

Running head: PREDICTING DIETING BEHAVIOR

Predicting Dieting Behavior by Using, Modifying and Extending
the Theory of Planned Behavior

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Final submitted manuscript.

Cite as:

Nejad, L., Wertheim, E. H., & Greenwood, K. (2004). Predicting dieting behavior by using, modifying and extending the theory of planned behavior. *Journal of Applied Social Psychology, 34*, 2099-2131.

Abstract

The theory of planned behavior (TPB) was used, modified, and extended to predict dieting intention and behavior. Female undergraduates ($n = 256$) responded to a survey assessing variables from the TPB and additional predictor variables.

Seventy-eight of these participants also completed a follow-up questionnaire three months later that assessed their subsequent weight loss behavior. A model was developed for dieting using path analysis to assess the most significant paths to *intention* to diet and *follow-up* dieting. In the final predictor model, 77% of the variance in *intention* to diet and 46% of the variance in *follow-up dieting* were explained. The strongest predictor of *intention* to diet was *direct attitude* and the strongest predictor of *follow-up dieting* was *prior dieting*. This study also included a confirmatory analysis of the dieting model ($n = 117$); approximately two thirds of the paths were confirmed and 72% of the variance in *intention* was explained.

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Body image and weight concerns are common among females in Western society, as are the more extreme manifestations of these concerns such as anorexia nervosa, bulimia nervosa and partial syndromes similar to eating disorders (American Psychiatric Association, 1994; Garfinkel, Lin, Goering, Spegg, Goldbloom, Kennedy, Kaplan, & Woodside, 1995; Shisslak, Crago, & Estes, 1995; Walters & Kendler, 1995). Among women, body concerns are often manifested in attempts to lose weight by dieting. Between 23% and 48% of female university students have reported dieting to lose weight (Franko & Omori, 1999; Kenardy, 1998; Stephens, Schumaker, & Sibiya, 1999) and between 64% and 83% of university women fall somewhere between normal eating and clinically disturbed eating (Mintz & Betz, 1988; Smolak & Levine, 1993).

While dieting is a common practice, it is also currently considered potentially dangerous as it may place people at higher risk for developing eating disorders and related behaviors such as binge eating and purging (Crowther, Wolf, & Sherwood, 1992; Heatherton & Polivy, 1992; Johnson & Connors, 1987; Patton, Johnson-Sabine, Wood, Mann, & Wakeling, 1990; Patton, Selzer, Coffey, Carlin, & Wolfe, 1999; Polivy & Herman, 1985, 1995; Stice, 1998; Streigel-Moore Silberstein, & Rodin, 1986; Thompson, Coovert, Richards, Johnson, & Cattarin, 1995). Dieting can potentially cause physical and mental harm, particularly in normal weight individuals (French & Jeffery, 1994; Hagan, Tomaka, & Moss, 2000; Wilson, 1995) and it has been associated with weight preoccupation, depression, irritability, anxiety and low self-esteem (Garner, Olmsted, & Garfinkel, 1983; Hagan et al., 2000). Prospective studies suggest that dieters compared to non-dieters are much more likely to later develop eating disorder-related syndromes (Patton et

al., 1990, 1999; Stice & Agras, 1998). Given the potential harm that can result from dieting and the prevalence of this behavior among young women, more research is needed that examines factors that predict weight loss dieting and that may lead to methods to reduce such behaviors (Austin, 2001; Paxton, 2000).

The aim of the current study is, therefore, to examine factors that lead to weight loss dieting, starting from two well-known cognitive theoretical models and to compare and enhance those models. A second aim is to examine more closely the cognitive models that will be used in order to answer theoretical questions related to the most effective measures of variables relevant to the models.

The theory of planned behavior was derived from the theory of reasoned action (TRA) developed by Fishbein and Ajzen (1980) which had been applied successfully to a variety of risky and unhealthy behaviors (Ajzen, Timko, & White, 1982; Beck, 1981; Budd, Bleiner, & Spencer, 1983; Budd & Spencer, 1984; Fishbein, 1982; Fishbein & Ajzen, 1980; Lacy, 1981; London, 1982; Rutter, 1989). The TRA describes two predictors of behavior: *attitude* and *subjective norm*. Attitudes refer to individuals' beliefs about the outcomes of the behavior (belief strength) combined with an evaluation of the importance of these outcomes (outcome evaluation). Some respondents, however, have trouble distinguishing between belief strength and importance. For example, Mullen, Hersey, and Iverson (1987) found that responses to belief strength and belief importance questions were often similar and weighting by belief importance did not enhance predictions compared to using belief strength alone. The current study further evaluates the idea that measuring belief strength alone may be sufficient. Attitude can also be *directly* measured by using differentials (e.g., bad/good) (Conner & Sparks, 1996). Hence, a theoretical and practical question for TRA is which of these various approaches to the measurement of attitude is most effective in a given context.

Subjective norm refers to the expectations of significant others' responses to the performance of the behavior (normative beliefs) combined with whether or not the individual considers these responses when deciding to behave in a particular way (motivation to comply). Cialdini et al. (1991) have termed normative beliefs that assess others' approval or disapproval, *injunctive* social norms.

Because people rarely have total control over carrying out a behavior, Ajzen (1985, 1988) added the concept of perceived behavioral control to the original model which was renamed the theory of planned behavior (TPB). Perceived behavioral control has proven to be an important predictor of health behaviors including weight loss, smoking and cannabis use (Ajzen & Timko, 1986; Conner, Martin, Silverdale, & Grogan, 1996; Conner & McMillian, 1999; Godin, Valois, Lepage, & Desharnais, 1992; Schifter & Ajzen, 1985). However, there is disagreement in the definition of this concept and, therefore, in the way that it is measured.

The indirect measure of perceived control is generally attained by evaluating control beliefs, factors that are likely to make it easier or more difficult to perform a behavior. These facilitators and inhibitors are then evaluated on how much power or control they actually exert in regard to performing the behavior. The direct measure of perceived control assesses how much control individuals think they have in performing the behavior in question. Perceived control is expected to have a direct path to the behavior if the behavior is goal-directed (i.e., involving a low degree of volitional control) like dieting (Ajzen, 1991). However, the effect size of the direct path has been small in studies predicting dieting and the amount of variance explained has been modest, (8% and 20%) (Netemeyer, Burton, & Johnston, 1991; Schifter & Ajzen, 1985). Attitude, social norm and perceived

control are posited to directly predict behavioral intention which in turn should predict behavior.

In this study, dieting will be regarded as a health-related behavior. Most studies using the TRA or TPB to predict weight loss behavior regard the weight loss behavior (eating a low-fat diet) as a healthy behavior. However, social cognition theories can also provide the frameworks with which to study the relationship between individuals' cognitions about, and participation in, potentially unhealthy weight loss behaviors.

