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Associations between Relationship Status and Day-to-Day Health Behaviors and Weight among Diverse Young Adults

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Abstract

Introduction—Previous research has shown strong positive associations between physical and psychological health outcomes and being in a committed relationship, such as marriage, however little research has investigated whether being in a committed relationship is protective for day-to-day health behaviors such as dietary patterns and physical activity. The main aim of this paper is to examine associations between relationship status and day-to-day health behaviors (e.g. dietary intake, physical activity) and weight status among a diverse cohort of young adults.

Methods—This cross-sectional study utilized data from Project EAT-III, a 10-year longitudinal population-based study (n = 1853) of Midwest young adults. Young adult participants had an average age of 25.3, and were 45% male and 55% female. Participants were socio economically and racially/ethnically diverse, including 48.4% white, 18.6% African American, 5.9% Hispanic, 19.6% Asian, 3.3% Native American, and 4.2% mixed or other race/ethnicity.

Results—Results indicated that married men were more likely to be overweight/obese (BMI ≥ 25) compared to single/casually dating and committed dating/engaged men. Married women were more likely to eat breakfast ≥ 5 times per week compared to women in other relationship categories. No differences were observed in young adults' other health behaviors by relationship status. There were no significant interactions by race/ethnicity.

Discussion—Relationship status seems largely unrelated to young adults' participation in physical activity and dietary behaviors. However, findings suggest that being married may be a risk factor for overweight/obesity in young adult men and may be a protective factor for other health-related behaviors associated with overweight/obesity such as eating breakfast for young adult women.

Keywords

Romantic Relationships; Obesity; Dietary Intake; Physical Activity; Young Adults

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Associations between multiple physical and psychological health outcomes and being in a committed relationship, such as marriage, have been well documented in the family and public health literature over the last two decades (Burman & Margolin, 1992; Harry & Rusbult, 2004; House, Landus, & Umberson, 1988; Schoenborn, 2004; Waite, 1995). Cross-sectional and longitudinal studies have provided evidence that individuals who are married have better immune functioning, are less likely to develop chronic illnesses such as hypertension, and have greater survival rates from serious illnesses such as cancer and diabetes, as compared to their unmarried counterparts (Robles & Kiecolt-Glaser, 2003; Umberson, Williams, Powers, Liu, & Needham, 2006; Waite & Gallaher, 2000). Spouses have been found to play an important role in their partners' chronic disease management and mental health treatment. Research looking at individuals' management of diabetes has shown that patients who included their spouse in their care had significantly better hemoglobin A1C levels compared to those who did not (Mendenhall et al., In Press; Umberson et al., 2006). Similarly, research examining recovery from chemical dependency, treatment for depression, and treatment for compulsive gambling has suggested that involving a spouse or partner in the treatment increases the likelihood of treatment success (Ross & Mirowsky, 2002).

Given the increase in prevalence of obesity among young adults in the US over the last two decades (Ogden et al., 2006), investigating whether being in a committed relationship is associated with partners' day-to-day health behaviors (e.g. physical activity, dietary intake, fast food intake, eating breakfast, sugar-sweetened beverages) and weight status is important. Understanding these relationships will help to identify potential protective factors for adult obesity. Additionally, if relationship status is associated with young adults' weight and health behaviors, interventions could target specific population groups, for example single men, or tailored messages could be imbedded in intervention programs for participants depending on their relationship status. To-date, studies examining associations between adults' relationship status and weight status have found mixed results. A recent longitudinal study found that being in a romantic partnership (marriage or cohabitation) increased individuals' likelihood of becoming obese during the transition from adolescence to adulthood (The & Gordon-Larson, 2009a). However, another study showed that young adults in committed romantic relationships were less likely to be overweight/obese compared to their single counterparts (Braithwaite, Delevi, & Fincham, 2010). In addition, a recent longitudinal study with mostly white mid- to upper socioeconomic status (SES) participants found that decreases in physical activity were associated with transitions into marriage and increases in physical activity were associated with divorce, but only for men (Ortega et al., 2010).

Findings from these previous studies raise important questions regarding the benefit of being in a committed relationship for individuals' obesity risk. Specifically, little is known about the role that being in a committed relationship plays in behaviors that contribute to weight and weight change over time such as physical activity and dietary intake habits. Additionally, few studies have examined whether different types of committed relationships including dating long term, being engaged, or being married are equally associated with physical activity, dietary intake, and weight status. Finally, the majority of studies examining chronic disease outcomes have indicated that men benefit more from having a

significant other compared to women and have not looked at participants with diverse ethnic/racial backgrounds or lower SES (Jackson, Grilo, & Masheb, 2000; Kiecolt- Glaser & Newton, 2001; Robles & Kiecolt-Glaser, 2003; Waite & Gallaher, 2000). Thus, the main aim of the current study is to examine the association between relationship status (i.e., single, committed, married) and day-to-day health behaviors (e.g. physical activity, dietary intake, fast food intake, eating breakfast, sugar-sweetened beverages) and weight status among diverse young adults.

