

Co-active coaching as an intervention for obesity among female university students

Melissa van Zandvoort, Jennifer D. Irwin & Don Morrow

Purpose: *The purpose of this study was to assess the impact of Co-active coaching on obese female university students' body mass index (BMI), waist circumference (WC), functional health status and self-esteem, and conjointly to identify the coaching skills and primary agenda topics that facilitate coaching's efficacy as an intervention for obesity.*

Design: *A multiple-baseline, single-subject research design was utilized.*

Methods: *Two certified coaches provided an average of nine, 35-minute, one-on-one sessions with five students whose BMI $\geq 30\text{kg/m}^2$ (obesity threshold). Measures included BMI, WC, the Short-Form 36 (SF-36) Health Survey, and the Rosenberg Self-Esteem Scale. Visual inspection was used to analyze changes in BMI and WC. Statistical interpretations, supplemented with qualitative information from post-intervention interviews, were used to determine whether a clinically significant difference in health status and/or self-esteem was achieved. Inductive content analysis was conducted on the interview transcripts and on 50 per cent of each participant's coaching session transcripts.*

Results: *Visual inspection revealed no change in BMI for three, a decrease for one, and a slight increase for one participant. WC decreased for three participants and remained stable for two. Collectively, the effect sizes and qualitative statements indicated clinically significant improvements in participants' self-esteem and physical, mental, and overall health statuses upon completion of the intervention. Powerful questions and acknowledgements were the most frequently used coaching skills.*

Conclusions: *Coaching and particular coaching skills were associated with a trend towards a decrease in WC and clinically significant increases in participants' self-esteem and their mental, physical, and overall health statuses.*

Keywords: Co-active life coaching, obesity, body mass index, waist circumference, self-esteem, functional health status.

Overview

THE NUMBER OF obese people worldwide has reached 400 million, a statistic that prompted the World Health Organization to declare obesity a *global epidemic* (World Health Organization, 1997, 2006). The prevalence of obesity in Canada is reflective of this staggering international trend; in recent decades the number of obese Canadians has nearly tripled (Statistics Canada, 2002; Strychar, 2004). Between 1991 and 1997, the prevalence of obesity increased most among individuals aged 18 to 29 years and those with some university education (Mokdad et al., 1999). Twenty-nine per cent of Canadians aged 18 to 24 currently attend university, and alarmingly, nearly one-quarter of Canadians with some

post-secondary education are obese (Statistics Canada, 2001, 2003, 2006).

In a study of university students conducted by Racette et al. (2005), 69 per cent of students experienced an increase in BMI between the beginning of their first year at university and the conclusion of their second year. The age at which obesity develops is influential in determining an individual's risk of remaining obese (Shaw et al., 2007). Compared with being obese as a child, the development of obesity in late adolescence is more strongly related to remaining obese through adulthood (Guo et al., 1994). Given that the years spent attending university are associated with the development of patterns of physical

activity, nutrition, and other health-related behaviours that will affect young adults' health later in life, it is important to focus on the health of this subpopulation (Clement et al., 2004).

Considerable documentation exists about the Canadian obesity epidemic and the associated health and economic consequences; however, research aimed at critically evaluating obesity interventions targeting university students is lacking. The majority of the literature documenting health-related interventions tailored to university students appears to be focused on improving students' physical activity and/or nutritional behaviours, as opposed to specifically treating obesity. The drastic rise in the prevalence of obesity in recent decades suggests that psychological and behavioural factors may play a more primary role than biological factors in influencing the development and maintenance of obesity (Wadden et al., 2002). Accordingly, in the recently released Canadian obesity guidelines, cognitive-behaviour approaches were strongly recommended as part of effective obesity management (Lau et al., 2007). Coaching is a behavioural approach that is aimed at achieving '...sustained cognitive, emotional and behavioral changes...' in service of accomplishing the client's goals, and health-related coaching is the profession's fastest growing sector (Douglas & McCauley, as cited in Grant, 2001, p.2; Grant, 2006). As outlined by Newnham-Kanas et al (2008, p.2), 'life coaching has been utilized within the health field in areas such as mental health (Grant, 2003), fitness (Tidwell et al., 2004), diabetes (Joseph et al., 2001), attention deficit disorder (ADD) and attention deficit hyperactivity disorder (ADHD) (Ratey, 2002; Ratey & Jaska, 2002), and cancer (Brown et al., 1999).' A variety of schools and styles of life coaching exist, and for the purpose of this study, Co-active Coaching was chosen because of its strong complement of behaviour-change theoretical constructs including elements from Social Cognitive Theory (Bandura, 1986), the Theory of Reasoned Action (Fishbein & Ajzen, 1975), and the Theory of

Planned Behaviour (Ajzen, 1988) (see Irwin & Morrow, 2005). Within Co-active Coaching 'the coach's role [is] to help clients access their own answers using a variety of techniques. Some of those techniques include: designing a supportive alliance with the client; asking powerful questions that require the client to think deeply; championing the client's efforts; re-framing and reflecting back sentiments shared by the client; acknowledging who the client is being throughout their process; challenging the client to reach for his/her goals and holding accountabilities for the client (for full details of the breadth of the Co-Active coaching techniques, please refer to Whitworth et al., 1998, 2007)' (Newnham-Kanas et al., 2008, p.4).

Previous research suggests that Co-active coaching, which will hereafter be referred to as *coaching*, has potential as an efficacious intervention for obesity among adults, however, to date, no studies have identified the coaching skills and coaching-agenda topics that are most pertinent to the method's effectiveness as an intervention for obesity among female university students (Newnham-Kanas et al., 2008). Accordingly, the objective of the current study was to assess the impact of Co-active coaching on obese female university students' body mass index (BMI), waist circumference (WC), functional health status, and self-esteem, and conjointly to identify the coaching skills and primary agenda topics that facilitate coaching's efficacy as an intervention for obesity.

Study design and methods

This study utilized a multiple-baseline single-subject research design (as described by Kazdin, 1982). This methodology is an experimentally effective and reliable method for assessing behaviour change, and yet underutilized in behaviour change studies (Hayes, 1981; Kazdin, 1982). In the application of this quasi-experimental design, researchers and clinicians are able to examine experimentally the consistency, frequency, and trend of two or more behaviours in one client, or of a similar behaviour across two or

more clients (Backman & Harris, 1999; Hayes) while allowing for an evaluation of the intervention's effectiveness with a small number of subjects serving as their own controls (Backman & Harris).

