Obesity is a public health issue that has been termed the “most prevalent nutritional problem in the world”. Currently, 23% of Canadian adults are classified as obese, which is concerning as extreme levels of excess weight have been linked with various mental and physical health problems.

To understand, prevent, and manage weight-related health issues, researchers and clinicians rely on the ability to identify those at risk. Prevention and management strategies may also rely on accurate self-perception of weight and body composition in the general population.

Methods: We analyzed data from The Tomorrow Project® (n=7,436), a prospective cohort study enrolling adults aged 35-69 years, in Alberta, Canada. Weight perception accuracy was defined based on body mass index (BMI), waist circumference (WC), and a combined (BMI and WC) risk profile.

Results: The majority of participants correctly perceived themselves as overweight. Women were more accurate than men in identifying themselves as overweight. In terms of inaccuracy, more normal-weight women than men perceived themselves to be overweight, while more overweight men than women perceived themselves as about the right weight. When using the combined risk profile, all men with normal weight (BMI) but higher risk WC perceived their weight as about right whereas just under half of men who were overweight (BMI) but lower risk WC perceived their weight as about right. For women, a much higher proportion recognized their weight status as overweight when only BMI was elevated compared to when only WC indicated higher risk.

Discussion: Adults in our sample showed reasonable accuracy in weight perception. Gender differences reveal that women were more accurate than men in identifying themselves as overweight. Incongruence between weight status indicators was noted, indicating the importance of using both BMI and waist circumference as health status measures.

Key words: Weight perception; body mass index; waist circumference; obesity

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The Epidemiology of Weight Perception: Perceived Versus Self-reported Actual Weight Status among Albertan Adults

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ABSTRACT

Background: To understand, prevent, and manage weight-related health issues, researchers and clinicians rely on the ability to identify those at risk. Prevention and management strategies may also rely on accurate self-perception of weight and body composition in the general population.

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La traduction du résumé se trouve à la fin de l’article.


METHODOLOGY

Design and study population
The Tomorrow Project (http://www.thetomorrowproject.org) is a prospective cohort study that consists of a sample of Albertans who, at the time of enrollment, were 35-69 years of age, had never been diagnosed with cancer (other than non-melanoma skin cancer), were able to complete written questionnaires in English, and indicated that they were likely to remain in Alberta for a year following recruitment. Participants were recruited using a two-stage random sampling design, where the first stage identified households using telephone random digit dialing, while the second stage identified an eligible individual from each household. In households with more than one eligible participant, the person with the most recent birthday was selected. Eligible adults who expressed interest in taking part received a consent form and a Health and Lifestyle Questionnaire (HLQ) by mail. Those who returned com-
Participants were classified as underweight (BMI < 18.5 kg/m²), nor-

mally, participants were asked to weigh themselves using a bath-

room scale, without shoes and wearing light indoor clothing.

Instructions for measuring and recording height and weight. Specif-

ically, participants were told to measure their height using a 72 inch (183 cm) tape measure and detailed

diagrams illustrating the correct methods for measurement. To maximize accuracy, the self-administered survey was

accompanied by a 72 inch (183 cm) tape measure and detailed

instructions when the confidence intervals overlapped. All analyses were


RESULTS

Of those who had returned at least the Health and Lifestyle ques-

tionnaire at baseline, 9,229 participants (79%) returned Survey 2004. For the purposes of this study, participants were excluded in the following circumstances: history of cancer prior to enrollment (n=142), recruited as “second in household” (to avoid within-

household clustering) (n=276), aged 65 years or older in 2004 (n=1138), more than 12 weeks pregnant or less than 6 months

completed consent forms and the HLQ were enrolled in the study.18,19

A follow-up survey (Survey 2004) was mailed to all participants who

were enrolled between 2000 and 2003 (n=11,671, 41% male, 59% female).

