**The Relationship Between Physical Inactivity and Family Life Course Stage**

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*Abstract:*

Physical inactivity is a well-documented risk factor for numerous chronic diseases and a major public health problem in Canada. Since social-ecological models suggest that behaviour is influenced by the person as well as the social and physical environment, it is important to be sensitive to other factors when examining physical activity participation. The purpose of this study was to explore the associations between physical inactivity, marital status and family stage for men and women in Canada.

The study was based on data from the Canadian Community Health Survey, Cycle 2.1, for adults aged 18-64 living with a spouse or partner (with or without children) or single living with children. Respondents were classified as inactive or active according to self-reported leisure-time physical activity. Logistic regression was used to examine gender differences in the relationship between household composition and physical inactivity. Explanatory variables included parents' age, sex, age of youngest child, income adequacy and interview mode.

Family stage was significantly associated with adult physical inactivity levels. Individuals with very young children (< 6 years old) were more likely to be inactive compared to childless adults or those with older children (>12 years old). Having children between 6-12 years old was related to increased physical activity, possibly due to more family leisure pursuits involving physical activity. Living with a partner was associated with greater physical inactivity, particularly when controlling for income adequacy. Furthermore, those with high income adequacy were less likely to be inactive, and having a very young child increased this difference.

In conclusion, family life course stage and income adequacy were most influential in determining levels of physical inactivity. Therefore, physically active leisure programs targeting adults with very young children, particularly those at lower income levels, may be helpful in increasing physical activity and decreasing health risks associated with inactivity.

*Keywords:*

Physical activity, leisure, residence characteristics, parents, marital status, social ecological theory, family life cycle, Canada, Canadian Community Health Survey

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Physical inactivity is a major public health problem in Canada. It is a risk factor for numerous chronic diseases including cardiovascular disease, Type 2 diabetes, obesity, osteoporosis and cancer.[1, 2, 3] Despite these well-established health risks, the Canadian Fitness and Lifestyle Research Institute reports that 51% of Canadian adults are physically inactive, including 52% of women and 48% of men.[4]

Social-ecological models suggest that behaviour is influenced by the individual, and by the social and physical environment.[5] Rather than attributing physical activity solely to an individual's lifestyle 'choice', this perspective emphasizes the effect of external factors at the interpersonal, institutional, community and public policy levels in determining health behaviours. The premise of this model is that all levels act in concert, influencing and being influenced by the individual and his or her external environment. Therefore, it is important to extend the focus of health promotion beyond individual preferences and consider other factors such as the level of institutional support from government, workplaces or community recreation centres, as well as interpersonal factors such as family role expectations and responsibilities. The goal of an ecological approach to health promotion, therefore, is to address organizational and social norms at all levels in order to create an environment that provides optimal support for positive health outcomes. Indeed, the purpose of the socio-ecological approach is to draw attention to the surrounding environment and suggest interventions at the external level.[5]

Physical inactivity is one such area that may be better understood through a social-ecological approach. Indeed, there is evidence to suggest that physical activity and health behaviour can be affected by many factors including age, gender, household structure, social support networks, social-economic status and personal leisure preferences.[6- 13] Income, as well as household structure, have been identified as a particularly strong determinants of physical activity participation.[4,7-9,14]

Household structure includes living arrangements such as whether an individual lives with a partner or is single, and whether or not children are present. For parents with children living at home, one of the more commonly cited reasons for physical inactivity is insufficient time.[15-17] Considering the temporal demands of childcare responsibilities and expectations of parental involvement in children's school and leisure activities,[18-19] this is not surprising. As such, family life cycle stage may also play a role in explaining physical activity participation.

Theorists postulate that family life cycle can be meaningfully categorized by subdividing it into stages through which most families progress in sequential order as they adapt to the demands and needs of each family member and society.[20] Each stage of the family career presents different challenges for parents related to the age and presence or absence of children in the home. This theory has been criticized for failing to recognize that not all families progress through each stage, and for not being easily adaptable to non-traditional family forms. But, it is still useful because it recognizes that presence and age of children can have a tremendous influence on parental roles and behaviour.[21] Moreover, family life cycle theory can act in concert with the social-ecological framework where interpersonal relationships and social and community expectations for different family

stages have the potential to constrain or facilitate physical activity participation during leisure.

