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College Women's Weight-related Behavior Profiles Differ by Sexual Identity

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Abstract

Objectives—To identify and describe homogenous profiles of female college students based on weight-related behaviors and examine differences across 5 sexual orientation groups.

Methods—Data from the 2009–2013 College Student Health Survey (Minnesota-based survey of 2- and 4-year college students) were used to fit latent class models.

Results—Four profiles were identified across all sexual orientation groups: “healthier eating habits,” “moderate eating habits,” “unhealthy weight control,” and “healthier eating habits, more physically active.” Differences in patterns and prevalence of profiles across sexual orientation suggest need for interventions addressing insufficient physical activity and unhealthy weight control behaviors.

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Human Subjects Statement

These analyses were considered secondary analysis of anonymous data and therefore deemed exempt from IRB review. The University of Minnesota IRB approved all CSHS data collection.

Conflict of Interest Statement

The authors declare no conflict of interest.

Conclusions—Future interventions should consider the diversity of behavioral patterns across sexual orientation to more effectively address weight-related behavioral disparities.

Keywords

sexual orientation; college students; weight-related behaviors; disparities

Existing research suggests that lesbian, gay, and bisexual (LGB) adult women are more likely to be obese than heterosexual women.^{1–8} Findings for disparities in diet and physical activity across sexual orientation among women mostly have been mixed, and measurement of these behaviors has been inconsistent.^{3,5,6,9–15}

These disparities exist even during emerging adulthood (typically defined as 18–25 years), when independence is generally established and new responsibilities, life skills, and identities are negotiated and formed.¹⁶ In studying weight-related health, particularly across sexual orientation, it is important to consider age.^{7,9} Research has suggested that weight-related health generally declines during emerging adulthood, with noted weight gain, deterioration of diet quality and physical activity, and increasing sedentary behaviors.^{17–25} Some studies have indicated that during emerging adulthood, health disparities widen.^{26–28} Given that adolescence and emerging adulthood is also a period for sexual development and exploration,^{29–31} this period in the life-course may be a critical time where individual trajectories can have an adverse impact on weight-related health disparities. Nearly half of emerging adults attend college, representing a large proportion of this age group and an accessible population in which to study emerging adult disparities and to design and deliver interventions to address these disparities.³²

In our previous work on weight-related disparities among emerging adults, findings suggested that among women, differences exist across sexual orientation for breakfast, fast food, and restaurant food consumption, physical activity, unhealthy weight control behaviors (such as vomiting, taking diet pills or laxatives), and binge eating.³³ Other studies using longitudinal cohort data also found disparities across sexual orientation in unhealthy weight control behaviors and physical activity from adolescence into emerging adulthood.^{15,34} However, none of these studies has explored the patterning of weight-related behaviors.

Patterning of weight-related behaviors is complex, and traditional methods of analysis, such as regression, may not be sufficient in modeling of relationships among multiple behaviors. This is particularly relevant for weight-related factors, where eating habits, sedentary behaviors, and physical activity, might not consistently track together. It is likely that in these instances, a more holistic analytic approach might better capture the heterogeneity in a population. It is this heterogeneity that might improve understanding of the differences observed in weight-related health disparities across sexual orientation that can then be used to target and tailor interventions. For example, in a study of female college students by Laska et al.,³⁵ the authors were able to identify 4 subgroups of women based on a wide-range of health behaviors, including physical activity and nutrition. “Poor lifestyle, low risk” had the highest membership (40% of students), highlighting a large proportion of the female student population for which to address health-related programming targeting wellness behaviors (eg, physical activity and nutrition) with a concurrent focus on other risky

behaviors (eg, alcohol and tobacco use).³⁵ Further, the findings from the Laska et al study,³⁵ as well as other studies, highlight that important differences in weight-related behaviors across sex exist, likely due to factors such as varying social norms.^{4,5,34,35} Therefore, we are including only women in this paper.