Theoretical Framework

This study utilized a Family Systems theoretical framework (Minuchin, 1974; Whitchurch & Constantine, 1993) to understand the potential mechanism at work between being in a committed relationship and day-to-day health behaviors in young adults. According to family systems theory, the interactions that occur within romantic relationships are reciprocal (Berge, MacLehose, Eisenberg, Laska, & Neumark-Sztainer, 2012; Minuchin, 1974; The & Gordon-Larson, 2009b; Umberson et al., 2006; Whitchurch & Constantine, 1993). That is, each partner is shaping and being shaped by the other partners' actions (e.g. via support, modeling). These mutual influencing patterns may give particular insight into the behaviors that ultimately determine dietary intake and physical activity in young adults (Berge et al., 2012). For example, healthful (e.g., fruits and vegetables) or unhealthful (e.g., high fat snack food) dietary intake modeled by a significant other may potentially influence a young adult partner to engage in similar healthful or unhealthful eating habits.

Research Question

Using data from Project EAT, a 10-year longitudinal study of adolescents and young adults, this paper addresses the following research question: Do young adults in various committed relationships (committed dating/engaged, married) report different dietary intake, physical activity habits and weight status than young adults who are single?

Method

Sample and Study Design

Data for this analysis were drawn from Project EAT (Eating and Activity in Teens and Young Adults)-III, the third wave of a population-based study designed to examine dietary intake, physical activity, weight control behaviors, weight status, and factors associated with these outcomes among young adults. In Project EAT-I (Time 1; 1998–1999), middle and high school students at 31 public schools in the Minneapolis/St. Paul metropolitan area of Minnesota completed surveys and anthropometric measures (Neumark-Sztainer et al., 2002; Neumark- Sztainer, Story, Hannan, & Moe, 2002). Five years later (Time 2; 2003–2004), for Project EAT- II, original participants were mailed follow-up surveys to examine changes in their eating patterns, weight control behaviors, and weight status as they progressed through adolescence (Neumark-Sztainer, Wall, Eisenberg, Story, & Hannan, 2006; Neumark-Sztainer, Wall, Guo, et al., 2006). Project EAT-III (Time 3, 2008–2009) was designed to follow-up on participants again as they progressed from adolescence to young adulthood and

through their twenties. Original participants were mailed letters inviting them to complete online or paper versions of the Project EAT-III survey and a food frequency questionnaire.

A total of 1,030 men and 1,257 women completed the Project EAT-III survey, representing 66.4% of participants who participated in EAT I or II previously and who could be contacted (48.2% of the original school-based sample). One third of participants (31%) were aged 20 to 25 years and two thirds (69%) were aged 26–31 years. All study protocols were approved by the University of Minnesota's Institutional Review Board. Additional details of the study design have been reported elsewhere (Larson, Neumark-Sztainer, Story, van den Berg, & Hannan, in press). For the current analysis, young adults who participated in the second (EAT II) and third (EAT III) waves of Project EAT and reported being either single/casually dating, in a committed/engaged relationship or married at Time 3 (n = 1853) were included in this analysis (Table 1).

Survey Development

The original Project EAT survey (Neumark-Sztainer et al., 2002) that was used to assess determinants of dietary intake and weight status among adolescents was modified and new items were added at Time 3 to improve the relevance of items for young adults as they were transitioning to more independent lifestyles and establishing new careers, households and families. The revised survey was pre-tested by 27 young adults in focus groups and test-retest reliability was examined in a sample of 66 young adults. Details of the survey development process are described elsewhere (Larson, Neumark-Sztainer, Story, van den Berg, & Hannan).

Measures

All measures of the independent (i.e., relationship status) and dependent variables (i.e., weight status, fruit and vegetable intake, sugar-sweetened beverages, fast food intake, breakfast frequency, hours of physical activity) are listed in Table 2.

Statistical Analyses

Differences in the distribution of categorical variables between relationship categories were assessed with chi-square tests. F-tests were used to test the equality of means between relationship categories for continuous variables. Separate multivariable Poisson regression models (Zou, 2004) were fit for each of the seven dichotomous outcomes (overweight/obese, fruit and vegetable intake of 5 servings or more, weekly physical activity of 2.5 hours or more, sugar sweetened beverage consumption of at least 1 serving/day, breakfast intake on 5 or more days of the week, frequent fast food consumption (≥3/week) and infrequent fast food consumption (<1/week) and relationship status. Poisson regression models were fit because of the ability to directly estimate prevalence ratios and their greater numerical stability than log- binomial models. Regression models were run separately for male and female participants for greater model flexibility, allowing the estimated effects of adjustment variables to vary between males and females. All regression models were adjusted for participant age, educational attainment, and race/ethnicity. To account for the effect of previous health behavior and weight status, regression models for overweight/obese, fruit and vegetable intake and physical activity adjusted for the same continuous

health behavior outcome level five years earlier (Time 2). For example, regression models for Time 3 obesity adjusted for BMI at Time 2.

