

# Middle-aged women's decisions about body weight management: needs assessment and testing of a knowledge translation tool

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## Abstract

**Objective:** This study aims to assess middle-aged women's needs when making body weight management decisions and to evaluate a knowledge translation tool for addressing their needs.

**Methods:** A mixed-methods study used an interview-guided theory-based survey of professional women aged 40 to 65 years. The tool summarized evidence to address their needs and enabled women to monitor actions taken. Acceptability and usability were reported descriptively.

**Results:** Sixty female participants had a mean body mass index of 28.0 kg/m<sup>2</sup> (range, 17.0-44.9 kg/m<sup>2</sup>), and half were premenopausal. Common options for losing (82%) or maintaining (18%) weight included increasing physical activity (60%), eating healthier (57%), and getting support (40%). Decision-making involved getting information on options (52%), soliciting others' decisions/advice (20%), and being self-motivated (20%). Preferred information sources included written information (97%), counseling (90%), and social networking websites (43%). Five professionals (dietitian, personal trainer, occupational therapist, and two physicians) had similar responses. Of 53 women sent the tool, 27 provided acceptability feedback. They rated it as good to excellent for information on menopause (96%), body weight changes (85%), and managing body weight (85%). Most would tell others about it (81%). After 4 weeks of use, 25 women reported that the wording made sense (96%) and that the tool had clear instructions (92%) and was easy to use across time (88%). The amount of information was rated as just right (64%), but the tool had limited space for responding (72%).

**Conclusions:** When making decisions about body weight management, women's needs were "getting information" and "getting support." The knowledge translation tool was acceptable and usable, but further evaluation is required.

**Key Words:** Body weight – Menopausal transition – Women – Knowledge translation – Usability – Decision-making.

Women transitioning to menopause are at risk for central fat mass gain and associated health problems caused by hormone-related changes in appetite, energy expenditure, and body fat distribution.<sup>1-3</sup> Health problems associated with central fat mass, especially abdominal fat, in obese postmenopausal women include chronic diseases such as heart disease, hypertension, type 2 diabetes, cancers, and osteoarthritis.<sup>4,5</sup>

Women can minimize weight gain and body fat distribution changes, especially gains in abdominal fat, by ensuring healthy nutrition and/or increasing physical activity.<sup>6-9</sup> Greater weight loss often occurs when exercise and dietary approaches are combined.<sup>10</sup> In addition to daily cardiovascular activities, early postmenopausal women also seem to benefit from resistance training twice a week.<sup>11</sup> Other benefits of resistance training include minimizing potential decreases in lean body mass and bone density during weight loss.<sup>1</sup> However, only 52% of

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Canadian women aged 45 to 54 years are physically active during their leisure time,<sup>12</sup> and only 48% meet daily dietary recommendations of five or more servings of fruits and vegetables.<sup>13</sup> Little is known about how much women consider the influence of menopausal changes on body composition and body fat distribution when making decisions about body weight management.

Women want to be involved in decisions relevant to their health.<sup>14</sup> Compared with men, women are involved in making more health decisions and decisions of greater complexity.<sup>15,16</sup> Those who were younger and had higher education were more likely to take an active role in decision-making. Decisions are of higher quality when they are informed by evidence on options and aligned with the relative priority women place on outcomes of options.<sup>17</sup> To date, studies assessing middle-aged women's decision-making indicate that they experience uncertainty about choosing the best course of action<sup>18</sup> and are limited to examining decisions about the use of natural health products for menopausal symptoms.<sup>19,20</sup> Factors interfering with women's decision-making included difficulty in finding reliable information, reluctance of physicians to discuss natural health products, and conflicting opinions of others.

Knowledge translation (KT) tools present evidence in user-friendly ways to enhance understanding and use of the evidence for making decisions.<sup>21</sup> Systematic reviews of KT tools, such as decision aids, have demonstrated enhanced knowledge, more realistic expectations, higher consumer participation in decisions, and reduced factors contributing to decisional conflict.<sup>22</sup> However, little is known about the effects of KT tools on middle-aged women facing lifestyle decisions about body weight management during the menopausal transition. The objective of this study was to assess middle-aged women's needs when making body weight management decisions and to evaluate a new KT tool for addressing their needs.

## METHODS

### Study design

A mixed-methods descriptive study was conducted for decisional needs assessment and alpha testing of the KT tool. The needs assessment was designed using the Ottawa Decision Support Framework, which is based on theories from psychology, social psychology, economics, and social support.<sup>23,24</sup> The premise of the Ottawa Decision Support Framework is that the quality of decision-making can be adversely affected by decisional needs such as inadequate knowledge, unrealistic expectations, unclear values, inadequate support or resources, and individuals' characteristics. Decision support tailored to an individual's decisional needs can resolve decisional conflict and improve decision quality (eg, informed values-based decision). This framework has been used to guide methods for several decisional needs assessment studies.<sup>25-28</sup>

The alpha testing of the KT tool was based on the Knowledge to Action Framework and the International Patient Decision Aid Standards.<sup>29,30</sup> The inner part of the Knowledge to Action Framework is a knowledge creation "funnel" in which evidence from individual studies is synthesized in systematic

reviews and informs the development of KT tools.<sup>29</sup> The outer "action" circle itemizes a process of moving knowledge into action using a series of steps: (a) identify know-do gap; (b) adapt the KT tool; (c) assess barriers to using the KT tool; (d) implement the KT tool in practice; (e) monitor KT tool use; and (f) measure KT tool impact on outcomes and sustained use of the tool. According to the International Patient Decision Aid Standards,<sup>30</sup> the process of developing tools for health consumers should include alpha testing as part of the development. In alpha testing, comprehensibility and usability of the KT tool are evaluated with the user group (eg, perimenopausal women in our study). Although the KT tool developed for use in this study was not a traditional patient decision aid, the alpha testing, as part of the development process, is transferable to other types of KT tools.<sup>21</sup>