Having children is a critical family life cycle milestone that changes adults' priorities and behaviours as they adjust to the parental role. It has been noted that childless adults are more physically active than those who have children.[13] For parents, age of children may be a particularly important determinant of physical inactivity. Time for leisure is more scarce among parents with younger children than in any other sectors of the Canadian population.[22] Lower levels of physical activity are evident when children are less than five years old, and significant effects have been noted for both mothers and fathers.[14]

Gender can also exert a strong influence, depending on individual circumstances.[9] When controlling for external factors, women in dual-parent households are more likely to participate in physical activity than men. In reality, however, women generally have less leisure time which translates into fewer opportunities for physical activity participation than men.[13] These gender differences in physical activity persist even as children become older.[23]

The effect of having a spouse or partner is not entirely clear. In a survey of Ontario households, married individuals were less physically active than those who were single,[9] a trend also noted in the U.S. National Health Interview Survey[23] and the U.K. General Household Survey of 2002.[24] By contrast, using the American Time Use Survey, researchers report that both single and married mothers spend similar amounts of time in physically active leisure.[25] Recent analyses of the 2005 Canadian General Social Survey showed that when controlling for other factors, Canadians who are married or cohabitating had higher odds of physical activity participation than those who are single.[13]

Having a partner may be even more important when children are very young. In a study of mediators to change in leisure time physical activity patterns, partner support was identified as helpful in increasing women's participation.[26] Women may spend less time in physically active leisure than men throughout the lifecycle, but for men negative associations between physical activity and family roles, particularly the spousal role, are more pronounced.[23] Thus, the effect of having a partner in households where children are present seems subject to a variety of external factors and remains inconclusive.

Even less well understood is the effect of fatherhood on leisure time physical activity for men who are single fathers living with their children. This has been identified as an under-researched area despite the availability of physical activity data for single-parent households in national surveys.[27] There is some evidence from the U.K. to suggest that having a child living at home constrains sport participation in single-parent families, with a much stronger effect noted for divorced or separated mothers than fathers.[24] Still, there is a need to explore further the impact of children on physical activity levels for lone parent, father-headed households.

Thus, the purpose of this study was to examine the relationship between household structure, gender and physical inactivity among Canadian adults aged 18 to 64 years old. Physical activity levels for individuals living with a partner were compared to levels of those who are single, and the influence of children living in the household was examined as well. Three research questions were addressed:

1. What is the relationship between household structure and adults' leisure time physical activity levels?

2. How does the age of children in the household influence the relationship between household structure and adults' physically active leisure?
3. Is there a relationship between household structure, income and leisure time physical activity?

**METHODOLOGY**

This study is a secondary analysis of the 2003 Canadian Community Health Survey (CCHS), Cycle 2.1. The survey is a nationally-representative, cross-sectional survey conducted by Statistics Canada every two years that covers approximately 98% of the Canadian population aged 12 or older. Data were collected from January 2003 to November 2003 using either Computer-Assisted Telephone Interviewing (CATI) or Computer-Assisted Personal Interviewing (CAPI). The survey asked questions related to health status, health determinants and use of the health care system. Socio-demographic information was also collected.[28]

*The sample.*

From the 134,072 respondents to the CCHS, a subsample of 57,832 adults between the ages of 18 to 64 years old was selected. This allowed a comparison of family life cycle stages ranging from younger childless singles and newly established couples to families with preschoolers, school-age children, adolescents or young adults living at home, as well as "empty nesters" with no children at home. Although it cannot be conclusively determined from the available derived variables that those living with children were either biological parents, adoptive parents, step-parents or guardians of all children in the household, it is assumed that most of the children living with the subsample members were children with whom they had one of these relationships.

Respondents who were restricted in activities due to long-term physical or mental conditions and health problems were excluded from the subsample. Although these individuals may participate in physically active leisure, they could experience greater barriers to physical activity than the general population.

