflected design themes of importance to young adults (Coast & Horrocks, 2007; Lancsar & Louviere, 2008). Three focus groups (28 participants) and 58 interviews were conducted with a purposive sample of young men and women with low versus high emotional distress from urban and rural backgrounds, different educational levels, and advantaged and disadvantaged circumstances. This phase of the project will be reported elsewhere. Using themes from this qualitative stage, we composed 15 attributes. These included attributes related to the content (e.g., self-help strategies), process (e.g., time demands), and expected outcome (e.g., feeling informed) of a mental health information strategy. To ensure equal weighting (Verlegh, Schifferstein, & Wittink, 2002) each attribute was defined by four levels (subsequently detailed). An experimental design algorithm maximizing attribute level balance, orthogonality, and efficiency generated 999 versions of the survey and randomly assigned one to each participant (Sawtooth Software Inc., 2013). Participants completed 17 choice tasks, each presenting three health information options (Figure 1). Each option was described by the levels of three attributes (Patterson & Chrzan, 2003). Respondents were asked to assume they were seeking

Figure 1. A sample of the format used in the 17 choice tasks completed by each participant.

information about anxiety or depression and to choose the approach they would prefer. To reduce noncompensatory simplifying tendencies (Bridges et al., 2011; Chinburapa et al., 1993; Glockner & Betsch, 2008), we used a design allowing attribute levels to appear more than once in each choice task. To enhance attention, a pictorial research assistant appeared when instructions and feedback on progress were presented (Orme & Johnson, 2008).

Other Measures

Table 1 summarizes the additional measures included in this study. We developed 36 five-point Likert scale questions ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) reflecting the attitudes, subjective norms, perceived behavioral control, and intent components of the Theory of Planned Behavior. The K-6 measured psychological distress on a 5-point Likert scale ranging from 1 (*none*) to 5 (*all of the time*) (Kessler et al., 2010; Wittchen, 2010). Last, participants reported the extent to which family members, friends, or coworkers have experienced problems with anxiety or depression (none, some, or many).

Table 1. Description of dependent measures

Subscales	Number of items	α	Content of question
Theory of Planned Behavior Scale			
Attitudes: Anticipated benefits	5	.89	Young adults who get more information about anxiety or depression would feel more confident and informed
Subjective norms	7	.66	Which significant individuals (e.g., close friends, educators, family members) would motivate the use of information about anxiety or depression?
Behavioral control: Ability to help self	3	.73	I am confident that I could use information about anxiety or depression to help myself deal with anxiety or depression
Behavioral control: Ability to help others	3	.76	I am confident that I could use information about anxiety or depression to help others deal with anxiety or depression
Behavioral control: Barriers	7	.72	I am too stressed
Intent	11	.73	Watch a video on a website like YouTube
Other measures			
Psychological distress (K-6)	6	.86	During the past 30 days, how often did you feel worthless?
Experience with anxiety and depression	6	.79	Does a member of your family have difficulties with anxiety?

Survey Participants

Using a protocol approved by the participating universities, we recruited participants from four large primary care settings in western and central Canadian communities with regional populations of 740,000 and 742,000. To include those without a primary care physician, both communities included settings with walk-in options. Of 1,514 potential participants approached, 1,306 agreed to hear about the study, 1,190 agreed to participate, and 1,129 completed the survey (75% of total). This analysis included 1068 participants aged 18 to 35 years. Participants endorsed consents assuring confidentiality and the option to withdraw at any time.

Procedure

Anonymous surveys were completed in waiting areas on laptop computers. Median completion time was 15.7 minutes. Participants read descriptions of anxiety and depression, completed the Theory of Planned Behavior Scale, 17 choice tasks, the K-6, demographic questions, and the experience with anxiety and depression scale, and received a $15 gift certificate.

Results

We used Hierarchical Bayes (5.0) to fit utility coefficients to each participant's mental health information choices (Sawtooth Software Inc., 2009). This program generates stable utility estimates, allows segmentation at the individual level, and improves the validity of simulations (Allenby, Arora, & Gintner, 1995; Allenby et al., 2005; Arora, Allenby, & Ginter, 1998; Lenk, DeSarbo, Green, & Young, 1996; Orme, 2009).

To address Hypothesis 1, we segmented the data using Latent Class 4.0.8 (Sawtooth Software Inc., 2004). As a finite mixture model, Latent Class assumes that choices reflect several unobserved segments of participants with different information preferences (Ramaswamy & Cohen, 2007). Latent Class uses a maximum likelihood criterion to estimate the probability that each participant was a member of each segment. We selected a three-segment solution on the basis of fit, segment size, and interpretability (Orme, 2009; Sawtooth Software Inc., 2008).

Demographic Characteristics and Theory of Planned Behavior Scores

After examining the choice data, segments were labeled virtual (28.7% of the sample), conventional (30.1%), or low interest (41.2%). The demographics of the three segments are summarized in Table 2. As predicted by Hypothesis 2, men and those with less education were more likely to be in the low-interest segment.

As predicted by Hypothesis 3b, c, d, Theory of Planned Behavior scores were linked to segment membership (Table 3). Low-interest participants reported fewer normative influences encouraging the use of information, less confidence in their ability to use information, more barriers than did the virtual segment, and the lowest intent to use information. Virtual participants reported more benefits and were more intent on using information.

Importance Scores and Utility Values

The importance scores in Table 4 and zero-centered utility values in Table 5 address Research Question 1. Importance scores were derived by converting the range of each attribute's utility values to a percentage of the sum of the utility value ranges of all 15

Table 2. Demographic characteristics of the virtual, conventional, and low-interest segments

	n	%	Virtual	Conventional	Low interest	χ^2
			Segment			
Sample size	1068	100	307	321	440	
Percentage of sample			28.7	30.1	41.2	
Gender						11.1**
Male	352	33.0	25.3	26.4	48.3	
Female	715	67.0	30.5	31.9	37.6	
Age (years)						2.2
18 to 25	720	67.4	29.2	28.6	42.2	
26 to 35	348	32.6	27.9	33.0	39.1	
Birth country						1.5
Born in Canada	921	86.3	29.0	30.5	40.5	
Another country	146	13.7	26.7	27.4	45.9	
Language						1.6
English	968	90.8	29.2	30.1	40.7	
Other	98	9.2	23.5	30.6	45.9	
Income (in Canadian dollars)						
Under 20,000	186	20.9	25.8	31.2	43.0	14.9*
20,000–39,999	222	25.0	23.4	31.5	45.0	
40,000–59,999	151	17.0	33.1	33.1	33.8	
60,000–79,999	123	13.8	33.3	22.8	43.9	
80,000 and above	207	23.3	30.4	35.7	33.8	
Highest educational level						32.6***
Elementary	2	0.2	0.0	0.0	100.0	
Middle school	43	4.0	7.0	23.3	69.8	
High school	283	26.5	29.0	24.4	46.6	
Some college or university	375	35.1	28.8	32.5	38.7	
College graduate	170	15.9	27.1	34.1	38.8	
University graduate	195	18.3	34.9	31.8	33.3	

Note. There were 179 participants who chose not to provide income data.
*$p < .05$. **$p < .01$. ***$p < .001$.

attributes; attributes with higher importance scores exert a greater influence on choices (Orme, 2009). Multivariate analyses of variance across the importance scores (Table 4), $F(30, 2104) = 40.2$, $p < .001$, and the utility values (Table 5), $F(90, 2044) = 22.0$, $p < .001$, were significant. We computed analyses of variance and Dunnett's C tests to compare the importance scores and utility values of the three segments. In the subsequent sections, attributes are grouped as those addressing content, acquisition process, and outcome.

Content Attributes

Table 4 shows that self-assessment options were more important to the conventional and virtual segments than any other attribute. Utility values (Table 5) show that all

Table 3. Theory of Planned Behavior Scale, K-6, and experience with anxiety and depression scores

	Segment								
	Virtual		Conventional		Low interest				
Content of question	M	SD	M	SD	M	SD	F	Dunnett's C	η^2
Theory of Planned Behavior Scale									
Attitudes: Anticipated benefits	20.3	3.7	19.5	4.3	19.2	3.8	7.0**	V > C, L	.01
Subjective norms	25.7	3.5	25.7	3.3	24.4	4.1	15.8***	C, V > L	.03
Perceived behavioral control: Barriers	18.6	4.3	19.0	4.7	19.6	4.6	4.1*	L > V	.01
Perceived behavioral control: Self-help	11.8	1.9	11.7	1.9	11.3	2.2	5.9**	C, V > L	.01
Perceived behavioral control: Helping others	11.4	2.1	11.3	2.0	11.1	2.3	1.0		.00
Intent	36.9	5.7	35.4	5.2	34.3	6.5	17.9***	V > C > L	.03
K-6 total	13.1	4.6	12.4	4.6	13.4	5.3	4.0*	L > C	.01
Experience with anxiety and depression									
Anxiety disorders	5.6	1.6	5.3	1.6	5.4	1.5	4.0*	V > C	.01
Depression	5.4	1.6	5.2	1.6	5.2	1.6	1.8		.00

Note. C = conventional segment; L = low-interest segment; V = virtual segment; η = partial eta^2.

