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Weight and its relationship to adolescent perceptions of their providers (WRAP): A qualitative and quantitative assessment of teen weight-related preferences and concerns

Marc L. Cohen, M.D.^{a,b}, Marian Tanofsky-Kraff, Ph.D.^a, Deborah Young-Hyman, Ph.D.^a, and Jack A. Yanovski, M.D., Ph.D.^{a*}

^aUnit on Growth and Obesity, Developmental Endocrinology Branch, National Institute of Child Health and Human Development, National Institutes of Health, Department of Health and Human Services, Bethesda, Maryland ^bUniversity of Pennsylvania School of Medicine, Philadelphia, Pennsylvania

Abstract

Purpose—To examine the relationship of body weight to satisfaction with care in adolescents, and to obtain qualitative data on preferences for general and weight-related medical care in normal weight and overweight adolescents.

Methods—The Weight and its Relationship to Adolescent Perceptions of their Providers survey, a 4-page questionnaire containing previously validated satisfaction scales and open-ended qualitative questions regarding health care preferences, was administered to 62 severely overweight (body mass index [BMI] 38.9 ± 8.4 kg/m²) and 29 normal weight (BMI 22.5 ± 4.0 kg/m²) adolescents (age 13.9 ± 1.7 years; 57% female; 50% Caucasian, 47% African-American, 3% Hispanic).

Results—The affective subscale of the medical satisfaction scale was negatively correlated with BMI standard deviation score ($r = -.22, p < .05$). Multiple regression models predicting affective satisfaction with medical care included BMI standard deviation score; however, continuity with provider appeared to be the strongest independent predictor of affective satisfaction. Fifty-five percent of participants identified their mother as the person they felt most comfortable talking with about weight, although 68% believed their provider knew the most about healthy eating. “Overweight” was identified by 47% of participants as the preferred term for heavy teens. Seventy-nine percent of overweight adolescents stated their health care provider discussed their weight with them; however, only 41% of overweight adolescents desired to discuss their weight. Compared to normal-weight adolescents, overweight teens were more likely to report that their provider raised topics of weight ($p < .001$), diet ($p < .01$), and exercise ($p < .01$) at their last physical, and were more likely to report that they would have liked their provider to discuss diet and exercise (both $p < .05$). Ten percent of overweight teens expressed concerns regarding the public location of their provider’s office scale.

Conclusions—Satisfaction with affective aspects of the provider-patient relationship is negatively correlated with BMI standard deviation score. Length of experience with one’s provider is also a strong predictor of teen satisfaction with their medical care. Teens prefer the term “overweight” for those with high body weight. Sensitivity to confidentiality, privacy, and embarrassment regarding physical examination and weight are important for teen satisfaction.

*Address correspondence to: Jack A. Yanovski, M.D., Ph.D., Unit on Growth and Obesity, DEB, NICHD, NIH, 10 Center Drive, Building 10, Room 10N262 MSC 1862, Bethesda, MD 20892-1862. E-mail address: jy15i@nih.gov.

Keywords

Adolescent; Adolescent medicine; BMI; Overweight; Obesity; Patient satisfaction; Doctor-patient relationship; Provider-patient relationship

A significant proportion of American children are overweight. The 1999–2000 National Health and Nutrition Examination Survey (NHANES) found that 15.5% of 12–19-year-olds and 15.3% of 6–11-year-olds are overweight, defined as a body mass index (BMI) exceeding the 95th percentile for age and gender [1]. Child and adolescent overweight are associated with a myriad of medical and psychosocial consequences [2–5].

Overweight adults report feeling stigmatized, stereotyped [6], and treated disrespectfully [7] within their communities and by medical professionals. Health care providers, nurses, and medical students have been reported to perceive obese adult patients as lazy and lacking self-control [8,9] and to believe they are less likely to comply with prescribed treatment regimens than patients of normal weight [10,11]. Based upon these findings, it is perhaps not surprising that many overweight adults report that physicians do not understand the extent to which overweight causes difficulty in their lives [12]. It has also been suggested that poor patient-provider dynamics might contribute to the lower rates of compliance with preventive and follow-up health care in overweight adults [13–15].