The purpose of this study was to identify and describe homogenous profiles of female college as students based on patterning of healthful weight-related behaviors (eg, eating habits, physical activity, weight control behaviors), and to examine differences across 5 sexual orientation groups. We hypothesized that there are distinct classes that share common patterns of weight-related behaviors, and for whom interventions can be developed and tailored. In addition, we hypothesized that differences in proportions of classes and patterning of weight-related behaviors exist across sexual orientation groups, with greater proportions of LGB women in unhealthy classes and exhibiting unhealthier patterns than heterosexual women.

METHODS

Study Population and Data Source

Data were from the 2009–2013 College Student Health Survey (CSHS), an ongoing statewide surveillance system of 2- and 4-year colleges and universities across Minnesota. For most schools participating in the CSHS, students were selected randomly through a registrar's enrollment list furnished by participating educational institutions. For smaller schools, all students were invited to participate to have sufficient sample sizes for reports generated for each school; at larger schools, only a proportion of students were invited. Eligible participants were sent multiple invitations, including postcards and emails, to complete an anonymous online survey. Participants who completed the survey were entered into a raffle to win prizes such as iPods and iPads. The overall response rate was 33.2%. Additional details on the CSHS are available online (<http://www.bhs.umn.edu/surveys/index.htm>).

Between 2009 and 2013, 46 institutions participated in CSHS (26 2-year and 20 4-year). Thirty colleges participated in the CSHS in more than one year between 2009 and 2013. To ensure that participants were not included in the dataset more than once and to maximize sample size, a college's second year of data was included when the possibility of overlap in participants was expected to be negligible (ie, less than 2%), as others and us have done previously.^{33,36,37} Six schools with a sampling percentage of less than 50% (ie, less than 50% of the student body were invited to participate in the survey) had a negligible percentage of overlap (estimated sample overlap range: 0.45%–1.57%). Thus, an additional year of data was included for these schools ($N_{\text{students}} = 6912$). This yielded a final merged 2009–2013 CSHS dataset consisting of 29,118 students.

Measures

Sexual orientation was assessed on the CSHS as both identity and behavior. Given the importance of both identity and behavior, as well as evidence that discordant behavior among heterosexual-identified adults is salient in addressing health disparities,^{38,39} we

created the following categories for sexual orientation: “heterosexual” (identified heterosexual and did not report engaging in any same-sex sexual behavior in the past year), “discordant heterosexual” (identified and reported engaging in any same-sex sexual behavior in the past year), “gay/lesbian” (identified as gay or lesbian, regardless of sexual behavior), “bisexual” (identified as bisexual, regardless of sexual behavior), and “unsure” (identified as unsure about their sexual orientation, regardless of sexual behavior). This categorization is consistent with previous research using the Youth Risk Behavior Survey (YRBS)³⁷ and CSHS data.³³

A variety of weight-related behaviors were included in these analyses: dietary intake and eating habits, physical activity, sedentary behavior, and unhealthy weight control behaviors. All variables were dichotomized based on existing public health recommendations, which have practical significance in that they serve as a meaningful threshold for health. Furthermore, dichotomization facilitates interpretation of results and was the most appropriate approach given the non-normality of the majority of the data.

Three aspects of *dietary intake* were assessed: fruit and vegetable, soda, and diet soda consumption. These items used standard questions adapted from the YRBS,⁴⁰ “During the past 7 days, how many times did you eat/drink the following?” Six items assessed specific foods/drinks for fruit and vegetable consumption. Frequency response options ranged from, “I did not eat or drink this,” to “4 or more times per day.” Participants met recommendations if they reported consuming fruits and vegetables 5 times/day. For soda and diet soda, participants met recommendations for each item if they reported consuming <1/day.^{41,42}