*p < .05. **p < .01. ***p < .001.

segments preferred self-assessment checklists allowing anxiety and depression to be tracked over time. Hypothesis 1 predicted that segments would differ with respect to the time and effort they would to devote to the acquisition of information. Active options including self-help strategies and links to services were more important to the virtual and conventional segments than to the low-interest segment. Although the virtual and conventional segments preferred options with videos, written tasks, and practice, low-interest participants preferred only videos (Table 5).

Supporting evidence was more important to the conventional segment. Utility values show that, as Hypothesis 4c predicted, virtual and low-interest participants preferred options judged helpful by young adults who had experienced anxiety or depression. Conventional participants, in contrast, preferred options judged helpful by mental health professionals. All segments preferred information describing alternative (e.g., diet and exercise) ways to reduce anxiety and depression rather than psychological treatments or medication.

Table 4. Importance scores and ranks across attributes for the virtual, conventional, and low-interest segments

	Segment											Dunnett's	
	Virtual			Conventional			Low interest						
Attribute	R	M	SD	R	M	SD	R	M	SD	F	C	η^2
Information content												
Self-assessment	1	8.7	2.0	1	**8.7**	1.9	8	6.6	2.4	124.1***	C, V > L	0.2
Help locating services	2	**8.3**	1.5	2	8.1	1.6	9	6.6	2.4	90.1***	C, V > L	0.1
Self-help skills	5	**7.3**	1.6	6	7.1	1.7	10	6.4	2.2	23.7***	C, V > L	0.0
Source of supporting evidence	6	**7.3**	1.7	8	6.6	1.6	11	6.0	2.2	42.1***	V > C > L	0.1
Treatment information	9	6.6	2.2	10	6.5	2.2	7	**6.8**	2.6	1.6		0.0
Acquisition process												
Internet social networking	4	**7.9**	1.5	4	7.7	1.8	4	7.5	2.5	4.6*	V > L	0.0
Recommendation	8	7.0	2.2	3	**7.9**	1.9	5	7.3	2.6	15.4***	C > L, V	0.0
Level of anonymity	11	5.8	2.2	12	5.7	2.2	1	**8.3**	3.1	130.4***	L > C, V	0.2
Time demand	12	5.6	2.1	15	4.1	1.6	2	**7.9**	3.3	212.8***	L > V > C	0.3
Information format	13	5.4	1.9	9	6.5	1.8	3	**7.7**	2.6	106.5***	L > C > V	0.2
Advertising channel	14	4.5	1.9	13	5.7	2.3	6	**7.1**	2.7	107.9***	L > C > V	0.2
Information utilization support	15	3.9	1.5	14	5.0	1.9	12	**5.9**	2.1	93.5***	L > C > V	0.1
Outcome												
Informed and confident	3	**8.1**	1.4	5	7.4	1.9	13	5.9	2.1	145.9***	V > C > L	0.2
Symptom reduction	7	**7.1**	1.8	7	6.7	1.8	14	5.2	1.9	119.0***	V > C > L	0.2
Reduction in isolation	10	**6.5**	1.7	11	6.2	1.6	15	5.0	2.0	81.7***	C, V > L	0.1

Note. R = Relative rank of importance score (highest score appears in boldface); C = conventional segment; L = low-interest segment; V = virtual segment; η = partial eta^2.
*$p < .05$. **$p < .01$. ***$p < .001$.

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Table 5. Standardized (zero-centered) utilities value means and standard deviations

Attribute	Segment						F	Dunnett's C	η^2
	Virtual		Conventional		Low interest				
	M	SD	M	SD	M	SD			
Self-assessment									
Does not help me see if I have anxiety or depression	−75.0	19.6	−78.3	18.7	−45.9	35.9	164.6***	L > C, V	0.2
Lists the symptoms of anxiety or depression	3.3	16.4	6.6	16.2	10.1	26.4	9.6***	C, L > V	0.0
Has a checklist to see if I have anxiety or depression	18.9	15.7	22.8	14.9	16.1	25.4	10.3***	C > L, V	0.0
Has a checklist to see if I have anxiety or depression & lets me track these feelings over time	**52.8**	18.4	**48.9**	18.0	**19.7**	32.6	199.4***	V > C > L	0.3
Help locating services									
Does not help me find help with anxiety or depression	−79.5	15.5	−77.9	17.2	−49.1	33.1	186.9***	L > C, V	0.3
Lists places that could help with anxiety or depression	20.2	17.6	14.8	15.8	12.5	24.4	13.3***	V > C, L	0.0
Connects me to a place that could help with anxiety or depression	25.6	14.3	31.1	13.3	16.4	21.8	68.1***	C > V > L	0.1
Connects me to a person who could help with anxiety or depression	**33.7**	19.9	**32.0**	19.5	**20.2**	31.5	32.8***	C, V > L	0.1
Self-help skills									
Does not teach skills to help with anxiety or depression	−65.1	17.4	−63.7	17.9	−39.9	31.7	129.9***	L > C, V	0.2
Written tasks teach skills to help with anxiety or depression	15.9	20.3	18.2	18.3	**16.5**	27.7	0.9		0.0
Videos teach skills to help with anxiety or depression	15.3	25.1	17.9	24.6	15.3	34.2	0.9		0.0
Videos, written tasks, & practice teach skills to help with anxiety or depression	**33.9**	16.7	**27.5**	17.7	8.1	30.6	122.8***	V > C > L	0.2
Source of supporting evidence									
We do not know if this option is helpful	−64.0	16.1	−57.9	18.8	−34.7	30.2	164.8***	L > C > V	0.2
Young adults who have experienced anxiety or depression say this option is helpful	**38.0**	19.0	16.7	20.3	**16.5**	31.6	78.9***	V > C, L	0.1
Mental health professionals say this option is helpful	17.9	19.3	**32.3**	17.2	6.2	30.5	109.4***	C > V > L	0.2
Research says this option is helpful	8.1	18.0	8.9	18.1	12.1	29.7	3.1*		0.0
Treatment information (tells about)									
Anxiety or depression (e.g. causes, how common)	−2.2	18.3	−8.1	16.6	−6.8	29.2	5.8**	V > C, L	0.0
Alternative ways to reduce anxiety or depression (e.g. diet, exercise)	**37.8**	21.9	**39.8**	22.0	**31.7**	33.0	9.3***	C, V > L	0.0
Psychological ways to reduce anxiety or depression	17.3	22.6	18.6	18.8	11.9	32.8	7.0**	C, V > L	0.0
Medications for anxiety or depression	−52.9	22.3	−50.3	24.0	−36.8	40.5	28.9***	L > C, V	0.1

Internet social networking								
No Internet social networking options	−52.1	16.9	22.1	−37.9	32.2	76.0***	C > L > V	0.1
Has an unsupervised Internet site where young adults talk about anxiety or depression	−37.0	23.4	21.5	−25.7	38.7	95.3***	L > V > C	0.2
Has a professionally supervised Internet site where young adults talk about anxiety or depression	34.4	18.9	18.7	27.0	28.6	11.4***	C, V > L	0.0
Has an Internet site where professionals answer questions from young adults about anxiety or depression	**54.7**	19.0	19.8	**36.6**	31.9	52.0***	V > C > L	0.1
Recommendation (by)								
No recommendation	−56.3	20.7	20.0	−44.0	34.6	24.0***	L > C, V	0.0
A friend	−1.6	21.7	20.7	−1.3	32.2	33.7***	L, V > C	0.1
Young adult who has experienced anxiety or depression	**38.8**	22.9	22.7	19.7	34.2	83.5***	V > L > C	0.1
A doctor	19.0	23.7	20.2	**25.7**	37.9	185.2***	C > L > V	0.3
Level of anonymity								
I use this option anonymously	**43.2**	27.4	27.5	**65.5**	36.6	60.1***	L > C, V	0.1
I give my e-mail	4.2	20.9	19.1	−9.3	30.2	28.9***	V > C, L	0.1
I give my name	−24.2	20.7	22.4	−18.2	32.5	8.3***	C, L > V	0.0
I give my name & e-mail	−23.2	23.5	24.1	−37.9	32.5	39.0***	C, V > L	0.1
Time demand								
Takes 10 minutes of my time	**25.1**	26.7	25.7	**45.6**	39.4	152.3***	L > V > C	0.2
Takes 30 minutes of my time	23.3	17.9	18.1	28.6	25.7	28.4***	L > V > C	0.1
Takes 50 minutes of my time	−5.2	20.8	20.5	−22.8	30.9	89.2***	C > V > L	0.1
Takes 70 minutes of my time	−43.2	20.9	21.6	−51.5	31.8	122.5***	C > V > L	0.2
Information format								
Includes a pamphlet or book	7.9	25.0	25.5	**28.9**	38.8	47.2***	C, L > V	0.1
Includes phone text messages	−36.1	26.0	21.0	−52.7	37.6	24.5***	V > L > C	0.0
Includes a video/DVD	1.9	25.1	24.0	6.3	34.6	78.1***	C, V > L	0.1
Includes the Internet	**26.2**	19.8	19.9	17.5	31.0	31.8***	L > V > C	0.1
Advertising channel								
Not advertised	−14.6	26.1	26.6	1.7	40.5	23.3***	C, L > V	0.0
Television & radio	4.3	23.1	23.4	**21.5**	34.4	37.6***	C, L > V	0.1
Posters, newspapers & billboards	**7.4**	21.5	18.6	20.5	29.5	27.0***	C > L, V	0.0
Sites like Google, Facebook, or Twitter	2.9	35.2	27.1	−43.7	51.4	108.0***	V > L > C	0.2