*Measuring physically active leisure*

Physical activity levels were based on estimated daily energy expenditure (kilocalories expended per kilogram of body weight per day; KKD) derived from self-reported type, frequency and duration of leisure time physical activities performed in the three months prior to the survey date.[28] These values were expressed as low (< 1.5 KKD), medium (1.5–2.9 KKD) or high (3.0+ KKD) levels of intensity.[4] Respondents were classified as either inactive (low intensity) or active (medium or high intensity).[28]

*Explanatory variables*

Respondents were categorized by sex and age group, (18-30 years, 31-40 years, 41-50 years, and 51-64 years). Household structure refers to the living arrangements derived variable together with information about the presence or absence of children in the household, as well age of children. Four types of living arrangements were examined: living alone, living with a partner, single living with child(ren), and living with a partner and child(ren). Because raising children is time intensive and younger children require more primary caregiving than older children, knowing the age of the youngest child is important.[21] As such, children in the household were categorized using the CCHS grouped variable as less than 6 years, 6 to 11 years, and 12 years or older.

Income adequacy, a measure of household income that adjusts total household income for household size (Statistics Canada, derived variable specifications), was used as

an index of socio-economic status. Respondents were classified into one of four income adequacy categories: lowest, lower-middle, upper-middle, and highest. Employment status (employed full-time, part-time, or unemployed) was highly correlated with income and therefore not included in the analyses. Since self-reported physical activity levels are generally higher when CAPI is used compared to CATI,[29] the interview mode was included.

*Plan of analysis*

Descriptive analyses were used to determine sample characteristics related to respondents' age group, sex, living arrangements and income level. For these summary statistics, survey weights were not applied in order to obtain a more accurate depiction of the composition of the subsample.

Two pairs of logistic regression models were used to explore gender differences in the relationship between household structure and physical inactivity. The first pair of models examined, for those living with a partner, the probability of being inactive when children were living in the household compared to those without children. One model examined whether the effect of children differed by parents' gender, whereas the other model examined whether the effect of children differed by income.

The second pair of models examined, for households with children, the probability of being inactive for those living with a partner compared to those who were single. One model examined whether the effect of living with a partner differed by gender, whereas the other model examined whether the effect of living with a partner differed by income.

Descriptive and multivariate analyses were undertaken using SAS 9.1. Due to the complex design of the CCHS, bootstrap weights included with the survey data were applied to the logistic regression models to provide accurate standard errors. Results were deemed to

be significant when $p \leq .05$. Data analysis was conducted using the 2003 CCHS, Cycle 2.1 at the Southwestern Ontario Research Data Centre (SWORDC),

## RESULTS

*Sample characteristics.*

The unweighted sample comprised 31,731 women (54.9 %) and 26,101 men (45.1%). Overall, more women (55.3%) than men (44.7%) were living with a partner. Among those without children in the household, an almost equal percentage were living with a partner (48.8%) or single (51.2 %). For households with children, most respondents lived with a partner (83.9 %) and there were fewer single parents (16.1 %). Consistent with Canadian population demographics,[30] among lone parents the percentage of mothers (83.2%) was considerably greater than the percentage of fathers (16.8%). On the other hand, in households without children there were more single men (54.2 %) than single women (45.8 %). Distribution of age groups and living arrangements, respectively, of the unweighted sample, overall and by sex, is shown in Table 1.

*The effect of children on adults' physical inactivity*

In the first regression model, the odds of being physically inactive were compared for individuals with or without children living at home with a focus on potential gender effects (Table 2). Both men and women with very young children (< 6 years old) were more likely to be inactive than adults in households without children [OR = 1.11 (CI = 95%, 1.04 – 1.19)]. For households with children, men with young children were less likely to be physically inactive during their leisure than women [OR = 0.92 (CI = 95%, 0.87 – 0.97)]. Having school-age children could also decrease the odds of physical inactivity. Parents with

children 6-11 years old were less inactive than adults in childless households [OR = 0.92 (CI = 95%, 0.85 – 0.99] and this was equally the case for men and women.

A main effect for income was also apparent in this model. A higher household income was associated with lower odds of physical inactivity [OR = 0.62 (CI = 95%, 0.59 – 0.66)]. But, the greatest odds of physical inactivity were found not among the lowest income group; instead, those in the lower-middle income category were the most physically inactive during their leisure [OR = 1.24 (CI = 95%, 1.14 – 1.36)].

