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Fruit and Vegetable Consumption, and Physical Activity with Partner and Parental Status in African American Adults

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Abstract

Objectives—The purpose of this study was to examine the relationships between partner and parental status and self-reported weekly fruit and vegetable consumption and level of physical activity in African American adults.

Methods—A national sample of 2,370 African Americans participated in a telephone survey. Demographic data were collected and compared with fruit and vegetable consumption and physical activity responses.

Results—When controlling for age (mean age = 53.6 ± 14.8 years) and education level, having children in the household was associated with greater fruit consumption. Being partnered was associated with moderate physical activity weekly for a higher percentage of women, and yet a shorter duration of minutes of moderate physical activity weekly for both women and men. Males (38.2% of the sample) reported being more physically active and females (61.8% of the sample) reported eating more fruits and vegetables.

Conclusions—By understanding the role of partner and parental status in relation to healthy lifestyle for African Americans, family scientists and health care practitioners may be able to target the needs of this population to help prevent obesity and chronic illness.

Conflict of Interest: There are no known conflicts of interest, financial or otherwise, for the authors relative to this work.

Keywords

Race/Ethnicity; Family Health; Cohabitation/Informal Marriages; Single Parents; Parent/Child Relations

Introduction

Healthy lifestyle behaviors targeting obesity and chronic illness include dietary control [1] and regular exercise [2]. For African Americans, the burden of chronic illness is disproportionately higher than Whites [3]. This population has a higher average body mass index than other racial and ethnic groups [4] and experience higher rates of cancer [5], diabetes [6], hypertension [7], cardiovascular disease, and stroke [8,9] compared with whites. These differences may be due to diet and physical activity related factors. African Americans typically do not consume recommended daily amounts of fruits and vegetables [10] when compared to their white counterparts [11]; while they are motivated to eat fruits and vegetables for health reasons, this does not translate over to increased intake [12]. Findings regarding physical activity among this population are mixed; some research suggests there is no significant difference in physical activity between Whites and African Americans, regardless of sex [13]. Other research identified a significant difference between the two populations relative to their physical activity level [14]. For African American men, health disparities may be attributable to the social environment [1815]. Griffith, Metzl, and Gunter [16] suggested that health disparities impacting African American men in that population are rooted in unequal access to economic, social, and political resources with many experiencing poverty, residing near polluted areas, and being under represented compared to women in health disparities research. African American men report exercising less than White men [17]. Among men, aged 45-64 years, physical inactivity was associated with a higher likelihood of mortality [18].

Among African American women, healthy diets are associated with lower mortality [19]. Baruth, Sharpe, Parra-Medina, and Wilcox [20] examined barriers to a healthy lifestyle in a sample of women from disadvantaged neighborhoods, who reported pressure by friends and family to eat more and not lose weight [21]. Among older African American and Hispanic women, barriers to physical activity included body image and body composition, while a perceived supportive neighborhood facilitated physical activity [22]. Women in disadvantaged neighborhoods reported barriers to exercise stemming from others' negative comments and feelings of inadequacy, embarrassment and intimidation [21].

The literature on healthy lifestyle among minorities stresses the role of family support. Among urban-dwelling African Americans and Latinos, healthy lifestyle, including diet and regular physical activity, was positively correlated with family interactions and community storytelling networks [22]. Christiansen, Qureshi, Schaible, Park, and Gittelsohn [23] found that family context, neighborhood, school, and peers shaped dietary habits of African American adolescents.

Partner status and the sex of the individual can shape the health behaviors of adults. O'Neal, Arnold, Lucier-Greer, Wickrama, and Bryant [24] examined the role of spousal support,

depression, and economic pressure on health behaviors of African American couples. For husbands, spousal support increased weight management behaviors and protected against poor health outcomes. For wives, depression was associated with poor health and lower levels of healthy weight-management behaviors [24]. Married African American men tend to relinquish responsibility for meal preparation and defer to their wife's food preferences to keep harmony in the marriage and maintain spousal role division [25]. Wives managed meals for healthy eating even if their husbands prefer less healthy foods.