(Continued)

Table 5. Continued

Attribute	Virtual M	SD	Conventional M	SD	Low interest M	SD	F	Dunnett's C	η^2
Information utilization support									
I use this alone	**5.3**	28.1	−24.5	24.5	**7.2**	40.4	99.7***	L, V > C	0.2
I use this with help from a friend or family member	−4.8	22.0	−18.1	21.5	−0.9	32.0	41.0***	L, V > C	0.1
I use this with help from a family doctor	1.5	22.1	**28.2**	20.6	−0.3	33.4	120.0***	C > L, V	0.2
I use this with help from a mental health worker	−2.0	25.1	14.4	25.2	−5.9	38.1	42.0***	C > L, V	0.1
Informed and confident									
Does not change how informed & confident I feel	−77.9	15.6	−67.8	22.1	−33.1	37.2	268.1***	L > C > V	0.3
Helps me feel more informed	20.2	15.2	17.5	15.4	18.5	21.8	1.8		0.0
Helps me feel more confident	20.5	17.2	12.5	19.0	−6.2	28.9	132.9***	V > C > L	0.2
Helps me feel more informed & confident	**37.1**	15.9	**37.8**	16.3	20.8	26.5	81.8***	C, V > L	0.1
Symptom reduction									
Does not effect my feelings of anxiety or depression	−62.0	19.0	−56.2	18.5	−21.4	36.0	250.5***	L > C > V	0.3
Helps me feel less anxious	9.2	17.3	9.0	15.8	1.0	28.3	17.1***	C, V > L	0.0
Helps me feel less depressed	12.4	15.5	6.1	15.9	4.5	25.5	14.6***	V > C, L	0.1
Helps me feel less anxious & depressed	**40.3**	15.0	**41.1**	15.1	**15.9**	24.4	211.1***	C, V > L	0.1
Reduction in isolation									
Does not effect how alone I feel	−56.5	17.7	−52.3	17.4	−22.2	32.8	216.3***	L > C > V	0.0
Helps me feel somewhat less alone	3.5	14.9	−4.4	14.7	−0.2	24.8	12.8***	V > L > C	0.1
Helps me feel less alone	18.1	17.0	25.3	16.3	**12.6**	25.7	34.4***	C > V > L	0.2
Helps me feel much less alone	**34.8**	17.6	**31.4**	17.6	9.7	26.6	150.2***	V > C > L	0.2

Note. For each attribute, the highest attribute level appears in boldface. C = conventional segment; L = low-interest segment; V = virtual segment; η = partial eta^2.

$*p < .05. **p < .01. ***p < .001.$

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Acquisition Process Attributes

Social networking options were moderately important. All segments (Table 5) preferred an Internet site where professionals answered anonymous questions, an observation consistent with Hypothesis 4a's prediction of a preference for Internet options. Supervised social networking sites were more acceptable than unsupervised sites. All segments preferred anonymous options with low-interest participants most sensitive to this attribute.

As Hypothesis 4c predicted, virtual participants chose options recommended by young adults who had experienced anxiety or depression. Conventional and low-interest participants, in contrast, preferred a doctor's recommendation. The conventional segment preferred help from a family doctor; low-interest and virtual participants chose to pursue information alone.

Time demands were most important to the low-interest segment. Although conventional participants chose 30-minute activities, virtual and low-interest participants preferred 10-minute options.

Advertising channels and the format in which mental health information was presented exerted more influence on the choices of low-interest participants. They preferred options advertised via television and radio (Table 5). Conventional and virtual participants, in contrast, preferred options advertised in newspapers, posters, or billboards. Although low-interest and virtual participants preferred information delivered on the Internet, conventional participants preferred pamphlets or books (Table 5).

Outcome Attributes

Importance scores showed that variations in outcomes exerted less influence on the choices of the low-interest segment (Table 4). Virtual and conventional participants showed a stronger preference than low-interest participants for options helping them feel more informed and confident, less anxious and depressed, and less isolated (Table 5).

Simulations

We used Randomized First Choice simulations (Huber, Orme, & Miller, 2007; Orme & Huber, 2000) to predict the response of participants to several mental health information strategies. In contrast with importance scores and utility values, which reflect the influence of individual attributes and attribute levels, simulations predict the response of participants to the complex, multiattribute information strategies they are likely to encounter in real-world settings. Simulations assume that, adjusting for error, participants would choose an option whose combined attributes yield the highest utility (Huber et al., 2007; Orme & Huber, 2000).

To estimate the validity of simulations, we included hold-out tasks at positions 6 and 12 in the choice–task sequence (Orme, 2009). Hold-out choices were excluded from utility estimation. We used hold-out task 1 to set the simulator's exponent to .31 (Orme, 2009). Using data from 15 choice tasks, we simulated responses to the second hold-out task. The small discrepancy between predicted and observed choices (mean absolute error = 1.5), suggests high internal validity.

Simulation 1 tested Hypothesis 4a's prediction that participants would prefer mental health information delivered by a new-media strategy. We created three options by varying the levels of four attributes. The *new-media* option was (a) advertised on

sites such as Google, Facebook, or Twitter; (b) available on the Internet; and (c) used alone; but (d) supported by professionally supervised Internet discussions. The *old-media* option was (a) advertised on television and radio, (b) available in pamphlets or books, and (c) used with the help of a doctor, but (d) not supported by Internet social networking. The *status quo* was (a) not advertised, (b) available in a pamphlet or book, (c) used alone, and (d) without Internet social networking support. Conventional participants (69.4%) preferred the *old-media* option while virtual (84.4%) and low-interest (45.7%) participants preferred the *new-media* option.

Simulation 2 tested Hypothesis 4b's prediction that participants would prefer a mental health information strategy focusing on active self-help skills. The *active* option included (a) checklists assessing and tracking anxiety and depression; (b) videos, written tasks, and practice exercises teaching skills to help with anxiety or depression; (c) links to service providers; (d) a supervised Internet site where young adults talk about anxiety or depression, and (e) a 70-min time demand. The *passive* option included the following: (a) anxiety and depression symptom lists, (b) written tasks teaching skills to help with anxiety or depression, (c) a list of agencies providing mental health services, (d) an Internet site where professionals answer anonymous questions, and (e) a 10-min time demand. The *status quo* included the "none" level of each attribute. While the conventional (52.9%) and virtual (56.1%) segments preferred the *active* option, low-interest (68.8%) participants preferred a *passive* approach (Table 6).

Simulations 3, 4, and 5 explored the Theory of Planned Behavior's prediction that normative influences could increase the utilization of the *active* option (Armitage & Conner, 2001). In Simulation 3, the *peer-supported active* option was (a) recommended and (b) described as helpful by young adults who have experienced anxiety or depression and (c) used with help from a friend or family member. As Hypothesis 4c predicted, peer support boosted overall preference for the *active* option from 43.4% in Simulation 2 to 76.1% in Simulation 3.

Simulation 4's *professionally supported active* option was (a) recommended by doctors, (b) described as helpful by mental health professionals, and (c) used with help from a family doctor. Professional support boosted predicted preference for *active* from 43.4% (Simulation 2) to 77.7% (Simulation 4). Professional support exerted a stronger influence on the conventional segment but a weaker influence on low-interest participants.

Hypothesis 4c predicted that peers versus professionals would exert a greater influence on health information choices. Simulation 5 predicted that, although virtual participants (63%) would prefer a peer-supported option, professionals would exert a greater influence on the information choices of conventional participants (91.1%).