Only one known study has examined dieting as a potentially unhealthy behavior (Conner et al., 1996). Conner et al. (1996) studied dieting among female and male adolescents aged 11 to 14. As well as measuring the primary TPB variables (attitude, perceived control and the original injunctive type of subjective norm), they also measured two other types of norms: descriptive norms (perception of what others do) and representative norms (perception of desire to be like salient others), as well as self/body esteem and current-ideal body figure discrepancy, to examine whether TPB variables would mediate their effects on intentions to diet and actual dieting behavior. Results showed that the TPB variables, including the additional subjective norm variables, predicted 51% of the variance for intention to diet, with most variance accounted for by outcome beliefs (the attitude measure) and representative norms followed by injunctive norms, control beliefs and descriptive norms. When weight-related variables were then added into the regression analyses, self/body esteem and body figure discrepancy accounted for a further 7.7% of the variance of intentions and 12% of dieting behavior. These results indicate that the TPB can be applied successfully to dieting behavior, that descriptive and representative norms are useful additions to the model, and that adding weight-

related variables can improve the predictability of the TPB model for dieting related predictions.

Additional Predictor Variables

While there are many advantages to social cognition theories, they have at times been criticised for omitting potentially important variables like social context and emotion and assuming that everyone is highly motivated to evaluate decisions about health (Conner, 1993). In the current research, variables were chosen to extend the original model on the basis of previous research on weight loss behavior, risk-taking behavior, decision-making theory and social cognition theory. These variables included prior behavior, descriptive and representative norms, self-efficacy variables, severity and susceptibility, health and thinness value, body satisfaction variables, decision-making style, and risk-taking propensity.

Several studies have shown support for including prior behavior as a predictor of various health behaviors in the TRA/TPB (Ajzen, 1991; Godin et al., 1992; Mullen et al., 1987; Norman & Conner, 1996) as it contributes modestly to the prediction of intention and behavior. As described earlier, injunctive, descriptive and representative norms were all found to be significant predictors of dieting intention and/or dieting behavior in Conner et al.'s (1996) study of adolescent dieting. In the present research, all three types of norms were assessed plus an additional injunctive norm measure of others' approval and disapproval of the outcome of the behavior (losing weight).

Self-efficacy has been used to predict several health behaviors including weight loss and eating behaviors (Bernier & Avard, 1986; Glynn & Rudermann, 1986; Mullen et al., 1987; Shannon, Bagby, Wang, & Trenkner, 1990). Although Ajzen (1991) does not distinguish between the constructs of self-efficacy and perceived behavioral control, other researchers suggest that the two constructs are

distinct and have found that they independently predicted dietary behavior (Armitage & Conner, 1999; see Conner & Armitage, 1998 review). Bandura (1977b, 1986) theorized that four sources influence the level of self-efficacy possessed by an individual. These influences are past success in performing the behavior, vicarious experience or observing others successful at performing the behavior, verbal persuasion or encouragement by others, and physiological state (anxious or depressed states would most likely reduce self-efficacy). Questions related to these four sources of self-efficacy were included in the survey to find out if they indirectly influenced weight loss behaviors and intention through self-efficacy or if they directly influenced behavior and intention.

According to the health belief model (HBM) (Rosenstock, 1974), another social cognition model used to predict health behaviors, two main types of beliefs influence preventative action: beliefs related to readiness to take action and beliefs related to modifying factors that facilitate or inhibit action. The variables that are used to measure readiness to take action are perceived susceptibility to the illness (for instance breast cancer) and the perceived severity of the illness. While the HBM usually predicts health promoting behaviors, in the current study, the aim was to predict a potentially unhealthy behavior. Therefore, the variable, susceptibility, assessed the belief that one is susceptible to gaining weight. The term, severity, referred to the perceived effect that gaining weight would have on individuals (i.e., it would be bad or good).

Many studies of health behavior have incorporated health value, finding that participants with a higher value for health were more successful in achieving a health behavior (Bennett, Moore, Smith, Murphy, & Smith, 1994; Kaplan & Cowles, 1978). However, health value may not always predict behavior such as exercise and healthy eating, which has led some researchers (Lau et al., 1986) to

propose that other values are more important than being healthy. Consistent with these ideas, both health value and value for thinness were assessed in this study since thinness may be a more salient value when predicting weight loss behaviors.

Appearance concerns have been found to have a stronger effect than health concerns on the eating behavior (Hayes & Ross, 1987). Furthermore, distorted and negative perceptions of body image and weight concerns have long been regarded as precursors to dieting and eating disorders (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). Therefore, in the current study, several weight-related measures were included: body mass index (BMI), satisfaction with current weight, current and ideal figure ratings, and a body esteem scale.

The TPB has been able to predict behavioral outcomes, but their ability to describe the decision process is in question. Janis and Mann (1977) theorized that when individuals are confronted with difficult and/or complex decisions, they attempt to cope using a variety of decision making styles, some of which may be more adaptive than others. These styles include vigilance, buck-passing, procrastination and hypervigilance (Mann, Burnett, Radford, & Ford, 1997). Finally, if dieting is a potentially risky behavior, then it is appropriate to include a risk-taking propensity scale to find out if women who engage in weight loss behaviors have a greater inclination for risk-taking in general.

In summary, the focus of this research was to ascertain what processes, cognitions and motivations are involved in decisions to diet. The theory of planned behavior was chosen as the main framework with which to study this potentially unhealthy behavior. Only one known study to date has applied the TPB to dieting conceptualised as a potentially unhealthy behavior (Conner et al., 1996) and this was with an adolescent population. This study applied a social cognitive perspective to examine the relationship between cognitions and dieting with a

female university-age population. This study has three objectives: (1) to ascertain whether the TPB can be effectively applied to dieting behaviour; (2) to improve the TPB model by examining the most useful form of the indirect attitude measure; and, (3) to determine if additional predictors, both general and specific to dieting, can improve the model's predictability.

Method

Participants

Primary sample. Initially, 256 female undergraduate psychology students (age $M= 21.3$ years, $SD= 6.5$, range 17 to 52) completed questionnaires; 84% were single, 14% married/living together and 2% separated/divorced. Follow-up data were collected from 78 participants (30%) who filled out a short survey 3 months later.

Confirmatory sample. One year later, 117 additional female psychology students (age $M= 19.2$, $SD = 3.1$, range 18 to 43) completed questionnaires to confirm the findings from the primary sample; 95% were single, 3% married/living together and 2% separated/divorced.

Measures

Questionnaires assessed each of the constructs listed next, as well as age and marital status. TPB measures were constructed according to Ajzen's (1991) guidelines and by adapting examples in the review by Conner and Sparks (1996).

Prior dieting behavior and follow-up dieting behavior. Dieting behavior was measured on the same scale at Time 1 and at follow-up. Participants were asked to first read a definition of dieting ("Following a planned eating program for a specific period of time in which you restrict the amount of calories you eat and/or reduce the amounts of fats/sugar you eat for the particular purpose of losing or maintaining your weight. This does not include starving yourself") and then to

indicate (from eight options ranging from never to every day) how often they had dieted in the last 3 months. Although the measure included eight options (including differentiating those who ‘thought about dieting’ but did not do it from those who never thought about it), for analyses, the scale was collapsed into a five item scale to reflect only dieting behavior and to reduce skewness: Often currently (rated 5), Occasionally currently, Rarely currently, Past only (regularly or experimentally), and Never (rated 1). *Follow-up dieting* was collapsed into a dichotomous variable representing whether the respondent did or did not diet in the 3 months following the initial questionnaire.