### Participants and setting

The study took place in Ottawa, Ontario, and Gatineau, Quebec, which have a large proportion of the population (about 1 million) who are bilingual (English/French). Women aged between 40 and 65 years who could read and speak English were eligible to participate. Women were recruited through flyers displayed within several neighborhoods, the study website, and online classifieds such as Kijiji and Used (city name). Health professionals involved in guiding women's decisions about body weight management (eg, physicians, psychologists, dietitians, nurses, occupational therapists, physiotherapists, and personal trainers) were recruited through letters of invitation within neighborhoods where flyers were displayed.

### KT tool

The KT tool titled "Women and body weight during the transition to menopause: using research to take action" was developed to provide evidence on body weight changes during the transition to menopause and effective interventions ([http://decisionaid.ohri.ca/kt\\_tools.html](http://decisionaid.ohri.ca/kt_tools.html)). The KT tool is a fillable two-page paper-based or electronic document designed for middle-aged women who are making decisions relating to body weight management and implementing lifestyle changes to meet their individual needs. In addition to addressing women's needs as identified within this study, the first page of the KT tool summarizes evidence on body weight changes and findings from a systematic review of interventions targeting body weight during the menopausal transition (Table 1).<sup>31</sup> For example, women often gain 5 lb, notice their waist expand, and notice their body fat distribution changing. The second page provides a series of questions for tracking activities used to manage weight during a 4-week period indicating activity frequency, willingness to make a change, and screening for factors that are likely to influence the change. The KT tool was assessed by two independent team members using DISCERN, an instrument that has been designed to help users of consumer health information judge the quality of written information about treatment choices.<sup>32</sup> As well, it was reviewed and content-approved by individuals with expertise in nutrition, exercise, psychology, and medicine. Given the bilingual setting, the KT tool was produced in English and French.

TABLE 1. Needs of women and how needs were addressed by the knowledge translation tool

	Page 1			Page 2			
	What is menopause?	What body weight changes occur?	What can women do to minimize weight changes?	(1) What are you doing to manage your body weight?	(2) How often during the past week?	(3) What do you do to make sure you exercise as planned?	(4) Do you want to make a change?
Identified options	%						
Continue what I am currently doing	98						X
Increase physical activity	60			X	X	X	
Eat more healthy	57			X	X		
Get support	40			X	X		X
Usual approach to decision-making							
Get information on choices	52		X				
Get support	27			X	X	X	
Self-motivation/self-awareness	20			X	X	X	X
Get information on how others decide	20			X	X	X	
Consider importance of choices	17						
When clothes do not fit	13						X
Wanted information materials	97	X					
Wanted counseling	90		X				
Wanted face-to-face groups	85						
Wanted social networking	43						
Interested in what research is showing	100	X					
Be informed of research through e-mail	72					X	X

**Procedures**

A research assistant interviewed women in person or by telephone using a semistructured interview guide. First, a written informed consent form to participate, approved by the University of Ottawa’s Research Ethics Board, was obtained. The interview proceeded using a standardized guide based on the Ottawa Decision Support Framework.<sup>23</sup> Additional questions included known influential environmental factors,<sup>33,34</sup> the Decision Self-Efficacy scale,<sup>35</sup> and the Menopause Rating Scale.<sup>36</sup> The research assistant took detailed notes on women’s responses to questions, and all interviews were audiorecorded. Health professionals were interviewed using the same interview questions that were framed from their perspective. A written informed consent form was signed by the health professionals, and interviews were audiorecorded.

Women who had indicated that they were interested in receiving information on research findings related to women and body weight during the transition to menopause were sent a copy of the KT tool (in English and French) and two surveys (acceptability and usability).<sup>30,37</sup> Participants were asked to read the KT tool and to respond to the acceptability survey. They were asked to use the KT tool for 4 weeks and, after that time, asked to respond to the usability survey. Reflecting the preferences indicated by participants, e-mails or postal reminders were sent weekly to remind women to use the KT tool. Participants were asked to return their completed KT tool and the usability survey.

**Outcome measurement tools**

The semistructured interview guide used during participant interviews was based on *Population Needs Assessment: A Workbook for Assessing Patients’ and Practitioners’ Decision Making Needs*<sup>24</sup> but was customized for use with middle-aged women who were making decisions about body weight management. This workbook is based on the Ottawa Decision Support Framework, which has been used for many decisional needs assessments, with results used to inform the development of decision aids.<sup>19,28,38</sup>

Women’s self-confidence with their decision-making abilities was measured using the Decision Self-Efficacy scale<sup>35</sup> (0, extremely low self-efficacy; 100, extremely high self-efficacy). This scale has been validated for use in psychiatry and with postmenopausal women evaluating a decision aid about options for osteoporosis management.<sup>35,39</sup> Intensity of menopausal symptoms was measured using the Menopause Rating Scale.<sup>36</sup> This validated scale asks women to rate their psychological (0-16 points), somatic (0-16 points), and urogenital (0-12 points) menopause-related symptoms on a scale from 0 (no symptoms) to 4 (very severe symptoms).