Discussion

This is the first study to use conjoint analysis to involve young adults in the design of a mental health information strategy. We subsequently summarize the preferences of the virtual, conventional, and low-interest segments, consider the implications of the study's findings for the design of a strategy to improve the utilization of mental health information, and link our findings to a broader literature on the utilization of health information.

Virtual participants, 28.7% of the sample, preferred a new media strategy delivering information via the Internet. Self-assessments, materials teaching self-help skills, and links to mental health service providers were important to this segment. The

Table 6. Randomized First Choice simulations

| | | | Segment | | | | | |
| | Total sample | | Virtual | | Conventional | | Low interest | |
Option	Mean %	SE	Mean %	SE	Mean %	SE	Mean %	SE
Simulation 1								
Status quo	14.8	0.9	6.3	1.0	10.9	1.3	23.6	1.6
Old-media option	36.2	1.2	9.3	1.1	69.4	1.8	30.7	1.7
New-media option	49.0	1.3	84.4	1.4	19.7	1.5	45.7	1.9
Simulation 2								
Status quo	1.9	0.3	0.0	0.0	0.0	0.0	4.5	0.8
Passive option	54.8	1.2	44.0	2.2	47.1	2.0	68.0	1.7
Active option	43.4	1.2	56.1	2.2	52.9	2.0	27.5	1.6
Simulation 3								
Status quo	1.3	0.3	0.0	0.0	0.0	0.0	3.1	0.7
Passive option	22.6	1.1	7.5	1.2	11.2	1.5	41.5	2.0
Active + peer support	76.1	1.2	92.5	1.2	88.8	1.5	55.4	2.0
Simulation 4								
Status quo	1.5	0.3	0.0	0.0	0.0	0.0	3.6	0.7
Passive option	20.8	1.1	12.1	1.6	1.7	0.5	40.8	2.0
Active + professional support	77.7	1.1	87.9	1.6	98.3	0.5	55.6	2.0
Simulation 5								
Active option	3.8	0.4	0.4	0.1	0.1	0.0	8.8	1.0
Active + peer support	39.2	1.2	62.2	2.1	8.8	1.0	45.3	1.9
Active + professional support	57.0	1.2	37.4	2.1	91.1	1.0	45.9	1.9

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recommendations of young adults who had experienced anxiety or depression exerted more influence on their choices.

Conventional participants, 30.1% of the sample, preferred an old-media strategy based on books or pamphlets, recommended by a doctor, endorsed by mental health professionals, and used with the support of family physicians. Although they would spend more time acquiring information, they would be less likely to use social networking options.

Low-interest participants (41.2%) were less intent on using mental health information, more sensitive to the information transfer process, and less interested in outcomes. Low-interest participants were particularly sensitive to time demands and least likely to use an active mental health information strategy. Like the virtual segment, they preferred new media options allowing them to work alone on the Internet. As predicted, men, participants with lower education, and those with less confidence in their ability to help themselves, were more likely to be in the low-interest segment. These results are consistent with studies finding an educational and economic divide in the utilization of health information (Cotten & Gupta, 2004; Koch-Weser et al., 2010; Lee et al., 2012).

We postulated that emotional distress and experience with anxiety or depression would be associated with interest in an active mental health information strategy. As predicted, virtual participants, who expressed greater intent to use mental health information, reported the most experience with anxiety disorders. A measure of emotional distress (K–6 scores), however, accounted for little variation in segment membership. The low-interest segment reported higher K–6 scores than conventional participants. Although seemingly paradoxical, this is consistent with studies reporting that parents with higher depression scores were less likely to actively pursue information regarding their child's mental health problems (Cunningham et al., 2008; Cunningham, Rimas, & Deal, 2008). Together these studies are consistent with evidence that the information processing biases associated with depressed mood may contribute to health decisions that increase vulnerability (Beevers, 2005).

Implications for the Design of Mental Health Information Strategies

Develop a Mixed Media Strategy

Despite growth in the use of the Internet to search for health information (Kreps & Neuhauser, 2010), a segment of this study's participants preferred a conventional media option. This is consistent with research finding a preference for conventional versus electronic sources of health information (Kroeze et al., 2008; Lee et al., 2012) and a lack of trust in health information acquired on the Internet (Rains, 2007). Our simulations suggest that a mixed media approach allowing a choice between new media (e.g. Internet) and conventional media options would maximize the use of mental health information.

Tailor Information to Preferences Rather Than to Demographics

Although we predicted younger adults would prefer new-media strategies, age differences in segment membership were not observed. The 2009 U.S. National Health Interview Survey shows that use of the Internet for health information is higher in adults aged 25 to 35 than in those aged 18 to 25 years (Cohen & Adams, 2011). Sex, education, Theory of Planned Behavior scores, and psychological distress, moreover, made significant, but relatively small contributions to the prediction of segment

membership. These results suggest mental health information strategies should be based on empirically derived preferences rather than on a priori assumptions about demographic differences. Information, for example, could be accessed through decision aids enabling the selection of resources consistent with user preferences (O'Connor et al., 2009; Sheehan & Sherman, 2011).

Include Self-Assessment Options

All segments preferred self-assessment options allowing symptoms to be tracked over time. In addition to providing a self-check, self-assessment modules could provide information about the symptoms of anxiety and depression, support the tailoring that improves the outcome of health promotion messages (Noar et al., 2007), and help users determine whether to utilize the links to mental health service providers preferred by all segments. Although decision aids of this type are difficult to locate on the Internet (Morris, Drake, Saarimaki, Bennett, & O'Connor, 2008), they increase knowledge, reduce passive participation in health decisions, limit decisional conflict resulting from lack of information or clarity regarding personal values, and reduce ambivalence regarding health options (O'Connor et al., 2009; Sheehan & Sherman, 2012).

Include Self-Help Options

As previous studies would suggest (Gulliver et al., 2010), the preferences of this study's participants went beyond simple information about mental health problems. The *active* option preferred by the virtual and conventional segments included readings, videos, and practice exercises teaching skills to manage mood and anxiety. The interest of younger adults in information enabling them to assume a more active role in their health care extends beyond mental health to other dimensions of health (Cunningham, Deal, Rimas, Campbell et al., 2008). Although a preference for solving mental health problems independently may limit the use of conventional services (Gulliver et al., 2010; van Beljouw et al., 2010), the interest of young adults in self-help options is supported by randomized trials (Abramowitz, Moore, Braddock, & Harrington, 2009; Bilich, Deane, Phipps, Barisic, & Gould, 2008; Diamond et al., 2010; Furmark et al., 2009; Griffiths, Farrer, & Christensen, 2010; Morgan & Jorm, 2008; Sourander et al., 2005; Ybarra & Eaton, 2005). Self-help options might engage those preferring to deal independently with mental health problems (Gulliver et al., 2010; van Beljouw et al., 2010), moderate the emergence of affective disorders, or provide young adults with options while waiting for service. They could reduce service duration, lower costs, and improve outcomes by providing knowledge and skills increasing readiness for treatment.

Include Information About Alternative Approaches

Participants preferred information regarding alternative approaches such as diet and exercise, a choice with empirical support (Ravindran et al., 2009; Strohle, 2009). Participants were less interested in psychological approaches and, as others have noted, evidenced virtually no interest in information about medication (Marcus, Westra, & the Mobilizing Minds Research Group, 2012; Raue, Schulberg, Heo, Klimstra, & Bruce, 2009).

Advertise Mental Health Information

Health promotion research shows that the reach, specificity, and impact of different media channels varies considerably (Schooler, Chaffee, Flora, & Roser, 1998).

Participants distinguished strategies advertising the availability of mental health information from the format in which information was delivered. All segments preferred advertising via conventional media (e.g. newspapers, posters, billboards, television, and radio), rather than the Internet. This has several advantages. First, conventional media may reach young adults who are not actively seeking, but may benefit from, mental health information (Longo, 2005). Second, a significant percentage of adults who encounter health messages through conventional media will seek additional information from the Internet or their physicians (Hogue, Doran, & Henry, 2012). Third, given the volume of public health information on the Internet, conventional advertising may compete with fewer conflicting messages. Last, because Internet advertising often disrupts goal-directed searching and interaction, it is more likely to elicit ad avoidance than traditional media sources (Walsh, 2010).

Feature Recommendations and Supporting Evidence
As in previous studies, the sources recommending health information were important (Priester & Petty, 2003). Although recommendations by young adults who have experienced mental health problems increased predicted utilization of an active information strategy by the virtual segment, conventional participants were more sensitive to the recommendations of professionals. The importance of trustworthy sources (Ratzan, 2011) is consistent with the Theory of Planned Behavior's prediction that influential individuals motivate behavior change (Armitage & Conner, 2001; Godin et al., 2008). Because scientific evidence exerted less influence on information choices, young adults may be vulnerable to the misinformation available in the public domain; efforts to improve mental health literacy should include critical appraisal skills (Christensen et al., 2010).