Separate prevalence ratios were estimated for comparisons between those in committed relationships and for those who were married relative to those who were single. Sample means and modes for continuous and categorical variables, respectively, were used in conjunction with the regression model coefficients to calculate the conditional predicted prevalence for each of our outcomes. In light of multiple comparisons, we used the more conservative .01 significance level.

Because attrition from the baseline sample did not occur at random, in all analyses, the data were weighted using the response propensity method (Little, 1986). Response propensities (i.e., the probability of responding to the Project EAT-III survey) were estimated using a logistic regression of response at Time 3 on a large number of predictor variables from Project EAT -I. The weighting method resulted in estimates representative of the demographic make-up of the original school-based sample, thereby allowing results to be more fully generalizable to the population of young people in the Minneapolis/St. Paul metropolitan area. Specifically, the weighted sample was 48.4% white, 18.6% African American, 5.9% Hispanic, 19.6% Asian, 3.3% Native American, and 4.2% mixed or other race/ethnicity. The sample was well-distributed across the five categories of socioeconomic status: 18.0% low, 19.0% low-middle, 26.2% middle, 23.3% upper-middle, and 13.5% high. All analyses were conducted using Stata (version 10.1, 2009, College Station, TX).

Results

Descriptive Statistics

Approximately 35% of young adults were single/casually dating, 42% were in committed dating/engaged relationships, and 23% were married (Table 1). The average age of participants was 25 years old (SD = 1.6), 51% of the sample was overweight/obese, 70% of the sample ate fast food ≥ 1 time per week, and 57% of the sample reported that they were physically active ≥ 2.5 hours per week.

Associations between Health Behaviors and Relationship Status

Weight status—The conditional prevalence of overweight/obesity among young adult men was 46.4% for single/casually dating, 43.7% for committed dating/engaged, and 58.0% for married men (Table 3). The conditional prevalence of overweight/obesity among young adult women was 43.0% for single/casually dating, 39.8% for committed dating/engaged, and 40.2% for married women. After adjusting for adolescent BMI (i.e., at Time 2) and socio -demographic characteristics, young adult married males had a 25% higher prevalence of overweight/obesity relative to single/casually dating and committed/engaged men (PR= 1.25; 95% CI = 1.05, 1.50). Women's risk of overweight/obesity did not differ by relationship status.

Health Behaviors—Both married men (33.3%) and women (61.1%) had the highest prevalence of eating breakfast 5 or more days per week (Table 3). After adjusting for potential confounders, young adult married women had a 47% higher prevalence of eating

breakfast relative to those single/casually dating and committed dating/engaged women (PR= 1.47; 95% CI = 1.19, 1.82). There were no statistically significant differences in breakfast frequency for young adult men by relationship status after accounting for covariates. No statistically significant differences in fruit and vegetable intake, sugar-sweetened beverage consumption, fast food intake, or physical activity were observed by young adults' relationship status.

Discussion

The main aim of the current study was to examine the association between relationship status (i.e., single, committed, married) and day-to-day health behaviors (e.g. physical activity, dietary intake, fast food intake, eating breakfast, sugar-sweetened beverages) and weight status among diverse young adults. Results indicated that married men were more likely to be overweight/obese compared to single/casually dating and committed dating/engaged young adult males. This association was adjusted for BMI five years previous to reduce the likelihood of confounding as an explanation for the findings (i.e., heavier men being more likely to get married/be married younger). There were no significant differences in weight status between married, single/casually dating, or committed dating/engaged women. Taken together, these results indicate that being married may be a risk factor for overweight/obesity in males. This finding supports a recent longitudinal study that found that romantic partnership (marriage or cohabitation) increased the likelihood of becoming obese in the transition from adolescence to adulthood for males (The & Gordon-Larson, 2009a). In contrast, previous studies looking at the protective nature of being married and chronic health conditions in adults have shown that males benefit more from having a significant other than females (Braithwaite et al., 2010; Jackson, 2006; Kiecolt-Glaser & Newton, 2001; Robles & Kiecolt-Glaser, 2003; Waite & Gallaher, 2000). The mixed results related to gender indicate the need for future longitudinal research that can tease out contributory mechanisms and temporality of associations.