To our knowledge, no previous study has examined the relationship of weight to satisfaction with care or perceptions of health care providers in adolescents. The characteristics adolescents typically desire in their providers have been found to be different from those of adults [16–19]. Teens report greater concern with provider characteristics than with site or system characteristics [18] and that the style of provider interaction with them is of greater importance than the content of that interaction [16]. Issues surrounding the patient-provider relationship are particularly important to address in the adolescent population, as many of the issues relevant to adolescent health care require teenagers to trust their provider and feel that the provider's office is safe, confidential, and non-judgmental.

We therefore assessed satisfaction with care within an adolescent population, specifically examining the relationship of teens' weight to teen perceptions of the patient-provider relationship. This study presents the first data from a newly developed questionnaire designed to assess satisfaction with both overall and weight-related medical care, and to identify associations between weight and perceptions of the patient-provider relationship, in an adolescent population. We hypothesized that, compared to normal-weight (NW) adolescents, overweight (OW) teens would report lower satisfaction with general and weight-related health care.

Knowing that questionnaires designed by adult investigators may ask questions of importance to adults but neglect issues of importance to teens [20], a second goal of this study was to obtain qualitative data directly from teens regarding potential sources of weight-related discomfort or concern in a physician's office. Prior studies have found that a surprisingly large number of teens hope that providers will discuss weight, diet, and exercise with them [21–23], but it is unknown whether OW teens are more willing or more resistant to discuss these topics compared to NW teens. We sought to identify teen preferences surrounding approaches to weight-related care, and to highlight aspects of provider-patient interactions that may differ between teens of various body weights.

Methods

Study participants

Participants were 91 adolescents involved in ongoing studies at the National Institutes of Health (NIH), all of whom were originally recruited through advertisements in local newspapers, or through mailed notices to children in the Montgomery and Prince Georges County school districts of Maryland, as well as the Washington, DC area. In the case of OW adolescents, participants were also recruited through local physician referrals. Fifty-three percent of subjects were participating in treatment studies for OW adolescents with comorbid medical conditions and 47% were OW and NW healthy adolescents participating in longitudinal metabolic and psychological studies (Table 1). Questionnaires were completed at the Warren Grant Magnusson Clinical Center by 48 children taking part in treatment studies, and either at the Clinical Center ($n = 13$) or in their homes ($n = 30$) by 43 children taking part in longitudinal studies. The National Institute of Child Health and Human Development Institutional Review Board approved administration of this questionnaire. Signed consent and assent forms were obtained from parents and their children.

Study design

Participants were asked to complete a 4-page questionnaire (Questionnaire of Weight and its Relationship to Adolescent Perceptions of their Providers – Preliminary version, [WRAP-P]–available from corresponding author). Participants were informed that the purpose of the questionnaire was to help investigators learn more about what teens want from their doctors. Participants were instructed that the WRAP-P referred to their last visit with their regular health care provider for a health physical, and that responses were confidential. Adolescents were instructed to take as much time as necessary to complete the WRAP-P, and to note any question they found confusing or unclear.

Physical measurements

Height and weight measurements were performed on the day of their clinic visit for adolescents completing the questionnaire at the NIH and obtained from a recent clinic visit for participants completing the survey at home. Measurement of height (measured 3 times to the nearest millimeter) was performed using a stadiometer (Holtain, Crymmych, Wales) calibrated before each child's measurement. Weight to the nearest .1 kg was obtained using a calibrated digital scale (Scale-Tronix, Wheaton, IL). Body mass index (BMI) and BMI standard-deviation score (BMI-SD), a z score accounting for age, race, and gender [24] were calculated.

WRAP-P Development

The WRAP-P contained 2 sections. Section 1 was comprised of 43 short answer and multiple-choice questions. Questionnaires were derived from validated patient satisfaction scales, designed for both adults and children [12,16,25–28]. The first 9 questions of Section 1 assessed potential predictors of adolescents' satisfaction with their medical and weight-related care. Survey items assessed each respondent's age, gender, and related demographic information, as well as each respondent's previous health care interactions (including the number of visits with that provider). The next 8 items (WRAP-P questions 10–17) generated the affective subscale, which assesses the "patient's perception of the treatment relationship, including feelings of trust and confidence in the doctor, and perceptions of the doctor's positive regard for the patient and willingness to listen to his/her concerns" [25]. The behavioral subscale, WRAP-P questions 18–24, was intended to measure "the patient's evaluation of the physician's professional behavior, physical exam, diagnostic procedures, treatments, and dispensation of advice" [25]. Both the affective and behavioral subscales were adapted directly from the "Medical Interview Satisfaction Scale" designed by Wolf and et al. [25], with slight