Recruitment

A sample of five full-time female undergraduate students at the Canadian host University was recruited via the student newspaper and postings around campus. Participant eligibility included: being an English-speaking female; aged 17 to 24; enrolled in full-time undergraduate studies; having a BMI of 30 or greater over the last six months; and not under a physician's care for any comorbidities (e.g. diabetes). Twenty individuals contacted the researcher to participate in this study. Of these, 11 individuals met the study's eligibility requirements; the first five of those who confirmed their interest in participating became the study participants. Due to the quantity of transcription and qualitative analysis required to examine coaching's impact on functional health status, and self-esteem, and to identify the skills and agenda topics that facilitate coaching's efficacy as an intervention for obesity, it was not feasible to include all 11 eligible individuals in the current study. The chosen methodology further accounted for the appropriateness of this decision; multiple-baseline single-subject methodology allows for the efficacy of innovative interventions to be examined based on a small sample of individuals prior to the intervention's application to a larger population (Hayes, 1981). The participants were assigned randomly to one of two coaches. Ethical approval was received from the host University's Office of Research Ethics.

Participants

Participant 1. Participant 1 was a 20-year-old, white female who lived off-campus with one housemate, and held a part-time job while attending university.

Participant 2. Participant 2 was a 22-year-old, white female who lived off-campus with three housemates, and held a part-time job while attending university.

Participant 3. Participant 3 was a 21-year old, white female who lived off-campus with one housemate, and held a part-time job while attending university.

Participant 4. Participant 4 was a 22-year-old, white female who lived off-campus with one housemate, and held a part-time job while attending university.

Participant 5. Participant 5 was a 19-year-old, white female who lived off-campus with three housemates, and held a part-time job while attending university.

Procedure

Once participant eligibility was confirmed, individual introductory meetings were scheduled with the lead researcher. During this baseline meeting participants' obesity statuses (via BMI) were verified and they completed the previously validated 36-item Short-Form (SF-36) Health Survey (Ware, 1997) and the Rosenberg Self-Esteem Scale (Rosenberg, 1989). To limit social desirability (Zerbe & Paulhas, 1987), the lead researcher—who did not reveal the assessment information to the coaches during the study—administered all of the assessments. Honesty demands were also used to encourage accurate reporting (as described by Bates, 1992).

Participant 1 had her initial coaching session after four baseline assessments, while participants 2 and 3 completed three baseline assessments, and participants 4 and 5 underwent two baseline assessments, with baseline measurements spaced one week apart. Weigh-ins during the intervention were also conducted at one-week intervals with the final assessment administered one week after participants' coaching sessions ended. The researcher asked the participants not to alter their behaviour during the pre-intervention period so that an accurate

portrayal of the stability, trend, and level of each participant's height, weight, and WC could be documented prior to receiving coaching. At each assessment, participants had their height, weight, and WC measured.

Two Certified Professional Co-active Coaches (CPCCs) were the study coaches. Both CPCCs were university professors with PhDs in the health sciences with a research focus on obesity and physical activity. The CPCCs were not involved in the introductory meeting, or in the data collection or analysis phases of this study. The participants' first (intake) session with their coach was the only in-person meeting. For each remaining coaching session ($N=5$ to 10), the participant called the coach and identified her focus for that session. All coaching sessions were audio-recorded to allow for inductive content analysis to be performed on the data in order to identify the prominent coaching skills and primary agenda topics in each participant's sessions. Participants' height, weight, and WC were measured weekly.

At the conclusion of the study, the body composition, functional health status, and self-esteem assessments were conducted to identify any changes that occurred by the end of the coaching intervention. Participants also had a second in-person, 20-minute semi-structured interview with the researcher to discuss subjects' experiences of the intervention. Strategies were used to enhance data trustworthiness, as recommended by Guba and Lincoln (1989).

Data analysis and interpretation

Quantitative measures. BMI and WC values for each participant's baseline and intervention assessments were graphed and analyzed using *visual inspection* to assess changes in mean, level, and trend (Kazdin, 1982). Results of the pre- and post-SF-36 Health Survey and the Rosenberg Self-Esteem Scale were assessed for evidence as to whether a *clinically significant difference* was achieved. Cohen's (1988) rule for interpreting effect size was used to evaluate objectively participants' pre-post health status and self-esteem

scores for evidence of actual change. In the current study, it was determined that evidence of a *large* effect on participants' health status and/or self-esteem would best support the conclusion that a clinically significant change had occurred, as this would represent a change that was noticeable to the study participants. The results of this statistical interpretation were supplemented with qualitative information obtained through the participants' post-intervention interviews with the lead researcher. Accordingly, statistical evidence of a medium effect on participants' health status and/or self-esteem, when coupled with strong qualitative statements as to the importance of the change, was also deemed sufficient to support the conclusion that a clinically significant change had occurred.

Individual interviews. Each interview was recorded and transcribed. Inductive content analysis (Patton, 1987) was used to analyze the post-intervention interviews. The researcher and a second research assistant, who was not involved in the study, independently analyzed the transcripts and then met to compare the identified themes and determine which most accurately represented the participants' experiences of being obese and their experiences in being coached. Nvivo software was used. Confirmability of the identified themes (as described by Guba & Lincoln, 1989) was achieved through this triangulated review.

Coaching transcripts. Each coaching session was recorded and 50 per cent of each participant's sessions were chosen randomly for analysis, and transcribed verbatim. Data saturation was reached during the analysis of these transcripts, and, therefore, the remaining transcripts were not transcribed. The lead researcher and a trained Co-active coach, who was not involved in the study, independently analyzed the coaching transcripts to gain a comprehensive understanding of the comments made and to identify the pertinent themes (i.e. agenda

topics) in each participant's sessions. The specific skills used in the coaching sessions were also identified for the purpose of naming the three to four skills that were used with the greatest frequency in coaching each participant. Triangulation was conducted as described above. Each participant's transcripts were analyzed independently. This allowed for the coaching skills and primary agenda topics of participants whose anthropometrics decreased to be compared with those identified among participants whose measurements did not show desirable changes.

Results

Visual Inspection

Body Mass Index

Participant 1's mean BMI decreased from a baseline mean of 30.5kg/m² to 29.65kg/m² during the intervention phase. The level decreased 0.2kg/m², from a baseline level of 30.4kg/m² to 30.2kg/m² in the intervention phase. The baseline slope of -0.02 increased to -0.13 in the intervention phase. BMI decreased consistently throughout the study period. After using visual inspection, there appeared to be a decrease in participant one's BMI across the baseline and intervention phases. BMI data for participants 1, 2, 3, 4 and 5 are presented in Figure 1.