The second model focussed on potential income interactions with living with children on the probability of being inactive (Table 3). Consistent with the first model, the odds of being physically inactive were higher for adults with children less than 6 years old [OR =1.16 (CI = 95%, 1.07 – 1.26)] compared to those without children in the household. Again, the highest income category was the least inactive [OR = 0.62 (CI = 95%, 0.58 – 0.66)], and the lower-middle income group remained the most inactive [OR = 1.22 (CI = 95%, 1.11 – 1.34)]. Having children under age 6 in the household, compared with having no children, increased the difference in inactivity between those with the lower-middle and lowest income adequacy [OR = 1.13 (95% CI, 1.00 – 1.27)].

*The effects of having a spouse or partner for those living with children*

The third model examined whether the effect of living with a partner on the probability of being inactive differed by gender for adults with children at home (Table 4). Overall, men were less likely to be inactive than women [OR = 0.90 (CI = 95%, 0.82 – 1.06)] and there was no significant difference in the probability of being inactive between adults in dual- and single-parent households [OR = 0.97 (CI = 95%, 0.89 – 1.06)]. Men with children less than 6 years old were less likely than women to be inactive [OR = 0.94 (CI =

95%, 0.89 – 0.99)]. Similar to the first model, when living with children 6-11 years old, there was a decreased likelihood of inactivity compared to those with children age 12 or older (i.e. > 11 years), OR = 0.92 (CI = 95%, 0.87 – 0.97).

The final model explored the potential income effects of living with children for individuals who were single and for those in dual-parent households. As indicated in Table 5, single parents were less likely to be inactive than adults in dual-parent households when controlling for income [OR =0.89 (CI = 95%, 0.82 – 0.96)]. As with the other models, respondents in the lower-middle income category were more likely to be inactive [OR = 1.23 (CI = 95%, 1.12 – 1.34)] and individuals with the highest income were the least likely to be inactive [OR =0.58 (CI = 95%, 0.54 – 0.62)] compared to the lowest income group. Regardless of the presence or absence of a partner, parents with school-age children (6-11 years old) were less likely to be inactive [OR =0.91 (CI = 95%, 0.85 – 0.97)] than those living with older children (> 11 years old). Being male decreased the odds of physical inactivity for those with children under 6 years of age [OR = 0.94 (CI = 95%, 0.89 – 0.99)].

*The effect of interview mode and respondents' age group.*

In all models, those interviewed by telephone were less likely to be classified as inactive compared to those interviewed in person: Table 2 [OR = 1.16 (CI = 95%, 1.12 – 1.20)], Table 3 [OR = 1.16 (CI = 95%, 1.11 – 1.20)], Table 4 [OR = 1.19 (CI = 95%, 1.13 – 1.25)], and Table 5 [OR = 1.16 (CI = 95%, 1.11 – 1.22)]. Age group of the respondent was not significant in any of the models.

## DISCUSSION

Because of the health implications of physical inactivity, the focus of this study was to determine whether there was a relationship between household structure, gender and

physical inactivity for Canadian adults. In this section, the main findings related to physical inactivity will be discussed with the interpretation of results guided by both the socio-ecological framework and family life cycle theory.

*The effect of co-resident children*

The results of this study indicate that gender is not as important as living with children in influencing participation in physically active leisure. As such, the family life cycle concept may allow a better understanding of parents' physical inactivity than gender-based concepts since children's ages were highly relevant. Compared to those without children, having a preschool child at home (< 6 years) increased the odds of physical inactivity, while having school-age children between 6 to 11 years old was associated with decreased inactivity. For adults living in households where the youngest child is 12 or older, levels of physically active leisure were similar to adults in households without children.

With the arrival of children, adults' opportunities for leisure become constrained by greater demands on scarce resources of time, money and energy[10]. When the youngest child is of elementary school age (between 6 – 11 years old), there are significant decreases in adults' physical inactivity – not only in relation to those with younger children, but also in comparison to adults without children or those with children older than age 11. This could be a reflection of involvement in physically active family leisure activities during this stage, a phenomenon that has been observed in the U.K.[24] It reflects the family life cycle stage approach where family members continually adapt in response to children's developmental needs and broader social norms. Moreover, it also supports the social-ecological theory where social and family relationships provide a catalyst for change in activity and behaviours.