modifications made to question wording. Additionally, 2 questions from Wolf et al's original questionnaire (no. 4 of Wolf's affective subscale and no. 4 of Wolf's behavioral subscale) were felt not to be relevant to an adolescent population, and were not included. Validation studies demonstrated that the original scales had Cronbach's alpha coefficients of .86 for the affective scale and .87 for the behavioral scale in adults. Furthermore, the range of responses was wider than previously developed satisfaction scales and approached a normal distribution [25]. Question no. 25 ("The doctor/nurse practitioner understood that I may be embarrassed when I undress and gave me privacy") was designed based on statements made by teenagers in a study by Ginsburg et al. [29]. Question nos. 1–25, which did not mention weight, were intentionally placed before the weight-related questions that followed, to prevent biasing of responses to these general satisfaction questions. Question nos. 26–30 were derived from items used in a satisfaction questionnaire designed for obese adults [12], and sought whether participants disliked, or avoided, seeing their health care provider specifically because of their weight, as well as whether they felt disrespected because of their weight. Question nos. 31–35 were original to the WRAP-P, and queried participants whether their providers discussed weight with them, whether they wished to have weight discussed, who (provider, patient, or parent) raised the subject of weight, whether a parent was present with the child during weight-related discussions, and whether the provider set appropriate goals. Question nos. 36–42 were adapted from questions used by Wadden et al. [12] to assess satisfaction with weight-related care among obese adults. Question no. 43 presented a series of 8 body silhouettes for self-identification of body size designed by Stunkard et al. [30], subsequently widely used in the study of body image [31], and previously adapted for adolescents [32]. Self-reported silhouette rankings by children are predictive of actual BMI (Spearman Rho = .68 [33]). Participants were asked to "circle the drawing that most looks like you now." Responses were recorded as a number from 1 (quite thin) to 8 (quite heavy).

Section 2 of the WRAP-P consisted of original questions in both open-ended and checklist formats, seeking information regarding preferences for provider characteristics and behaviors, office setup and equipment, topics that their provider had discussed with them, topics they would have wanted their provider to discuss, and preferred terms for use in referring to OW.

Data analysis

Prior to data analysis, surveys were screened for any questionnaires lacking interquestion variability in responses (deemed very unlikely, given inclusion of reverse-scored questions). Questionnaires from 5 participants were deemed "non-reliable" and were not included in subsequent quantitative data analyses.

Participants were grouped as OW (BMI-SD score ≥ 2 SD for age, gender, and race [24]) or NW (BMI between -2 and 2 SD) based upon BMIs derived from actual measurements of height and weight. Analysis of differences between OW and NW subjects, as well as between reliable vs. non-reliable respondents, were performed using χ^2 and independent samples t test analyses using StatView for Windows (version 5.01, SAS Institute, Cary, NC). Fisher exact tests (Stat Xact, Cytel Software Corporation, Cambridge, MA) for groupings with < 5 respondents in a field, were also used to analyze differences between the OW and NW groups in responses regarding perceived barriers to care, preferences for care, and interest in health and weight-related topics. All other comparisons using simple regression and t tests were performed using StatView.

Scores on the medical satisfaction scales were a sum of responses from multiple questions. Thus, respondents' data were only included in analysis for a scale if they had answered all of the questions for that particular scale. For analyses on the total satisfaction scale scores $n = 78$, for the affective subscale $n = 81$, and for the behavioral subscale $n = 83$.

Bivariate correlations and *t* tests were used to determine which of a predetermined set of suspected predictor variables were used as potential covariates for each of the medical satisfaction scores. For the purposes of these models, non-black Hispanic subjects were coded together with Caucasians. There were no black-Hispanic subjects. Exclusion of Hispanic subjects did not change any finding significantly. No significant relationships were detected for any of the satisfaction scores by either race or gender. Bivariate correlations between satisfaction scores and age, socioeconomic status (SES), measured BMI-SD, experience with provider, and amount of time parent accompanied child during their visit revealed significant correlations with age, BMI-SD, and experience with one's provider. Thus, these variables were included in subsequent multiple regression models. To examine satisfaction scale scores by weight groupings (NW vs. OW), analyses of covariance (ANCOVAs) were performed, controlling for experience with provider and subject age. These analyses were performed on SPSS for Windows (version 11.5, SPSS Inc., Chicago, IL). All tests were 2-tailed and significance was defined as $p < .05$.