Participant 2's mean BMI increased from a baseline measure of 32.07kg/m² to 32.44kg/m² during the intervention phase. The level was 0kg/m², the baseline level of 32.4kg/m² remained at 32.4kg/m² in the intervention phase. The baseline slope of +0.02 decreased to +0.007 in the intervention phase. BMI fluctuated throughout the study period. The use of visual inspection did not indicate that there was a change in participant 2's BMI across the study periods.

Participant 3's mean BMI increased from a baseline measure of 35.83kg/m² to 36.82kg/m² during the intervention phase. The level increased 0.8kg/m², from a baseline level of 35.7kg/m² to 36.5kg/m² in the intervention phase. The baseline slope of -0.1 increased to +0.19 in the intervention

phase. BMI increased relatively consistently throughout the intervention phase. After using visual inspection, there appeared to be an increase in participant 3's BMI across the baseline and intervention phases.

Participant 4's mean BMI increased from a baseline measure of 34.75kg/m² to 34.80kg/m² during the intervention phase. The level decreased 0.2kg/m², from a baseline level of 35.0kg/m² to 34.8kg/m² in the intervention phase. The baseline slope of +0.5 decreased to +0.02 in the intervention phase. BMI fluctuated considerably throughout the intervention phase. It must be acknowledged that participant 4's baseline mean and/or slope may have been skewed as a result of including only two data points (Kazdin, 1982). The use of visual inspection did not indicate that there was a change in participant 4's BMI across the study periods.

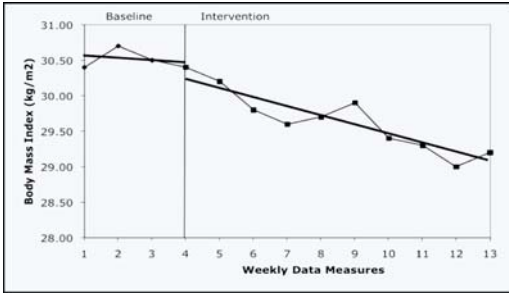
Participant 5's mean BMI increased from a baseline measure of 39.6kg/m² to 39.73kg/m² during the intervention phase. The level increased 0.3kg/m², from a baseline level of 39.4kg/m² to 39.7kg/m² in the intervention phase. The baseline slope of -0.4 decreased to +0.01 in the intervention phase. BMI fluctuated throughout the intervention phase. The small number of baseline data points may have skewed the baseline mean and/or slope (Kazdin, 1982). After using visual inspection, there did not appear to be a change in participant 5's BMI across the baseline and intervention phases.

To summarize, BMI decreased for participant 1, increased for participant 3, and remained stable for participants 2, 4, and 5. Therefore, a consistent intervention effect was not detected.

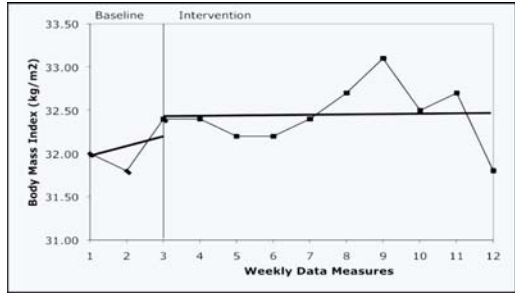
Waist circumference (WC)

Participant 1's mean WC decreased from a baseline measure of 101.12cm to 95.06cm during the intervention phase. The level decreased 3.17cm, from a baseline level of 100.33cm to 97.16cm in the intervention phase. The baseline slope of +0.57 increased to -0.97 in the intervention phase. WC decreased consistently throughout the inter-

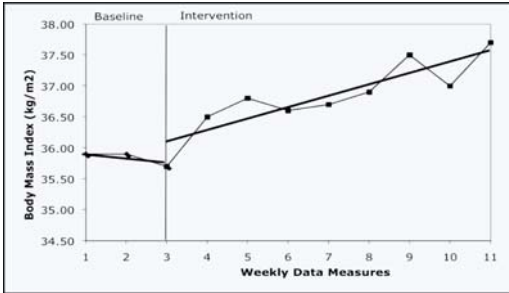
Figure 1: Graphed data of Body Mass Index for participants 1, 2, 3, 4, and 5. The vertical lines indicate the period prior to the intervention's implementation (baseline phase) and when it was implemented (intervention phase).



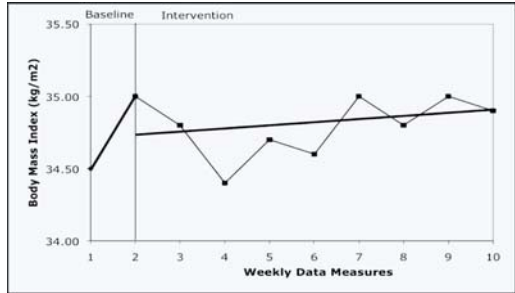
Participant One



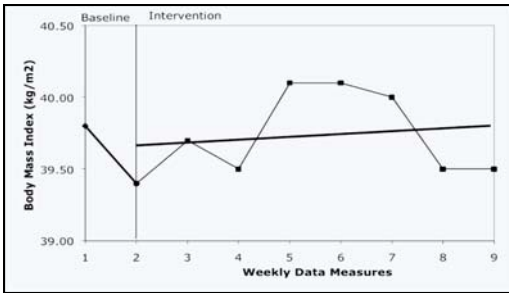
Participant Two



Participant Three

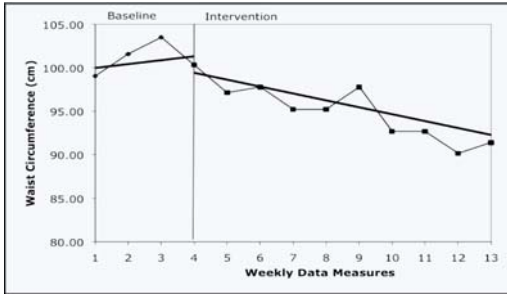


Participant Four

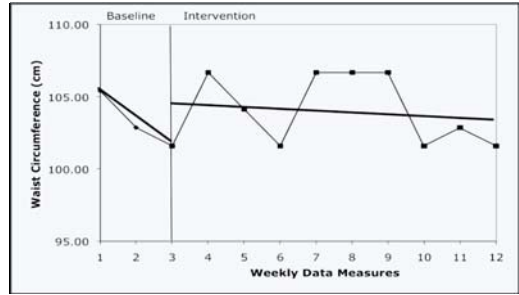


Participant Five

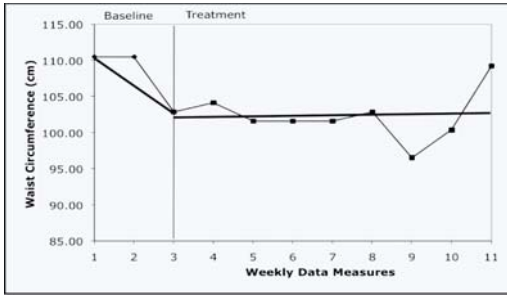
Figure 2. Graphed data of Waist Circumference for participants 1, 2, 3, 4, and 5. The vertical lines indicate the period prior to the intervention's implementation (baseline phase) and when it was implemented (intervention phase).