Parenting practices influence health behaviors of children in African American families [26]. In a systematic review of the literature, Nichols, Newman, Nemeth, and Magwood [27] investigated parental influence on obesity in adolescent girls. High parental involvement, specifically a focus on healthy diet and exercise, helped children to lose weight [27]. In contrast, there is little research on how having children affects healthy lifestyle choices of adults. Several macro-level theoretical perspectives have been employed to explain health behaviors within the family context, including social control theory [28]; social constructionism [29]; theory of planned behavior [30,31]; family economic stress model [32]; and the social-ecological framework [33]. Research examining the relationship between health disparities and healthy lifestyle in minorities has often used a broad socio-ecological framework [32,33] articulating the interrelations among personal, interpersonal, societal, institutional and policy factors and theorizing about the impact of multi-level interactions on individual behavior [33]. In the current study, we employ a narrower, micro-level lens to examine the relationships between traditional sex-based partner and parenting status (partnered/not partnered; parenting/not parenting) [34], and how they relate to self-reported fruit and vegetable consumption and physical activity in African Americans. Because the sex-based roles associated with partner and parenting status are contextual and rooted in social norms and cultural values, it is important to examine their association with health behaviors in under-studied populations; currently most studies compare African Americans to whites or other racial/ethnic categories [3-9,11,13,17,21-22]. In this study, we included cohabitating partners, formal and informal marriages, single parents and parents with partners, as well as single people with no children, when examining the weekly fruit and vegetable consumption and level of physical activity of our sample.

Materials and methods

Telephone Survey

This crossectional study uses secondary analysis of data obtained during Wave I of the Religion and Health in African Americans study (RHIAA), whose methodology has been reported elsewhere [35]. In brief, data were gathered using telephone interviews. A probability-based call-list obtained through publicly available information from all 50 US states was created by a sampling firm. A total of 12,418 phone numbers were called randomly by interviewers, yielding 10,048 people who were successfully contacted. Interviewers explained the study to the first adult household resident who answered the telephone. Interested persons were screened by interviewers to determine their eligibility to participate in the study based on the following criteria: they had to be 21 years or older, self-

identify as African American, and not have a cancer diagnosis (the survey included questions about cancer screening, and that would not apply to those with cancer).

Of the 10,048 people who were contacted, 8,240 refused to participate prior to the screening for eligibility process. After the screening, 1,658 were determined to be ineligible to participate for the following reasons: 224 had a history of cancer, 5 declined to answer the question about having a history of cancer; 81 were younger than 21 years of age; 444 declined to provide their age; 878 did not self-identify as African American; and 26 were not capable of participating. The remaining eligible candidates were read an informed consent script over the telephone; after that process only 150 refused to participate, which is an upper bound response rate of 94% (2,370/2,520). A total of 2,370 eligible individuals orally consented to participate in the study, resulting in a 23% (2,370/10,048) overall response rate, which is not a representative sample. The screening process and data collection together took about 2 years to complete. Once participants provided consent, they completed the 45-60 minute interview. Only one person per household was eligible to participate, and participants were mailed a $25 gift card after completion of the interview. Institutional review board approval for this study was obtained through the University of Maryland and the University of Alabama at Birmingham.

Measures

Partner status was operationalized as “not partnered” (never been married/currently single/separated/divorced/widowed) or “partnered” (currently married/living with partner [cohabitation]), and parental status was operationalized as “with no children” (having no children under the age of 18 in the household) or “with children” (having children under the age of 18 in the household). Demographic characteristics which were measured to describe the sample, included age, sex, partner status, children under 18 years of age in the household, education level, income, and employment. Education level was measured using a 5-level scale ranging from less than grade to 4 or more years of college, and income by an 8-level scale ranging from less than $5,000 to more than $60,000 per year. Employment categories were full-time employed, part-time employed, not currently employed, retired, and receiving disability.

Weekly fruit and vegetable consumption was measured using a modification of the Center for Disease Control and Prevention's Five A Day Survey [36], which has been previously validated in the target population [37]. The instrument consisted of seven items that measure servings of fruits and five items that measure servings of vegetables usually consumed during one week; servings are rated on a scale from zero to eight servings. The survey lists 15 fruits and 18 vegetables and includes “other fruit” and “other vegetable” as item choices. A serving of fruit was defined as one piece of fruit, one half cup of fruit, or six ounces of juice. A serving of vegetables was defined as one cup of raw vegetables or one-half cup of cooked vegetables. Study participants were asked to recall and report on typical weekly fruit and vegetable consumption. Test-retest reliability (intra class correlation coefficients [ICC]) over two weeks for fruit consumption items (ICC = .52, $p < .001$) and vegetable consumption items (ICC = .60, $p < .001$) were determined to be sufficient [37].