To assess *eating habits*, participants reported the number of days that they ate breakfast.⁴³ Breakfast consumption was dichotomized as 5 days/week or <5 days/week. The frequency of eating (1) fast food meals and (2) at other restaurants (not including fast food establishments) also was assessed. Response options ranged from “never” to “several times per day.” Frequent consumption of fast food or restaurant food is associated with increased portion sizes and excess weight.^{44,45} Therefore, both fast food and restaurant food consumption were dichotomized as several times/week vs <several times/week.³⁶

Three types of *physical activity* were assessed: strenuous, moderate, and strengthening. The question asked: “In the past 7 days, how many hours did you spend doing the following activities?” Examples were provided for each type of activity. Response options ranged from “None,” to “6½ + hours.” Given conceptual similarities between moderate and strenuous physical activity, they were combined into a single “moderate-to-vigorous physical activity” indicator. Meeting recommendations was 5 hours/week of moderate and vigorous physical activity combined or 4.5 hours/week of either moderate or vigorous physical activity (guided by recommendations for weight maintenance, which include 1 hour on most days of the week).⁴⁶ Consistent with previous research using CSHS data, strengthening physical activity was categorized as 2.5 hours/week or 2 hours/week.⁴⁷

Time spent watching television and using a computer (for things besides school or work) on an average day were used to assess *sedentary behaviors*. Response options ranged from

“None” to “5+ hours.” Categories of 14 hours/week vs <14 hours/week were created for screen time in line with recommendations for young people of <2 hours/day.⁴⁸

To assess *unhealthy weight control behaviors*, participants indicated the frequency of 4 behaviors in the past 12 months: using laxatives to control weight, taking diet pills, binge eating, and inducing vomiting to control weight.^{35,42,43} These are similar to items that have been used extensively in other research, most notably the YRBS.^{34,49,50} Due, in part, to low prevalence of each, using laxatives, taking diet pills, and inducing vomiting were combined into a single unhealthy weight control behaviors variable (any vs none) whereas binge eating was examined separately.³³

Analysis

Latent class analysis (LCA) is a technique designed to identify a small number of homogenous subgroups within a larger heterogeneous group,^{51,52} based on responses to select indicators. Details on this technique have been described in existing work.^{51,53}

After assessing initial LCA models, fruit and vegetable consumption and sedentary behavior were dropped as indicators due to no separation between classes; that is, across classes, the probabilities for these 2 indicators were similar and did not help in characterizing different classes. Thus, 9 indicators were included in final LCA models to identify healthy weight-related behavioral patterning: soda, diet soda, fast food, restaurant food, and breakfast consumption, moderate-to-vigorous and strengthening physical activity, unhealthy weight control behaviors, and binge eating.

For these analyses, we included only women as participants (64.0% of original sample). Furthermore, we excluded participants with missing data for sexual orientation (N = 44), participants who reported being currently pregnant, due to different recommendations for weight and related behaviors while pregnant (N = 255). This yielded final analytic sample of 18,297 female college students. All data management and analyses were performed using SAS (SAS version 9.1, Cary, NC: SAS Institute Inc).

RESULTS

Overall, most female students were heterosexual (92.3%), 0.8% were discordant heterosexual, 1.2% were gay/lesbian, 3.7% were bisexual, and 2.0% were unsure of their sexuality. Two-thirds (62.3%) attended a 4-year school, most were white (82.5%), and the median age was 22 years.

The prevalence of the healthy weight-related behavioral indicators used in the final LCA models, by sexual orientation, is presented in Table 1. Overall, large majorities of women, across sexual orientation, met recommendations for soda, diet soda, fast food, and restaurant food consumption. However, across all sexual orientation groups, less than half of the women met recommendations for breakfast consumption, only about one-fourth to one-third met recommendations for moderate-to-vigorous physical activity, and few met recommendations for strengthening physical activity. Most female students did not engage

in unhealthy weight control or binge eating (81.0–89.8% for unhealthy weight control, 70.4%–83.4% for binge eating).

Table 2 shows the fit statistics for the LCA models for each of the 5 sexual orientation groups. After considering fit statistics and interpretability of the latent class models, a 4-class solution was selected for all sexual orientation groups.