Differences in frequency of breakfast intake by relationship status for young women is an important new finding. Numerous past studies have identified that it is common for women to skip breakfast, and that skipping breakfast is associated with overweight and obesity (Keski- Rahkonen, Kaprio, Rissanen, Virkkunen, & Rose, 2003; Rashidi et al., 2007; Timlin, Pereira, Story, & Neumark-Sztainer, 2008). Thus, being married may be a protective factor for eating breakfast daily, which is a known protective factor for overweight/obesity (Keski-Rahkonen et al., 2003; Rashidi et al., 2007). One might expect this finding to be related to the fact that married women are also more likely to be parents. Analyses in the current study were conducted both with and without participants who reported being parents. Results did not change, thus the finding of married women being more likely to eat breakfast was not explained by parental status.

There were several non-significant findings. Young adults' fruit and vegetable intake, sugar-sweetened beverage consumption, fast food intake and physical activity did not differ by relationship status. Thus, the occurrence of many day-to-day health behaviors in young adults was not conditional on the type of romantic relationship they were in. This is contradictory to many studies of older adults that have observed that married individuals

participate in more health promoting behavior than single individuals. One explanation for this contradictory finding is that studies of young adults, such as the current study, may not collect data over a long enough period of time to capture life transitions (e.g., loss of job, death in the family, chronic illness diagnosis) that can contribute to more negative health outcomes. It may be that changes in health behaviors are more likely to occur as individuals settle into their relationship rather than in the first few years of marriage.

This study has a number of strengths, one of which is the use of a large, diverse, population-based longitudinal cohort sample. The size and gender, race/ethnicity, and socioeconomic diversity of the study sample allows for generalizability of study findings to other populations of young adults from US metropolitan areas and builds upon previous research that has primarily utilized participant samples from clinical settings or university classrooms. Further, the large number of participants made it possible to conduct statistically valid analyses even with relatively small segments of the sample. In addition, this sample is part of a longitudinal cohort study. Thus, analyses were adjusted for outcomes at Time 2 which accounted for behavior and weight differences that may have existed five years earlier, therefore allowing for a better understanding of the temporal relationship between relationship status and individuals' weight status and health behaviors.

However, findings from the present study must also be interpreted in light of certain limitations. First, the survey used in this study did not assess for additional information about relationship status, such as the length of the relationship. It is possible that the longevity of a relationship may be related to weight status and health behaviors in young adults. In addition, temporality is difficult to assess. It is unknown whether a young adult's relationship status is influencing health behavior outcomes, or whether the health behaviors are influencing whether a young adult wants to be in a certain type of relationship. In order to address this concern, adjustment for Time 2 health behaviors and BMI allowed us to reduce issues of unmeasured confounding due to the self-selection of a partner with similar health behaviors and weight status, but these issues may not have been entirely eliminated and residual confounding may still exist. Furthermore, using self-reported height and weight data is a limitation of the study because participants' responses may have been prone to social desirability.

Clinical Implications and Future Research

Findings from the current study have implications for medical family therapists, family physicians, other health care professionals, and future intervention research on obesity prevention or treatment in young adults. Medical family therapists should consider discussing health behaviors in their work with young adult couples. Discussing the importance of physical health in addition to emotional health would potentially be useful for both young adult partners. Health care providers should consider tailoring discussions about adult obesity risk factors for men and women in committed relationships differently than those who are single. For example, it would be important to reinforce with single women the importance of eating breakfast daily. Furthermore, it would be important for providers to work with younger men to stay fit/eat healthier as they age and settle into committed relationships. In addition, obesity interventions targeting young adults may want to consider

relationship status when designing prevention programs for men and women. For future research, it would be important to measure length and strength of the relationship from both young adults (i.e., dyadic data) in the relationship in order to identify how the quality of the relationship, or length of the relationship, moderates the association between relationship status and day-to-day health behaviors.

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References

Berge JM, MacLehose R, Eisenberg ME, Laska MN, Neumark-Sztainer D. How significant is the 'significant other'? Associations between significant others' health behaviors and attitudes and young adults' health outcomes. International Journal of Behavioral Nutrition and Physical Activity. 2012; 9:35.10.1186/1479-5868-9-35 [PubMed: 22469471]

Braithwaite SR, Delevi R, Fincham FD. Romantic relationshps and the physical and mental health of college students. Personal Relationships. 2010; 17:1–12.

Burman B, Margolin G. Analysis of the association between marital relationships and health problems: An interactional perspective. Psychological Bulletin. 1992; 112:39–63. [PubMed: 1529039]

CDC. About BMI for adults. 2010. Retrieved July 16, 2010, from http://www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/index.html#Interpreted

Feskanich D, Rimm E, Giovannucci E, Colditz G, Stampfer M, Litin L, Willett W. Reproducibility and validity of food intake measurements from a semiquantitative food frequency questionnaire. J Am Diet Assoc. 1993; 93(7):790–796. [PubMed: 8320406]

Godin G. Godin Leisure-Time Exercise Questionnaire. Medicine and Science in Sports & Exercise. 1997; 29(Suppl 6):S36–S38.