Weekly physical activity was measured using the International Physical Activity Questionnaire, with acceptable reliability and validity across various populations [38-40]. Since we wanted to get a complete picture regarding the physical activity of participants, they were asked to report on the physical activity they engaged in, both while at work and during leisure time. Participants' daily average number of minutes for three levels of exercise (walking, moderate physical activity, vigorous physical activity) was reported for the last seven days. Based on developer recommendations for the questionnaire, the maximum number of minutes per day was truncated at 180 minutes to eliminate extreme responses. Walking is self-explanatory. Moderate physical activities were defined as activities that cause the participant to experience increased breathing, and may involve such activities as regularly-paced bicycling, doubles tennis, or carrying light loads. Vigorous physical activities were defined as activities that required hard physical effort, and would cause harder than normal breathing such as heavy lifting, digging, aerobics, or fast bicycling. When determining weekly physical activity, participants considered only activities performed for at least 10 minutes.

Statistical Methods

A generalized estimating equations approach was used to assess the relationship between partner and parental status, sex of the participant, weekly fruit and vegetable consumption, and physical activity. Analyses were full factorial, allowing for all main effects and possible interactions: (Partnered × Children × Sex, Partnered × Children, Partnered × Sex, and Children × Sex). Age and education level of the participant were included in all models as covariates. Socio-economic Status (SES), was considered as a possible covariate, but was determined to be too highly correlated with education level to allow assessing the effect of either if both were entered into a single equation. Fruit and vegetable consumption and physical activity were log transformed because data were substantially right skewed. To accommodate the few participants who reported consuming no fruits or vegetables, a “1” (one) was added to the all participants' reports. Following the analysis, data were exponentiated, and one was subtracted, so results are reported as geometric means and geometric 95% confidence intervals (CIs). Sequential Bonferroni adjustments were used for all pair wise comparisons.

Report of the three types of physical activity formed bimodal distributions, with approximately one-third of participants reporting zero minutes of moderate and vigorous physical activity. So, physical activity data were analyzed using two approaches. The first set of analyses included only participants who reported at least 10 minutes of activity (walking, moderate or vigorous) per day. Generalized estimating equations with a linear response scale were used to predict degree of activity among these participants. Data were logged and exponentiated, as described above. In the second set of analyses, data were divided into two groups for each form of exercise: at least 10 minutes of activity per day reported or no activity reported. Generalized estimating equations with binary logistic response scales were used to predict membership in the binary activity/no activity scale. The percentage of participants within each partner status and parental status category who reported engaging in each type of activity was estimated, controlling for age and education level. An alpha of 0.05

was adopted for statistical significance. SPSS, version 23 (SPSS, Inc, Armonk, NY, USA) was used for the analyses.

Results and Discussion

Demographic Characteristics

A total number of 2370 participants (38.2 % male/61.8 % female), responded to the telephone survey. For employment status, 49.8% (1180/2730) were employed either full time or part time; the remainder were either receiving disability, retired, or unemployed. Regarding annual income level, 25.7 % (702/2730) earned $50,001 or more; 29.6% (808/2730) earned $20,001-$50,000, and 30.9% (844/2730) earned $20,000 or below. Sixteen participants failed to answer at least one of the questions required for analyses, leaving an analytic sample of 2354 (99.3%). The mean (standard deviation) age of participants was 53.6 (±14.8) years (range = 21-91 years). Most participants (774/2,354; 32.9%) had a high school degree or general educational development equivalent. The next highest education level was one to three years of college (692/2,354; 29.4%). Among households with children under 18, the number of children ranged from 1-to-17 (median=2, inter-quartile range: 1-to-2.5). See Table 1 for demographic characteristics details.