Figure 1 shows the item-response probabilities and healthy weight-related behavioral patterning of classes. In final models, across all sexual orientation groups, 4 distinct classes were identified. Class 1 (“Healthier eating habits”) was characterized by high probabilities of meeting recommendations for regular soda, diet soda, fast food, and restaurant consumption (heterosexual: 0.91–0.98; discordant heterosexual: 0.90–0.97; gay/lesbian: 0.86–0.96; bisexual: 0.91–1.00; unsure: 0.93–1.00), a moderate probability of eating breakfast 5 days/week (range across sexual orientation groups: 0.41–0.65), low probability of meeting physical activity recommendations (moderate-to-vigorous physical activity: 0.01–0.25; strengthening physical activity: 0.00–0.06), and low probability of engaging in unhealthy weight control or binge eating (no unhealthy weight control: 0.94–0.98; no binge eating: 0.81–0.97).

Class 2 (“Moderate eating habits”) had similar patterning to Class 1 including low physical activity, no unhealthy weight control, and no binge eating. However, this class was characterized by lower probabilities of meeting recommendations for regular soda (0.51–0.70), diet soda (0.64–0.86), fast food (0.39–0.69), restaurant food (0.57–0.89), and eating breakfast (0.08–0.23).

Class 3 (“Unhealthy weight control”) also had similar patterning to Class 1 including high probabilities for meeting dietary intake, fast food and restaurant food recommendations, low-to-moderate probabilities of breakfast consumption and physical activity. Class 3 was characterized by a lower probability of reporting no unhealthy weight control (0.06–0.36) and no binge eating (0.03–0.20).

Finally, Class 4 (“Healthier eating habits, more physically active”) had high probabilities for meeting recommendations for regular soda, diet soda, fast food, and restaurant food consumption, similar to Class 1. Furthermore, although probabilities were slightly lower for no unhealthy weight control and binge eating compared to Classes 1 and 2, probabilities were still high (no unhealthy weight control: 0.60–1.00; no binge eating: 0.65–0.96). Class 4 is distinguishable by having the highest probabilities on physical activity compared to other classes (moderate-to-vigorous physical activity: 0.68–0.99; strengthening physical activity: 0.30–0.95). It should be noted that among gay/lesbian and unsure women, probabilities for meeting physical activity recommendations were lower than other sexual orientation groups (ie, heterosexual, discordant heterosexual, and bisexual). For example, the probability of exhibiting high moderate-to-vigorous physical activity was 0.68 for gay/lesbian and 0.70 for unsure women, compared to 0.99, 0.92, 0.84 for heterosexual, discordant heterosexual, and bisexual women, respectively. Similar differences were noted for strengthening PA.

In addition to examining patterning, the prevalence of each class was also assessed (Table 3). Across all sexual orientation groups except gay/lesbian women, Class 1 (“Healthier

eating habits”) had the highest prevalence. For gay/lesbian women, Class 2 (“Moderate eating habits”) had the highest prevalence. Class 3 (“Unhealthy weight control”) had the lowest prevalence for heterosexual, gay/lesbian, and unsure women, and the prevalence for heterosexual women was nearly half of the prevalence for all other sexual orientation groups (except gay/lesbian women). For discordant heterosexual and bisexual women the class with the lowest prevalence was Class 4 (“Healthier eating habits, more physically active”). Prevalence estimates for Class 4 ranged from 8.7% for bisexual women to 24.0% for gay/lesbian women.