Perceived weight status was assessed in Survey 2004 using the single item, “How would you describe yourself now?” Response options were: “underweight”, “about the right weight”, “over-

weight”, and “don’t know”. We defined actual weight status in

gender-specific categories using BMI (kg/m²) as per Canadian guidelines for body weight classification in adults which state that “the WC measurement should be used among those with BMIs between 18.5 and 34.9 to identify additional risk”.

Third, a combined risk profile was assigned to each participant, based on BMI and WC. Participants were categorized into one of four categories: overweight/obese BMI and higher risk WC; over-

weight/obese BMI and lower risk WC; normal BMI and higher risk WC; and normal BMI and lower risk WC.

Outcome measures

Perceived weight status in Survey 2004 using the single item, “How would you describe yourself now?” Response options were: “underweight”, “about the right weight”, “over-

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weight/obese BMI and lower risk WC; normal BMI and higher risk WC; and normal BMI and lower risk WC.

Statistical analysis

Descriptive statistics for all variables were examined for the full sample and for women and men separately. We estimated proportions and 95% confidence intervals (95% CI) of participants with correct and incorrect perceptions, based on perceived weight status compared with BMI, WC, and combined BMI and WC profile. Statistical significance of reporting accuracy by men and women was determined using a 5% significance level based on non-overlapping confidence intervals, and with two-sided Z-tests for two proportions when the confidence intervals overlapped. All analyses were performed using SAS/STAT version 9.1.3 (SAS Institute Inc., Cary, NC).

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tionnaire at baseline, 9,229 participants (79%) returned Survey 2004. For the purposes of this study, participants were excluded in the following circumstances: history of cancer prior to enrollment (n=142), recruited as “second in household” (to avoid within-

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postpartum in 2004 (n=14), missing values on BMI or WC (n=118), and did not answer or answered “don’t know” to the question about perceived weight status (n=103), or who otherwise had incomplete data (n=268). Analyses are based on the remaining sample of 7,436 with complete data on all study variables (n=4,456 women, mean age=50.4 (SD=7.4); n=2,980 men, mean age=50.4 (SD=7.4)), unless stated otherwise below. The majority of participants were employed full time (63%), married/living with someone (80%), and had attained at least some post-secondary education (71%).

Descriptive statistics for BMI, WC, and the combined risk profile are presented in Table 1. Less than 1% of participants were classified as underweight according to BMI (<18.5 kg/m²). Approximately two thirds of participants were overweight or obese, while just over one third of participants were classified as being at higher health risk based on WC. Similarly, approximately one third were at higher health risk based on the combined BMI/WC profile.

Table 2 presents actual versus perceived weight status according to BMI categories. For men and women combined, most who were classified as overweight or obese based on BMI, approximately 83% demonstrated accurate weight status perception. However, just over one quarter of overweight/obese men regarded themselves to be ‘about the right weight’, whereas only 7% of overweight/obese women perceived themselves to be ‘about the right weight’. In contrast, almost one quarter of normal-weight women perceived themselves to be overweight, whereas only 9% of normal-weight men classified themselves in the overweight category.

Table 3 presents actual versus perceived weight status according to WC categories. Among those who were classified as at higher risk based on WC, for men and women combined, approximately 90% demonstrated accurate weight status perception. Similar to our findings with BMI, we observed significant gender differences. For example, more men (13.3%) than women (6.9%) at higher risk for health problems regarded themselves to be at about the right weight, whereas more women (41.8%) than men (37.5%) at lower risk regarded themselves to be overweight.

Table 4 presents actual versus perceived weight status according to BMI/WC categories. Participants who were classified as both at higher risk according to WC and overweight/obese according to BMI had the highest proportion of weight perception accuracy (approximately 92% for men and women combined). However, more men (12.6%) than women (4.3%) in the higher risk WC and overweight BMI category classified themselves as about the right weight and more women (23.9%) than men (9.9%) of normal-weight BMI/lower risk WC perceived themselves to be overweight.