Acceptability of the KT tool by participants was assessed with a set of standardized questions that have been validated and are commonly used in evaluations of decision aids.<sup>30,37</sup> The acceptability survey included seven closed-ended questions to assess the length, clarity, and helpfulness of the KT tool and whether women would recommend it to others. Usability testing was conducted to determine women’s use of the

KT tool, its ease of use, its usefulness for decision-making, and the functionality of its design.<sup>40</sup>

### Analysis

Transcripts from audiorecorded interviews were reviewed to verify responses to specific questions. All data from participants' interviews and self-reported surveys were entered into a Microsoft Excel database. Descriptive analysis using frequency distributions and univariate descriptive statistics were computed. Thematic content analysis was conducted for responses to open questions.<sup>41</sup> For needs assessment results, subanalysis was performed according to one of three body mass index (BMI) groups (BMI = weight [kg] / height [m<sup>2</sup>];  $\leq 24.9$ , 25.0-29.9, and  $\geq 30.0$  kg/m<sup>2</sup>). The KT tools that were completed by participating women were audited to verify that their use was consistent with what was expected.

## RESULTS

Sixty women were recruited between June 2010 and December 2011. On average, women were aged 50 years (range, 40-62 y), were married, had postsecondary education,

and were employed (Table 2). Women were mostly white (n = 50); others were Asian (n = 5), Latin American (n = 2), aboriginal, black, or Middle Eastern. Half of the participants lived in neighborhoods with higher socioeconomic status, and most identified their financial status as "comfortable."

Based on self-reported weight and height, the mean BMI was 28.0 kg/m<sup>2</sup> (range, 17.0-44.9 kg/m<sup>2</sup>). Twenty-four women had a healthy weight (BMI  $\leq 24.9$  kg/m<sup>2</sup>), 18 were overweight (25-29.9 kg/m<sup>2</sup>), and 18 were obese ( $\geq 30$  kg/m<sup>2</sup>). Obese women indicated greater increases in BMI since age 25 years (+12.1 kg/m<sup>2</sup>; Table 3). Fifty-four women (90%) reported that, in an average week, they engage in physical activities such as walking, biking, swimming, aqua fitness, strength training, yoga, rowing, skiing, racket sports, dancing, and Pilates.

About half of the women had a menstrual period within the last year (55%), and others did not (45%; Table 2). Their mean menopausal rating score was 14.2 of 44 (SD, 7.99). Most women whose BMI was "healthy" or "overweight" self-defined their health as very good or excellent, whereas most who were "obese" rated their health as fair or good.

**TABLE 2.** Characteristics of middle-aged women (N = 60)

Characteristics	Participants (N = 60)	Body mass index group		
		$\leq 24.9$ kg/m <sup>2</sup> (n = 24)	25.0-29.9 kg/m <sup>2</sup> (n = 18)	$\geq 30.0$ kg/m <sup>2</sup> (n = 18)
Age				
40-45 y	13 (22)	11 (46)	1 (6)	1 (6)
46-50 y	16 (27)	6 (25)	5 (28)	5 (28)
51-55 y	20 (33)	5 (21)	9 (50)	6 (33)
56-60 y	9 (15)	2 (8)	2 (11)	5 (28)
61-65 y	2 (3)	0 (0)	1 (6)	1 (6)
Education level				
Secondary school	17 (28)	4 (17)	6 (33)	7 (39)
College	12 (20)	6 (25)	2 (11)	4 (22)
University	31 (52)	14 (58)	10 (56)	7 (39)
Civil status				
Married/living with someone	41 (68)	20 (83)	12 (67)	9 (50)
Single/living alone	19 (32)	4 (17)	6 (33)	9 (50)
Financial situation				
Comfortable	27 (45)	12 (50)	8 (44)	7 (39)
Sufficient	27 (45)	10 (42)	8 (44)	9 (50)
Insufficient	3 (5)	2 (8)	1 (6)	0
No response	3 (5)	0	1 (6)	2 (11)
Neighborhood socioeconomic status by quintile				
High	10 (17)	3 (12)	2 (11)	5 (28)
High to middle	20 (33)	9 (38)	8 (44)	3 (17)
Middle	7 (12)	3 (12)	3 (17)	1 (6)
Low to middle	10 (17)	6 (25)	1 (6)	3 (17)
Low	6 (10)	1 (4)	1 (6)	4 (22)
Data not available	7 (12)	2 (8)	3 (17)	2 (11)
Menstrual status				
Last menstruation >1 y	27 (45)	8 (33)	9 (50)	10 (56)
Menstruation $\leq 1$ y	33 (55)	16 (67)	9 (50)	8 (44)
Menopause Rating Scale score				
0-10	22 (37)	14 (58)	6 (33)	2 (11)
11-20	24 (40)	4 (17)	9 (50)	11 (61)
21-30	13 (22)	6 (25)	3 (17)	4 (22)
31-40	1 (2)	0	0	1 (6)
Self-defined overall health				
Excellent	8 (13)	6 (25)	2 (11)	0
Very good	27 (45)	12 (50)	12 (67)	3 (17)
Good	22 (37)	6 (25)	3 (17)	13 (72)
Fair	3 (5)	0	1 (6)	2 (11)

Data are presented as n (%).