DISCUSSION

Overall, our results indicated that 4 distinct classes of healthy weight-related behaviors exist: Class 1 (“Healthier eating habits”), Class 2 (“Moderate eating habits”), Class 3 (“Unhealthy weight control”), and Class 4 (“Healthier eating habits, more physically active”). Despite conceptual similarities between the classes, differences in the prevalence of classes across sexual orientation highlight an area of concern. For example, compared to heterosexual women, a relatively small proportion of bisexual women were characterized by one of the 2 healthier eating classes (Class 1 and 4). Additionally, nearly twice the proportion of discordant heterosexual, bisexual, and unsure females exhibited the “unhealthy weight control” profile compared to heterosexual women, highlighting an additional area of concern. Consistent with previous work, these findings suggest that discordant heterosexual, LGB, and unsure women experience poorer health with regard to weight-related behaviors, particularly in the areas of unhealthy weight control and physical activity.^{5,9,14,15}

These findings help advance our understanding of the disparities in weight-related behaviors across sexual orientation and may help with intervention design, targeting, and outreach. More specifically, the patterns allow us to examine how healthy weight-related behaviors correlate in differing ways within diverse heterogeneous populations, and subsequently, inform our ability to intervene on multiple related behaviors simultaneously. For example, whereas our previous work using traditional regression methods found that discordant heterosexual, LGB, and unsure female students were more likely to engage in unhealthy weight control behaviors and binge eating,³³ a finding consistent in the present study, the LCA results indicated that unhealthy weight control was coupled with lower probability of meeting recommendations for physical activity. Existing longitudinal research has found that dieting behaviors (including unhealthy weight control behaviors assessed here) are associated with weight gain over time, possibly because dieting yields less in the way of healthy, sustainable food choices and physical activity.⁵⁴ Our LCA results partially support this hypothesis, with unhealthy weight control co-occurring with physical inactivity and skipping breakfast, though not with other aspects of nutrition. Overall, this finding suggests that to support healthier patterns of weight-related behaviors, it may be important to develop interventions that concurrently address unhealthy weight control and physical activity behaviors. These interventions are particularly needed for discordant heterosexual, bisexual, and unsure women as they shoulder a greater burden of this behavioral pattern with nearly twice the proportion of people in this class compared to heterosexual women (heterosexual: 7.8%, discordant heterosexual: 15.0%, bisexual: 18.9%, unsure: 12.1%).

Our findings also suggest the need to refine interventions to address unique, identified barriers or experiences specifically related to unhealthy weight control behaviors and physical activity for sexual minority female students. For example, online intervention designs may provide a cost-efficient means of adapting and tailoring intervention messaging to meet the needs of many different sub-groups within the college population – including heterosexual women, as well as sexual minority women. Previous work evaluating an online nutrition, physical activity, and sleep course in an applied, university setting found several improvements in self-reported student behaviors as well as high student satisfaction with the course content.⁵⁵ Additional advantages of online interventions include more personalization toward individual needs based on specific behavioral profiles (eg, individuals identified as exhibiting an “unhealthy weight control” profile, for example through a brief series of 5–10 screening questions, could receive an intervention designed to address key features of this profile: unhealthy weight control behaviors, physical inactivity and skipping breakfast) as well as privacy for students who may be less comfortable disclosing their sexual orientation to college wellness program staff.

Our results also indicate that the majority of women, regardless of sexual orientation, were in classes with low physical activity, a finding consistent with previous work demonstrating low physical activity among college students.^{47,56,57} Although classes with low physical activity also included varying levels of diet and unhealthy weight control, high physical activity co-occurred with healthier eating habits and low unhealthy weight control (ie, in Class 4). This class exhibited a critical pattern in that it was the healthiest pattern identified. An area of concern, however, is that both gay/lesbian and unsure females showed lower probabilities of physical activity (especially strengthening physical activity) than did other sexual orientation groups, suggesting that there is still a need for targeted physical activity interventions for these classes of gay/lesbian and unsure females. Further, it was interesting that the presence of a more uniquely “unhealthy” pattern (such as one that exhibited both poor diet and low physical activity) among any of the sexual orientation groups was not present. This finding suggests that there may not be a notable subgroup of college females, regardless of sexual orientation, that needs interventions for all aspects of weight-related behaviors, an encouraging possibility that allows us to refine and target our intervention efforts.