In those categorized as overweight/obese according to BMI, but at lower risk according to WC, approximately half of the men perceived themselves as about the right weight (47.8%), while women in this group were more likely to perceive themselves as overweight (83.5%).

**DISCUSSION**

Adults in our sample showed reasonable accuracy in weight perception. Most participants perceived themselves to be overweight and were also categorized as such by BMI. The combined percentage of overweight and obesity in our sample (65.9%) is very similar to national estimates of overweight/obesity prevalence (66.5%) based on measured height and weight for those aged 35-64 years in the Canadian Community Health Survey (Cycle 3.1, sub-sample 2, public use version). This similarity is notable, considering our use of self-report survey methods. Our strategy of including measuring aids and detailed instructions appears to have merit.

Regardless of whether BMI or WC was used, women were more accurate than men in correctly identifying their weight status.
Based on Tables 2 and 3, men appeared to be more accurate in perceiving themselves as overweight/obese when their WC was elevated, compared to when their BMI was elevated. Since men tend to gain weight around the midsection, they may be more focused on this area, whereas women may have more general body weight awareness.

We observed that women in all categories of BMI were more likely than men to perceive themselves as overweight. For men, even when they were classified as overweight/obese based on BMI, almost one third still perceived themselves as about the right weight. This is consistent with other studies and the view that perceived weight status reflects the culturally desired body size in Western society: slender for women, larger/muscular for men.

The combined risk profile data provided insight into the issue of incongruence between weight status indicators (e.g., elevated risk based on WC but normal BMI). This issue has been noted in other studies that observed strong positive correlations between BMI and WC but differing risk classification (e.g., refs. 25, 26). Data are emerging to suggest that WC is a stronger prognostic indicator for health outcomes than BMI.

Among those who were of normal weight status based on BMI but higher risk based on WC, all men and nearly half of women perceived themselves as about the right weight. This is troubling because these individuals may have health risks due to their waist size but have failed to recognize it, and therefore may not be engaging in behaviors to decrease their WC. Conversely, among those who were overweight/obese based on BMI but at lower risk based on WC, approximately half of men and most women (>80%) perceived themselves as overweight. The Canadian Guidelines on Body Weight Classification in Adults classifies such individuals as at “increased risk” and from this point of view, the high proportion of perceived overweight may be beneficial (trying to lose weight). On the other hand, several studies have questioned the risk associated with overweight, suggesting that those who have some excess weight but a low-risk WC may not need to engage in behaviour change. Experts in obesity are investigating alternate classification systems that may be more sensitive to identifying those at increased risk of obesity-related disorders.

While we are cautious not to generalize our findings beyond our study, there is no reason to suspect that within a stratum of actual weight status, weight status perception would be much different among participants in this study compared with those in the general population. Furthermore, since we had asked participants to measure their weight and waist circumference, their awareness of the weight category may have been heightened. We also acknowledge that participants indicated perceived weight status and not perceived health status; future studies may wish to ask about perceived health or risk status.

Overall, our use of WC, which has not previously been examined in relation to weight status perception, adds to our understanding of the public awareness of this indicator of excess weight. Furthermore, we have described a variety of patterns pertaining to weight perception in this population, and thereby have considered issues of concern to researchers interested in a spectrum of weight-related issues.

REFERENCES

3. McLaren L, Adair CE. The relationship between weight status and perceived risk associated with overweight, suggesting that those who were overweight/obese based on BMI but at lower risk based on WC, all men and nearly half of women perceived themselves as about the right weight. This is consistent with other studies and the view that perceived weight status reflects the culturally desired body size in Western society: slender for women, larger/muscular for men.

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The Epidemiology of Weight Perception


Received: May 12, 2009
Accepted: October 8, 2009

Résumé

Contexte : Pour comprendre, prévenir et gérer les problèmes de santé liés au poids, les chercheurs et les cliniciens doivent pouvoir identifier les personnes à risque. Les stratégies de prévention et de gestion peuvent aussi faire appel à l’autoperception correcte du poids et de la composition corporelle dans la population générale.