Results

Sample characteristics

There were no statistically significant differences in age, gender, race, or SES between NW and OW participants (Table 1). Comparison of the 5 respondents deemed "non-reliable" to the 86 other respondents revealed no significant differences in measured variables, but significantly greater body silhouette scores (consistent with a larger body size) in reliable respondents.

Impact of weight upon overall satisfaction with care and perceptions of affective and behavioral aspects of providers

Neither the overall medical satisfaction score nor the behavioral subscale of the satisfaction score was significantly correlated with BMI-SD ($r = -.18$; $p = .12$ and $r = -.12$; $p = .29$, respectively). However, the affective satisfaction subscale score was negatively correlated with BMI-SD ($r = -.22$; $p < .05$).

Multiple regression analyses using each satisfaction scale score as the dependent variables were performed including the following predictor variables: age, measured BMI-SD, and experience with provider. For total satisfaction score, a model containing experience with provider and age accounted for 22% of the variance; measured BMI-SD was not a significant additional predictor. For the affective subscale score, a model containing measured BMI-SD and experience with provider accounted for 19% of the variance; age was not a significant additional predictor. For the behavioral subscale score, a model containing age and experience with provider accounted for 19% of the variance; measured BMI-SD was not a significant additional predictor.

In analysis of variance models with weight status (BMI < 2 SD vs. BMI ≥ 2 SD) as a categorical variable and using experience with provider and age as potential covariates, no significant differences in any satisfaction scale scores were found between NW and OW subjects.

Barriers to adolescent general and weight-related care

Section 2 of the WRAP-P contained open-ended and multiple-choice questions providing qualitative data regarding perceived barriers to care. Only OW respondents ($n = 9$) reported previous provider actions that had made them uncomfortable. Both OW ($n = 12$) and NW ($n = 3$) respondents provided suggestions for their providers, including identifying improvement in quality and quantity of verbal communication during a visit (e.g., "tell me why they are touching me"), requesting increased attention to minimizing discomfort associated with

physical exam (e.g., “use gown,” “make table warmer”), and referring to the overall quality/quantity of their interactions with the provider (e.g. “be friendly,” “listen better”).

Fourteen respondents, 12 of whom were OW, reported negative experiences regarding the office environment, including expressing concern that scales were “outside in the public area” and that they were weighed and spoken to about the reason for their visit “where everyone could see and hear,” and a need for improvement in décor or entertainment in the office or the furniture/equipment or environment. Five OW respondents also suggested obtaining friendlier or less judgmental staff or having more staff/less waiting time.

After being asked these open-ended questions, participants were specifically asked whether they would have preferred the scale in their provider’s office to be located in a different place. Six of 80 respondents (7.5%) answered “yes,” with those answering “yes” all being OW (6 of 55, 11% of OW respondents). Participants were also asked to identify waiting room chairs, examination tables, patient exam gowns, and blood pressure cuffs as being “too small,” “a good size,” or “too big” at their last check-up visit. While the raw percentages of OW respondents reporting that equipment was too small for them were somewhat larger than for their NW peers, none of these differences were statistically significant (all $p \geq .11$).

Preferences for general and weight-related care

Of respondents, 47% stated that they did not care about the gender of their provider when receiving general medical care and 62% did not care when having weight-related discussions. However, 76% did care about the gender of their provider for physical exam. OW teens were no more likely than NW teens to have a gender preference for their provider (general 57% vs. 46%, $p = .37$; weight discussion, 36% vs. 43%, $p = .54$; physical exam, 78% vs. 73%, $p = .65$). Among those who stated a preference for the gender of their provider, OW respondents were no more likely than NW respondents to prefer a same-gender provider for general medical care (85% vs. 92%, $p = .57$), weight-related discussions (91% vs. 95%, $p = .62$), or for performing physical examinations (95% vs. 90%, $p = .58$).

With regard to whom they felt most comfortable talking with about weight, “my mother” was most commonly identified (55%), followed by “nobody” (25%), “my doctor/nurse practitioner” (13%), and “my father” (7%). “My doctor/nurse practitioner” (68%) was most commonly identified as the person teens believed knew the most about how to eat healthfully, followed by “my mother” (22%), “nobody” (7%), “my teacher” (3%), and “my father” (1%). Of the choices offered, 47% of participants most preferred the term “overweight” for use by providers when referring to patients with weight difficulties (Table 2).