Intention to diet. Because multiple-item intention measures often have high internal reliability (*Cronbach’s alpha* > .90), a single item is often used (Conner & Sparks, 1996). Intention to diet was therefore, measured by the item, “I intend to diet in the next 3 months” rated from *definitely do not* (-3) to *definitely do* (+3).

Direct attitude toward dieting was measured by asking women to respond to the statement, “If I diet in the next 3 months, this would be:” in relation to five semantic differentials: *harmful/beneficial*, *unpleasant/pleasant*, *useless/useful*, *foolish/wise* and *bad/good* on a seven point scale. Ratings were summed with a higher score indicating a more positive attitude toward dieting.

Indirect attitude about dieting were measured using 14 items derived from pros and cons statements (e.g., losing weight, increasing self-esteem, being unhealthy, being in a bad mood) nominated by 82 female undergraduates in a preliminary study (Nejad, 2001). These statements (e.g., If I diet in the next three months, I will look better physically) were rated on a seven point scale from *unlikely* (- 3) to *likely* (+ 3) measuring participants’ belief strength. Outcome evaluation was measured by rating statements like, “Looking better physically would be:” on a seven point scale from *bad* (- 3) to *good* (+ 3). Belief strength and outcome

evaluation were multiplied and summed across all statements to create indirect attitude scores following Ajzen (1991). Two more sets of scales were developed by splitting the indirect attitude scale into a scale representing pros (6 items) and a scale representing cons (8 items), one that represented belief strength multiplied by outcome evaluation and one that represented belief strength alone.

Direct perceived behavioral control was assessed as per Conner and Sparks' (1996) suggestion: "I am confident that I could diet within the next 3 months if I wanted to" rated on a scale from *strongly disagree* (1) to *strongly agree* (7).

Indirect perceived behavioral control. Control beliefs were derived from the preliminary study (Nejad, 2001) and the most salient control belief responses were the difficulty and ease of dieting behaviors. An indirect measure of perceived behavioral control for dieting was obtained by multiplying responses to the statement, "For me, dieting is:" on a seven point scale from *difficult* (-3) to *easy* (+3) (treated as a bipolar scale as Ajzen (1991) suggests) by the response to the statement, "The ease or difficulty of dieting for me makes dieting in the next 3 months:" *less likely* (1) to *more likely* (7). High scores indicated perceptions that would facilitate dieting.

Injunctive norm of dieting behavior was represented by an indirect measure consisting of the combining ratings across four significant other groups or individuals. Normative beliefs were measured by the statement, "If I diet in the next 3 months, my family/my friends/my best girl friend/my boyfriend (or best male friend) will:" rated from *disapprove* (-3) to *approve* (+3). Motivation to comply was measured by the statement, "I want to do what my family/my friends/my best girl friend/my boyfriend (or best male friend) thinks I should do" rated from *strongly disagree* (1) to *strongly agree* (7). The normative beliefs and motivations to comply were multiplicatively combined and summed across the four groups.

Additional social norm variables. The *injunctive norm of losing weight* (the outcome of dieting) was measured in the same way as the injunctive norm of the behavior by asking the participants to rate the degree of disapproval or approval of losing weight and motivation to comply across four significant other groups and individuals. *Descriptive norm* was measured by asking participants to rate how often their mother, best girl friend and sister (or closest female relative) diets on a seven point scale from *never* (1) to *always* (7). *Representative norm* was obtained by multiplying ratings for the statements, “My favourite female singer/actress/model looks very thin” on a seven point scale from *strongly agree* (1) to *strongly disagree* (7) by ratings of statements, “looking like my favourite singer/actress/model would be:” bad (1) to good (7) (Conner et al., 1996).

Variables from, or derived from, the health belief model. *Severity* was measured by one item, “If I gained weight in the next 3 months, this would be:” rated from *bad* (1) to *good* (7). *Susceptibility* was measured by one item, “I will gain weight in the next 3 months” rated from *strongly disagree* (1) to *strongly agree* (7). *Health value* was measured using the four-item scale developed by Lau et al. (1986) on the basis of five samples including 1026 university students. A sample item is “There is nothing more important than good health”. Responses are rated from *strongly disagree* (1) to *strongly agree* (7) and summed after reversing two items. Higher scores reflect higher value for health. *Value for thinness* was included since values concerning appearance may be more relevant to weight loss behavior than values concerning health. Four items parallel to the Health Value Scale (Lau et al., 1986) were rated from *strongly disagree* (1) to *strongly agree* (7) e.g., “There is nothing more important than being thin”. These statements were scored in the same way as the health value scale.

Weight-related variables. BMI was calculated: weight/height^2 (kg/m²).

Satisfaction with weight was measured by asking, “Are you satisfied with your current weight?” measured on a scale from never (1) to completely (5).

Figure Ratings Scales. Participants circled a number corresponding to a figure from a set of figures ranging from emaciated to obese to indicate their present size and the size they would like to be (Stunkard, Sorenson, & Schulsinger, 1983). The rating scale was numbered from 1 to 17, with odd numbers under the figures and the even numbers part way in between (Paxton, Wertheim, Gibbons, Szmukler, Hillier, & Petrovich, 1991). These scales have been shown to have good test-retest reliability (Banasiak, Wertheim, Koerner, & Voudouris, 2001) and current figure ratings correlate highly with measured BMI (Paxton et al., 1991).

The *Body Esteem Scale* by Franzoi and Shields (1984) consists of three subscales: weight concerns (10 items), sexual attractiveness (13 items), and physical condition (9 items). Participants rated 35 of their body parts and functions on a scale from *strong negative feelings* (1) to *strong positive feelings* (5). A high summed score reflected high body esteem for the particular subscale. Good convergent and discriminant validity has been reported with samples of female university undergraduates (Franzoi & Herzog, 1986; Franzoi & Shields, 1984).

Self-efficacy variables. *Direct self-efficacy* was measured with one item, “I am capable of dieting”, rated from *strongly disagree* (1) to *strongly agree* (7). For *indirect self-efficacy* participants rated how strongly they disagreed or agreed on a scale from 1 to 7 with the following statements: I have been able to diet successfully in the past (*Past success*); I have often seen others successful at dieting (*Others success*); Others have suggested or tried to persuade me to diet (*Encouraged*); When I think about dieting, I feel anxious (*Anxious about dieting*); and, When I think about dieting, I feel depressed (*Depressed about dieting*).

Decision-making questionnaire (DMQ). The Melbourne DMQ by Mann et al. (1997) measures four decision-making styles (vigilance, hypervigilance, buckpassing and procrastination) rated: not true for me (0); sometimes true for me (1); and, true for me (2). The four factors were verified in a multinational sample of 2051 university students; goodness of fit was .92 (Mann et al., 1997).