Harry, RT.; Rusbult, CE. Close Relationships: Key findings. Philadelphia: Taylor & Francis; 2004.

Haskell WL, Lee I, Pate RR, Powell KE, Blair SN, Franklin BA, Bauman A. Physical activity and public health: Updated recommendations for adults from the American College of Sports Medicine and the American Heart Association. Circulation. 2007; 116(9):1081–1093. [PubMed: 17671237]

Horacek TM, White A, Betts NM, Hoerr S, Georgiou C, Nitzke S, Greene G. Self-efficacy, perceived benefits, and weight satisfaction discriminate among stages of change for fruit and vegetable intakes for young men and women. Journal of the American Dietetic Association. 2002; 102(10):1466–1470. [PubMed: 12396169]

House J, Landus K, Umberson D. Social Relationships and Health. Science. 1988; 29:540–545. [PubMed: 3399889]

Jackson T. Relationships between perceived close social support and health practices within community samples of American women and men. The Journal of Psychology. 2006; 140(3):229–246. [PubMed: 16916076]

Jackson T, Grilo CM, Masheb RM. Teasing history, onset of obesity, current eating disorder psychopathology, body dissatisfaction, and psychological functioning in binge eating disorder. Obesity Research. 2000; 8(6):451–458. [PubMed: 11011912]

Johnston, LD.; O'Malley, PM.; Bachman, JG. Monitoring the future national survey results on drug use, 1975–2000. Bethesda, MD: National Institute on Drug Abuse; 2001.

Keski-Rahkonen A, Kaprio J, Rissanen A, Virkkunen M, Rose RJ. Breakfast skipping and health-compromising behaviors in adolescents and adults. European Journal of Clinical Nutrition. 2003; 57(7):842–853. [PubMed: 12821884]

Kiecolt-Glaser J, Newton T. Marriage and health: His and hers. Psychological Bulletin. 2001; 127:472–503. [PubMed: 11439708]

Krauss RM, Eckel RH, Howard B, Appel LJ, Daniels SR, Deckelbaum RJ, Bazzarre TL. AHA dietary guidelines revision 2000: A statement for healthcare professionals from the nutrition committee of the American Heart Association. Stroke. 2000; 31(11):2751–2766. [PubMed: 11062305]

Kuczmarski MF, Kuczmarski RJ, Najjar M. Effects of age on validity of self- reported height, weight, and body mass index: Findings from the Third National Health and Nutrition Examination Survey, 1988–1994. Journal of the American Dietetic Association. 2001; 101(1):28–34. [PubMed: 11209581]

Larson N, Neumark-Sztainer D, Story M, van den Berg P, Hannan P. Identifying correlates of young adults' weight behavior: survey development. American Journal of Health Behavior. In press.

Larson N, Neumark-Sztainer D, Story M, van den Berg P, Hannan P. Identifying correlates of young adults' weight behavior: Survey development. American Journal of Health Behavior. (in press).

Little R. Survey nonresponse adjustments for estimates of means. International Statistical Review. 1986; 54:139–157.

Mendenhall TJ, Berge JM, Harper P, GreenCrow B, LittleWalker N, WhiteEagle S, BrownBear S. The family education diabetes series (FEDS): Community- based participatory research with a Midwestern American Indian community. Nursing Inquiry. (In Press).

Minuchin, S. Families and Family Therapy. Cambridge, MA: Harvard University Press; 1974.

Neumark-Sztainer D, Croll J, Story M, Hannan PJ, French SA, Perry C. Ethnic/racial differences in weight-related concerns and behaviors among adolescent girls and boys: findings from Project EAT. Journal of Psychosomatic Research. 2002; 53(5):963–974. [PubMed: 12445586]

Neumark-Sztainer D, Story M, Hannan P, Moe J. Overweight status and eating patterns among adolescents: Where do youth stand in comparison to the Healthy People 2010 Objectives? American Journal of Public Health. 2002; 92(5):844–851. [PubMed: 11988458]

Neumark-Sztainer D, Wall M, Eisenberg ME, Story M, Hannan PJ. Overweight status and weight control behaviors in adolescents: longitudinal and secular trends from 1999 to 2004. Preventive Medicine. 2006; 43:52–59. [PubMed: 16697035]

Neumark-Sztainer D, Wall M, Guo J, Story M, Haines J, Eisenberg M. Obesity, disordered eating, and eating disorders in a longitudinal study of adolescents: how do dieters fare 5 years later? Journal of the American Dietetic Association. 2006; 106(4):559–568. [PubMed: 16567152]