Importance of general and weight-related topics to teens

Compared to NW teens, those who were OW reported that their providers were significantly more likely to raise the topics of weight ($p < .001$), diet ($p < .01$), and exercise ($p < .01$) at their last physical. OW teens were also more likely than NW peers to report that their provider had discussed their general “health” with them at their last appointment ($p < .05$); more OW teens than NW teens also noted that their provider had discussed drugs or alcohol with them at their last visit ($p < .05$; Table 3).

When asked whether they would have liked to have had a particular topic raised by their provider at their last visit, OW teens were significantly more likely than their NW peers to report that they would have liked to discuss diet ($p < .05$) and exercise ($p < .05$) with their provider. There was no significant difference between the 2 groups in desiring to discuss weight with their provider (Table 3).

Discussion

This study examined the associations between teens' perceptions of their health care provider with a novel instrument, the WRAP-P. Most teens reported being satisfied with the care they received from their provider. While the overall medical satisfaction score did not have a significant correlation with BMI-SD, satisfaction with the affective component of the provider-patient relationship was negatively correlated with BMI-SD. Satisfaction with affective components of physician interaction seemed to be associated with weight in a continuous manner, rather than being confined to those who fit the statistically defined category of "overweight" created by BMI-SD criteria.

Regardless of weight status, the most important factor in determining satisfaction with care and comfort with a provider was the length of time that participants had been seeing their providers. This suggests the importance of continuity of care, particularly in an adolescent population. Our findings differ somewhat from those of Freed et al. [16], who found that teens' satisfaction with care was related to having been to a specific clinic before, but did not identify an association between satisfaction and having seen a particular provider before; and Wadden et al. [12], who found no associations between satisfaction and years with a physician or number of physician visits per year for obese adult women.

Most teens were pleased with their health care and appeared to demonstrate a high degree of confidence in their care. This was consistent with previous studies in teenage priorities for general health care [17,19]; however, our subjects' responses emphasized the importance of privacy and confidentiality, and expressed concern about providers that lack compassion or sensitivity to the comfort of the physical exam. When asked specifically, 10% of OW respondents noted that their provider's scale was in a location that made them uncomfortable. Adolescents' providers may dedicate too little attention to issues of privacy and comfort in the office, particularly with respect to patient weight.

Approximately three quarters of all teens (regardless of weight status) surveyed stated a preference for the gender of their provider for physical examination. Previous studies have found similar rates of teens caring about the gender of their provider, and that females tend to prefer same-gender providers, while findings have been inconsistent with regard to males [18,34].

Only 13% of teens reported that their health care provider was the person with whom they would feel most comfortable speaking about weight, and more than half identified their mother as the person with whom they would feel most comfortable speaking. These data suggest that providers may require more training regarding how to address the issue of weight with teens most appropriately. By contrast, a health care provider was identified by 68% of teens as the person most likely to know the most about how to eat healthfully, followed by mothers. These data suggest an avenue for primary education regarding healthy eating and body weight. Educating parents, particularly mothers, about how best to inform their children about healthy eating may be valuable in teaching teens about healthy nutrition and attitudes about body size as they grow and develop. The data further support the need for encouraging a partnership between the health care provider and parents regarding nutrition and weight concerns.

A previous study in OW adults [12] found that over two-thirds of participants reported their health care provider had never addressed weight control or only addressed weight control "once-in-a-while." Our data suggest that adolescent health care providers are readily discussing weight, diet, and exercise with teens—79% of OW adolescents noted that their provider discussed their weight with them. However, only 41% of OW adolescents desired to discuss their weight. Thus, it would seem that adolescents' health care providers are willing to address the problems associated with excess adiposity, but may not have receptive patients in half of

all instances. Such results may represent a general unwillingness on the part of some OW adolescents to address weight, or may reflect a lack of comfort addressing such issues with their current provider. OW participants in this study were more likely than NW peers to report a desire to discuss issues surrounding diet and exercise with their providers; however, NW participants were no less likely than their OW peers to wish to discuss the general topic of weight.