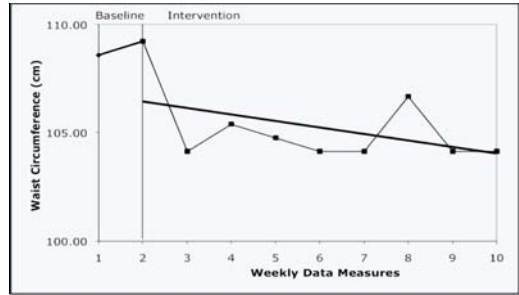
Participant One



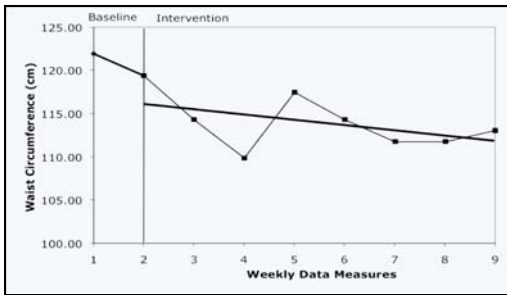
Participant Two



Participant Three



Participant Four



Participant Five

vention phase. After applying visual inspection, there appeared to be a decrease in participant 1's WC across the baseline and intervention phases. WC data for participants 1, 2, 3, 4 and 5 are presented in Figure 2.

Participant 2's mean WC increased from a baseline measure of 103.29cm to 104.01cm during the intervention phase. The level increased 5.08 cm, from a baseline level of 101.6cm to 106.68cm in the intervention phase. The baseline slope of -1.91 decreased to -0.15 in the intervention phase. WC fluctuated throughout the intervention phase. After applying visual inspection, there did not appear to be a change in participant two's WC across the baseline and intervention phases.

Participant 3's mean WC decreased from a baseline measure of 107.95cm to 102.31cm during the intervention phase. The level increased 1.27cm, from a baseline level of 102.87cm to 104.14cm in the intervention phase. The baseline slope of -3.81 decreased to $+0.08$ in the intervention phase. After applying visual inspection, there did not appear to be a change in participant 3's WC across the baseline and intervention phases.

Participant 4's mean WC decreased from a baseline measure of 108.90cm to 105.20cm during the intervention phase. The level decreased 5.08cm, from a baseline level of 109.22cm to 104.14cm in the intervention phase. The baseline slope of $+0.64$ decreased to -0.31 in the intervention phase. It should again be acknowledged that the small number of baseline data points might have skewed the baseline mean and/or slope (Kazdin, 1982). Participant 4's WC fluctuated throughout the intervention phase; however, after applying visual inspection, participant 4's WC appeared to decrease across the baseline and intervention phases.

Participant 5's mean WC decreased from a baseline measure of 120.65cm to 113.98cm during the intervention phase. The level decreased 5.08cm, from a baseline level of 119.38cm to 114.3cm in the intervention phase. The baseline slope of -2.54 decreased to -0.65 in the intervention phase. The small number of baseline data points may have

skewed the baseline mean and/or slope (Kazdin, 1982). Participant 5's WC fluctuated throughout the intervention phase. After applying visual inspection, there appeared to be a trend towards a slight decrease in participant 5's WC across the baseline and intervention phases.

To summarize, WC decreased for participants 1, 4, and 5, and remained stable for participants 2 and 3. This constitutes a trend towards a reduction in WC.

Clinical significance

Pre-post changes in self-esteem and functional health status were evaluated for clinical significance by assessing statistical change through an examination of effect size using Cohen's *d* and qualitative comments made during the participants' post-intervention interviews.

Self-esteem

Participants' scores on the Rosenberg Self-Esteem Scale revealed a moderate to large effect (i.e. increase) in self-esteem (Cohen's $d=0.79$). Qualitatively, two participants, one who experienced a reduction in WC and the other whose anthropometric measurements remained stable, spoke specifically to improved self-esteem during their post-intervention interviews with the researcher. One said the coaching impacted her '[s]elf-esteem for sure because I'm happier with myself now.' All five participants spoke of improved self-acceptance. For instance, one participant, whose comment reflects the sentiment of the others said, '...[I]'t's just realizing that even if somebody doesn't like me for who I am, that doesn't matter because I like who I am.' Collectively, the effect size and qualitative statements indicate a clinically significant improvement in participants' self-esteem upon completion of the coaching intervention.

Functional health status

Participants' scores on the physical health dimension of the SF-36 revealed a considerable increase (i.e. large effect) in physical

health status (Cohen's $d=0.88$). Participants' scores on the mental health dimension of the SF-36 revealed a moderate improvement in mental health status (Cohen's $d=0.74$). Participants' total SF-36 scores revealed a substantial increase (i.e. large effect) in overall health status (Cohen's $d=0.90$). Qualitatively, one participant specifically spoke of her enhanced overall health status after the coaching intervention. She said, 'I feel that my...overall health has gotten better. And not just my [physical] health...speaking about physical, emotionally, psychologically...I feel better.' At the end of the intervention, four participants spoke of making their physical health a priority, reporting an increase in physical activity participation, and one participant indicated making strives to eat more healthily. As previously discussed, all five participants reported increased self-acceptance at the end of the intervention. Further, when asked what had changed since the beginning of the intervention, one participant responded, 'It's not as much pressure to be perfect.' Collectively, the effect sizes and qualitative statements indicate a clinically significant change (i.e. improvement) in participants' physical, mental, and total (overall) health status upon completion of the coaching intervention.

Coaching agenda topics and coaching skills

Participant 1. Visual inspection of participant 1's obesity measures indicated a considerable decrease in BMI and WC across the baseline and intervention phases.