Weekly Fruit and Vegetable Consumption

Weekly fruit and vegetable consumption are reported in Table 2. For fruit consumption comparisons, the 3-way interaction (Partnered × Children × Sex) was significant, ($p = .004$). Males who were not partnered with no children ate fewer fruit servings than males who were not partnered with children, ($p = .045$); females who were not partnered with no children, ($p =. 001$); and females who were partnered with children, ($p = .001$). The 2-way interaction of Children × Sex was significant, ($p = .02$). Males with no children ate fewer fruits, ($M = 13.5$ servings, 95% CI {12.7, 14.3}) than males with children, ($M = 16.4$ servings, 95% CI {15.0, 17.8}, $p = .003$); females with no children, ($M = 15.1$ servings, 95% CI {14.3, 15.8}, $p = .02$); and females with children, ($M = 15.7$ servings, 95% CI {14.7, 16.7}, $p = .005$). Participants with children ate more fruits, (M = 16.0 servings, 95% CI {15.2, 16.9}), than those with no children, ($M = 14.3$ servings, 95% CI {13.7, 14.8}, $p < .001$). Age and education level were both associated with fruit consumption, ($p < .001$): older participants and those with more education tended to eat more fruits.

For vegetable consumption comparisons, the 3-way interaction was significant, ($p = .01$). Males who were not partnered with no children consumed fewer vegetable servings than females who were not partnered with no children, ($p = .004$); females who were partnered with no children, ($p = .01$); and females who were partnered with children, ($p = .001$). None of the 2-way interactions were significant, (p>.54). Sex of the participant achieved significance; females ate more vegetables, ($M = 14.9$ servings, 95% CI {14.5, 15.3}), than males, ($M = 14.1$ servings, 95% CI {13.6, 14.6}, $p = .02$). Age and education level were also associated with vegetable consumption, both older participants and those with more education ate more vegetables ($p < .001$).

Weekly Physical Activity

Table 3 presents the *mean minutes of weekly activity of participants* for walking, moderate physical activity, and vigorous physical activity. Data are limited to only those who reported engaging in each type of physical activity.

For the mean minutes of weekly walking, the 3-way interaction was not significant, ($p = .17$). None of the 2-way interactions were significant, ($p > .30$). Males ($M = 181.8$ minutes, 95% CI {166.3, 198.8}), reported walking for a longer duration than females ($M = 162.2$ minutes, 95% CI {151.6, 173.6}, $p = .04$). Walking was negatively associated with age, ($p < .001$); older adults tended to walk less.

For the mean minutes of weekly moderate physical activity, the 3-way interaction was not significant, ($p = .10$). Neither of the 2-way interactions were significant, ($p > .35$). Participants who were not partnered reported more moderate physical activity, ($M = 144.8$ minutes, 95% CI {132.8, 157.9}), than those who were partnered, ($M = 124.3$ minutes, 95% CI {113.0, 136.8}, $p = .021$). Males reported more moderate physical activity, ($M = 159.8$ minutes, 95% CI {144.8, 176.3}), than females, ($M = 112.7$ minutes, 95% CI {103.9, 122.3}, $p < .001$). Moderate physical activity was negatively associated with age, ($p = .001$); older participants engaged in less moderate physical activity.

For the mean minutes of weekly vigorous physical activity, the 3-way interaction was not significant, ($p = .46$). None of the 2-way interactions were significant, ($p > .34$). Males reported doing more vigorous physical activity, ($M = 205.3$ minutes, 95% CI {186.3, 226.2}), than females, ($M = 137.0$ minutes, 95% CI {126.4, 148.5}, $p < .001$). Vigorous physical activity was negatively associated with age, ($p < .001$); older participants engaged in less vigorous physical activity.

Table 4 presents the *percentage of participants who engaged in* walking, moderate physical activity, and vigorous physical activity. Regarding the percentage of participants who reported walking, none of the interactions or main effects were significant, ($p > .05$). Older participants were less likely to report walking, ($p = .002$); and those who reported more education were more likely to report walking, ($p = .008$).