Link Information to Primary Care
The conventional and low-interest segments, 71% of the sample, preferred information recommended by a doctor. This is consistent with the evidence that individuals obtain most health information from their physicians (Cotten & Gupta, 2004). Together, these studies support the importance of primary care as a point of contact in the transfer of mental health information (Kates, Craven, & Collaborative Working Group of the College of Family Physicians of Canada, Canadian Psychiatric Association, 2002). The books and pamphlets included in the old-media strategy preferred by conventional participants are readily used when located in primary care settings (Craven, Nikolaou, Allen, Crustolo, & Kates, 2005). The conventional segment, moreover, sought help from family doctors or mental health service providers. This finding is consistent with more general health information research showing that Internet use predicts greater use of health professionals as a source of health information (Lee, 2008). Evidence that the response of physicians influences the usefulness of the health information patients acquire (Broom, 2005; McMullan, 2006), and trials showing that even modest professional assistance improves the outcome of self-directed services (Anderson et al., 2005; Morgan & Jorm, 2008; Titov, 2007), suggests primary care professionals could play an important role in the transmission of mental health information and skills. Some have recommended that health professionals receive training in health informatics.

Enable Networking But Ensure Anonymity
Young adults with mental health problems sometimes report a profound sense of alienation (Marcus, Westra, Eastwood, Barnes, & the Mobilizing Minds Research Group,

2012). In this study, all segments preferred information strategies that reduced loneliness. This was especially important to the virtual and conventional segments. Nonetheless, all segments preferred anonymous options that could be accessed without help from friends or family members. The virtual and low-interest segments preferred to pursue information alone. This finding is consistent with studies reporting that concerns regarding confidentiality limited the use of mental health services (Gulliver et al., 2010). A successful communication strategy, therefore, needs to balance the desire for networking and support with a preference for anonymity. All segments, for example, preferred an Internet site where professionals answered anonymous mental health questions. This option provides anonymity while creating a sense of shared concern that may achieve the reduction in loneliness preferred by all segments. Participants evidenced little interest in unmoderated social networking options, a reasonable caution given the absence of evidence regarding the impact of these sites (Griffiths, Calear, Banfield, & Tam, 2009).

Limitations

We focused on preferences for information about anxiety and depression, two very common mental health problems. It would be helpful to apply these methods to preferences for information about a wider range of health and mental health problems.

Although our primary care sample could reduce the generalizability of our findings, several features of this study's design mitigate this concern. First, primary care is universally available in Canada's publicly funded health care system; most Canadian young adults use publicly funded primary care services at least once annually (Health Canada, 2010). Second, the primary care settings selected for the project served an ethnically, educationally, and economically diverse sample. Third, to include those without a primary care physician, we sampled in settings providing walk-in services.

Although segment membership was linked to several dimensions of the Theory of Planned Behavior, the application of a broader model, such as the Theoretical Domains Framework (Francis, O'Connor, & Curran, 2012), may have provided a better explanation of mental health information preferences.

Last, we focused on the decision to use mental health information. Factors influencing the sustained use of mental health information may be different. The Theory of Planned Behavior, moreover, predicts that preferences may shift if barriers are encountered or the utility of the information acquired is not consistent with expectations (Armitage & Conner, 2001).

Conclusion

The results of this study suggest that a differentiated strategy reflecting the preferences of the conventional, virtual, and low-interest segments would maximize the utilization of mental health information. Simulations suggest the need for options ranging from active self-help to passive information delivered through old- and new-media channels. Developing strategies that consider user input and the emerging implementation science would create a user-informed, evidence-based approach that would enhance utilization and outcome.

References

Abramowitz, J. S., Moore, E. L., Braddock, A. E., & Harrington, D. L. (2009). Self-help cognitive-behavioral therapy with minimal therapist contact for social phobia: A controlled trial. *Journal of Behavior Therapy and Experimental Psychiatry*, *40*, 98–105. doi: 10.1016/j.jbtep.2008.04.004

Adamson, S. J., Bland, J. M., Hay, E. M., Johnson, R. E., Jones, G. T., Kitchener, H., … Torgerson, D. J. (2008). Patients' preferences within randomised trials: Systematic review and patient level meta-analysis. *British Medical Journal*, *337*, a1864. doi: 10.1136/bmj.a1864

Allenby, G. M., Arora, N., & Gintner, J. L. (1995). Incorporating prior knowledge into the analysis of conjoint studies. *Journal of Marketing Research*, *32*, 152–162.

Allenby, G. M., Fennell, G., Huber, J., Eagle, T., Gilbride, T., Horsky, D., … Walker, J. (2005). Adjusting choice models to better predict market behavior. *Marketing Letters*, *16*, 197–208. doi: 10.1007/s11002-005-5885-1

Anderson, L., Lewis, G., Araya, R., Elgie, R., Harrison, G., Proudfoot, J., … Williams, C. (2005). Self-help books for depression: How can practitioners and patients make the right choice? *The British Journal of General Practice: The Journal of the Royal College of General Practitioners*, *55*, 387–392.

Armitage, C. J., & Conner, M. (2001). Efficacy of the Theory of Planned Behaviour: A meta-analytic review. *The British Journal of Social Psychology*, *40*, 471–499.

Arora, N., Allenby, G. M., & Ginter, J. L. (1998). A hierarchical Bayes model of primary and secondary demand. *Marketing Science*, *17*, 29–44.

Bartlett, H., Travers, C., Cartwright, C., & Smith, N. (2006). Mental health literacy in rural Queensland: Results of a community survey. *Australian and New Zealand Journal of Psychiatry*, *40*, 783–789. doi: 10.1111/j.1440-1614.2006.01884.x

Beevers, C. G. (2005). Cognitive vulnerability to depression: A dual process model. *Clinical Psychology Review*, *25*, 975–1002. doi: 10.1016/j.cpr.2005.03.003

Bergeron, E., Poirier, L., Fournier, L., Roberge, P., & Barrette, G. (2005). Determinants of service use among young Canadians with mental disorders. *Canadian Journal of Psychiatry*, *50*, 629–637.

Berkman, N. D., Sheridan, S. L., Donahue, K. E., Halpern, D. J., & Crotty, K. (2011). Low health literacy and health outcomes: An updated systematic review. *Annals of Internal Medicine*, *155*, 97–107.

Bilich, L. L., Deane, F. P., Phipps, A. B., Barisic, M., & Gould, G. (2008). Effectiveness of bibliotherapy self-help for depression with varying levels of telephone helpline support. *Clinical Psychology & Psychotherapy*, *15*(2), 61–74. doi: 10.1002/cpp.562

Bridges, J. F. P., Hauber, A. B., Marshall, D., Lloyd, A., Prosser, L. A., Regier, D. A., … Mauskopf, J. (2011). Conjoint analysis applications in health—A checklist: A report of the ISPOR good research practices for conjoint analysis task force. *Value in Health*, *14*, 403–413. doi: 10.1016/j.jval.2010.11.013

Broom, A. (2005). Virtually he@lthy: The impact of Internet use on disease experience and the doctor-patient relationship. *Qualitative Health Research*, *15*, 325–345. doi: 10.1177/1049732304272916

Burns, J. R., & Rapee, R. M. (2006). Adolescent mental health literacy: Young people's knowledge of depression and help seeking. *Journal of Adolescence*, *29*, 225–239. doi: 10.1016/j.adolescence.2005.05.004

Carragher, N., Adamson, G., Bunting, B., & McCann, S. (2010). Treatment-seeking behaviours for depression in the general population: Results from the national epidemiologic survey on alcohol and related conditions. *Journal of Affective Disorders*, *121*, 59–67. doi: 10.1016/j.jad.2009.05.009

Caruso, E. M., Rahnev, D. A., & Banaji, M. R. (2009). Using conjoint analysis to detect discrimination: Revealing covert preferences from overt choices. *Social Cognition*, *27*, 128–137. doi: 10.1521/soco.2009.27.1.128

Cheung, A. H., & Dewa, C. S. (2007). Mental health service use among adolescents and young adults with major depressive disorder and suicidality. *Canadian Journal of Psychiatry*, *52*, 228–232.

Chinburapa, V., Larson, L. N., Brucks, M., Draugalis, J., Bootman, J. L., & Puto, C. P. (1993). Physician prescribing decisions: The effects of situational involvement and task complexity on information acquisition and decision making. *Social Science & Medicine*, *36*, 1473–1482.