In addition to targeted strategies that could be employed to address these issues, broader environmental and structural changes on college campuses also may need to be considered. For example, with regard to physical activity, facilities such as college recreation centers should be safe, supportive spaces for discordant heterosexual, gay/lesbian, bisexual, and unsure female students. Creating these safer spaces could include factors such as availability and promotion of single stall changing rooms and/or restrooms for students, better signage to promote the need for safe spaces and respectful behavior in the gym, hours at the gym designated as LGB hours to promote safety, and inclusivity for LGB students, or LGB-specific fitness groups for students to engage in a variety of activities such as hiking, biking, yoga, or organized sports. Coupled with improvements in the physical and social environment to promote physical activity, resources that address social norms related to unhealthy weight control behaviors among LGB students may also be valuable. Moreover, to address overall disparities in weight-related outcomes by sexual orientation that have

been documented by numerous studies to date,^{2-9,14,15,33} campus wellness programs may need to employ more targeted outreach strategies directed at LGB students and use materials that are inclusive of diverse students, including LGB students.

To our knowledge, this is the first study to use LCA to characterize healthy weight-related behavioral patterns and examine disparities across sexual orientation among emerging adults. A strength of this study includes the large sample of gay/lesbian, bisexual, and unsure participants (which allowed separate sexual orientation groups rather than treating non-heterosexual as a homogenous group) as well as the inclusion of the discordant heterosexual group, thereby allowing for a more robust and fine grain examination of sexual orientation disparities. More research is needed to understand potential mechanisms for LGB college students, such as the role of social norms or stigma, as well as issues related to poor body image, which lend to poorer weight-related behavioral patterns. Better understanding of mechanisms also may help to improve development of intervention strategies to address known weight-related disparities more effectively. Finally, because this was a population-based sample of college students in Minnesota only, the results may not be generalizable to college students in other geographic areas or to emerging adults not attending a post-secondary institution.

Conclusions

Overall, these findings highlight unique patterning of healthy weight-related behaviors across sexual orientation among college women. Future research should examine how these behavioral patterns are related to relevant health outcomes, such as overweight and obesity, high cholesterol, high blood pressure, or diabetes. Regarding interventions, future work should tailor intervention components and target recruitment to specific patterns of weight-related behaviors and to specific sexual orientation groups. Areas of greatest importance include addressing unhealthy weight control and low physical activity among discordant heterosexual, gay/lesbian, bisexual, and unsure college women.

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Figure 1.

Item-response Probabilities across Sexual Orientation Groups

Note. a = Item-response probabilities of 0.0 reflect unhealthy weight-related behaviors in a class and probabilities of 1.0 reflect healthy weight-related behaviors in a class.

MVPA: Moderate-to-vigorous physical activity, PA: physical activity, UWCB: Unhealthy weight control behaviors

Prevalence of Meeting Weight-Related Behavioral Recommendations among Female College Students by Sexual Orientation, CSHS 2009–2013

Table 1

	Heterosexual (N = 16,891)	Discordant Heterosexual (N = 147)	Gay/Lesbian (N = 225)	Bisexual (N = 677)	Unsure (N = 357)
Fruit and vegetable consumption (5/day)	18.0%	15.1%	16.6%	17.5%	16.0%
Regular soda consumption (<1/day)	87.9%	85.0%	87.6%	85.4%	87.1%
Diet soda consumption (<1/day)	87.3%	83.7%	87.1%	87.2%	89.1%
Fast food consumption (<several times/week)	88.5%	83.7%	87.1%	85.4%	88.5%
Restaurant food consumption (<several times/week)	91.3%	85.7%	84.9%	88.4%	93.8%
Breakfast consumption (5 days/week)	48.4%	42.9%	42.2%	40.5%	42.3%
Moderate-to-vigorous physical activity (5 hours/week of moderate and vigorous physical activity combined or 4.5 hours/week of either moderate or vigorous physical activity)	30.5%	29.9%	27.6%	28.2%	23.0%
Strengthening physical activity (2.5 hours/week)	14.1%	12.9%	13.3%	11.1%	7.3%
Sedentary behavior (<14 hours/week)	54.7%	48.3%	62.2%	58.2%	56.6%
Unhealthy weight control behaviors (none)	88.1%	81.0%	89.8%	83.9%	83.8%
Binge eating (none)	83.4%	76.2%	78.6%	70.4%	71.7%