Regarding the percentage of participants who reported engaging in moderate physical activity, the 3-way interaction was not significant, ($p = .061$); however, the Partnered × Sex interaction was, ($p = .031$). The remaining 2-way interactions were also significant, ($p < .05$). Males who were not partnered (76.6%, 95% CI {71.2, 81.2}) were more likely to engage in moderate activity than females who were both partnered (67.6%, 95% CI {63.2, 71.7}, $p = .024$) and not partnered (58.6%, 95% CI {55.2, 61.8}, $p < .001$). Partnered males (74.8%, 95% CI {70.1, 79.1}, $p < .001$) were more likely to exercise moderately than partnered females, ($p = .045$). Partnered females were more likely to engage in moderate activity than those who were not partnered, ($p = .004$). More males, (75.7%, 95% CI {72.2, 78.9}), reported engaging in moderate physical activity than females, (63.2%, 95% CI {60.4, 65.9}, $p < .001$); and those who were younger were more likely to engage in moderate physical activity, ($p < .001$).

Regarding the percentage of participants who reported engaging in vigorous physical activity, no interactions were significant, (p > .31). Males were more likely to engage in vigorous physical activity, (77.3%, 95% CI {73.9, 80.4}), than females, (63.9%, 95% CI {61.1, 66.7}, $p < .001$). Older participants, ($p < .001$), and those with less education, ($p = .004$), were less likely to engage in vigorous physical activity.

In this study, we examined the relationships between partner status and parental status (rather than broader socio-ecological influences), and self-reported weekly fruit and vegetable consumption and level of weekly physical activity in African American adults. We found some significant correlates between sex, partner status and parental status with fruit and vegetable consumption and physical activity. Some of the findings are not surprising, even if intuitively resonant, however they do add useful and important information to the literature addressing overweight/obesity and chronic illness in an under-studied population. Discussion of the findings follow below.

Fruit and Vegetable Consumption

Males reported consuming fewer fruits and vegetables than females, regardless of partner and parental status. Partnered adult females with children reported eating more fruits and vegetables than those who were not partnered without children. These findings support previous research suggesting having a full complement of family members encourages healthy diets in adult African American women [41,42].

Participants with children ate more fruits than those without children, suggesting the presence of children is correlated with fruit consumption in African Americans. One explanation is fruits are simple to prepare and are a healthy alternative to sweets [43], which could make them a popular snack among those raising children [44,45]. However, this finding was moderated by sex with male parents eating fewer fruits than female parents. Similarly, and unsurprisingly, males who were not partnered with no children ate the fewest servings of vegetables, and females who were partnered with children ate the most.

Socialized to take care of others, females typically assume responsibility for the diets of those under their care [46] by encouraging healthy eating [47]. Access to healthy foods for one member of the family may make it easier for all members of the family to enjoy healthier eating [48]. Having children may engender a desire in parents to provide a healthier diet and, perhaps because of their sweetness, fruits are chosen more often than vegetables [49].

Physical Activity

Three levels of physical activity were examined relative to partner and parental status: walking, moderate physical activity, and vigorous physical activity in two ways: 1) mean minutes of weekly activity of participants, and 2) percentage of participants engaging in physical activity. In general, males reported engaging in more physical activity (of any kind) than females, regardless of partner status or parental status. This result may be because males feel the need to retain their competitive edge and stay physically fit [50,51] or they may be socialized to exercise more than women [52], or they may have more physically active jobs than women [53].

We found no significant findings regarding partner and parental status together for *duration* of walking, moderate activity, or vigorous activity or percentage of respondents for walking or vigorous activity. However, being partnered appears to play a role in both *duration* and *percentage of respondents* for moderate physical activity. Having a partner was associated with engaging in moderate physical activity for a shorter duration of minutes for both sexes. This is a common finding in the literature [54]. Also, a higher percentage of African American males who were not partnered reported engaging in more moderate activity than males with partners or females. Perhaps males without a partner may have more time to exercise, or they exercise more regularly to make themselves attractive for a potential partner [55]. We also found that a higher percentage of partnered females were more likely to engage in moderate activity than those who were not partnered. Perhaps there is something supportive in having a partner for African American females relative to engagement in moderate physical activity [56].