Christensen, H., Murray, K., Calear, A. L., Bennett, K., Bennett, A., & Griffiths, K. M. (2010). Beacon: A web portal to high-quality mental health websites for use by health professionals and the public. *The Medical Journal of Australia*, *192*(11 Suppl), S40–S44.

Coast, J., & Horrocks, S. (2007). Developing attributes and levels for discrete choice experiments using qualitative methods. *Journal of Health Services Research & Policy*, *12*(1), 25–30. doi: 10.1258/135581907779497602

Cohen, R. A., & Adams, P. F. (2011). Use of the Internet for health information: United States, 2009 (Report No. 66). Hyattsville, MD: National Center for Health Statistics.

Corrigan, P. W., River, L. P., Lundin, R. K., Penn, D. L., Uphoff-Wasowski, K., Campion, J., … Goldstein, H. (2001). Three strategies for changing attributions about severe mental illness. *Schizophrenia Bulletin*, *27*, 187–195.

Cotten, S. R., & Gupta, S. S. (2004). Characteristics of online and offline health information seekers and factors that discriminate between them. *Social Science & Medicine*, *59*, 1795–1806.

Cotton, S. M., Wright, A., Harris, M. G., Jorm, A. F., & McGorry, P. D. (2006). Influence of gender on mental health literacy in young Australians. *The Australian and New Zealand Journal of Psychiatry*, *40*, 790–796. doi: 10.1111/j.1440-1614.2006.01885.x

Craven, M. A., Nikolaou, L., Allen, C. J., Crustolo, A. M., & Kates, N. (2005). Patient education materials for mental health problems in family practice: Does location matter? *Patient Education and Counseling*, *56*, 192–196. doi: 10.1016/j.pec.2004.02.008

Cunningham, C. E., Deal, K., Rimas, H., Buchanan, D. H., Gold, M., Sdao-Jarvie, K., & Boyle, M. (2008). Modeling the information preferences of parents of children with mental health problems: A discrete choice conjoint experiment. *Journal of Abnormal Child Psychology*, *36*, 1128–1138. doi: 10.1007/s10802-008-9238-4

Cunningham, C. E., Deal, K., Rimas, H., Campbell, H., Russell, A., Henderson, J., … Melnick, B. (2008). Using conjoint analysis to model the preferences of different patient segments for attributes of patient-centred care. *The Patient: Patient-Centred Outcomes Research*, *1*, 317–330. doi: 10.2165/1312067-200801040-00013

Cunningham, C. E., Deal, K., Rimas, H., Chen, Y., Buchanan, D. H., & Sdao-Jarvie, K. (2009). Providing information to parents of children with mental health problems: A discrete choice conjoint analysis of professional preferences. *Journal of Abnormal Child Psychology*, *37*, 1089–1102. doi: 10.1007/s10802-009-9338-9

Cunningham, C. E., Rimas, H., & Deal, K. (2008). Modeling health information preferences using discrete choice conjoint experiments: The influence of informant mood. In *2007 Sawtooth Software Conference Proceedings* (pp. 251–270). Sequim, WA: Sawtooth Software Inc.

Day, C., Carey, M., & Surgenor, T. (2006). Children's key concerns: Piloting a qualitative approach to understanding their experience of mental health care. *Clinical Child Psychology and Psychiatry*, *11*, 139–155. doi: 10.1177/1359104506056322

Diamond, G., Levy, S., Bevans, K. B., Fein, J. A., Wintersteen, M. B., Tien, A., & Creed, T. (2010). Development, validation, and utility of Internet-based, behavioral health screen for adolescents. *Pediatrics*, *126*, e163–e170. doi: 10.1542/peds.2009-3272

Diaz, J. A., Sciamanna, C. N., Evangelou, E., Stamp, M. J., & Ferguson, T. (2005). Brief report: What types of Internet guidance do patients want from their physicians? *Journal of General Internal Medicine*, *20*, 683–685. doi: 10.1111/j.1525-1497.2005.0115.x

Francis, J. J., O'Connor, D., & Curran, J. (2012). Theories of behaviour change synthesised into a set of theoretical groupings: Introducing a thematic series on the theoretical domains framework. *Implementation Science*, *7*(1), 35.

Furmark, T., Carlbring, P., Hedman, E., Sonnenstein, A., Clevberger, P., Bohman, B., … Andersson, G. (2009). Guided and unguided self-help for social anxiety disorder: Randomised controlled trial. *The British Journal of Psychiatry*, *195*, 440–447. doi: 10.1192/bjp.bp.108.060996

Gagnon, M. L. (2011). Moving knowledge to action through dissemination and exchange. *Journal of Clinical Epidemiology*, *64*, 25–31. doi: 10.1016/j.jclinepi.2009.08.013

Glockner, A., & Betsch, T. (2008). Multiple-reason decision making based on automatic processing. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *34*, 1055–1075. doi: 10.1037/0278-7393.34.5.1055

Godin, G., Belanger-Gravel, A., Eccles, M., & Grimshaw, J. (2008). Healthcare professionals' intentions and behaviours: A systematic review of studies based on social cognitive theories. *Implementation Science*, *3*(36), 1–12. doi: 10.1186/1748-5908-3-36

Gonzalez, J. M., Alegria, M., Prihoda, T. J., Copeland, L. A., & Zeber, J. E. (2011). How the relationship of attitudes toward mental health treatment and service use differs by age, gender, ethnicity/race and education. *Social Psychiatry and Psychiatric Epidemiology*, *46*, 45–57. doi: 10.1007/s00127-009-0168-4

Griffiths, K. M., Calear, A. L., Banfield, M., & Tam, A. (2009). Systematic review on Internet support groups (ISGs) and depression (2): What is known about depression ISGs? *Journal of Medical Internet Research*, *11*(3), e41. doi: 10.2196/jmir.1303

Griffiths, K. M., Farrer, L., & Christensen, H. (2010). The efficacy of Internet interventions for depression and anxiety disorders: A review of randomised controlled trials. *The Medical Journal of Australia*, *192*(11 Suppl), S4–S11.

Gulliver, A., Griffiths, K. M., & Christensen, H. (2010). Perceived barriers and facilitators to mental health help-seeking in young people: A systematic review. *BMC Psychiatry*, *10*, 1–9. doi: 10.1186/1471-244X-10-113

Gustafsson, A., Herrmann, A., & Huber, F. (2007). Conjoint analysis as an instrument of market research practice. In A. Gustafsson, A. Herrmann, & F. Huber (Eds.), *Conjoint measurement* (pp. 3–34). Berlin, Germany: Springer.

Hashimoto, H., & Fukuhara, S. (2004). The influence of locus of control on preferences for information and decision making. *Patient Education and Counseling*, *55*, 236–240. doi: 10.1016/j.pec.2003.09.010

Have, M., Oldehinkel, A., Vollebergh, W., & Ormel, J. (2003). Does educational background explain inequalities in care service use for mental health problems in the Dutch general population? *Acta Psychiatrica Scandinavica*, *107*, 178–187. doi: 10.1034/j.1600-0447.2003.00074.x

Health Canada. (2010). *Summary report on the findings of the oral health component of the Canadian health measures survey 2007- 2009*. Ottawa, Ontario: Publications Health Canada. Retrieved from http://www.fptdwg.ca/English/e-documents.html

Hogue, M. C., Doran, E., & Henry, D. A. (2012). A prompt to the web: The media and health information seeking behaviour. *PLoS One*, *7*(4), e34314. doi: 10.1371/journal.pone.0034314

Huber, J., Orme, B. K., & Miller, R. (2007). Dealing with product similarity in conjoint simulations. In A. Gustafsson, A. Herrmann, & F. Huber (Eds.), *Conjoint measurement: Methods and applications* (4th ed., pp. 347–362). New York, NY: Springer.

Ipser, J. C., Dewing, S., & Stein, D. J. (2007). A systematic review of the quality of information on the treatment of anxiety disorders on the Internet. *Current Psychiatry Reports*, *9*, 303–309. doi: 10.1007/s11920-007-0037-3

Kates, N., Craven, M., & Collaborative Working Group of the College of Family Physicians of Canada, Canadian Psychiatric Association. (2002). Shared mental health care. Update from the Collaborative Working Group of the College of Family Physicians of Canada and the Canadian Psychiatric Association. *Canadian Family Physician Medecin De Famille Canadien*, *48*, 936.

Kelly, C. M., Jorm, A. F., & Wright, A. (2007). Improving mental health literacy as a strategy to facilitate early intervention for mental disorders. *Medical Journal of Australia*, *187*(7), s26–s30.

Kessler, R. C. (2007). The global burden of anxiety and mood disorders: Putting the European Study of the Epidemiology of Mental Disorders (ESEMeD) findings into perspective. *The Journal of Clinical Psychiatry*, *68*(Suppl 2), 10–19.