Limitations of the present study include the relatively small sample size, which likely impacted on the significance of variables included in the multiple regression analyses, and the paucity of children of races/ethnicities other than non-Hispanic Caucasian and African American. There are also potential sources of response biases, including recall bias, as these teens were asked to remember their last visit with their primary care provider. Given that some teens reported not reading the instructions fully, it is possible that some responses may have reflected their provider interactions while at the NIH rather than those with their regular provider. Selection bias may also be a limitation, as the OW teens in this study were primarily those who had sought treatment for their weight. Moreover, the NW participants may have been unique in that they were willing to participate as research volunteers at the NIH. Given their involvement with studies of body composition at the NIH, this cohort of teens may have had a stronger awareness of their own height and weight, contributing to strong correlations of self-reported and measured BMI-SD ($r = 0.75$).

This study suggests that while adolescents' weight may be of some importance in determining satisfaction with their health care, a very salient factor in predicting satisfaction with health care among teens is the length of time they have known their provider. This study also highlights other areas that seem to be of importance for teen satisfaction, mainly involving the affective components of physician interpersonal style and office setup. The finding that the term "overweight" was by far the most commonly preferred for reference to individuals with weight difficulties suggests that health care providers should routinely use "overweight" when approaching adolescents who have a high BMI.

Finally, diet and exercise were topics particularly germane to OW teens. Because of the importance of satisfaction with care for successful prevention and treatment of disorders common among adolescents, larger studies in primary care settings should be carried out to evaluate the potential relationship between adiposity and satisfaction with care among teenagers.

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Table 1
Comparison of demographics between normal weight and overweight subjects

	Normal Weight (BMI-SD < 2.0) n = 29	Overweight (BMI-SD ≥ 2.0) n = 62	p-Value
Age (y)	13.4 ± 1.6	14.0 ± 1.7	.10 [†]
SES Score	3.1 ± 1.1	2.9 ± 1.1	.51 [†]
Gender	52% Female 48% Male	42% Female 58% Male	.57 [*]
Race	38% African American 3% Hispanic 59% Caucasian	48% African American 3% Hispanic 48% Caucasian	.64 [*]
Measured BMI (kg/m ²)	22.48 ± 3.97	38.86 ± 8.37	<.0001 [†]
Range 15.9–64.0 kg/m ²			
Self-reported BMI (kg/m ²)	22.15 ± 3.35	37.88 ± 8.27	<.0001 [†]
Measured BMI-SD	0.58 ± .92	4.99 ± 2.38	<.0001 [†]
Range -1.04–13.77			
Self-reported BMI-SD	0.53 ± 0.87	4.55 ± 2.25	<.0001 [†]
Self-reported silhouette score	4.21 ± 1.18	6.72 ± 0.88	<.0001 [†]

Values expressed are mean ± SD, or raw percentages for gender and race.

* Denotes analysis performed by correlation matrix χ^2 analysis.

[†] Denotes analysis performed by independent samples *t* tests.

Table 2
Terms teens prefer their provider use when referring to people who are overweight.[†]

Term	All participants n = 78 (%)	Males n = 31 (%)	Females n = 47 (%)	Caucasians n = 42 (%)	African-Americans n = 34 (%)
Overweight	47	32	57	43	53
Obese	19	19	19	21	18
Big boned	18	10	23	14	21
Big	15	23	11	17	12
Heavy	12	10	13	14	9
Large	9	6	11	12	6
Fat	6	10	4	7	6
Husky	5	13	0	5	3
Big bodied	3	3	3	0	3
Other	1	0	2	0	3

[†] Percentages represent % of group selecting particular term from list of given possibilities. Some participants selected more than one term.

Table 3

Topics raised by providers, and topics normal weight and overweight teens would have liked their provider to discuss

Topic	Topics raised by providers		Topics teens would have liked their providers to discuss		p-Value*
	Normal weight (%)	Overweight (%)	Normal Weight (%)	Overweight (%)	
My health	68	88	50	55	.66
My height	44	46	29	39	.39
My weight	36	79	38	41	.77
My diet	36	70	13	34	<.05
Exercise	48	80	17	39	<.05
School	56	54	33	20	.19
Family	32	43	29	18	.26
Friends	32	25	33	14	.05
Alcohol or drugs	4	23	13	11	.82
Smoking	4	13	13	9	.63
Dating	25	20	8	7	.85
STDs [#]	12	14	8	14	.46
Sexual identity	4	13	13	11	.82
Feelings & emotions	24	27	23	16	.68

* Analysis performed by correlation matrix χ^2 analysis.

[#]STDs = sexually transmitted diseases.