TABLE 3. Women's needs for making and implementing body weight decisions (N = 60)

	Participants (N = 60)	Body mass index group		
		≤24.9 kg/m <sup>2</sup> (n = 24)	25.0-29.9 kg/m <sup>2</sup> (n = 18)	≥30.0 kg/m <sup>2</sup> (n = 18)
Body change since age 25 y				
Weight, mean (range), lb	35.8 (-25 to 144)	10.2 (-25 to 44)	37.9 (-5 to 68)	69.8 (30 to 144)
Body mass index, mean (range), kg/m <sup>2</sup>	6.1 (-5 to 24)	1.8 (-5 to 8)	6.4 (-1 to 11)	12.1 (5 to 24)
Self-efficacy with decision-making, median (range)	82 (14-100)	84 (59-100)	85 (14-100)	80 (52-100)
Physical activity, n (%)				
Regular physical activity	54 (90)	22 (92)	17 (94)	15 (83)
Types of decisions being considered, n (%)				
Want to lose weight	49 (82)	13 (54)	18 (100)	18 (100)
Want to maintain weight	11 (18)	11 (46)	0	0
Options for body weight management, n (%) <sup>a</sup>				
Continue current practice	59 (98)	23 (96)	18 (100)	18 (100)
Increase physical activity	36 (60)	14 (58)	10 (56)	12 (67)
Healthy eating	34 (57)	12 (50)	11 (61)	11 (61)
Get support	24 (40)	9 (38)	8 (44)	7 (39)
Other (eg, eliminate alcohol, be aware of health concerns, decrease stress)	2 (3)	1 (8)	1 (6)	0
Approaches to making decisions, n (%)				
Get information on available choices	31 (52)	15 (62.5)	8 (44)	8 (44)
Guided by others' decisions/advice	12 (20)	6 (25)	3 (17)	3 (17)
Be self-motivated	12 (20)	4 (17)	3 (17)	5 (28)
Consider pros/cons of options	10 (17)	4 (17)	1 (6)	5 (28)
Recognize when clothes do not fit	8 (13)	1 (42)	4 (28)	3 (17)
Use common sense	4 (7)	2 (8)	1 (6)	1 (6)
Preferred resources for decision-making, n (%) <sup>a</sup>				
Information materials	58 (97)	23 (96)	17 (94)	18 (100)
Counseling	54 (90)	19 (79)	17 (94)	18 (100)
Face-to-face group	51 (85)	18 (75)	16 (89)	17 (94)
Social networking	26 (43)	9 (38)	8 (44)	9 (50)

<sup>a</sup>Multiple answers allowed.

### Type of decisions

Women were considering options to lose weight (82%) or to maintain weight (18%; Table 3). Women who wanted to maintain their current weight had a healthy BMI. Options identified for body weight management included continuing current practices (98%), increasing physical activity (60%), eating healthier (57%), getting support from individuals or programs (40%), and/or others, including establishing a plan, being aware of health concerns, and decreasing stress. Table 4 provides a list of reasons for and against the various options as provided by participants. For example, the option "eating healthy" was described as eating breakfast, increasing consumption of fruits and vegetables, decreasing consumption of junk food, and limiting overall food intake. "Getting support" was described as talking to or working with healthcare professionals, participating in group activities, enrolling in a weight loss program, and/or hiring a personal trainer.

Women described their most common motivations for increasing physical activity and eating healthy as improving their looks, feelings of well-being, and potential to derive health benefits for themselves and/or family members. Women's incentives for getting support were increased personal motivation and making a commitment to others. Common reasons for not choosing any of the weight management options were lack of personal time and related costs. Other people who were identified by women as being involved in their decision-making included spouses/partners (37%), children (22%), healthcare professionals (22%), and friends (18%).

### Approaches to and resources for decision-making

Approaches women used for making decisions about body weight management included getting information on options (52%), soliciting others' decisions/advice (20%), relying on self-motivation (20%), considering pros/cons (17%), realizing when clothes do not fit (13%), and using "common sense" (7%; Table 3). Preferred resources for making these decisions were information materials (97%), counseling (90%), face-to-face discussion groups (85%), and social networking websites (43%). Compared with women who have a healthy weight, women who were overweight and obese were more likely to prefer access to all resources. All 60 women wanted to receive research findings, with 71% wanting them sent by e-mail.

### Views of healthcare professionals

Two physicians, a dietitian, a personal trainer, and an occupational therapist were interviewed. The healthcare professionals were all female, ranged in age from 30 years to older than 60 years, and had practiced from less than 10 years to more than 30 years. Women's decisional needs, identified by healthcare professionals, included lack of support, lack of personal motivation, cost, lack of information, inadequate time, and relatively low priority. Other persons whom healthcare professionals identified as being involved in women's decision-making included healthcare professionals (to suggest or decide on the best approach; to educate; to create venues for physical activity/support; to provide advice, encouragement, and measurement parameters), friends (to share experiences and to

TABLE 4. Features that influence the importance of body weight management options