Kessler, R. C., Aguilar-Gaxiola, S., Alonso, J., Chatterji, S., Lee, S., Ormel, J., … Wang, P. S. (2009). The global burden of mental disorders: An update from the WHO World Mental Health (WMH) surveys. *Epidemiologia e Psichiatria Sociale*, *18*(1), 23–33.

Kessler, R. C., Green, J. G., Gruber, M. J., Sampson, N. A., Bromet, E., Cuitan, M., … Zaslavsky, A. M. (2010). Screening for serious mental illness in the general population with the K6 screening scale: Results from the WHO World Mental Health (WMH) survey initiative. *International Journal of Methods in Psychiatric Research*, *19*(Suppl 1), 4–22. doi: 10.1002/mpr.310

Koch-Weser, S., Bradshaw, Y. S., Gualtieri, L., & Gallagher, S. S. (2010). The Internet as a health information source: Findings from the 2007 health information national trends survey and implications for health communication. *Journal of Health Communication*, *15*(Suppl3), 279–293. doi: 10.1080/10810730.2010.522700

Kreps, G. L., & Neuhauser, L. (2010). New directions in eHealth communication: Opportunities and challenges. *Patient Education and Counseling*, *78*, 329–336.

Kreuter, F., Presser, S., & Tourangeau, R. (2008). Social desirability bias in CATI, IVR, and web surveys. *Public Opinion Quarterly*, *72*, 847–865. doi: 10.1093/poq/nfn063

Kroeze, W., Oenema, A., Campbell, M., & Brug, J. (2008). Comparison of use and appreciation of a print-delivered versus CD-ROM-delivered, computer-tailored intervention targeting saturated fat intake: Randomized controlled trial. *Journal of Medical Internet Research*, *10*(2), e12. doi: 10.2196/jmir.940

Lambert, S. D., & Loiselle, C. G. (2007). Health information seeking behavior. *Qualitative Health Research*, *17*, 1006–1019. doi: 10.1177/1049732307305199

Lancsar, E., & Louviere, J. (2008). Conducting discrete choice experiments to inform healthcare decision making: A user's guide. *PharmacoEconomics*, *26*, 661–677.

Lee, C. J. (2008). Does the Internet displace health professionals? *Journal of Health Communication*, *13*, 450–464. doi: 10.1080/10810730802198839

Lee, C. J., Gray, S. W., & Lewis, N. (2010). Internet use leads cancer patients to be active health care consumers. *Patient Education and Counseling*, *81*(Suppl), S63–S69. doi: 10.1016/j.pec.2010.09.004

Lee, C. J., Ramirez, A. S., Lewis, N., Gray, S. W., & Hornik, R. C. (2012). Looking beyond the Internet: Examining socioeconomic inequalities in cancer information seeking among cancer patients. *Health Communication*, *27*, 806–817. doi: 10.1080/10410236.2011.647621

Lenk, P. J., DeSarbo, W. S., Green, P. E., & Young, M. R. (1996). Hierarchical Bayes conjoint analysis: Recovery of partworth heterogeneity from reduced experimental designs. *Marketing Science*, *15*, 173–192.

Longo, D. R. (2005). Understanding health information, communication, and information seeking of patients and consumers: A comprehensive and integrated model. *Health Expectations: An International Journal of Public Participation in Health Care and Health Policy*, *8*, 189–194. doi: 10.1111/j.1369-7625.2005.00339.x

Marcus, M., Westra, H. A., & the Mobilizing Minds Research Group. (2012). Mental health literacy in Canadian young adults: Results of a national survey. *Canadian Journal of Community Mental Health*, *31*, 1–15.

Marcus, M. A., Westra, H. A., Eastwood, J. D., Barnes, K. L., & the Mobilizing Minds Research Group. (2012). What are young adults saying about mental health? an analysis of Internet blogs. *Journal of Medical Internet Research*, *14*(1), e17. doi: 10.2196/jmir.1868

McEachan, R. R. C., Conner, M., Taylor, N. J., & Lawton, R. J. (2011). Prospective prediction of health-related behaviours with the theory of planned behaviour: A meta-analysis. *Health Psychology Review*, *5*, 97–144.

McMullan, M. (2006). Patients using the Internet to obtain health information: How this affects the patient-health professional relationship. *Patient Education and Counseling*, *63*, 24–28. doi: 10.1016/j.pec.2005.10.006

Morgan, A. J., & Jorm, A. F. (2008). Self-help interventions for depressive disorders and depressive symptoms: A systematic review. *Annals of General Psychiatry*, *7*(13), 1–23. doi: 10.1186/1744-859X-7-13

Morris, D., Drake, E., Saarimaki, A., Bennett, C., & O'Connor, A. (2008). Can people find patient decision aids on the Internet? *Patient Education and Counseling*, *73*, 557–560. doi: 10.1016/j.pec.2008.07.046

Moss, H. B., Kirby, S. D., & Donodeo, F. (2009). Characterizing and reaching high-risk drinkers using audience segmentation. *Alcoholism*, *Clinical and Experimental Research*, *33*, 1336–1345. doi: 10.1111/j.1530-0277.2009.00963.x

Noar, S. M., Benac, C. N., & Harris, M. S. (2007). Does tailoring matter? meta-analytic review of tailored print health behavior change interventions. *Psychological Bulletin*, *133*, 673–693. doi: 10.1037/0033-2909.133.4.673

O'Connor, A. M., Bennett, C. L., Stacey, D., Barry, M., Col, N. F., Eden, K. B., … Rovner, D. (2009). Decision aids for people facing health treatment or screening decisions. *Cochrane Database of Systematic Reviews*, *3*, CD001431. doi: 10.1002/14651858.CD001431.pub2

Oh, E., Jorm, A. F., & Wright, A. (2009). Perceived helpfulness of websites for mental health information: A national survey of young Australians. *Social Psychiatry and Psychiatric Epidemiology*, *44*, 293–299. doi: 10.1007/s00127-008-0443-9

Orme, B. K. (2009). *Getting started with conjoint analysis: Strategies for product design and pricing research* (2nd ed.). Madison, WI: Research Publishers.

Orme, B. K., & Huber, J. (2000). Improving the value of conjoint simulations. *Marketing Research*, *12*, 12–20.

Orme, B. K., & Johnson, R. M. (2008). *Testing adaptive CBC: Shorter questionnaires and BYO vs. "most likelies."* Sawtooth Software Research Paper Series, 1–22. Red Bank, NJ: Sawtooth.

Patterson, M., & Chrzan, K. (2003). Partial profile discrete choice: What's the optimal number of attributes? In *2003 Sawtooth Software Conference Proceedings* (pp. 173–185). Sequim, WA: Sawtooth Software Inc.

Pew Internet & American Life Project. (2012). *What Internet users do online*. Washington, DC: Pew Research Center.

Phillips, K. A., Johnson, F. R., & Maddala, T. (2002). Measuring what people value: A comparison of "attitude" and "preference" surveys. *Health Services Research*, *37*, 1659–1679. doi: 10.1111/1475-6773.01116

Priester, J. R., & Petty, R. E. (2003). The influence of spokesperson trustworthiness on message elaboration, attitude strength, and advertising effectiveness. *Journal of Consumer Psychology*, *13*, 408–421.

Rains, S. A. (2007). Perceptions of traditional information sources and use of the world wide web to seek health information: Findings from the health information national trends survey. *Journal of Health Communication*, *12*, 667–680.

Ramaswamy, V., & Cohen, S. H. (2007). Latent class models for conjoint analysis. In A. Gustafsson, A. Herrmann, & F. Huber (Eds.), *Conjoint measurement methods and applications* (4th ed., pp. 295–320). New York, NY: Springer.

Ratzan, S. C. (2011). Health information: Diffusing information to knowledge and action. *Journal of Health Communication*, *16*, 923–924. doi: 10.1080/10810730.2011.619422

Raue, P. J., Schulberg, H. C., Heo, M., Klimstra, S., & Bruce, M. L. (2009). Patients' depression treatment preferences and initiation, adherence, and outcome: A randomized primary care study. *Psychiatric Services*, *60*, 337–343. doi: 10.1176/appi.ps.60.3.337

Ravindran, A. V., Lam, R. W., Filteau, M. J., Lesperance, F., Kennedy, S. H., Parikh, S. V., … Canadian Network for Mood and Anxiety Treatments. (2009). Canadian Network for Mood and Anxiety Treatments (CANMAT) clinical guidelines for the management of major depressive disorder in adults. V. complementary and alternative medicine treatments. *Journal of Affective Disorders*, *117*(Suppl 1), S54–S64. doi: 10.1016/j.jad.2009.06.040

Reavley, N. J., Cvetkovski, S., Jorm, A. F., & Lubman, D. I. (2011). Help-seeking for substance use, anxiety and affective disorders among young people: Results from the 2007 Australian

National Survey of Mental Health and Well-Being. *The Australian and New Zealand Journal of Psychiatry*, *44*, 729–735. doi: 10.3109/00048671003705458

Reavley, N. J., & Jorm, A. F. (2011). The quality of mental disorder information websites: A review. *Patient Education and Counseling*, *85*, e16–e25. doi: 10.1016/j.pec.2010.10.015

Rickwood, D., Deane, F., & Wilson, C. (2007). When and how do young people seek professional help for mental health problems? *Medical Journal of Australia*, *187*(Suppl 7), S35–S39.