Risk-taking propensity was adapted from a scale developed for drug treatment program participants (Knight, Holcom, & Simpson, 1994; Simpson, 1992). The original seven items were retained; however the original 4-point rating scales were changed to strongly disagree (1) to strongly agree (7) to be consistent with other scales. After reversing negatively worded items, mean scores for the items were obtained ranging from 1 to 7. The original scale has satisfactory test-retest reliability and construct validity (Knight et al., 1992; Simpson & Joe, 1993).

All scales demonstrated adequate internal consistencies in this study (see Table 1). Cases of Cronbach's alphas under .80 were accounted for by small numbers of items (e.g., 3 to 4) and item-total *rs* for those scales were adequate.

Procedure

Following obtaining relevant ethics approvals, sign-up sheets were posted for female psychology undergraduates to participate in a study which asked people's opinions about weight loss behaviors. Questionnaires were completed in groups in classrooms. Initially, 256 students completed the questionnaire (which took 40-60 minutes) and were invited to complete a 5-minute follow-up survey in 3 months time. Those who accepted, wrote their name and address on the last page of the questionnaire as well as a code name on the first and last page of the questionnaire. The last page was detached and stored separately from the remainder of the survey to preserve students' confidentiality. Code names were used to match the initial questionnaire with the follow-up survey. Seventy-eight follow-up surveys were

returned completed. The same procedure was followed to recruit more participants to confirm the predictor model with a new cohort of psychology students a year later. A further 117 female undergraduate psychology students completed the questionnaire.

Results

Demographic information

Of the primary sample, 41% reported that they had dieted in the past three months: 14.5% dieted most days to everyday, 17.6% occasionally, and 9% rarely. A further 33.6% reported that they had dieted in the past but not in the last 3 months, and 25.3% reported that they had never dieted (although half of those reported thinking about dieting). Five percent ($n = 12$) of respondents reported having been diagnosed with an eating disorder (four with anorexia, three with bulimia, three with both and two unsure what type). The average length of treatment was 230 days, range = 0 - 730. These rates of disorder and dieting frequency suggest that the sample represented a diversity of experience with weight loss behaviors.

Descriptive information for the primary dieting sample

Only 18% of respondents indicated a negative *direct attitude* toward dieting (average rating below 4 for all semantic differential scales), 49% having a positive *direct attitude* (average rating above 4). Looking at some of the semantic differential scales individually, although more people considered dieting unpleasant (45%) than pleasant (33%), most respondents thought that dieting was beneficial (65%) rather than harmful. Forty percent of respondents indicated a high *intention* (rating 6 or 7) to diet in the next three months compared to 28% who indicated a high *intention* not to diet (rating 1 or 2).

Most respondents, 58%, believed that dieting is difficult and 50% reported that this makes them less likely to diet (*indirect perceived control*), but 74%

reported that they were confident they could diet in the next three months if they wanted to (*direct perceived control*). Forty-nine percent of participants reported that their mother, sister or best friend diets at least occasionally (*descriptive norm*).

Most respondents (82%) believed that gaining weight would be bad as opposed to good (*severity*), and 60% reported that they did not believe they were susceptible to gaining weight in the next 3 months. The mean score for *thinness value* was 8.14 ($SD = 4.1$, *Cronbach's alpha* = .72) indicating a low value for thinness. The mean BMI of the sample was 22.2 ($SD = 3.8$, range 15.2-38.6). Thirty-nine percent were mostly or completely satisfied, 28% were sometimes satisfied and 33% were rarely satisfied with their weight.

Seventy-four percent of participants considered themselves capable of dieting. Thinking about dieting made 50% of women feel anxious and/or depressed. Forty-nine percent of participants agreed that they have been successful at dieting, and 84% of participants agreed that they have seen others successful at dieting. Most respondents (64%) did not agree that others have persuaded them or suggested that they diet.

Representativeness of the follow-up sample

Independent group *t* tests were performed on all variables to assess any differences ($p < .05$) between women who completed the follow-up questionnaire versus those who did not. The only significant differences were for *age*, $t(254) = 2.3$, $p < .05$, and the body esteem *sexual attractiveness* scale, $t(254) = 2.6$, $p < .01$. Women who answered the follow-up survey were older (mean = 22.8 years versus 20.1 for full sample) and rated their own sexual attractiveness higher.

Correlations among variables

Correlations among variables are found in Tables 2 - 4. A high correlation (.79) between *self-efficacy* and *direct perceived control* indicated that they were

very similar concepts (see Table 2). Although these variables were highly correlated, they were still both included in the path analyses because, theoretically, they may represent different constructs.

Dieting *intention* was moderately to highly and positively correlated with all TPB variables except injunctive norm variables (see Table 3). The *injunctive norm of dieting* and the *injunctive norm of losing weight* were correlated .92, indicating that the variables were almost identical; therefore, the *injunctive norm of losing weight* was not included in the main path analyses. Furthermore, *intention* and *follow-up dieting* correlated moderately ($r = .57$) supporting the need to assess actual behavior rather than rely on the *intention* variable in modeling.

Path analyses results for primary dieting sample

A prediction model of dieting intention and behaviour was derived from a series of regression-based path analyses using the primary sample ($n = 256$). Regression analyses were carried out in 10 steps in which the following blocks of variables were entered: (1) the TPB variables; (2 & 3) the modified variables in the TPB; (4) the additional social norm variables; (5) prior dieting behaviour; (6) the HBM variables; (7) the weight-related variables; (8) the self-efficacy variables; (9) the decision-making and risk-taking propensity variables; and, (10) demographic variables. Significance of beta weights and percentage of variance accounted for in intention to diet and follow-up dieting were examined in each step. At each step, variables that were not significant predictors were eliminated until only significant predictors remained. The alpha level for variable retention was set at .01 to reduce Type 1 errors. To be concise, full path analysis results are reported only when the full model was reached. Backward regression was also performed to verify the forward stepwise findings, which yielded the same results. Tables 3 and 4, and Figure 1 show the results of the primary sample path analyses.

In examining TPB variables, *intention* mediated the effects of all variables, predicting 33% of the variance in *follow-up dieting* (see Table 4). *Direct attitude* and *indirect perceived control* predicted *intention* explaining 69% of the variance (see Table 3).

The next stage compared the betas and percentage of variance explained with a path from *indirect attitude* (14 items) to *direct attitude* with the results when *indirect attitude* was split into *pros* (6 items) and *cons* (8 items). When *indirect attitude* was split into *pros* and *cons* (still value X probability), 74% of the variance of *direct attitude* was explained compared to 69% before. Both *pros* (beta = .71) and *cons* (beta = .28) significantly predicted *direct attitude*, with *pros* of dieting being the stronger predictor. *Pros* also had a significant pathway to *intention* along with *indirect perceived control* and *direct attitude* explaining 71% of the variance (see Table 3). The results showed that splitting the *indirect attitude* measure into *pros* and *cons* of dieting both increased the variance explained in *direct attitude* and *intention* and demonstrated the strength that the *pros* measure has over the *cons* measure.