Inductive content analysis of participant 1's coaching sessions revealed her primary (A/agenda) agenda to be, '...see[ing] myself as who I am and not as a view I put up of who I am', and '...[gaining a] stronger sense of being comfortable with who I am.' The reflection provided by participant 1's coach confirmed the researcher's accurate identification of the A/agenda. The four coaching skills that were used with the highest frequency in coaching this participant were: *powerful questions* (e.g. 'What do

you imagine would need to change for you to have what you want?'); *clarifying* (e.g. 'What I hear from you is that you value doing a job well done.');

acknowledgement (e.g. '...I want to acknowledge you...you've maintained an absolute, unwavering commitment to yourself and to coming out of your shell and even when it's hard and it feels vulnerable, your commitment to you has been crystal clear.');

and *accountabilities* (e.g. 'When do you want to send me the first update?'). According to the coach's notes, by the end of the coaching intervention, participant one's coach '...felt confident that [the client] was more comfortable being herself with others, felt better about who she is, and learned that it was important for her to treat herself well.'

Participant 2. Visual inspection of participant 2's obesity measures indicated a stable BMI and WC across the baseline and intervention phases.

Inductive content analysis of participant 2's coaching sessions revealed her primary agenda to be, '...hav[ing] balance in my life.' The reflection provided by participant two's coach confirmed the researcher's accurate identification of the A/agenda. The four coaching skills that were used with the highest frequency in coaching this participant were: *powerful questions* (e.g. 'What serves you by doing this behaviour...?'); *perspectives* (e.g. '...what might be the *synchro swimming coach* perspective on getting things done?'); *reframing* (e.g. '...suppose we said, rather than 'I haven't studied enough', 'what could I do to prepare myself in time in order to write these with some degree of confidence?'); and *requesting* (e.g. '...at the start of your day will you put on your iPod and play one piece of music that...really motivates you before you start anything in your day...?'). According to the coach's reflection, participant two did not seem fully committed to the coaching process, in that she missed one session, was late for a number of others, and did not always follow-through with her homework requests. It was her coach's opinion that,

'If there is a readiness factor for coaching, [this participant] was barely at the bar of readiness...Perhaps she needed a longer period of coaching and more alliances or help in making changes in her life.'

Participant 3. Visual inspection of participant 3's obesity measures indicated an increase in BMI and a stable WC across the baseline and intervention phases.

Inductive content analysis of participant 3's coaching sessions revealed her primary agenda to be, '...having a more positive mindset about myself.' The reflection provided by participant 3's coach confirmed the accurate identification of the A/agenda. The three coaching skills that were used with the highest frequency in coaching this participant were: *powerful questions* (e.g. 'What's it like being your own friend?'); *acknowledgement* (e.g. 'What I acknowledge you for is for embracing, loving yourself and really letting you come out in the world.');

and *intuiting* (e.g. 'I'm not sure where this is coming from, so tell me if this feels accurate for you, the word that pops into my mind as I hear you talk...is *freedom*.'). According to the coach's reflection, frequent acknowledgements were used purposefully to build the participant's trust in the coach-client relationship, in service of supporting the client in doing the work necessary to improve her self-view. By the end of the coaching intervention, participant 3's coach '...felt confident [that this participant] learned and experienced a new, more positive way to experience her life.'

Participant 4. Visual inspection of participant four's obesity measures indicated a stable BMI and a decrease in WC across the baseline and intervention phases.

Inductive content analysis of participant 4's coaching sessions revealed her primary agenda to be, '...to have a better understanding about how I feel about my self-image.' The reflection provided by participant four's coach confirmed the researcher's accurate identification of the A/agenda. The four coaching skills that were used with the highest

frequency in coaching this participant were: *powerful questions* (e.g. '...what would it take to help you do that?'); *perspectives* (e.g. '...what would [your boyfriend]'s perspective be on your stressors?'); *acknowledgement* (e.g. '...I really want to commend you for how much work you have done in the past seven or eight weeks. You have really worked hard on seeing yourself..., so good for you!'); and *structures* (e.g. '...that's a structure - the ring- what I want you to do,...when you start to get stressed, when you get this sense of [being] overwhelm[ed],...touch the ring,...look at the ring,...what the ring immediately reminds you of...is breath.'). According to the coach's reflection, participant four '...responded well to coaching and...was absolutely committed to herself in the coaching'.

Participant 5. Visual inspection of participant 5's obesity measures indicated a stable BMI and a decrease in WC across the baseline and intervention phases.

Inductive content analysis of participant 5's coaching sessions revealed her primary agenda to be, '...connecting with myself.' The reflection provided by participant five's coach confirmed the accurate identification of the A/agenda. The three coaching skills that were used with the highest frequency in coaching this participant were: *powerful questions* (e.g. 'How do you want your days to be?'); *acknowledgement* (e.g. '...I hear that you are embracing this permission...to experience the positive...and that you are not just thinking about your life long goals, you are living them....'); and *intuiting* (e.g. '...I don't know, but the word *permission* is coming up...tell me, does that offer you anything?'). According to the coach's reflection, participant 5 '...resisted getting to know and learning about herself...although she did engage in some exercises to address her agenda during some sessions.'

Discussion

The purpose of this study was to assess the impact of Co-active coaching on obese female university students' body mass index

(BMI), waist circumference (WC), functional health status and self-esteem, and conjointly to identify the coaching skills and primary agenda topics that facilitate coaching's efficacy as an intervention for obesity.

Body mass index decreased for participant 1; remained relatively stable for participants 2, 4, and 5; and increased for participant 3. Overall, a decrease in BMI was not observed at the conclusion of the coaching intervention; this may, in part, be explained by the study's relatively short intervention period (range five to 10 weeks). In a literature review examining psychological interventions for treating overweight and obesity, Shaw et al. (2007) concluded that longer behavioural interventions result in significantly greater weight loss than those of shorter durations. Douketis, Macie et al. (2005) drew a similar conclusion in their systematic review of studies examining methods of weight-loss among obese adults. Moreover, while BMI reflects progress made through nutrition-based programs with reasonable accuracy, when exercise is also adopted, BMI tends to underrate fat-loss (Prentice & Jebb, 2001). Accordingly, the present study's WC results should be given greater clinical value than those for BMI because WC's depiction of body fatness is less skewed by the impact of physical activity on lean tissue and fat mass (Prentice & Jebb).