Ogden CL, Carroll MD, Curtin LR, McDowell MA, Tabak CJ, Flegal KM. Prevalence of overweight and obesity in the United States, 1999–2004. Journal of the American Medical Association. 2006; 295(13):1549–1555. [PubMed: 16595758]

Ortega FB, Brown WJ, Lee D, Baruth M, Sui X, Blair SN. In fitness and health? A prospective study of changes in marital status and fitness in men and women. American Journal of Epidemiology. 2010

Palta M, Prineas RJ, Berman R, Hannan P. Comparison of self-reported and measured height and weight. American Journal of Epidemiology. 1982; 115(2):223–230. [PubMed: 7058781]

Rashidi A, Mohammadpour-Ahranjani B, Karandish M, Vafa M, Hajifaraji M, Ansari F, Akhavi-Rad M. Obese and female adolescents skip breakfast more than their non-obese male peers. Central European Journal of Medicine. 2007; 2(4):481–487.

Rimm E, Giovannucci E, Stampfer M, Colditz G, Litin L, Willett W. Reproducibility and validity of an expanded self-administered semiquantitative food frequency questionnaire among male health professionals. American Journal of Epidemiology. 1992; 135:1114–1126. discussion 1127–1136. [PubMed: 1632423]

Robles T, Kiecolt-Glaser J. The physiology of marriage: Pathways to health. Physiological Behavior. 2003; 79:409–416.

Rockett HRH, Breitenbach MA, Frazier AL, Witschi J, Wolf AM, Field AE, Colditz GA. Validation of a youth/adolescent food frequency questionnaire. Preventive Medicine. 1997; 26(6):808–816. [PubMed: 9388792]

Ross CE, Mirowsky J. Family relationships, social support and subjective life expectancy. Journal of Health and Social Behavior. 2002; 43(4)

Schoenborn CA. Marital status and health: United States 1999–2002. Advance data from vital & health statistics of the National Center for Health Statistics. 2004; 351:1–32. [PubMed: 15633583]

Stewart A. The reliability and validity of self-reported weight and height. Journal of Chronic Diseases. 1982; 35:295–309. [PubMed: 7061685]

Tehard B, van Liere MJ, Com Nougue C, Clavel-Chapelon F. Anthropometric measurements and body silhouette of women: Validity and perception. Journal of the American Dietetic Association. 2002; 102(12):1779–1784. [PubMed: 12487540]

The NS, Gordon-Larson NS. Entry into romantic partnership is associated with obesity. Obesity. 2009a; 17(7):1441–1447. [PubMed: 19360012]

The NS, Gordon-Larson NS. Entry into romantic partnerships is associatied with obesity. Obesity. 2009b; 17(7):1441–1447. [PubMed: 19360012]

Timlin M, Pereira MA, Story M, Neumark-Sztainer D. Breakfast eating and weight change in a 5-year prospective analysis of adolescents: Project EAT (Eating Among Teens). Pediatrics. 2008; 121(3):e638–645.10.1542/peds.2007-1035 [PubMed: 18310183]

Umberson D, Williams K, Powers D, Liu H, Needham B. You make me sick: Marital quality and health over the life course. Journal of Health and Social Behavior. 2006; 47:3–16.

Waite L. Does marriage matter? Demography. 1995; 32:483–507. [PubMed: 8925942]

Waite, L.; Gallaher, M. The case for marriage: Why married people are happier, healthier, and better off financially. 1. New York: Doubleday; 2000.

Whitchurch, GG.; Constantine, LL. Systems theory. In: Boss, PG.; Doherty, WJ.; LaRossa, R.; Schumm, WR.; Steinmetz, SK., editors. Sourcebook on family theories and methods: A contextual approach. New York, NY: Plenum Press; 1993.

Zou GA. A modified poisson regression approach to prospective studies with binary data. American Journal of Epidemiology. 2004; 159(7):702–706. [PubMed: 15033648]

Table 1

Demographic Characteristics and Health Behaviors of EAT III Young Adults who are Single or in Committed Relationships