Méthode : Nous avons analysé les données du projet The Tomorrow Project® (n=7 436), une étude prospective de cohortes d’adultes de 35 à 69 ans menée en Alberta, au Canada. Nous avons défini l’exactitude de la perception du poids d’après l’indice de masse corporelle (IMC), le périmètre ombilical (PO) et le profil de risque combiné (IMC et PO).

Résultats : La majorité des participants se perçoivent correctement comme ayant une surcharge pondérale. Les femmes étaient plus précises à cet égard. Pour ce qui est de l’imprécision, davantage de femmes que d’hommes de poids normal se perçoivent comme faisant de l’embonpoint, et davantage d’hommes que de femmes ayant un excès de poids se perçoivent comme ayant un poids normal. Avec l’utilisation du profil de risque combiné, tous les hommes de poids normal (IMC) mais dont le PO constituait un risque plus élevé se perçoivent comme ayant un poids normal, tandis qu’un peu moins de la moitié des hommes ayant une surcharge pondérale (IMC) mais dont le PO constituait un moindre risque considéraient avoir un poids normal. Chez les femmes, une proportion beaucoup plus grande reconnaissait faire de l’embonpoint lorsque seul l’IMC était élevé, comparativement aux femmes dont seul le PO constituait un risque plus élevé.

Discussion : Les adultes de notre échantillon avaient une perception raisonnablement exacte de leur poids. Les différences entre les sexes montrent que les femmes s’identifiaient plus correctement que les hommes comme ayant une surcharge pondérale. Nous avons constaté une incompatibilité entre les indicateurs de statut pondéral, ce qui dénote l’importance d’utiliser à la fois l’IMC et le périmètre ombilical comme mesures de l’état de santé.

Mots clés : perception du poids; indice de masse corporelle; périmètre ombilical; obésité

Notice to Nurses working in Public Health and Home Health Care

The Community Health Nurses of Canada wants your feedback to help assess the influence of Community Health Nursing Certification (CHNC) on nursing practice and on employing organizations. CHNC has hired Drs. Ardene Robinson Vollman (Calgary) and Ruth Martin-Misener (Dalhousie) to survey members, certified nurses and employers to gather their perspectives via Survey Monkey. This survey should take only 15 minutes to complete.

After the survey is completed, there is an opportunity to volunteer for either a teleconferenced focus group or an individual interview to provide more in-depth examples and stories about certification.

Those RNs with CHNC certificates who are renewing this year will receive a separate survey asking for information on intent to recertify as well as to offer perspectives on if and how the certificate influences their practice and/or their employing organizations.

There is a short time in which we can do this; surveys began going out February 15; the opportunity to contribute by completing the survey will close March 15. The more participants the more successful the end product will be. Please complete the survey when you receive it; if you do not receive a survey and would like to take part, please click on the link below. If your employer is not a member of CHNC, please forward the employers link below to them so we can gather their input.

For more background information about the project, please click on the following link: https://people.ucalgary.ca/~arvollma/Info_sheet.pdf

To access the survey directly:
• CHNC members and CHNC-certified RNs (not due for renewal this year):
  https://www.surveymonkey.com/s.aspx?sm=RrDz6MDzh_2bbBuRoUVV_2fIxZyTERs5_2fDPs4TUAcbs2bckPw_3d
• Employers:
  https://www.surveymonkey.com/s.aspx?sm=bm2MOWbCrLM_2b2FrIQGxyIPD_2b9F0rDsSr2ieTF1Nk93Y_3d
• CCHNC Certificate-holders who are up for renewal this year:
  https://www.surveymonkey.com/s.aspx?sm=yDkoY4KhKYcxvUMy8yPV_2byLqRzQ6UMWpIBkE2lHM6jY_3d

For questions or comments: avollman@shaw.ca (403) 239-3180 or ruth.martin-misener@dal.ca (902-494-2250).