Overall, a trend towards a decrease in WC was observed at the conclusion of the coaching intervention. This result is very important because WC also has been demonstrated to be a better forecaster of weight-related health problems (Zhu et al., 2002), predicting central as well as peripheral adiposity (Janssen et al., 2004). Douketis, Paradis et al. (2005) document that WC '...provides an independent estimate of health risk beyond that determined by the BMI' (p.995). Therefore, individuals with a BMI within the normal range, who have a WC outside the healthy range, would still be at elevated risk of health problems as a result of higher levels of abdominal fat. The current study's findings suggest that

coaching is a behavioural intervention that supports the reduction of obese individuals' WCs, thereby reducing their risk of weight-related health problems.

The coaches' reflections on their sessions with the study participants echoed the findings of the qualitative analysis of the coaching transcripts; all five participants' primary agenda for their coaching experiences related to achieving enhanced self-acceptance and an improved relationship with themselves. Congruently, many researchers believe that supporting obese individuals in changing their thinking, attitudes, and relationships with themselves is necessary to facilitate maintainable weight-loss (e.g. Kausman & Bruere, 2006). This may be because internal motivation, supported by a positive self-view, is a necessary catalyst for sustained behaviour change (Kausman & Bruere). Providing obese individuals with the opportunity to learn about themselves and their weight, and empowering them to be in charge of finding their own solutions (both of which were done in this study), have been recognized as critical elements of weight-loss programs (Kausman & Bruere).

An analysis of the coaching-session transcripts revealed that, universally, *powerful questions* was the skill used most frequently by the coaches. When utilized by skilled coaches, open-ended, unscripted, powerful questions elicit introspection, and serve as a basis upon which many other coaching skills and techniques are built (Whitworth et al., 2007). The importance of empowering clients to do the work to find their own answers is further emphasized by Kausman and Bruere (2006) who indicated that actively listening to clients is critical to facilitating successful weight loss because 'if we [(i.e. coaches, clinicians, medical practitioners)] take the position of merely telling people what to do...we risk disempowering our [clients] and preventing them from finding solutions that actually work' (p.573). The predominant inclusion of powerful questions within the coaching method likely contributed not only to the

reductions in anthropometric measurements that were experienced by some participants, but also to the increases in participants' psychosocial variables.

Among those participants for whom a reduction in BMI and/or WC was achieved, *acknowledgement* was the common skill that was used with the highest frequency. A construct within Social Cognitive Theory (Bandura, 2001), self-efficacy reflects an individual's belief in her competence to perform a desired behaviour and address obstacles that may be encountered in the process. Supporting clients in increasing their self-efficacy could facilitate a shift in the participants' thinking and attitudes, which would allow greater weight loss to come as an eventual result (Kausman & Bruere, 2006).

An analysis of participants' self-esteem before and after the coaching intervention revealed a clinically significant improvement in self-esteem at the end of the study period. Contributing to this finding were qualitative statements from the post-intervention interviews, during which two participants spoke specifically to experiencing enhanced self-esteem, and all five participants indicated having improved self-acceptance. This result is congruent with Newnham-Kanas et al.'s (2008) finding that coaching facilitates significant increases in self-esteem among obese adults. Self-esteem is a critical element of an individual's self image, as it represents one's positive or negative self-view (Rosenberg, 1965; Rubin & Hewstone, 1998). According to Leary (1999), self-judgment is one determinant of self-esteem, and therefore the clients' work towards achieving self-acceptance, and thereby reducing negative self-judgments, might have facilitated the observed increase in self-esteem. High self-esteem has been suggested to support goal attainment (Leary), and targeting self-esteem by way of self-acceptance, as opposed to weight loss, has been suggested as a potential, non-dieting approach to reducing obesity and maintaining weight loss (e.g. Wadden et al., 2002).

An analysis of participants' health statuses before and after the coaching intervention revealed clinically significant improvements in their mental, physical, and overall health statuses at the conclusion of the study period. Canadian undergraduate university students experience significantly greater psychological stress than the country's general adult population (Bray & Born, 2004), and stress has been linked to poor nutritional choices and reduced physical activity participation (Ng & Jeffery, 2003). In light of this, the current study's finding that participants' mental health status had improved at the end of the coaching intervention suggests that coaching may help to increase individuals' abilities to cope with stress and other sources of mental distress, and thereby facilitate the adoption and maintenance of healthful lifestyle choices. This conclusion is supported by the fact that, during the post-intervention interviews, all five participants spoke of making healthier lifestyle choices. Researchers have found reduced quality of life to be associated with obesity in individuals as young as five years of age (Jia & Lubetkin, 2005; Schwimmer et al., 2003), and to be a negative predictor of weight loss success (Teixeira et al. 2005).

There are a number of limitations to the current study that warrant discussion. Most notably, the duration of the coaching intervention may have impacted the study's results. The findings of the current study suggest that a longer period of coaching may be required to reduce obesity even further. Also, due to cancelled and missed sessions, participants received between five and 10 coaching sessions. Ensuring that participants have an equal number of coaching sessions would allow for a more concrete estimate to be made as to the number of coaching sessions that are required to positively impact the study variables. While it would have been advantageous to increase and standardize the number of coaching sessions in the current study, this was not possible because the span of the study period (i.e. the

recruitment, baseline, and intervention phases, collectively) was limited by the length of the academic term.

While extensive recruitment techniques were used in an effort to recruit a diverse sample, the study's self-selected participants cannot be assumed to be representative of the entire obese, female, undergraduate university student population at the host university. This fact, combined with the study's use of a multiple-baseline, single-subject research design, and the nature of qualitative research limit the generalizability of the current study's results.

Although the participants' weekly weigh-ins with the researcher may have served as part of the intervention experience, this is unlikely in the current study. Participants were not shown the scale values, and during their post-intervention interviews, none referred to the weigh-ins as an attribute of the intervention that they found valuable. Further, two participants anecdotally reported that these weekly appointments were among the least beneficial parts of their experience.

Participant readiness may have been another factor that affected receptivity to the coaching experience and the BMI and WC results in the current study. In particular, one participant's apparent lack of readiness to commit to the coaching process was noted in her coach's reflection; interestingly, this individual was one of two participants who did not experience desirable changes to her anthropometric measurements. While nearly one-quarter of Canadians with post-secondary education are obese (Statistics Canada, 2006), and, on average, 60 per cent of female university students constantly are attempting to lose weight (Killen et al., 1993), a number of researchers have concluded that age (being older), having a long history of weight-loss attempts, and high levels of internal motivation are critical factors for facilitating and maintaining weight loss (Ogden, 2000; Elfhag & Rossner, 2005; Kausman & Bruere, 2006). During their post-intervention interviews with the researcher, a number of participants also

indicated that finding time to commit to the coaching process was a challenge due to their demanding academic schedules.