Activities in which the whole family engages should likely be viewed with some caution, though, when it comes to providing an accurate measure of adults' energy expenditure during physically active leisure – even though these values are based on the low intensity assessment for each activity.[28] For instance, if a parent reports regularly participating in swimming, how physically intense is the activity if most of the time is spent playing with children in the water as opposed to swimming laps? Similarly, one might question whether ice-skating still qualifies as medium-intensity activity if an adult is mainly preoccupied with helping his or her 6-year-old child remain upright on the ice. It may be helpful to gather further information about the nature of the physical activity experience such as with whom the activity typically takes place, or at least consider contextual factors such as this when assessing levels of physical activity.

That parents' age group was not significant in any of the models highlights one of the shortcomings of the family life cycle concept.[21] With the variety of family forms and later onset of child-bearing, women are having children later in life compared to previous generations.[31] Therefore, it is not unusual to find parents with very young children in their late thirties or early forties who are equally as inactive as those in their twenties with young children.

As mentioned previously, living with very young children increased the difference in inactivity between adults with the highest and lowest income adequacy, consistent with other research showing a positive association between income and physical activity levels.[14] A higher income may increase opportunities for physical activity participation since parents with greater financial resources can purchase care (e.g., babysitting) so that they may freely engage in physically active leisure, or pay for the whole family to do activities together.[27] A

higher income also allows the purchase of specialized equipment such as bicycle trailers or jogging strollers that would permit parents to bring young children along if they preferred, or if alternative care was not readily available.

*Does a partner make a difference?*

Both gender and income had somewhat different effects on levels of physical inactivity for adults in dual-parent households compared to those without a partner. For single parents, gender was not a significant influence on physical activity when compared to partnered adults with children. This sheds new light on participation in physically active leisure for single fathers: they are neither more nor less likely to be physically inactive than fathers with partners. For partnered fathers, this finding challenges the notion that the spousal role may be partially responsible for a decrease in physically active leisure compared to childless men.[24] For women, it is consistent with other studies[25] that report married and single mothers spending similar amounts of time in physically active leisure.

When controlling for income though, single mothers and fathers were less likely to be inactive than adults in dual-parent households. At the same time, it should be remembered that low income rates are more prevalent for lone parents throughout Canada, particularly for single mothers.[30] As such, it is not surprising that when income classes are aggregated, single mothers and fathers are just as likely to be inactive as mothers and fathers in dual-parent families.

*The income effect*

The relationship between a higher level of income and a healthy lifestyle that includes physical activity is well-established.[4,9] Therefore, it was somewhat unexpected to

find that individuals in the lower-middle income category were consistently more physically inactive compared to the lowest income group. Following an ecological approach, other social and environmental factors need to be considered. Lower-middle income adults may be employed in more physically-demanding jobs such as trades or primary industry, compared to the lowest income category which is likely to include the unemployed, students, or even early retirees. Consequently, the lower-middle income group may lack the energy or motivation to engage in physical activity outside work. Alternatively, these individuals may have employment arrangements that impede access to regular programs of physical activity. Non-standard, afternoon or evening shift hours, such as those associated with the transport, retail, and service sectors may create structural barriers to physically active leisure programs that are typically offered during times that complement a traditional, weekday work schedule. Moreover, there may be less opportunity for social support – a factor identified as important in research on adults' physical activity in Ontario[9] – when schedules conflict with those of family and friends.

There has been some indication from other research that lower-middle income adults are less physically active than the lowest income group. In a recent study of physical activity rates using the 2005 Canadian GSS, it was observed that those with the lowest income levels were more physically active than adults in the lower-middle income category because they were more likely to walk or ride bicycles as a means of transportation.[13] The lower-middle income group, on the other hand, was more likely to use public transportation or own their own vehicle. Still, this does not explain why *leisure time* physical inactivity is greater among the lower-middle income category. Due to higher rates of inactivity, the lower-middle income group merits further investigation.