	Total n=1853	Single n =644	Committed n=782	Married n=427
Age (n, SD)	25.3 (SD=1.6)	25.1 (SD=1.7)	25.1 (SD=1.6)	26.0 (SD=1.4)
Race (%)				
White	48.9%	47.7%	46.9%	54.8%
Black	18.7%	25.4%	18.2%	8.7%
Hispanic	5.2%	5.3%	6.6%	2.3%
Asian	19.1%	15.1%	18.5%	26.7%
Mixed/Other	8.1%	6.6%	9.7%	7.6%
Highest Education Achieved (%)				
Less than high school	3.5%	4.4%	3.2%	2.7%
High school or GED	39.0%	43.8%	39.3%	30.4%
Vocational school	13.6%	11.4%	16.2%	12.2%
Associate's degree	11.9%	9.2%	11.9%	16.3%
Bachelor's degree	28.9%	29.5%	25.9%	33.6%
Graduate degree	3.2%	1.8%	3.4%	4.9%
Overweight/Obese	50.9%	54.5%	46.7%	53.1%
Daily intake of FV ≥ 5	26.3%	24.8%	25.7%	29.8%
servings/day Eat fast food ≥ 1 days/wk	69.9%	70.6%	71.1%	66.6%
Eat fast food ≥3 days/wk	21.0%	23.1%	22.9%	13.8%
Drink sugar sweetened beverages ≥ 1 servings/day	26.6%	27.0%	28.2%	23.0%
Eat Breakfast ≥ 5 days/week	41.4%	37.0%	38.7%	53.9%
Physical Activity ≥ 2.5 hrs/wk	57.0%	59.0%	57.9%	51.9%

Study conducted in Midwest, United States, 2009

Table 2

Description of Independent and Dependent Variables

Measure	Description
Independent Variable:	
Relationship Status	Relationship status was assessed by self-report at Time 3. Young adult participants were asked the following question adapted from a previous measure, (Johnston, O'Malley, & Bachman, 2001) "What is your relationship status (mark one)?" Reponses included, single/casually dating, committed dating relationship/engaged, married, same sex domestic partner, separated or divorced, widowed. Three categories of relationship status were created from these response options: (a) single/casual dating, (b) committed dating/engaged, and (c) married. Participants who chose same sex partner as their relationship status (n = 18) were grouped in the married category. Those who reported that they were separated/divorced (n = 12), widowed (n = 1), or those with missing data regarding relationship status (n = 18) were excluded from the analyses.
Dependent Variables:	
Weight Status	Height and weight were assessed by self-report at EAT II (Time 2) and EAT III (Time 3). Self-reported height and weight has been shown to be highly correlated with objectively measured values in adults (Kuczmarski, Kuczmarski, & Najjar,2001; Palta, Prineas, Berman, & Hannan, 1982; Stewart, 1982; Tehard, van Liere, Com Nougue, & Clavel-Chapelon, 2002). BMI was calculated using the standard formula, weight (kg)/height (meters^2). Among a sub-sample of 127 Project EAT-III participants, the correlation between measured and self-reported BMI values was r=0.95 for men and r=0.98 for women. Centers for Disease Control and Prevention cut-points were used to categorize participants into those who were normal weight (BMI>18.5, <25) overweight/obese (BMI≥25, <30), or obese (BMI≥30) (CDC, 2010). We collapsed the latter two categories and conducted analyses of overweight/obese vs. normal weight.
Fruit and Vegetable Intake and Sugar-Sweetened Beverage Consumption	At Time 2, fruit and vegetable intake was assessed with the 149-item Youth and Adolescent Food Frequency Questionnaire (YAQ) (Rockett et al., 1997). At Time 3, when adolescents had transitioned into young adulthood, a semi-quantitative food frequency questionnaire (FFQ 2007 grid form; Harvard School of Public Health Nutrition Department) was used to assess past year intake of fruit and vegetables and sugar-sweetened beverage consumption. Daily servings were defined as the equivalent of one-half cup for fruits and vegetables. A serving of sugar-sweetened beverages (e.g. soda pop, sports drinks) was defined as the equivalent of one glass, bottle, or can. Young adults' self-reported servings of fruits (excluding fruit juice) and vegetables (excluding french fries) were dichotomized at ≥ 5 servings of fruits and vegetables per day, based on dietary guidelines (Krauss et al., 2000). Sugar sweetened beverage intake was dichotomized at ≥ 1 glass/bottle/can per day. Previous studies have examined and reported on the reliability and validity of intake estimates (Feskanich et al., 1993; Rimm et al., 1992).
Fast Food Intake and Breakfast Frequency	Fast food intake and breakfast frequency were assessed by self-report at Time 2 and 3. Young adults were asked, "In the past week, how often did you eat something from a fast food restaurant?" and "During the past week, how many days did you eat breakfast?" Response options ranged from never to more than 7 times for fast food intake and never to every day for breakfast. Eating breakfast was dichotomized at ≥ 5 times per week. Fast food intake was dichotomized at eating fast food ≥ 1 time per week. In addition, fast food intake was dichotomized at eating fast food ≥ 3 times per week in order to identify the differences between infrequent and frequent fast food intake. The test-retest value for breakfast frequency was Pearson r = .82 and for fast food Pearson r = .48.
Level of Physical Activity	Physical activity questions were adapted from the Godin Leisure-Time Exercise Questionnaire (Godin, 1997). Young adults were asked at Time 2 and Time 3, "In a usual week, how many hours do you spend doing the following activities: (1) strenuous exercise (e.g. biking fast, aerobics, jogging, basketball, swimming laps, soccer, roller blading) (2) moderate exercise (e.g. walking quickly, easy bicycling, volleyball, skiing, dancing, skateboarding, snowboarding)". Response options ranged from "none" to "6+ hours a week". Young adults' self-reported hours of moderate to vigorous physical activity (MVPA) was dichotomized at ≥ 2.5 hours per week. This cutpoint matches current recommendations of 30 minutes of physical activity on most days (Haskell et al., 2007). The test-retest value for this item was Pearson r = .80.
Covariates	Gender, age, race/ethnicity and educational attainment were assessed by self-report at Time 3. Race/ethnicity was assessed with one survey item: "Do you think of yourself as 1) white, 2) black or African-American, 3) Hispanic or Latino,4) Asian-American, 5) Hawaiian or Pacific Islander, or 6) American Indian or Native American" and respondents were asked to check all that apply. Participants who checked two response options were categorized as "mixed/other race." Hawaiian/Pacific Islander and Native American participants were also categorized as "mixed/other race" due to their small numbers in this dataset. Highest level of educational attainment was assessed using the following question, "What is the highest level of education that you have completed?" Response options included: less than high school, high school/GED, vocational/ technical/trade school, associate degree, bachelor degree, graduate or professional degree (Horacek et al., 2002).