Table 2
Fit Statistics for Unconditional Independent LCA Models across Sexual Orientation Groups

	Likelihood	AIC	BIC	Adjusted BIC	Entropy R ₂	BLRT _a
Heterosexual (N = 16,891)	1 class	-66339.88	6817.43	6887.04	6858.44	1.00
	2 classes	-64907.15	3971.97	4118.93	4058.55	0.59
	3 classes	-64090.30	2358.26	2582.56	2490.40	0.52
	4 classes	-63532.74	1263.15	1564.80	1440.86	0.65
	5 classes	-63383.84	985.35	1364.34	1208.62	0.59
	6 classes	-63298.16	833.98	1290.32	1102.82	0.63
Discordant Heterosexual (N = 147)	1 class	-652.13	254.70	281.61	253.13	1.00
	2 classes	-618.26	206.96	263.78	203.65	0.69
	3 classes	-602.95	196.33	283.05	191.28	0.88
	4 classes	-590.45	191.34	307.97	184.55	0.77
	5 classes	-585.10	200.63	347.16	192.10	0.75
	6 classes	-580.18	210.79	387.22	200.52	0.76
Gay/Lesbian (N = 225)	1 class	-916.24	278.87	309.62	281.10	1.00
	2 classes	-884.94	236.27	301.18	240.96	0.89
	3 classes	-857.36	201.11	300.17	208.27	0.66
	4 classes	-847.35	201.10	334.33	210.73	0.65
	5 classes	-838.79	203.97	371.36	216.06	0.68
	6 classes	-832.01	210.41	411.96	224.98	0.74
Bisexual (N = 677)	1 class	-2868.43	519.60	560.26	531.68	1.00
	2 classes	-2814.66	432.06	517.90	457.57	0.41
	3 classes	-2772.10	366.95	497.96	405.88	0.51
	4 classes	-2746.06	334.86	511.05	387.22	0.61
	5 classes	-2733.38	329.50	550.86	395.28	0.62
	6 classes	-2723.28	329.31	595.85	408.52	0.65
Unsure (N = 357)	1 class	-1369.93	397.05	431.95	403.40	1.00
	2 classes	-1328.20	333.59	407.27	346.99	0.86

	Likelihood	AIC	BIC	Adjusted BIC	Entropy R ₂	BLRT _a
3 classes	-1300.45	298.08	410.54	318.54	0.67	0.01
4 classes	-1282.36	281.90	433.13	309.41	0.68	0.01
5 classes	-1266.88	270.95	460.96	305.51	0.74	0.01
6 classes	-1259.41	276.01	504.80	317.62	0.81	0.49

Note.

Bolded classes indicate final selected models.

a = p-value represents test for a (k+1)-class solution vs k-class solution (eg, 3-class compared to 2-class, 4-class compared to 3-class)

Table 3

Probability of Latent Class Membership

	N	Class 1: Healthier eating habits	Class 2: Moderate eating habits	Class 3: Unhealthy weight control	Class 4: Healthier eating habits, more physically active
Heterosexual	16,891	59.5%	22.0%	7.8%	10.7%
Discordant Heterosexual	147	49.5%	23.8%	15.0%	11.7%
Gay/Lesbian	225	31.2%	35.0%	9.9%	24.0%
Bisexual	677	44.8%	27.6%	18.9%	8.7%
Unsure	357	49.8%	19.2%	12.1%	18.9%