*Physical inactivity and interview mode*

This study also provides support for modal differences in interview techniques between CATI and CAPI when collecting self-reported physical activity data. Consistent with prior research that found distinctive outcomes using different modes,[29] CAPI was significantly associated with lower levels of physical inactivity in all of the models. In future studies, it would be best to adopt one method of data collection to ensure consistent results. Although personal interviews are more expensive to conduct, they provide the most conservative estimates of physical activity and may be a better way of identifying target populations at greater risk for physical inactivity.

*Theoretical implications*

Family life cycle theory and the social-ecological approach can both provide insight to understanding behaviour and offering solutions to address physical inactivity among adults. Family life cycle stage was particularly relevant for adults with children because age of children was related to caregiving responsibilities that can monopolize scarce resources of time and energy. There may also be constraints related to children's schedules, routines, or the lack of support without a co-resident partner that can impinge upon parents' opportunities for regular participation in physical activity classes or sport leagues.

Drawing on the social-ecological model, it is important to understand that parental responsibilities during various stages of the family life cycle do influence behaviour and it is not necessarily an individual's 'choice' to be less physically active during the early child-bearing stage. Programs that address caregiving responsibilities may be more effective in decreasing inactivity among parents with very young children, since they are particularly disadvantaged in terms of physically active leisure. For example, providing assistance with

on-site child care or offering programs during times that may be easier to manage with respect to children's routines would reduce barriers to participation and demonstrate a commitment to helping adults with preschoolers increase their physical activity levels.

The social-ecological model also emphasizes the importance of addressing social norms. A targeted approach to promoting physical activity in places that parents of young children frequent could prove useful. Daycares, community centres, doctor's offices and public transit are just some of the venues that might be included. Since women with preschoolers were less physically active than their male counterparts, there should be a greater focus on encouraging women's participation. But, in order to be most effective in promoting and facilitating physically active leisure, organizations and institutions must be sensitive to the very real constraints faced by mothers with young children – not only with respect to child care, but also as a dimension of broader societal gender role expectations.

The benefit of the social-ecological model is that it allows greater consideration of external factors and de-emphasizes individual behavioural "choice". Income adequacy is one such factor related to physical inactivity that could potentially be addressed at the institutional or policy levels. Because of a greater tendency for physical inactivity among the lower-middle income group, further research into the barriers to participation is needed. This might allow health professionals to address the social norms and aspects of the physical environment in order to create programs that are most accessible and appropriate for their needs. For example, workplace or community organizations may provide opportunities for physical activity programs designed to reduce barriers caused by the timing of work schedules. Or, local and regional governments may work toward creating parks and

pathways that encourage walking or bicycle riding as a leisure activity and as a form of transportation.

*Limitations and strengths.*

It should be noted that the results cannot establish causality for the associations seen in the models, since the data were cross-sectional. Other factors, such as level of education and social networks have been associated with physical activity participation and would be important contributors to an ecological model. These should be considered in future research as they may potentially strengthen the models. Furthermore, there are a number of well-known limitations associated with using self-reported physical activity data.[32] Nevertheless, self-report remains the primary method for collecting nationally representative physical activity data in Canada and can provide important insight into factors associated with physical inactivity.

Further research is required to examine the relationship between adult physical activity levels, the number of children living in the household, and the relationship to income adequacy. In addition, examination of the relationship between physical activity and having non-resident young children would contribute to understanding whether physical activity levels are influenced by living with young children or by parental status alone.

Identifying sub-groups at risk allows interventions to be developed for and targeted to appropriate audiences. By considering various levels of the social-ecological model, there is a greater chance to create meaningful change since each level has the capacity to effect the others, or for different levels to act in concert to promote and influence behavioural change. For example, the constraints of child care responsibilities at the interpersonal level may be alleviated by policies at the institutional level such as the

provision of free or low-cost child care by a community recreation centre. Or, for those whose income prohibits the purchase of services or expensive equipment, other organizations could rent, loan or organize equipment or childcare exchanges to facilitate physical activity participation.