Table 3

Prevalence of Weight Status and Health Behaviors by Young Adult Relationship Status*

	Young Adult Males		Young Adult Females	
	Prevalence	**PR** (95% CI)**	**Prevalence**	**PR (95% CI)**
Participant overweight/obese, BMI ≥ 25 (Yes vs No)**				
Relationship Status:				
Single/casually dating	47.4%	1 (Reference)	42.7%	1 (Reference)
Committed	44.1%	0.93 (0.78, 1.10)	39.5%	0.92 (0.78, 1.10)
Married	58.5%	**1.23 (1.03, 1.48)**	39.8%	0.93 (0.76, 1.15)
Participant Eats Breakfast (≥ 5 days/week vs <5 days/week)				
Relationship Status:				
Single/casually dating	29.5%	1	42.0%	1
Committed	26.5%	0.90 (0.71, 1.14)	45.5%	1.08 (0.89, 1.32)
Married	33.3%	1.15 (0.86, 1.49)	61.6%	**1.47 (1.19, 1.82)**
Participant Fruit and Vegetable intake (≥ 5 vs <5 servings)**				
Relationship Status:				
Single/casually dating	19.2%	1	28.3%	1
Committed	16.5%	0.86 (0.55, 1.34)	26.8%	0.95 (0.71, 1.27)
Married	21.8%	1.14 (0.71, 1.82)	32.8%	1.16 (0.84, 1.61)
Participant Drinks Sugar Sweetened Beverages (≥ 1 serving/day vs < 1 serving/day)				
Relationship Status:				
Single/casually dating	39.2%	1	30.4%	1
Committed	38.6%	0.98 (0.76, 1.28)	31.8%	1.05 (0.75, 1.45)
Married	36.5%	0.93 (0.66, 1.33)	24.0%	0.79 (0.51, 1.22)
Participant Eats Fast Food Infrequently (≥1 days/week vs 0 days/week)				
Relationship Status:				
Single/casually dating	72.9%	1	62.5%	1
Committed	70.8%	0.97 (0.89, 1.06)	67.5%	1.08 (0.95, 1.23)
Married	63.7%	0.87 (0.75, 1.02)	68.4%	1.09 (0.94, 1.27)
Participant Eats Fast Food Frequently (≥ 3 days/week vs < 3 days/week)				
Relationship Status:				

	Young Adult Males		Young Adult Females	
	Prevalence	**PR** ** **(95% CI)**	**Prevalence**	**PR (95% CI)**
Single/casually dating	28.3%	1	17.0%	1
Committed	28.9%	1.02 (0.77, 1.36)	21.6%	1.27 (0.83, 1.96)
Married	18.5%	0.66 (0.41, 1.05)	13.8%	0.81 (0.48, 1.39)
Participant Physical Activity (≥ 2.5 hrs/week vs <2.5 hrs/week) *****				
Relationship Status:				
Single/casually dating	64.6%	1	56.6%	1
Committed	65.3%	1.01 (0.89, 1.15)	55.0%	0.97 (0.84, 1.13)
Married	59.1%	0.91 (0.76, 1.10)	56.9%	1.00 (0.83, 1.21)

* All regression models adjusted for race, socioeconomic status, age, and children at Time 3

** PR: Prevalence Ratio (reference group = single/casually dating)

*** Also adjusts for bmi at time 2

**** Also adjusts for FV intake at time 2

***** Also adjusts for physical activity at time 2