Limitations

There are several limitations to this study. The data are self-reported and, even though the ICC for the Five A Day Questionnaire are sufficient, they are a bit low for a recall questionnaire and may be subject to recall bias; estimates of fruit and vegetable consumption may be inflated or deflated. Similarly, the self-reports of physical activity may be inflated or deflated. The response rate was 23%, and therefore findings cannot be generalized to the African American population. Telephone interviewing may have biased our data to only people who were at home and people who were older. Our sample had a mean age of 53.6, which is not surprising since younger people are typically not at home during the day and use cell phones rather than land lines. Additionally, there may be self-selection bias, with healthier people being more likely to participate in the study. It was not within the scope of this study to collect data on differences in cost of living in the various areas of the country in which the participants resided, which could influence access to fresh fruits and vegetables [57] and places to engage in physical exercise [58]. It was also not within the scope of the study to gather data regarding the age of the children or the specific familial relationship between the participant and the children in the household. Older children and adolescents require different parenting skill sets than younger children and infants. Some of the participants may have been grandparents or older siblings or other relatives rather than parents, given the high divorce rate in African American families [59]. Our approach did not account for intergenerational families, which are commonly found in the African American population [60]. Also, regarding the partner/no partner variable, we did not address whether the partnership in question was heterosexual or Lesbian, Gay, Bi-sexual, Transgendered, & Queer/Questioning (LGBTQ), so we do not know if having a same-sex partner, for example, would have changed the results.

Conclusion

These findings can inform the work of family scientists and health care practitioners in supporting efforts to use partner and parental status as a focus for developing interventions to prevent obesity and chronic illness and address health disparities in African Americans. Use of a “fictive kin” approach might be helpful [61,62]. For example, creation and use of a

big brother system around dietary practices may encourage single African American adult males without children, who take on the role of a big brother to a younger person, to eat healthier [63,64]. For single adult females, having social gatherings involving both sexes to encourage engagement in moderate physical activity might be useful. Encouraging couples to allow and plan for more time in their schedules for moderate exercise may be helpful for those with a partner [65,66]. Seeking out “exemplar families” to share strategies that they use to eat a healthy diet and engage in physical activity with their neighborhoods and communities, in terms of their habits and routines, balance of home life and work, etc., would be another possibility to explore for African American adults [67]. Use of the naturally occurring social support found in African American churches may also assist in supplying healthy dietary support and opportunities for engagement in physical activity for this population [68]. Additional in-depth qualitative research is warranted to examine the relationships between adults and children in the household and whether differences in these relationships influence dietary and physical activity choices in African American adults.

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Abbreviations

RHIAA	Religion and Health in African Americans study
ICC	Intra Class Correlation Coefficients
p	level of significance
CIs	Confidence Intervals
LGBTQ	Lesbian, Gay, Bi-sexual, Transgendered, & Queer/Questioning
N	Total number of participants responding to a particular question
n	sample size per subcategories
M	Mean

Table 1
Demographic Characteristics for Sample (n=2370)

Variable	M or %
Age *(M±SD)*	53.6 ± 14.8
Sex	
Female	61.8
Male	38.2
Partner Status	
Partnered	36.8
Not partnered	63.2
Children< 18 yrs.	
Children	35.1
No Children	64.9
Income	
Less than $5,000	7.5
$5,001 - $10,000	10.7
$10,001 - $20,000	12.7
$20,001 - $30,000	11.5
$30,001 - $40,000	10.0
$40,001 - 50,000	8.1
$50,001 - $60,000	7.2
More than $60,000	18.5
Refused	13.8
Employment	
Full-time employed	38.1
Part-time employed	11.7
Not currently employed	12.5
Retired	26.1
Receiving disability	11.1
Refused	0.5
Education	
Less than grade 8	2.7
Grades 9 through 11	9.4
Grade 12 or GED	32.7
College 1 year to 3 years	29.2
College 4 years or more	25.6
Refused	0.5

Table 2
Weekly Fruit and Vegetable Consumption of Study Participants (N = 2,354)

Partner and Parental Status and sex	*N*	*M* servings	95% CI
Fruit consumption			
Not partnered; no children			
Males	416	13.2	(12.4, 14.2)
Females	609	15.9	(15.0, 16.9)
Not partnered with children			
Males	114	16.8	(14.7, 19.1)
Females	353	14.3	(13.3, 15.5)
Partnered with no children			
Males	208	13.8	(12.5, 15.2)
Females	299	14.2	(13.1, 15.4)
Partnered with children			
Males	163	15.9	(14.3, 17.8)
Females	201	17.1	(15.5, 18.9)
Vegetable consumption			
Not partnered; no children			
Males	416	13.0	(12.4, 13.7)
Females	609	14.7	(14.1, 15.3)
Not partnered with children			
Males	114	14.8	(13.5, 16.2)
Females	353	14.4	(13.6, 15.2)
Partnered with no children			
Males	208	14.6	(13.6, 15.6)
Females	299	14.9	(14.0, 15.7)
Partnered with children			
Males	163	14.1	(13.0, 15.2)
Females	201	15.6	(14.6, 16.7)