To further simplify the model, the next step explored whether the TPB *indirect attitude* measures could be replaced with *pros* and *cons* measures which contained the same items but only reflected probability. *Pros* (beta = .79) and *cons* (beta = -.17), reflecting only belief strength, significantly predicted 77% of the variance in *direct attitude*, as compared to 74% for *pros* and *cons* representing belief strength multiplied by outcome evaluation. Furthermore, *pros* reflecting belief strength directly predicted *intention* along with *indirect perceived control* and *direct attitude*, explaining 71% of the variance in *intention* (see Table 3). Given their greater simplicity and at least equivalent predictive utility, *pros* and *cons* measures based on belief strength alone were used in subsequent analyses.

Descriptive and representative social norms did not directly predict *follow-up dieting* (see Table 4). *Descriptive norm* did directly predict *intention* to diet (see Table 3). *Prior behavior* was only partially mediated by *intention* and directly predicted *follow-up dieting* behavior in combination with *intention* and *susceptibility* (see Table 4). With the addition of *prior behavior* to the model, *indirect perceived control* was no longer a predictor of *intention*.

Paths were tested between the variables, *severity*, *susceptibility*, *health value* and *thinness value* and the *intention* and *behavior* variables. *Susceptibility* was a significant predictor of *follow-up dieting* (see Table 4) and *severity* was a significant predictor of *intention* (see Table 3). None of the weight-related variables directly predicted *follow-up dieting* behavior; however, *BMI* and *satisfaction with weight* were significant predictors of *intention* (see Table 3). None of the *self-efficacy*, *risk-taking*, *decision-making* or *demographic* variables directly predicted *intention* or *follow-up dieting*.

The final paths to follow-up dieting and intention are presented in Table 5. Figure 1 depicts the final model for dieting showing the predictors of dieting *intention* and *follow-up dieting*. *Follow-up dieting* was predicted by greater *intention* to diet, more *prior dieting* and perceived low *susceptibility* to gaining weight. *Intention* to diet was predicted by a more positive *direct attitude* toward dieting, the perception that the *pros* of dieting were likely to occur, the perception that significant others dieted, *dissatisfaction with weight*, lower *BMI* and more *prior dieting*.

Confirmation of path model of intention to diet in Confirmatory Sample

A path analysis predicting *intention to diet* was conducted on the Confirmatory Sample ($n = 117$). Independent groups *t* tests were performed to assess any significant differences between the women in the primary and

confirmatory dieting samples. The women in the confirmatory dieting sample were on average two years younger ($p < .001$), 19 ($SD = 3.1$) versus 21 ($SD = 6.5$) years, had less value for health ($p < .05$), 20.2 ($SD = 4.8$) versus 21.3 ($SD = 4.4$), and were less likely to know others who were successful at dieting ($p < .05$), 4.9 ($SD = 1.7$) versus 5.3 ($SD = 1.7$).

The dieting path model was tested by regressing the same variables from the final path model onto the *intention* variable. Two-thirds (67%) of the significant paths in the primary dieting model were also significant ($p < .01$) in the confirmatory model ($\alpha = .01$) (Table 5). *Direct attitude, prior dieting, descriptive norm* and *satisfaction with weight* remained significant predictors of dieting *intention*. *Pros* and BMI were no longer direct predictors of dieting *intention*. Despite these differences, 72% of the variance in *intention* was explained, similar to the variance explained in the primary dieting model (77%).

Discussion

The aim of the present study was to predict dieting intention and behavior by using, modifying and extending the theory of planned behavior (TPB). The theoretical and clinical implications of the results are discussed below.

Theoretical Implications

TPB and additional variables

The first question involved how well the original TPB model explained follow-up dieting. *Intention* predicted *follow-up dieting*, explaining 33% of the variance and no other TPB variables added further to the prediction. These findings were consistent with how *intention* is theorized to operate in the TPB model and comparable to earlier research that has found *intention* generally explains between 20% and 40% of the variance in behavior in longitudinal studies (Conner & Armitage, 1998; Conner & Sparks, 1996; Godin & Kok, 1996). The results of the

TPB variable analyses are also similar to Armitage and Conner's (1999) findings that *intention* was the only significant TPB predictor of eating a low-fat diet, explaining 39% of the variance in self-reported dieting behavior.

The strongest predictor of dieting *intention* was *direct attitude* followed by *indirect perceived control*, with 69% of the variance of intention explained.

Reviews indicate that *direct attitude*, *perceived control*, and *injunctive norms* account for between 40% and 50% of the variance in *intention* (Ajzen, 1991; Conner & Armitage, 1998; Godin & Kok, 1996). The variance explained in *intention* to diet in the current research was higher despite only two variables, not three, predicting intention. Injunctive norms did not predict intention in this study, which is a common finding (Ajzen, 1991).

Modification to indirect attitude measure

Before additional variables could be considered, analyses were conducted to assess whether simplification of the indirect attitude measure would detract from its predictive ability. Findings showed that *indirect attitude* only needed to reflect how likely women perceived the outcomes to be, rather than include a measure of evaluation of outcomes. Other researchers (e.g., Holbrook & Hulbert, 1975; Lawler & Suttle, 1973) have also found that the addition of a measure of importance did not improve the predictability of the attitude measure. Future research should further explore the possibility that *indirect attitude* variables need only be a function of belief strength (probability) by varying the sample or behavior being studied.

Consistent findings supporting only the necessity to assess probability of outcomes would mean that researchers could measure and interpret *indirect attitude* more easily. Researchers should also explore modifying the indirect attitude measure by splitting it into *pros* and *cons*, allowing models to illustrate the relative strength of

the perceived advantages and disadvantages of a behavior on direct attitude, and thereby, more accurately direct prevention and intervention strategies.

Additional variables

Although variables in the TPB were able to predict an adequate proportion of the variance in *intention* to diet and *follow-up dieting*, including additional variables in the model was useful in increasing the variance explained. As discussed earlier, *intention* was the only predictor of *follow-up dieting* in the TPB, explaining 33% of the variance. In the final model, the inclusion of *prior behavior* and *susceptibility* accounted for an additional 13% of the variance in follow-up dieting, with *prior behavior* becoming the strongest predictor.

In predicting *intention* to diet, 69% of the variance in *intention* was explained by *direct attitude* and *indirect perceived control* in the TPB model. The addition of *prior dieting*, *satisfaction with weight*, *descriptive norm*, *pros* and *BMI* increased the variance explained in *intention* by 8% with *indirect perceived control* no longer being a significant predictor. The variables, *pros* and *BMI* did not hold up in confirmatory analyses for the model. When the 10-step process was repeated for the confirmatory sample, there were four significant predictors: *direct attitude*, *prior dieting*, *descriptive norm*, and *severity*.

Therefore, given the path analysis results, one could argue that *prior dieting*, *satisfaction with weight*, *descriptive norm* (as replicated predictors of intention), *susceptibility* (as a predictor of follow-up behavior), and possibly *severity*, *pros* and *BMI* (as non-replicated predictors of intention) may be useful additions to the TPB model to test in future research on dieting behavior.