Options	Examples of reasons for option	Examples of reasons against option
Eating healthy	<ul style="list-style-type: none"> <li>More energy/feel better</li> <li>Better body image</li> <li>Increase in metabolism</li> <li>Cheaper</li> <li>Portion size control</li> <li>Better bowel movement</li> <li>Nutritional benefits</li> </ul>	<ul style="list-style-type: none"> <li>Feeling of hunger</li> <li>Feeling of deprivation</li> <li>Less nutrient intake</li> <li>Costs</li> <li>Need to monitor</li> <li>Need to have healthy food available</li> <li>Difficult to do in social situations/with family (eating as much, cooking with, and preferences)</li> <li>More thinking required</li> <li>Time consuming</li> </ul>
Increasing physical activity	<ul style="list-style-type: none"> <li>Doable while traveling</li> <li>Elimination of poor food choices (junk food, sugars, and alcohol)</li> <li>Higher likelihood of achieving body weight goal</li> <li>Better cardiovascular health; toner and fitter body</li> <li>Cheaper</li> <li>Better body image</li> <li>Increase in muscle mass</li> <li>Easily accessible</li> <li>Motivation</li> <li>Able to meet others</li> <li>Regular schedule</li> <li>Convenient</li> </ul>	<ul style="list-style-type: none"> <li>Lack of time</li> <li>Costs</li> <li>Personal preference</li> <li>Need to watch oneself</li> <li>Lack of motivation</li> </ul>
Getting support	<ul style="list-style-type: none"> <li>Access to information</li> <li>Able to interpret information with someone</li> <li>More resources and equipment</li> <li>Comonitoring/accountability</li> <li>Provision of structure/discipline</li> <li>Feedback from another person</li> <li>Motivation/encouragement</li> <li>Able to meet others</li> <li>Hear about examples</li> <li>Easier to follow</li> <li>Programs proven successful</li> <li>Affordable</li> <li>More intensive programs</li> </ul>	<ul style="list-style-type: none"> <li>Lack of availability</li> <li>Unrealistic expectations/too pushy/pressure</li> <li>Scheduling problems</li> <li>Costs</li> <li>Difficulty finding someone</li> <li>Inadequate expertise to deal with specific issues</li> <li>Personality problems</li> <li>Not feeling connected to the leader</li> <li>May require travel to a location</li> <li>Inadequate time</li> <li>Commitment</li> <li>Following someone else's rules</li> </ul>
Establishing a plan	<ul style="list-style-type: none"> <li>More productive</li> <li>Easier meal preparation</li> <li>Healthier food choices</li> <li>More satisfied/happier</li> <li>More energy</li> <li>Part of regular routine</li> </ul>	<ul style="list-style-type: none"> <li>Inadequate time</li> <li>Need to be organized</li> <li>Failure to meet own goals</li> </ul>

provide advice, encouragement, support, and motivation), spouses (to provide advice, encouragement, and support; to provide motivation), and children (to provide advice, encouragement, and support). All agreed that most women wanted information on possible choices. Three of the five healthcare professionals indicated that women want support from others and information on how other women reached their decisions. Resources described by healthcare professionals were written information, counseling, and online discussion groups.

#### KT tool alpha testing

Of 53 women sent the KT tool in May 2013, 27 responded to the acceptability survey (response rate, 51%) and 25 completed the usability survey (93%; Fig. 1). Women rated the tool as good or excellent for information on menopause (96%), body weight changes (85%), and ways to manage body weight (85%). Regarding the amount of information, 67% of women indicated that the tool was “just right,” whereas 26% found it “not enough” and 4% found it “too much.” One woman said the tool was “easy to follow, to the point.” Women indicated that all of the information (70%) or most of the information (30%) was clear, 70% anticipated that it would help them take

action, and 81% reported that they would tell other women about it.

Usability findings from 25 women indicated the following: wording made sense (96%), instructions were clear (92%), and format was easy to use across time (88%) and easy to read (80%; Fig. 2). Amount of information was rated as just enough (64%), not enough (24%), or too much (12%). For example, one woman said, “I like it as it made me accountable to something. I will print off several of them to keep me on track.” Most women (72%) indicated there was not enough space to log personal details.

Of 25 women, 14 (56%) provided suggestions to improve the KT tool. Women identified that the importance of sleep should be added and that meals should be broken down to differentiate breakfast, lunch, dinner, and snacks rather than provide one box for all of the day's meals. Another suggestion made by women was for the use of the Internet and other information technologies, including the provision of links to food and exercise logs that are available online and/or recommended places to go for support within the city. Women also made suggestions to improve the KT tool layout: change the structure to allow reporting of daily details, add a journaling format,

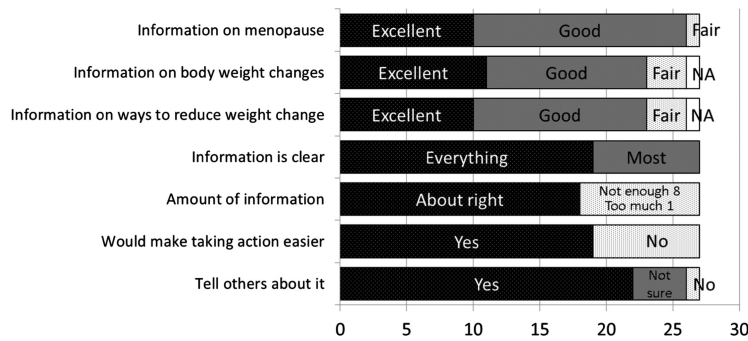


FIG. 1. Acceptability of knowledge translation tool findings. NA, not answered.

create more space for writing down activities, and allow for “always” and “sometimes” when reporting dietary intake. One woman said, “I didn’t find it useful at all. Laying it out in a journal format with more detail[s] would help someone record incremental improvements to achieve long-term goals,” whereas another woman indicated that the current format facilitated a broader overall approach to making decisions, “[the KT tool] makes you think about taking action and making some changes to make the menopausal years easier.”

Findings from the audit of completed KT tools confirmed accurate completion of section 1.0 (“What have you done to manage your body weight?”) and section 3.0 (“What have you been doing to make sure you exercise as planned?”). We received a range of responses to section 2.0, which asks about participant engagement in activities known to be effective for women wanting to maintain or lose weight during the transition to menopause (“How often during the past week?”). Some indicated the number of days in the week as specified in the instructions, whereas others added a check on the line or provided a number greater than 7, suggesting a number of times and not the number of days spent doing the weight loss activity. In section 4.0 (“Do you want to make a change?”), some boxes checked by participants indicated contradictory information. For example, some participants responded to section 4.1 by saying that they wanted to make no changes; however, they answered subsequent questions indicating that they would make changes.