Note. CI = confidence interval, *N* = Total number of participants, *n* = sample size; *M* =Mean

Table 3
Weekly Minutes of Physical Activity of Study Participants

Partner and Parental Status and sex	*N*	*M* minutes	95% CI
Walking (n=2017)			
Not partnered; no children			
Males	350	204.1	(181.2, 229.8)
Females	512	156.3	(141.3, 172.8)
Not partnered with children			
Males	103	188.4	(150.7, 235.5)
Females	296	173.9	(152.3, 198.5)
Partnered with no children			
Males	171	159.6	(134.3, 189.6)
Females	265	160.9	(140.2, 184.7)
Partnered with children			
Males	143	178.1	(147.6, 214.9)
Females	178	158.4	(133.7, 187.6)
Moderate physical activity(n=1547)			
Not partnered; no children			
Males	285	181.8	(158.5, 208.6)
Females	343	120.1	(105.7, 136.6)
Not partnered with children			
Males	96	166.9	(131.1, 212.5)
Females	213	120.6	(102.5, 141.8)
Partnered with no children			
Males	147	136.1	(112.0, 165.2)
Females	192	115.9	(97.8, 137.2)
Partnered with children			
Males	127	157.8	(128.1, 194.3)
Females	144	96.1	(79.0, 116.9)
Vigorous physical activity (n=1590)			
Not partnered; no children			
Males	308	216.6	(190.0, 246.9)
Females	347	147.5	(130.0, 167.3)
Not partnered with children			
Males	90	199.8	(156.3, 255.5)
Females	220	132.3	(112.8, 155.2)
Partnered with no children			
Males	151	206.1	(170.4, 249.3)
Females	195	152.6	(129.1, 180.2)
Partnered with children			
Males	136	199.2	(163.3, 243.0)

Partner and Parental Status and sex	***N***	***M* minutes**	**95% CI**
Females	143	118.5	(97.5, 144.0)

Note. CI = confidence interval, *N* = Total number of participants, *n* = sample size; *M* =Mean

Table 4
Percentage of Study Participants Engaging in Weekly Physical Activity (N = 2,354)

Partner and Parental Status and sex	*N*	%	95% CI
Walking			
Not partnered with no children			
Males	416	84.8	(81.0, 87.9)
Females	609	85.8	(82.8, 88.4)
Not partnered with children			
Males	114	90.2	(82.7, 94.5)
Females	353	83.3	(78.9, 87.0)
Partnered with no children			
Males	208	84.3	(78.7, 88.6)
Females	299	89.7	(85.7, 92.7)
Partnered with children			
Males	163	86.3	(79.7, 91.0)
Females	201	87.0	(81.1, 91.2)
Moderate physical activity			
Not partnered with no children			
Males	416	69.1	(64.5, 73.4)
Females	609	59.7	(55.5, 63.6)
Not partnered with children			
Males	114	82.8	(74.0, 89.0)
Females	353	57.5	(52.1, 62.8)
Partnered with no children			
Males	208	74.0	(67.7, 79.5)
Females	299	66.6	(61.0, 71.7)
Partnered with children			
Males	163	76.2	(68.8, 82.3)
Females	201	69.4	(62.4, 75.6)
Vigorous physical activity			
Not partnered with no children			
Males	416	75.1	(70.7, 79.1)
Females	609	61.4	(57.3, 65.4)
Not partnered with children			
Males	114	76.2	(66.7, 83.6)
Females	353	59.1	(53.6, 64.3)
Partnered with no children			
Males	208	76.8	(70.6, 82.0)
Females	299	68.0	(62.5, 73.1)
Partnered with children			
Males	163	81.5	(74.4, 87.0)

Partner and Parental Status and sex	*N*	%	95% CI
Females	201	67.9	(60.7, 74.3)

Note. CI = confidence interval, *N* = Total number of participants, *n* = sample size; *M* =Mean