Particular attention should be paid to results concerning *prior behavior* as it was a significant predictor of both *intention* and *follow-up dieting*. Although several studies have found that prior behaviour predicted a variety of health

behaviours when added to the TRA/TPB model (Ajzen, 1991; Godin et al., 1992; Mullen et al., 1987; Norman & Conner, 1996); earlier studies predicting weight loss behaviour found that *prior behavior* did not predict future behavior (Ajzen & Madden, 1986; Netemeyer et al., 1991). *Descriptive norm*, how frequently women perceived that significant others (mother, friend, etc.) dieted, was the only social norm variable that directly predicted dieting *intention*. The results from the present study suggest that participants' dieting behavior was more directly influenced by whether significant others modeled the behavior (*descriptive norm*) rather than whether they approved or disapproved of it (*injunctive norm*) or whether their role models in the media were thin and they wished to look like them (*representative norm*). Prior research into the effects of modeling in weight loss behaviors have suggested that normative effects are complex and may vary depending on the age of the individual, the particular normative models being assessed, and the specific weight loss behavior being predicted (Dunkley, Wertheim, & Paxton, 2001; Wertheim, Mee & Paxton, 1999; Wertheim, Martin, Prior, Sanson & Smart, 2002). It is, therefore, important for the current results to be replicated in a variety of samples examining different types of norms to ascertain whether they are generalizable.

As mentioned before, *susceptibility* significantly predicted *follow-up dieting*. Women who rated it as less likely that they would gain weight in the next 3 months, were more likely to report having dieted at the three-month follow-up point. This was opposite to the expected result that the more susceptible to gaining weight women felt they were, the more likely they would be to diet in the future. A possible reason for the negative relationship of *susceptibility* to *follow-up dieting* is that the item used was not measuring *susceptibility* but instead, women may have rated themselves as less likely to gain weight in the next 3 months because they

knew they would be dieting. Therefore, *susceptibility* may have been a measure of how confident they were that dieting would keep them from gaining weight. Future studies would benefit by measuring *susceptibility* differently (e.g., I have a tendency to gain weight easily, or I am naturally overweight).

Variables that assessed general characteristics of participants like *health value*, *thinness value*, *risk-taking propensity*, *decision-making style* and demographic information did not contribute to the prediction of any other variables in the model.

In summary, results indicated that the variables: *prior dieting*, *susceptibility*, *satisfaction with weight*, and *descriptive norm* may be useful additions to a model predicting the *intention to diet* and *follow-up dieting*. Although adding variables to the TPB model is at the expense of parsimony, they give useful information about how decisions to participate in these behaviors are made. Of course, it is important to replicate these findings for dieting as well as other weight loss behaviors among several different populations before permanent additions to the model are made.

Clinical implications related to dieting prevention and intervention

Several variables in the dieting model were identified as possible risk factors to target in the prevention and intervention of eating disorders. There are two main types of prevention: primary and secondary (Franko & Orosan-Weine, 1998; Mann, Nolen-Hoeksema, Huang, Burgard et al., 1997). Primary prevention refers to the goal of preventing the onset of a disorder, while secondary prevention is primarily concerned with detecting and treating those who already exhibit early symptoms of a disorder and with preventing the worsening of those symptoms. For dieting, *intention*, *direct attitude*, *prior dieting*, *susceptibility* and *descriptive norm* appeared to be the most relevant variables to focus on for secondary (and possibly primary)

prevention efforts as they were the strongest, most consistent (replicated in two samples), and direct predictors of *follow-up dieting* and *intention*.

Prior dieting was the strongest predictor of *follow-up dieting* suggesting that, once women begin to diet, they are more likely to continue to diet in the future (presumably whether they are successful or not). That *prior behaviour* was the strongest predictor of *follow-up dieting* and was only partially mediated by *intention* may reflect that dieting had become a habitual behavior, or that any attempt at dieting, whether perceived as successful or not, could lead to future dieting attempts. *Prior dieting* also predicted *intention*. Although this predictor does not offer a point of intervention, it is strong evidence that prevention efforts are highly important, since once dieting begins it appears it may start a pattern of continued dieting. Several studies have shown that girls begin dieting at very young ages (Griffiths & McCabe, 2000; Shapiro, Newcomb & Loeb, 1997; Wertheim, Koerner, & Paxton, 2001; Wertheim, et al., 2002) and a recent study's finding suggested that dieting behaviour becomes fairly stable by age 13 (Wertheim, et al., 2001); therefore, primary prevention strategies may be most effective if they target pre-adolescent girls.

The second strongest predictor of follow-up behavior, *intention*, presents the most useful target for intervention. As stated earlier, the strongest influence on dieting *intention* was *direct attitude*, a measure of how positive or negative women view dieting behavior. Given the strong predictiveness of *direct attitude*, interventions are needed which aim to change salient beliefs or introduce novel, previously nonsalient, beliefs (Ajzen & Fishbein, 1980).

Almost half (49%) of the women who participated in this study had a positive attitude toward dieting, and only 18% indicated a negative direct attitude toward dieting. The development of a positive attitude toward dieting was primarily

based upon women's perceptions of the likelihood of the *pros* of dieting occurring. Of the six *pros* assessed, most respondents believed dieting was likely to result in losing weight (76%), looking better (73%), becoming healthier (66%), increasing self-esteem (53%) and being more in control of their body (51%). Only 33% of respondents believed that dieting would make them more in control of their lives.

Research shows that the above perceived advantages of dieting, particularly weight loss, although perhaps likely in the short-term, are generally unlikely over the long-term (Heatherton & Polivy, 1992; Polivy & Herman, 1983; Stunkard & Pennick, 1979; Wilson & Brownell, 1980). In fact, most women who diet are not successful at changing their weight permanently (Burgard & Lyons, 1994; Heatherton & Polivy, 1992; Polivy & Herman, 1983; Stunkard & Pennick, 1979; Wilson & Brownell, 1980). Burgard and Lyons (1994) found that 90% to 98% of dieters either failed to lose weight or gained additional weight in the long-term. Furthermore, because diets are seldom successful in the long term, individuals who choose to continue dieting may have increasingly diminished self-esteem, and heightened negative affect, and dieting may even promote the onset of more serious eating disorders (Heatherton & Polivy, 1992; Patton et al., 1990, 1999). Therefore, the desire for long-term weight loss, increased self-esteem, feeling in control, looking better and being healthier is often sabotaged by going on diets.

Overall, 58% of the sample believed that the *cons* were unlikely to occur, while only 10% believed that they were likely. Most respondents believed that dieting would not lead to an eating disorder (82%), lower their self-esteem (77%), or affect their social lives (78%). A minority did believe dieting was likely to put them in a bad mood (30%), make them feel guilty when they ate (37%), leave them with less energy (30%) and lead becoming obsessed with food (31%).