**DISCUSSION**

Of the 60 women who participated in our study, 82% were considering options to lose weight and 18% were considering

options to maintain their weight. The main decision-making needs were inadequate knowledge, lack of support, and feeling unmotivated. To address their needs, all of the women clearly indicated that they wanted information on body weight management options, including research findings; most wanted support from others through counseling and/or face-to-face discussions; and some wanted support through social networking. Healthcare professionals identified the same needs as the women, as well as cost, lack of time, and low priority. Furthermore, they described their role in supporting the decision-making of these women as being focused on more directive interventions, such as providing education and body measurement findings.

**Best practices in weight management**

Although most women wanted information on body weight management options, little information is specific for middle-aged women as it relates to body weight changes during the transition to menopause. An environmental scan revealed one main website that recommends a five-step collaborative approach.<sup>42,43</sup> The five-step approach, designed to be used by healthcare professionals with their patients for obesity counseling, involves the following: (1) ask permission to discuss weight and to explore readiness for change; (2) assess obesity-related health risks and potential “root causes” of weight gain; (3) advise on obesity risks, benefits, and treatment options; (4) agree on realistic weight loss expectations and on a plan to achieve behavioral change goals; and (5) assist in addressing drivers and barriers, offer education and resources, refer to providers, and arrange follow-up.<sup>43</sup> Our KT tool was also designed to provide scientific evidence for weight management

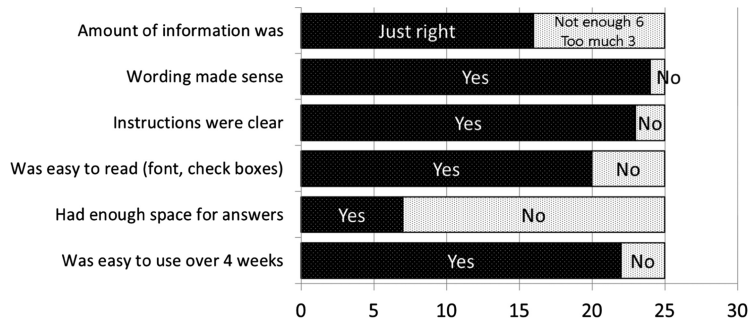


FIG. 2. Usability of knowledge translation tool findings.

based on a systematic review<sup>31</sup> and provided a section for tracking planned activities and accomplishments during a 4-week period. Findings from our study indicated that most women rated the information in the KT tool as good to excellent and easy to use across time. However, further research is required to determine if the KT tool actually facilitates behavioral change to manage body weight.

### Use of the KT tool

Women can use the KT tool independently or it can be used to promote discussion between women and their healthcare professionals. Despite studies indicating that counseling interventions are effective for promoting behavioral change in weight management,<sup>44-46</sup> dialogue about healthy lifestyle choices for exercise and nutrition rarely occurs between healthcare professionals and their patients.<sup>47,48</sup> If the KT tool is used, healthcare professionals may be more sensitive to the needs of women dealing with body weight management issues and may result in more tailored approaches to achieving a body shape that women find “looking good” and “feeling better” and is concomitantly defined by their healthcare professionals as healthy weight.

### A need for user-driven research studies

Few studies have evaluated interventions targeting women during the transition to menopause,<sup>31</sup> and user-driven measures evaluating the effectiveness of interventions are needed.<sup>49</sup> The development, validation, and testing of new measures to evaluate body weight changes based on what women define as being meaningful are required. Current studies rely on measures of central fat mass and body weight.<sup>31</sup> For example, another study demonstrated that most women make decisions to lose weight to be more attractive, to be healthier, and/or to improve their self-esteem, or to improve their social status.<sup>50</sup> Successful weight control was more strongly correlated with motivation to be more attractive or healthy.<sup>44</sup> These findings suggest that measures including women’s unique perceptions of looking and feeling good might provide a positive way to track the progress of women (vs BMI measures alone).

Study participants suggested an online version of the KT tool that could make better use of current information technologies to find more information resources, to monitor measures, to log personal progress, and to obtain support from others through social media. Social media, defined as online applications that allow for creation and sharing of user-generated content, is popular among middle-aged women.<sup>51</sup> Within this population, it is most commonly used for social connections rather than for seeking support to make behavioral changes. Nevertheless, a scoping review of studies evaluating social media found that the use of social media in healthcare settings is popular and growing, with a higher proportion dedicated to weight loss and lifestyle changes.<sup>52</sup> Our KT tool could be adapted for use with online technologies. Participants in our study also indicated wanting more space for tracking progress toward personal goals, which would be more feasible using an online format. However, further evaluation is required to

determine the effectiveness of these types of online interventions, including social media, for weight management.

### Limitations

Four limitations should be considered. First, there is the potential for self-report bias given that we asked women to provide their height and body weight. Previous studies showed that individuals overreport height and underreport weight, thereby underestimating rates of obesity.<sup>53</sup> Second, feedback on the KT tool was self-reported by a smaller proportion of the original participants, and women may have responded with what they thought we were hoping to hear rather than their true experiences using it. To minimize this potential bias, we provided opportunities for women to make open comments and we audited their use of the KT tool. Third, participants in the study were generally educated, physically active, and of middle socioeconomic status, and only women who indicated that they were interested in receiving information related to body weight during menopause were selected to evaluate the KT tool. Finally, there were few healthcare professionals in our study.

### CONCLUSIONS

Middle-aged women facing decisions about body weight management are considering whether to make a change by increasing physical activity, eating more healthy foods, and/or getting support. Their decision-making needs are lack of information on their options, feeling unsupported, and being unmotivated. Women prefer having access to information, counseling, and group discussions to address their needs. A weight management KT tool is developed to provide evidence-based information to support middle-aged women who are making decisions about body weight management during the menopausal transition. Alpha testing of the KT tool indicates that middle-aged women find it acceptable and usable but suggest having more space to capture personal progress. Further studies are needed to evaluate the effectiveness of this tool in supporting middle-aged women to achieve their healthy weight and to evaluate the incorporation of information technologies, such as social media, into an online version of the KT tool.