Despite these limitations, a number of important conclusions and recommendations can be drawn regarding the attributes of coaching that are most pertinent to its effectiveness as an intervention modality for obesity among female university students:

1. Coaching was associated with a trend towards a decrease in waist circumference.
2. A consistent intervention effect on participants' BMI was not apparent.
3. Coaching was associated with clinically significant increases in participants' self-esteem, and in their mental, physical, and overall health statuses.
4. At the study's conclusion, participants experienced enhanced self-acceptance, were making strides towards living a healthier lifestyle with regards to physical activity participation and nutritional choices, and were making themselves a priority in their lives.
5. Participants' primary agendas for their coaching experiences related to achieving enhanced self-acceptance and an improved relationship with themselves, as opposed to specifically reducing obesity.
6. Using *powerful questions* was the skill used most frequently by the coaches in working with all participants.
7. Among those participants for whom a reduction in BMI and/or WC was achieved, giving meaningful *acknowledgements* was the common skill that the coaches used with the highest frequency.

It is recommended that future studies aimed at examining coaching's efficacy as an intervention for obesity include a control group to allow for the experimental evaluation of whether it is the coaching, or some other factor (e.g. Hawthorne effect), that is responsible for improvements in participants' anthropometric and psychosocial measurements. The coaching method used in the current study contains certain attrib-

utes that are similar to those contained within other models and theories for facilitating behaviour change (Miller & Rollnick, 2002; Egan, 1997; Ryan & Deci, 1985; 2000; Kanfer, 1970). Future researchers should consider conducting a study that would compare critically the influential coaching skills with those that are at the crux of similar behaviour change approaches.

References

- Ajzen, I. (1988). *Attitudes, personality, and behaviour*. Chicago: Dorsey Press.
- Backman, C.L. & Harris, S.R. (1999). Case studies, single-subject research, and N of 1 randomized trials: Comparisons and contrast. *American Journal of Physical Medicine & Rehabilitation*, 78(2), 170–176.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. New Jersey: Prentice-Hall, Inc.
- Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology*, 52, 1–26.
- Bates, B. (1992). The effect of demands for honesty on the efficacy of the Carleton Skills-Training Program. *International Journal of Clinical and Experimental Hypnosis*, 40(2), 88–102.
- Bray, S.R. & Born, H.A. (2004). Transition to university and vigorous physical activity: Implications for health and psychological well-being. *Journal of American College Health*, 52(4), 181–188.
- Brown, R., Butow, P.N., Boyer, M.J. & Tattersall, M.H.N. (1999). Promoting patient participation in the cancer consultation: Evaluation of a prompt sheet and coaching in question-asking. *British Journal of Cancer*, 80(1/2), 242–248.
- Clement, J.M., Schmidt, C.A., Bernaix, L.W., Covington, N.K. & Carr, T.R. (2004). Obesity and physical activity in college women: Implications for clinical practice. *Journal of the American Academy of Nurse Practitioners*, 16(7), 291–299.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.
- Douketis, J.D., Macie, C., Thabane, L. & Williamson, D.F. (2005). Systematic review of long-term weight loss studies in obese adults: Clinical significance and applicability to clinical practice. *International Journal of Obesity*, 29, 1153–1167.
- Douketis, J.D., Paradis, G. & Keller, H. (2005). Canadian guidelines for body weight classification in adults: Application in clinical practice to screen for overweight and obesity and to assess disease risk. *Canadian Medical Association Journal*, 172(8), 995–997.
- Egan, G. (1997). *The skilled helper: A problem-management approach to helping* (6th ed.). Pacific Grove: Brooks/Cole Publishing Company.
- Elfhag, K. & Rossner, S. (2005). Who succeeds in maintaining weight loss? A conceptual review of factors associated with weight loss maintenance and weight regain. *Obesity Reviews*, 6, 67–85.
- Fishbein, M. & Ajzen, I. (1975). *Belief, attitude, intention and behaviour: An introduction to theory and research*. Reading, MA: Addison-Wesley.
- Grant, A.M. (2001). *Towards a psychology of coaching*. Retrieved 18 August, 2007, from: www.psych.usyd.edu.au/psychcoach/Coaching_review_AMG2001.pdf
- Grant, A.M. (2006). A personal perspective on professional coaching and the development of coaching psychology. *International Coaching Psychology Review*, 1(1), 12–20.
- Guba, E.G. & Lincoln, Y.S. (1989). *Fourth generation evaluation*. London: Sage.
- Guo, S.S., Roche, A.F., Chumlea, W.C., Gardner, J.D. & Siervogel R.M. (1994). The predictive value of childhood body mass index values for overweight at age 35 years. *American Journal of Clinical Nutrition*, 59, 810–819.
- Hayes, S.C. (1981). Single case experimental design and empirical clinical practice. In A.E. Kazdin (Ed.), *Methodological issues and strategies in clinical research* (2nd ed.). Washington, DC: American Psychological Association.
- Irwin, J.D. & Morrow, D. (2005). Health promotion theory in practice: An analysis of co-active coaching. *International Journal of Evidence Based Coaching and Mentoring*, 3(1), 29–38.

The authors

Melissa van Zandvoort, MSc

Jennifer D. Irwin, PhD

Don Morrow, PhD

The University of Western Ontario.

Correspondence

Dr. Jennifer D. Irwin

Faculty of Health Sciences,

The University of Western Ontario.