Educating women about the actual likelihood of the perceived *pros* of dieting occurring appears to be a fruitful area of intervention. This approach could involve helping women to explore alternatives that would more likely achieve the desired *pros*, such as increasing the consumption of healthy food and exercising regularly for health, utilizing cognitive-behavioral strategies to satisfy self-esteem needs, challenging the high value that Western society places on thinness and appearance, and promoting individuality, and realistic, nonperfectionistic attitudes. Furthermore, since the belief that the disadvantages of dieting were unlikely to occur was also a significant predictor of *direct attitude*, it may also be helpful to bolster women's beliefs about the likelihood of *cons* occurring. Efforts should be made to develop innovative and creative programs rather than employing purely didactic formats which have generally resulted in improved knowledge but not changes in behavior (Franko, & Orosan-Weine, 1998).

A substantial 49% of participants reported that their mother, sister or best friend diets at least occasionally (*descriptive norm*). *Descriptive norm* was the only social norm to predict *intention*, possibly indicating that the modeling of dieting behavior was more influential than the views about dieting of significant others and role models from the media. A range of studies have indeed supported the idea that dieting is likely to occur in a subculture that engages in weight loss behaviors (Dunkley, et al., 2001; Paxton, Schutz, Wertheim & Muir, 1999), although modeling effects are not found in all studies and direct encouragement to diet or lose weight is often found to be a stronger predictor of moderate dieting than is modeling, particularly in children and early adolescents (Wertheim, et al., 1999; Wertheim, et al., 2002).

In contrast to the *descriptive norm* findings, the results suggested that social disapproval of dieting (*injunctive norm*) is not likely to be an effective tool for

intervention for university age females, since most respondents reported that they did not behave according to their significant others' opinions. However, as a target for intervention, "a descriptive social norm focus will be effective prosocially only when most individuals already do behave in a socially desirable way" (Cialdini et al., 1991, p. 231). Because dieting is such a widely practiced behavior, it would be necessary to challenge the perceived merits of dieting on a societal level, perhaps involving the media in changing socio-cultural attitudes about weight and beauty and educating people of the potential dangers of dieting.

Methods issues

As with most studies of this sort, sampling bias and response bias are limitations of the research. Firstly, there may be differences between the women who volunteered to participate in this research and those who did not. Women with eating or weight problems may have been either more or less likely to participate in the study; in either case, the sample may not reflect a general population of college women. In regard to response bias, steps were taken to ensure the anonymity and confidentiality of the participants in order to circumvent the possibility of social desirability affecting response; however, it is not possible to completely avoid socially desirable responses in research relying on self-report data.

The measures utilised in this study were based on guidelines from Azjen (1991) and Connor and Sparks (1996) and the multiple-item measures showed adequate internal reliability. While there was no test-retest reliability information for several single-item measures, three-month correlations between prior dieting behaviour and follow-up dieting indicated substantial stability, and confirmatory analyses replicating several findings in the primary sample suggest that these findings were robust.

The *follow-up* sample was smaller than the full primary sample and while they were similar on most measures, on two measures the follow-up sample differed from participants who did not take part in the follow-up (reporting slightly higher age and a higher opinion of their own sexual attractiveness). Therefore, the results for the prediction of *follow-up* needs to be replicated before definitive conclusions can be made, and replication on different types of community samples is warranted.

The current study defined dieting and distinguished dieting from fasting rather than relying on participants' personal perceptions of these terms. However, there may be different varieties of 'diets', some that can be considered health-promoting behaviors and others that can be considered risk-taking behaviors, and motivations to diet may differ in these contexts. Although the definition of dieting in this study did include restriction "for a specific period of time with the purpose of losing or maintaining weight" in an attempt to distinguish this type of dieting from dieting that involves commencing long-term healthful eating styles, future research should further emphasise this distinction and work to create standardized measures of 'healthy' and 'unhealthy' dieting.

Future directions and summary

Future studies could employ the procedures of the present study to predict other weight loss behaviors like fasting, laxative use, self-induced vomiting, and drug use for the purpose of weight loss as well as distinguishing between 'healthy' and 'unhealthy dieting'. Prediction models of more extreme behaviors may differ from dieting in that the *cons* and *risk-taking propensity* may be more relevant variables.

Although a sizeable percentage of variance was predicted in *intention* variables, a considerable amount of variance remained unexplained for *follow-up*

behavior. Other variables that were not included in the models may explain more of the variance in behavior, such as personality or affective variables.

In summary, this research provided a cognitive predictor model for dieting. In the final predictor model, 46% of the variance in *follow-up dieting* was explained by *prior dieting*, *intention to diet* and *susceptibility* of gaining weight and 77% of the variance in *intention* was explained by *direct attitude*, *prior dieting*, *satisfaction with weight*, *pros* of dieting, *descriptive norm* and *BMI*. In confirmatory analyses of the dieting model, approximately two-thirds of the paths were confirmed with *direct attitude*, *prior dieting*, *descriptive norm* and *satisfaction with weight* remaining predictors of *intention* explaining 72% of the variance. The results related to *prior dieting* and *direct attitude* support the importance of primary prevention efforts beginning prior to the first onset of dieting behaviors and addressing perceived positive outcomes of dieting which are in fact inaccurate. Predicting weight loss behaviours using social cognition models appears to be a fruitful area for future research.

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Table 1

Descriptive information and internal consistency for all measures

	# of items	<i>M</i>	<i>SD</i>	Range	Alpha	Item total <i>rs</i>
Follow-up dieting	5	1.7	1.1	1-5	-	-
Prior dieting	5	2.6	1.4	1-5	-	-
Intention	1	4.4	2.2	1-7	-	-
Direct attitude	5	22.8	8.5	5-35	.94	.62-.92
Indirect attitude	14	2.3	53.3	-174-110	.86	.25-.73
Pros (strength x prob)	6	61.5	32.4	-8-126	.86	.59-.73
Cons (strength x prob)	8	-59.1	31.3	-168-18	.83	.45-.68
Pros (only probability)	6	26.9	8.9	6-42	.87	.38-.78
Cons (only probability)	8	23.6	10.7	8-56	.86	.51-.71
Injunctive norm of dieting	4	-16.3	23.9	-84-84	.87	.67-.80
Injunctive norm of losing wt.	4	-18.2	25.9	-84-84	.86	.63-.81
Descriptive norm	3	3.7	1.4	1-7	.60	.36-.50
Representative norm	3	11.4	24.4	-57-63	.80	.64-.70
Direct perceived control	1	5.2	1.7	1-7	-	-
Indirect perceived control	1	-0.2	6.7	-21-21	-	-
Severity	1	-1.8	1.5	-3-3	-	-
Susceptibility	1	3.0	1.5	1-7	-	-
Health value	4	21.3	4.4	6-28	.65	.34-.53
Thinness value	4	8.1	4.1	4-28	.72	.50-.54
BMI	1	22.2	3.8	15.2-38.6	-	-
Current size	1	7.1	2.4	1-15	-	-
Ideal size	1	5.2	1.6	1-12	-	-
Satisfaction w/ weight	1	3.0	1.2	1-5	-	-
Body esteem (weight)	10	25.3	8.5	10-50	.89	.53-.77
Body esteem (sexual)	13	43.1	7.0	15-65	.79	.29-.59
Body esteem (physical)	9	28.7	7.0	12-45	.87	.49-.71
Self-efficacy	1	5.2	1.7	1-7	-	-
Past success at dieting	1	4.3	2.0	1-7	-	-
Others' success at dieting	1	5.3	1.7	1-7	-	-
Encouraged to Diet	1	2.9	2.0	1-7	-	-
Anxious about dieting	1	3.6	1.6	1-7	-	-
Depressed about dieting	1	3.5	2.0	1-7	-	-
Vigilance	6	9.4	2.1	3-12	.71	.35-.49
Hypervigilance	5	5.1	2.4	0-10	.73	.46-.54
Buck-passing	6	4.5	3.0	0-12	.75	.40-.73
Procrastination	5	3.9	2.4	0-10	.83	.44-.62
Risk-taking propensity	7	3.8	1.1	1-7	.79	.47-.60