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### REFERENCES

1. Lovejoy JC. Weight gain in women at midlife: the influence of menopause. *Obes Manage* 2009;52:56.
2. Lovejoy JC, Champagne C, DeJonge L, Xie H, Smith SR. Decreased physical activity and increased visceral fat during the menopausal transition. *Int J Obes* 2008;32:949-958.
3. Abdunour J, Doucet E, Brochu M, et al. The effect of the menopausal transition on body composition and cardiometabolic risk factors: a Montreal-Ottawa New Emerging Team group study. *Menopause* 2012;19:1-8.
4. Dennis KE. Postmenopausal women and the health consequences of obesity. *J Obstet Gynecol Neonatal Nurs* 2007;36:511-517.
5. Esmail N, Basham P. *Obesity in Canada. Overstated Problems, Misguided Policy Solutions*. British Columbia, Canada: Fraser Institute; 2014.
6. Schmitz KH, Hannan PJ, Stovitz SD, Bryan CJ, Warren M, Jensen MD. Strength training and adiposity in premenopausal women: strong, healthy and empowered study. *Am J Clin Nutr* 2007;86:566-572.



7. Sternfeld B, Bhat AK, Wang H, Sharp T, Quesenberry CP. Menopause, physical activity, and body composition/fat distribution in midlife women. *Med Sci Sports Exerc* 2005;37:1195-1202.
8. Simkin-Silverman LR, Wing RR, Boraz MA, Kuller LH. Lifestyle intervention can prevent weight gain during menopause: results from a 5-year randomized clinical trial. *Ann Behav Med* 2003;26:212-220.
9. Fogelholm M, Kukkonen-Harjula K. Does physical activity prevent weight gain—a systematic review. *Obes Rev* 2000;1:95-111.
10. Wu T, Gao X, Chen M, van Dam RM. Long-term effectiveness of diet-plus-exercise interventions vs. diet-only interventions for weight loss: a meta-analysis. *Obes Rev* 2009;10:313-323.
11. Asikainen TM, Kukkonen-Harjula K, Miilunpalo S. Exercise for health for early postmenopausal women: a systematic review of randomised controlled trials. *Sports Med* 2004;34:753-778.
12. Statistics Canada. Physical activity during leisure time, 2012 [updated June 19, 2013]. Available at: <http://www.statcan.gc.ca/pub/82-625-x/2013001/article/11843-eng.htm>. Accessed August 10, 2014.
13. Statistics Canada. *Fruit and Vegetable Consumption, 2012*. Ottawa, Canada: Government of Canada; 2013. Available at: <http://www.statcan.gc.ca/pub/82-625-x/2013001/article/11837-eng.htm>. Accessed August 10, 2014.
14. Kiesler DJ, Auerbach SM. Optimal matches of patient preferences for information, decision-making and interpersonal behaviour: evidence, models and interventions. *Patient Educ Couns* 2006;61:319-341.
15. O'Connor AM, Drake ER, Wells GA, Tugwell P, Laupacis A, Elmslie T. A survey of the decision-making needs of Canadians faced with complex health decisions. *Health Expect* 2003;6:97-109.
16. Legare F, O'Connor AM, Graham ID, Wells GA, Tremblay S. Impact of the Ottawa Decision Support Framework on the agreement and the difference between patients' and physicians' decisional conflict. *Med Decis Making* 2006;26:373-390.
17. Sepucha KR, Fowler FJ, Mulley AG. Policy support for patient-centered care: the need for measurable improvements in decision quality. *Health Aff* 2004;suppl Variation:VAR54-VAR62.
18. O'Connor AM, Jacobsen MJ, Stacey D. An evidence-based approach to managing women's decisional conflict. *J Obstet Gynecol Neonatal Nurs* 2002;31:570-581.
19. Legare F, Stacey D, Dodin S, et al. Women's decision making about the use of natural health products at menopause: a needs assessment and patient decision aid. *J Altern Complement Med* 2007;13:741-749.
20. Suter E, Verhoef MJ, Bockmuehl C, Forest N, Bobey M, Armitage GD. Inquiring minds: women's approaches to evaluating complementary and alternative therapies for menopausal symptoms. *Can Fam Phys* 2007;53:85-90.
21. Brouwers M, Stacey D, O'Connor A. Knowledge creation: synthesis, tools and product. *CMAJ* 2010;182:E68-E72.
22. Stacey D, Bennett CL, Barry MJ, et al. Decision aids for people facing health treatment or screening decisions. *Cochrane Database Syst Rev* 2011;1:208.
23. O'Connor AM, Tugwell P, Wells G, Elmslie T, Jolly E, Hollingworth G. A decision aid for women considering hormone therapy after menopause: decision support framework and evaluation. *Patient Educ Couns* 1998;33:267-279.
24. Jacobsen MJ, O'Connor A. *Population Needs Assessment: A Workbook for Assessing Patients' and Practitioners' Decision Making Needs*. Ottawa, Canada: University of Ottawa; 2006.
25. Johnston JC, Durieux-Smith A, Fitzpatrick E, O'Connor A, Benzies K, Angus D. An assessment of parents' decision-making regarding paediatric cochlear implants. *Can J Speech Lang Pathol Audiol* 2008;32:169-182.
26. Jolicoeur L, O'Connor AM, Hopkins L, Graham ID. Women's decision-making needs related to treatment for recurrent ovarian cancer: a pilot study. *Can Oncol Nurs J* 2009;19:117-121.