Romer, D., & Bock, M. (2008). Reducing the stigma of mental illness among adolescents and young adults: The effects of treatment information. *Journal of Health Communication*, *13*, 742–758. doi: 10.1080/10810730802487406

Ryan, M., Gerard, K., & Amaya-Amaya, M. (2007). *Using discrete choice experiments to value health and health care*. Amsterdam, The Netherlands: Springer.

Sareen, J., Jagdeo, A., Cox, B. J., Clara, I., ten Have, M., Belik, S. L., … Stein, M. B. (2007). Perceived barriers to mental health service utilization in the United States, Ontario, and The Netherlands. *Psychiatric Services*, *58*, 357–364.

Sawtooth Software Inc. (2004). The CBC latent class technical paper. Sequim, WA: Author.

Sawtooth Software Inc. (2009). The CBC/HB system for Hierarchical Bayes estimation version 5.0 technical paper. Sequim, WA: Author.

Sawtooth Software Inc. (2013). The CBC system for choice-based conjoint analysis. Orem, UT: Author.

Schilling, E. A., Aseltine, R. H., & Gore, S. (2008). The impact of cumulative childhood adversity on young adult mental health: Measures, models, and interpretations. *Social Science & Medicine*, *66*, 1140–1151. doi: 10.1016/j.socscimed.2007.11.023

Schooler, C., Chaffee, S. H., Flora, J. A., & Roser, C. (1998). Health campaign channels: Trade-offs among reach, specificity, and impact. *Human Communication Research*, *24*, 410-432. doi: 10.1111/j.1468-2958.1998.tb00423.x

Shah, A. K., & Oppenheimer, D. M. (2008). Heuristics made easy: An effort-reduction framework. *Psychological Bulletin*, *134*, 207–222. doi: 10.1037/0033-2909.134.2.207

Shandley, K., Austin, D., Klein, B., & Kyrios, M. (2010). An evaluation of 'reach out central': An online gaming program for supporting the mental health of young people. *Health Education Research*, *25*, 563–574. doi: 10.1093/her/cyq002

Sheehan, J., & Sherman, K. A. (2012). Computerised decision aids: A systematic review of their effectiveness in facilitating high-quality decision-making in various health-related contexts. *Patient Education and Counseling*, *88*, 69–86. doi: 10.1016/j.pec.2011.11.006

Sourander, A., Multimaki, P., Nikolakaros, G., Haavisto, A., Ristkari, T., Helenius, H., … Almqvist, F. (2005). Childhood predictors of psychiatric disorders among boys: A prospective community-based follow-up study from age 8 years to early adulthood. *Journal of the American Academy of Child and Adolescent Psychiatry*, *44*, 756–767. doi: 10.1097/01.chi.0000164878.79986.2f

Statistics Canada. (2007). Mean number of online activities by age, online experience, and connection type, home internet users aged 18 and older (Canadian Internet use survey), 2007. Ottawa, Ontario, Canada: Author.

Statistics Canada. (2010). Table 105-0501—Health indicator profile, annual estimates, by age group and sex, Canada, provinces, territories, health regions (2007 boundaries) and peer groups, occasional, CANSIM (database). Ottawa, Ontario, Canada: Author.

Straus, S. E., Tetroe, J. M., & Graham, I. D. (2011). Knowledge translation is the use of knowledge in health care decision making. *Journal of Clinical Epidemiology*, *64*, 6–10. doi: 10.1016/j.jclinepi.2009.08.016

Strohle, A. (2009). Physical activity, exercise, depression and anxiety disorders. *Journal of Neural Transmission*, *116*, 777–784. doi: 10.1007/s00702-008-0092-x

Swift, J. K., Callahan, J. L., & Vollmer, B. M. (2011). Preferences. *Journal of Clinical Psychology*, *67*, 155–165. doi: 10.1002/jclp.20759

ten Have, M., de Graaf, R., Ormel, J., Vilagut, G., Kovess, V., Alonso, J., & ESEMeD/MHEDEA 2000 Investigators. (2010). Are attitudes towards mental health help-seeking associated

with service use? Results from the European study of epidemiology of mental disorders. *Social Psychiatry and Psychiatric Epidemiology*, *45*, 153–163. doi: 10.1007/s00127-009-0050-4

Titov, N. (2007). Status of computerized cognitive behavioural therapy for adults. *The Australian and New Zealand Journal of Psychiatry*, *41*, 95–114. doi: 10.1080/00048670601109873

Tourangeau, R., & Yan, T. (2007). Sensitive questions in surveys. *Psychological Bulletin*, *133*, 859–883. doi: 10.1037/0033-2909.133.5.859

van Beljouw, I., Verhaak, P., Prins, M., Cuijpers, P., Penninx, B., & Bensing, J. (2010). Reasons and determinants for not receiving treatment for common mental disorders. *Psychiatric Service*s, *61*, 250–257. doi: 10.1176/appi.ps.61.3.250

Vanheusden, K., Ende, J., Mulder, C., Lenthe, F., Verhulst, F., & Mackenbach, J. (2009). Beliefs about mental health problems and help-seeking behavior in Dutch young adults. *Social Psychiatry and Psychiatric Epidemiology*, *44*, 239–246. doi: 10.1007/s00127-008-0428-8

Vanheusden, K., Mulder, C. L., van der Ende, J., van Lenthe, F. J., Mackenbach, J. P., & Verhulst, F. C. (2008). Young adults face major barriers to seeking help from mental health services. *Patient Education and Counseling*, *73*, 97–104. doi: 10.1016/j.pec.2008.05.006

Vasiliadis, H. M., Tempier, R., Lesage, A., & Kates, N. (2009). General practice and mental health care: Determinants of outpatient service use. *Canadian Journal of Psychiatry*, *54*, 468–476.

Verlegh, P. W. J., Schifferstein, H. N. J., & Wittink, D. R. (2002). Range and number-of-levels effects in derived and stated measures of attribute importance. *Marketing Letters*, *13*(1), 41–52.

Wahlberg, A. E. (2010). Social desirability effects in driver behavior inventories. *Journal of Safety Research*, *41*, 99–106. doi: 10.1016/j.jsr.2010.02.005

Wald, H. S., Dube, C. E., & Anthony, D. C. (2007). Untangling the web—The impact of Internet use on health care and the physician-patient relationship. *Patient Education and Counseling*, *68*, 218-224. doi: 10.1016/j.pec.2007.05.016

Walsh, M. F. (2010). New insights into what drives Internet advertising avoidance behaviour: The role of locus of control. *International Journal of Internet Marketing and Advertising*, *6*, 127–141.

Wantland, D. J., Portillo, C. J., Holzemer, W. L., Slaughter, R., & McGhee, E. M. (2004). The effectiveness of web-based vs. non-web-based interventions: A meta-analysis of behavioral change outcomes. *Journal of Medical Internet Research*, *6*(4), e40. doi: 10.2196/jmir.6.4.e40

Webb, T. L., Joseph, J., Yardley, L., & Michie, S. (2010). Using the Internet to promote health behavior change: A systematic review and meta-analysis of the impact of theoretical basis, use of behavior change techniques, and mode of delivery on efficacy. *Journal of Medical Internet Research*, *12*(1), e4. doi: 10.2196/jmir.1376

Wittchen, H. U. (2010). Screening for serious mental illness: Methodological studies of the K6 screening scale. *International Journal of Methods in Psychiatric Research*, *19*(Suppl 1), 1–3. doi: 10.1002/mpr.316

Wright, A., McGorry, P. D., Harris, M. G., Jorm, A. F., & Pennell, K. (2006). Development and evaluation of a youth mental health community awareness campaign: The compass strategy. *BMC Public Health*, *6*, 215. doi: 10.1186/1471-2458-6-215

Ybarra, M. L., & Eaton, W. W. (2005). Internet-based mental health interventions. *Mental Health Services Research*, *7*(2), 75–87. doi: 10.1007/s11020-005-3779-8