Note: Follow-up dieting $n = 77$, other $ns = 253-256$.

Table 2

Correlations among self-efficacy and perceived control variables

Variables	1	2	3	4	5	6	7
1. Direct PC	-						
2. Indirect PC	.32***	-					
3. Self-efficacy	.79***	.33***	-				
4. Past success	.60***	.38***	.65***	-			
5. Others success	.35***	.27***	.42***	.47***	-		
6. Encouraged	.14*	.21***	.14*	.18**	.25***	-	
7. Anxious about dieting	-.16*	-.06	-.19**	-.05	-.04	.21**	-
8. Depressed about dieting	-.15*	-.20**	-.14*	-.08	-.06	.10	.60***

* $p < .05$, ** $p < .01$, *** $p < .001$, PC = perceived behavioural control.

Table 3

Results of the path analyses of intention to diet onto predictor variables and correlations between intention and predictor variables

Predictor Variables	Intention to diet							
	Univariate <i>r</i>	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7
Adjusted R^2		0.69	0.70	0.71	0.73	0.76	0.76	0.78
Direct attitude	.82***	0.68****	0.60****	0.60****	0.56****	0.43****	0.42****	0.37****
Indirect attitude	.71***	0.11	N/A	N/A	-	-	-	-
Injunctive norm	-.05	-0.01	-0.02	-0.04	-	-	-	-
Direct PC	.32***	-0.06	-0.05	-0.05	-	-	-	-
Indirect PC	.50***	0.15***	0.13**	0.13**	0.12**	0.06	-	-
Pros (val x prob)	.76***		0.23****	N/A	-	-	-	-
Cons (val x prob)	.43***		-0.01	N/A	-	-	-	-
Pros (only prob)	.78***			0.26***	0.21**	0.20**	0.16*	0.15*
Cons (only prob)	-.37***			0.09*	0.08	-	-	-
Descriptive norm	.47***				0.15****	0.11**	0.11**	0.11**
Representative norm	.26***				0.00	-	-	-
Prior dieting	.68***					0.25****	0.27****	0.22****
Severity	.51***						0.11**	0.09*
Susceptibility	-.03						0.06	-
Health value	-.06						-0.01	-
Thinness value	.40***						0.01	-
BMI	.24***							-0.09*
Current size	.34***							-0.03
Ideal size	-.07							0.02
Satisfied w/weight	-.64***							-0.19***
BE (wt concern)	-.58***							-0.04
BE (phys cond)	-.27***							-0.03
BE (sex attract)	-.14*							0.02

* $p < .05$, ** $p < .01$, *** $p < .001$, **** $p < .0001$; $n = 256$; PC = perceived control, val = value, prob = probability, BMI = body mass index, BE = body esteem.

Note: Last 3 steps are not shown in table because no change to model occurred when self-efficacy, risk-taking/ decision-making style, and demographic variables were entered.

Table 4

Results of path analyses of follow-up dieting onto predictor variables and correlations between follow-up dieting and predictor variables

Predictor Variables	Follow-up dieting						
	Univariate <i>r</i>	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6
Adjusted R^2		0.33	0.32	0.33	0.36	0.41	0.47
Intention	.57***	0.50**	0.47*	0.42*	0.44***	0.27*	0.37**
Direct attitude	.48***	-0.09	-0.11	-0.15	-	-	-
Indirect attitude	.37**	0.01	N/A	N/A	-	-	-
Injunctive norm	.00	-0.06	-0.06	-0.08	-	-	-
Direct PC	.33**	0.09	0.09	0.07	-	-	-
Indirect PC	.45***	0.22*	0.22*	0.22*	0.23*	0.13	-
Pros (val x prob)	.49***		0.08	N/A	-	-	-
Cons (val x prob)	.23*		-0.02	N/A	-	-	-
Pros (only prob)	.50***			0.22	-	-	-
Cons (only prob)	-.13			0.09	-	-	-
Descriptive norm	.34**				0.10	-	-
Representative norm	-.02				-0.17	-	-
Prior dieting	.61***					0.37**	0.33**
Severity	.25*						-0.09
Susceptibility	-.21						-0.29**
Health value	-.18						-0.07
Thinness value	.29*						0.16

* $p < .05$, ** $p < .01$, *** $p < .00$; $n = 77$; PC= perceived control, val = value, prob = probability.

Note: Last 4 steps are not shown in table because no change to model occurred when weight-related, self-efficacy, risk-taking/decision making style and demographics were entered.

Table 5

Final paths for the primary sample predicting intention to diet (n=256) and follow-up dieting (n=77) and final paths for the confirmatory sample predicting intention to diet (n=117)

Sample and Criterion Variable	Predictor Variable(s)	<i>r</i>	<i>R</i>	Adj <i>R</i> ²	Overall <i>F</i>	β	<i>t</i>
Primary sample <i>Intention to diet</i>	Attitude	.820***	.883	.774	144.2*****	.404	6.4*****
	Prior dieting	.679***				.221	5.5*****
	Satisfied with wt.	-.636***				-.220	-5.3*****
	Pros (only prob)	.776***				.169	2.8**
	Descriptive norm	.474***				.106	3.1**
	BMI	.237***				-.094	-2.7**
Primary sample <i>Follow-up dieting</i>	Prior dieting	.611***	.693	.459	22.8*****	.378	3.4**
	Intention to diet	.572***				.350	3.1**
	Susceptibility	-.207*				-.237	-2.8**
Confirmatory Sample <i>Intention to diet</i>	Attitude	.774***	.858	.722	50.8*****	.420	4.3*****
	Prior dieting	.689***				.336	5.6*****
	Satisfied with wt.	-.502***				-.141	-2.2*
	Pros	.661***				.089	1.0
	Descriptive norm	.359***				.153	2.9**
	BMI	.309**				-.017	-0.3

p* < .05, *p* < .01, ****p* < .001, *****p* < .0001; wt= weight.

Figure Caption

Figure 1. Significant paths ($p < .01$) to *intention* and *follow-up dieting* for the primary sample.