27. Doull M, O'Connor A, Jacobsen MJ, et al. Investigating the decision-making needs of HIV-positive women in Africa using the Ottawa Decision-Support Framework: knowledge gaps and opportunities for intervention. *Patient Educ Couns* 2006;63:279-291.
28. Stacey D, Menard P, Gaboury I, et al. Decision making needs of patients with depression: a descriptive study. *J Psychiatr Ment Health Nurs* 2008;15:287-295.
29. Straus SE, Tetroe J, Graham I. Defining knowledge translation. *CMAJ* 2010;181:165-168.
30. Coulter A, Stilwell D, Kryworuchko J, Mullen PD, Ng CJ, Van der Weijden T. A systematic development process for patient decision aids. *BMC Med Inform Decis Mak* 2013;13:1-5.
31. Jull J, Stacey D, Beach S, et al. Lifestyle interventions targeting body weight changes during the menopause transition: a systematic review. *J Obes* 2014;2014:1-16.
32. Shepperd S, Charnock D, Needham G, Gann R. *The DISCERN Handbook: An Instrument for Judging the Quality of Written Consumer Health Information on Treatment Choices*. Oxon, UK: Radcliffe Medical Press; 1998. Available at: <http://www.discern.org.uk/discern.pdf>. Accessed August 10, 2014.
33. Ammerman AS, Samuel-Hodge CD, Sommers JK, Leung MM, Paxton AE, Vu MB. Community-based approaches to obesity prevention: the role of environmental and policy change. In: Kumanyika S, Brownson RC, eds. *Obesity Epidemiology and Prevention: A Handbook*. New York, NY: Springer Publishing; 2007:263-284.
34. Riley BL, Garcia JM, Edwards N. Organizational change for obesity prevention: perspectives, possibilities and potential pitfalls. In: Kumanyika S, Brownson RC, eds. *Obesity Epidemiology and Prevention: A Handbook*. New York, NY: Springer Publishing; 2007:239-262.
35. Bunn H, O'Connor A. Validation of client decision making instruments in the context of psychiatry. *Can J Nurs Res* 1996;28:13-27.
36. Schneider HPG, Heinemann LAJ, Rosemeier HP, Potthoff P, Behre HM. The Menopause Rating Scale (MRS): reliability of scores of menopausal complaints. *Climacteric* 2000;3:59-64.
37. Barry MJ, Fowler FJ, Mulley AG, Henderson JV, Wennberg JE. Patient reactions to a program designed to facilitate patient participation in treatment decisions for benign prostatic hyperplasia. *Med Care* 1995;33:771-782.
38. Stacey D, DeGrasse C, Johnston L. Addressing the support needs of women at high-risk of breast cancer: evidence-based care by advanced practice nurses. *Oncol Nurs Forum* 2002;29:E77-E84.
39. Cranney A, O'Connor AM, Jacobsen MJ, Tugwell P, Adachi JD, Ooi DS. Development and pilot testing of a decision aid for postmenopausal women with osteoporosis. *Patient Educ Couns* 2002;47:245-255.
40. Kushniruk A, Patel V. Cognitive and usability engineering methods for the evaluation of clinical information systems. *J Biomed Inform* 2004;37:56-76.
41. Miles MB, Huberman AM. *Qualitative Data Analysis: An Expanded Source Book*. 2nd ed. Thousand Oaks, CA: Sage Publications; 1994.
42. McArthur D, Beach S, Stacey D. Evidence on body weight changes for perimenopausal women: an environmental scan of publically accessible resources. *Can J Nurs Inform* 2013;8:1-9.
43. Canadian Obesity Network. 5 As of obesity management; 2012. Available at: <http://www.obesitynetwork.ca/register4/CON-5As-PPT.pdf>. Accessed August 10, 2014.
44. Rodondi N, Humair JP, Ghali A, et al. Counselling overweight and obese patients in primary care: a prospective cohort study. *Eur J Cardiovasc Prev Rehabil* 2006;13:222-228.
45. Sacerdote C, Fiorini L, Rosato R, Audenino M, Valpreda M, Vineis P. Randomized controlled trial: effect of nutritional counselling in general practice. *Int J Epidemiol* 2006;35:409-415.
46. Pool AC, Kraschnewski JL, Cover LA, et al. The impact of physician weight discussion on weight loss in US adults. *Obes Res Clin Pract* 2014;8:e131-e139.
47. Bardach SH. *The Nature and Perceived Influence of Lifestyle Discussions With Older Adults in Primary Care*. Lexington, KY: University of Kentucky; 2013.
48. Kraschnewski JL, Sciamanna CN, Pollak KI, Stuckey HL, Sherwood NE. The epidemiology of weight counseling for adults in the United States: a case of positive deviance. *Int J Obes* 2013;37:751-753.
49. Fan L, Sidani S. Effectiveness of diabetes self-management education intervention elements: a meta-analysis. *Can J Diabetes* 2009;33:18-26.
50. Brink PJ, Ferguson K. The decision to lose weight. *West J Nurs Res* 2010;20:84-102.
51. Kaplan AM, Haenlein M. Users of the world, unite! The challenges and opportunities of social media. *Bus Horizon* 2010;53:59-68.
52. Hamm MP, Chisholm A, Schulhan J, et al. Social media use among patients and caregivers: a scooping review. *Br Med J Open* 2013;3:1-9.
53. Shields M, Connor-Gorber S, Janssen I, Tremblay MS. Bias in self-reported estimates of obesity in Canadian health surveys: an update on correction equations for adults. *Stat Can Health Rep* 2011;22:1-12.