Given the negative health implications of a physically inactive lifestyle, it is important to understand the physical activity levels of population sub-groups and social-ecological factors associated with physical activity behaviour. This study provides novel insight into the physical activity levels of fathers in single-parent households, who were just as likely to participate in physically active leisure as married or cohabitating fathers. Consistent with previous research, parents with very young children were less active than those with older children. On the other hand, living with elementary school-age children was related to more physically active leisure, perhaps due to greater participation in physically active family leisure. By understanding the limitations and opportunities that develop at various family life cycle stages, programs can be created that might address specific needs associated with different age groups of children and related factors associated with adults' physical activity participation.

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**Table 1. Distribution of age groups and living arrangements, respectively, of the unweighted sample population, overall and by sex.**

| | Overall | Female | Male |
|---|---|---|---|
| *Age* | | | |
| 18-30 yr | 11,833 | 6,904 | 4,929 |
| 31-40 yr | 16,235 | 8,648 | 7,587 |
| 41-50 yr | 14,039 | 7,286 | 6,753 |
| 51-64 yr | 17,363 | 9,433 | 7,930 |
| Total | 59,470 | 32,271 | 27,199 |
| | | | |
| *Living arrangements* | | | |
| Unattached, living alone | 15,641 | 7,167 | 8,474 |
| Living with spouse/partner | 14,891 | 8,363 | 6,528 |
| Parent living with spouse/partner and child(ren) | 22,904 | 12,542 | 10,362 |
| Single parent living with child(ren) | 4,396 | 3,659 | 737 |
| Total | 57,832 | 31,731 | 26,101 |

**Table 2. Estimated odds ratios in the logistic regression examining potential gender influences on the effects of having children on the probability of being inactive.**

| Variables | Odds Ratio[a] and 95% CI |
|---|---|
| Intercept[b] | 1.21 (1.15, 1.28)* |
| *Age* | |
| 18-30 yr | reference |
| 31-40 yr | 1.03 (0.97, 1.09) |
| 41-50 yr | 1.05 (0.99, 1.12) |
| 51-64 yr | 1.02 (0.96, 1.08) |
| *Sex* | |
| Female | reference |
| Male | 0.97 (0.94, 1.01) |
| *Child in Household* | |
| No child in household | reference |
| < 6 yr | 1.11 (1.04, 1.19)* |
| 6-11 yrs | 0.92 (0.85, 0.99)* |
| > 11 yr | 1.03 (0.95, 1.10) |
| *Income* | |
| Lowest | reference |
| Lower middle | 1.24 (1.14, 1.36)* |
| Upper middle | 0.98 (0.92, 1.04) |
| Highest | 0.62 (0.59, 0.66)* |
| *Interview Mode* | |
| CATI | reference |
| CAPI | 1.16 (1.12, 1.20)* |
| *Interactions* | |
| Child < 6 yr in household*Male | 0.92 (0.87, 0.97)* |
| Child 6-11 yr in household*Male | 1.02 (0.95, 1.09) |
| Child > 11yr in household*Male | 1.03 (0.96, 1.10) |

*$p < .05$

[a] Odds ratios > 1 indicate that effect is associated with higher levels of inactivity.

[b] This model was restricted to respondents living with a spouse or partner.

**Table 3. Estimated odds ratios in the logistic regression examining potential income effects of having children on the probability of being inactive.**

| Variables | Odds Ratio[a] and 95% CI |
|---|---|
| Intercept[b] | 1.21 (1.14, 1.28)* |
| *Age* | |
| 18-30 yr | reference |
| 31-40 yr | 1.03 (0.97, 1.09) |
| 41-50 yr | 1.04 (0.98, 1.11) |
| 51-64 yr | 1.02 (0.96, 1.09) |
| *Sex* | |
| Female | reference |
| Male | 0.98 (0.95, 1.01) |
| *Child in Household* | |
| No child in household | reference |
| < 6 yr | 1.16 (1.07, 1.26)* |
| 6-11 yrs | 0.96 (0.86, 1.07) |
| > 11 yr | 1.08 (0.98, 1.20) |
| *Income* | |
| Lowest | reference |
| Lower middle | 1.22 (1.11, 1.34)* |
| Upper middle | 0.98 (0.92, 1.05) |
| Highest | 0.62 (0.58, 0.66)* |
| *Interview Mode* | |
| CATI | reference |
| CAPI | 1.16 (1.11, 1.20)* |
| *Interactions* | |
| Child < 6 yr in household*Lower Middle Income | 1.13 (1.00, 1.27)* |
| Child < 6 yr in household*Upper Middle Income | 0.93 (0.84, 1.03) |
| Child < 6 yr in household*Highest Income | 0.93 (0.84, 1.02) |
| Child 6-11 yr in household*Lower Middle Income | 0.85 (0.71, 1.02) |
| Child 6-11 yr in household*Upper Middle Income | 1.00 (0.88, 1.14) |
| Child 6-11 yr in household*Highest Income | 0.96 (0.83, 1.10) |
| Child > 11 yr in household*Lower Middle Income | 0.98 (0.82, 1.18) |
| Child > 11 yr in household*Upper Middle Income | 0.97 (0.85, 1.11) |
| Child > 11 yr in household*Highest Income | 0.92 (0.81, 1.04) |