Tel: (519) 661-2111 Ext: 88367

E-mail: jenirwin@uwo.ca

- Janssen, I., Katzmarzyk, P. & Ross, R. (2004). Waist circumference and not body mass index explains obesity-related health risk. *The American Journal of Nutrition*, 79, 374–384.
- Jia, H. & Lubetkin, E.I. (2005). The impact of obesity on health-related quality-of-life in the general adult US population. *Journal of Public Health*, 27(2), 156–164.
- Joseph, D.H., Griffin M., Hall, R. & Sullivan, E. (2001). Peer coaching: An intervention for individuals struggling with diabetes. *Diabetes Educator*, 27, 703–710.
- Kanfer, F.H. (1970). Self-regulation: Research, issues, and speculation. In C. Neuringer & J.L. Michael (Eds.), *Behaviour modification in clinical psychology*. New York: Appleton-Century-Crofts.
- Kausman, R.R. & Bruere, T.T. (2006). If not dieting, now what?. *Australian Family Physician*, 35(8), 572–575.
- Kazdin, A.E. (1982). *Single-case research designs: Methods for clinical and applied settings*. New York: Oxford University Press.
- Killen, J.D., Taylor, C.B., Hammer, L.D., Litt, I., Wilson, D.M., Rich, T. et al. (1993). An attempt to modify unhealthful eating attitudes and weight regulation practices of young adolescent girls. *International Journal of Eating Disorders*, 13, 369–384.
- Lau D.C.W., Douketis J.D., Morrison K.M., Hramiak I.M., Sharma A.M. & Ur, E. (2007). 2006 Canadian clinical practice guidelines on the management and prevention of obesity in adults and children. *Canadian Medical Association Journal*, 176 (Suppl. 8), 1–13.
- Leary, M.R. (1999). Making sense of self-esteem. *Current Directions in Psychological Science*, 8(1), 32–35.
- Miller, W.R. & Rollnick, S. (2002). *Motivational interviewing: Preparing people for change* (2nd ed.). New York: Guilford Press.
- Mokdad, A.H., Scrdula, M.K., Dietz, W.H., Bowman, B.A., Marks, J.S. & Koplan, J.P. (1999). The spread of the obesity epidemic in the United States, 1991–1998. *The Journal of the American Medical Association*, 282(16), 1519–1522.
- Newnham-Kanas, C.E., Irwin, J.D. & Morrow, D. (2008). Co-active life coaching as a treatment for people with obesity. *International Journal of Evidence Based Coaching and Mentoring*, 6(2), 1–12.
- Ng, D.M. & Jeffery, R.W. (2003). Relationships between perceived stress and health behaviours in a sample of working adults. *Health Psychology*, 22, 638–642.
- Ogden, J. (2000). The correlates of long-term weight loss: A group comparison study of obesity. *International Journal of Obesity*, 24, 1018–1025.
- Patton, M. (1987). *How to use qualitative methods in evaluation*. London: Sage.
- Prentice, A.M. & Jebb, S.A. (2001). Beyond body mass index. *Obesity Reviews*, 2, 141–147.
- Racette, S.B., Deusinger, S.S., Strube, M.J., Highstein, G.R. & Deusinger, R.H. (2005). Weight changes, exercise and dietary patterns during freshman and sophomore years of college. *Journal of American College Health*, 53(6), 245–251.
- Ratey, N. (2002). Life coaching for adult ADHD. In S. Goldstein & A.T. Ellison (Eds.), *Clinician's guide to adult ADHD: Assessment and intervention*. London: Academic Press.
- Ratey, N. & Jaska, P. (Eds.). (2002). *The ADDA guiding principles coaching individuals with attention deficit disorder*. Illinois: Hyde Park.
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Rosenberg, M. (1989). *Society and the adolescent self-image* (rev. ed.). Middletown, CT: Wesleyan University Press.
- Rubin, M. & Hewstone, M. (1998). Social identity theory's self-esteem hypothesis: A review and some suggestions. *Personality and Social Psychology Review*, 2(1), 40–62.
- Ryan, R.M. & Deci, E.L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68–78.
- Schwimmer, J.R., Burwinkle, T.M. & Varni, J.W. (2003). Health-related quality of life of severely obese children and adolescents. *The Journal of the American Medical Association*, 289(11), 1813–1819.
- Shaw, K., O'Rourke, P., Del Mar C. & Kenardy, J. (2007). Psychological interventions for overweight or obesity (review). *Cochrane Database of Systematic Reviews*. Issue 2. Art No. CD003818. DOI 10.1002/14651858.CD003818.pub2.
- Statistics Canada (2001). *2001 Census – Age and sex for population, for Canada, provinces, territories, census metropolitan areas and census agglomerations*.
- Statistics Canada (2002). *Canadian Community Health Survey: A first look 2000/01*. Retrieved 4 February, 2007, from: www.statcan.ca/Daily/English/020508/d020508a.htm.
- Statistics Canada (2003). CANSIM, Cross-classified tables 00580701, 00580702.
- Statistics Canada (2006). *Health Reports* (Catalogue no. 82-003-XPE, 17(3)). Ottawa, Ontario, Canada: Health Statistics Division.
- Strychar, I. (2004). Fighting obesity: A call to arms. *Canadian Journal of Public Health*, 95(1), 12–14.
- Tidwell, L., Holland, S., Greenberg, J., Malone, J., Mullan, J. & Newcomer, R. (2004). Community-based nurse health coaching and its effect on fitness participation. *Lippincott's Case Management*, 9(6), 267–279.

- Teixeira, P.J., Going, S.B., Sardinha, L.B. & Lohman, T.G. (2005). A review of psychosocial pre-treatment predictors of weight control. *Obesity Reviews*, 6, 43–65.
- Wadden, T.A., Brownell, K.D. & Foster, G.D. (2002). Obesity: Responding to the global epidemic. *Journal of Consulting and Clinical Psychology*, 70, 510–525.
- Ware, J.D. (1997). *SF-36 Health Survey: Manual and Interpretation Guide*. Boston, MA: The Medical Outcomes Trust.
- Whitworth, L., Kimsey-House, K., Kimsey-House, H., Sandahl, P. (2007). *Co-Active Coaching: New skills for coaching people toward success in work and life* (2nd ed.). California: Davies-Black Publishing.
- World Health Organization (1997). *Executive Summary – Obesity: Preventing and Managing the Global Epidemic, Report of a WHO Consultation on Obesity*. Retrieved 26 May, 2008, from: www.who.int/entity/nutrition/publications/obesity_executive_summary.pdf
- World Health Organization (2006). *Obesity and Overweight*. Retrieved 4 February, 2007, from: www.who.int/mediacentre/factsheets/fs311/en/print.html.
- Zerbe, W.J. & Panlhus, D.L. (1987). Socially desirable responding in organizational behaviour: A reconception. *Academy of Management Review*, 12(2), 250–264.
- Zhu, S., Wang, Z., Heshka, S., Heo, M., Faith, M.S. & Heymsfield, S.B. (2002). Waist circumference and obesity-associated risk factors among whites in the third National Health and Nutrition Examination Survey: Clinical action thresholds. *American Journal of Clinical Nutrition*, 76, 743–749.

Copyright of International Coaching Psychology Review is the property of British Psychological Society and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.