*$p < .05$

[a] Odds ratios > 1 indicate that effect is associated with higher levels of inactivity.

[b] This model was restricted to respondents living with a spouse or partner.

**Table 4. Estimated odds ratios in the logistic regression examining potential gender effects of having a spouse or partner on the probability of being inactive.**

| Variables | Odds Ratio[a] and 95% CI |
|---|---|
| Intercept[b] | 1.05 (0.97, 1.13) |
| *Age* | |
| 18-30 yr | reference |
| 31-40 yr | 1.05 (0.97, 1.13) |
| 41-50 yr | 0.97 (0.91, 1.03) |
| 51-64 yr | 0.95 (0.85, 1.06) |
| *Sex* | |
| Female | reference |
| Male | 0.90 (0.82,0.98)* |
| *Living Arrangement* | |
| Living with spouse/partner | reference |
| Not living with spouse/partner | 0.97 (0.89, 1.06) |
| *Child in Household* | |
| > 11 yrs | reference |
| < 6 yrs | 1.07 (0.99, 1.15) |
| 6-11 yrs | 0.92 (0.87, 0.97)* |
| *Interview Mode* | |
| CATI | reference |
| CAPI | 1.19 (1.13,1.25)* |
| *Interactions* | |
| Not living with spouse/partner*Male | 0.93 (0.86, 1.01) |
| Child < 6 yr * Male | 0.94 (0.89, 0.99)* |
| Child 6-11 yr * Male | 1.03 (0.96, 1.11) |

*$p$ <.05

[a] Odds ratios > 1 indicate that effect is associated with higher levels of inactivity.

[b] This model was restricted to respondents living with at least one child.

**Table 5. Estimated odds ratios in the logistic regression examining potential income effects of having a spouse or partner on the probability of being inactive.**

| Variables | Odds Ratio[a] and 95% CI |
|---|---|
| Intercept[b] | 1.14 (1.04, 1.24)* |
| *Age* | |
| 18-30 yr | reference |
| 31-40 yr | 1.05 (0.98, 1.13) |
| 41-50 yr | 1.03 (0.95, 1.10) |
| 51-64 yr | 1.01 (0.90, 1.14) |
| *Sex* | |
| Female | reference |
| Male | 0.94 (0.87, 1.02) |
| *Living Arrangement* | |
| Living with spouse/partner | reference |
| Not living with spouse/partner | 0.89 (0.82, 0.96)* |
| *Child in Household* | |
| > 11 yr | reference |
| < 6 yr | 1.06 (0.99, 1.15) |
| 6-11 yrs | 0.91 (0.85, 0.97)* |
| *Income* | |
| Lowest | reference |
| Lower middle | 1.23 (1.12, 1.34)* |
| Upper middle | 0.96 (0.89, 1.03) |
| Highest | 0.58 (0.54, 0.62)* |
| *Interview Mode* | |
| CATI | reference |
| CAPI | 1.16 (1.11,1.22)* |
| *Interactions* | |
| 6-11 yr*Male | 1.02 (0.96, 1.09) |
| < 6 yr*Male | 0.94 (0.89, 0.99)* |
| Not living with spouse/partner *Male | 0.98 (0.90, 1.06) |

*$p < .05$

[a] Odds ratios > 1 indicate that effect is associated with higher levels of inactivity.

[b] This model was restricted to respondents living with at least one child.