

Privileging physical activity over healthy eating: ‘Time’ to Choose?

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SUMMARY

Physical activity and healthy eating have long been promoted as key strategies in tackling the ‘wicked problem’ of obesity. Both practices are assumed to go hand-in-hand, but whether one dominates the other has largely remained unexamined. Moreover, time, a dimension beyond the socio-ecological model, is a critical factor of families’ busy lives, but related challenges are rarely articulated. We conducted 47 family interviews as part of a mixed methods study examining environmental influences on youth obesity in Nova Scotia, Eastern Canada. Participants were recruited from six schools at the junior high school level (grades 7–9; age range 12–14 years) based on location (urban, suburban and rural) and neighborhood socioeconomic status (high and low socioeconomic status). Time pressure to meet the demands associated with

scheduled physical activity for youth was the dominant theme across interviews from all neighborhoods. Physical activity and healthy eating were valued differently, with greater value placed on physical activity than healthy eating. The pressure to engage youth in organized physical activity appeared to outweigh the importance of healthy eating, which led to neglecting family meals at home and consuming fast food and take out options. Our findings further reinforce the need to move beyond the socio-ecological model and integrate critical dimensions such as ‘time’, its challenges and opportunities, to allow for a more nuanced understanding of contemporary healthy living. It appears ‘timely’ to focus on healthy public policy in support of families, instead of unwittingly supporting a fast food industry that profits from time-pressured families.

Key words: environment; nutrition; physical activities; obesity prevention

INTRODUCTION

A dominant focus in research on obesity prevention has been on physical activity and nutrition of children and youth (e.g. Sallis *et al.*, 2003; Hesketh *et al.*, 2005; Popkin *et al.*, 2005; Taylor *et al.*, 2006; Dwyer *et al.*, 2008; McMinn *et al.*, 2012). Both practices, physical activity and healthy eating, are assumed to go hand-in-hand in tackling the wicked problem of obesity (Hunter, 2009; Finegood *et al.*, 2010). However,

whether one practice dominates the other has largely remained unexamined. At the same time, while research on youth obesity is moving away from a focus on individual risk factors to considering ‘obesogenic’ environments, notable gaps remain in explaining environmental (natural, built, social, policy) influences on youth obesity (Sallis and Glanz, 2006; Kirk *et al.*, 2010). Researchers have used a range of methods and designs to better understand obesity and its interaction with the environment, physical activity

and healthy eating. The socio-ecological model is often the theoretical framework of choice, which recognizes the individual as situated within a family context, nested within a neighborhood, and influenced by socio-cultural, political and economic structures of society (Sallis *et al.*, 2008). Moreover, time, which is a dimension beyond the socio-ecological model, is a critical factor of families' busy lives, but related challenges are rarely articulated. Rather, time is mentioned fleetingly among many other findings (Hesketh *et al.*, 2005; Patrick and Nicklas, 2005; Dwyer *et al.*, 2008) and has not been examined in more detail, particularly as it relates to youth physical activity and healthy eating. Generally, time spent eating at home or for domestic food preparation has been declining in Western Society (Warde *et al.*, 2007). The purpose of this paper is to explore the role of time pressure on families' decisions regarding choices of physical activity and healthy eating.

Family contexts

The family is an important context for socializing health practices. The preparation and consumption of meals needs to be considered within a broad context of family and community relations that are socially and culturally constructed (Ristovski-Slijepcevic *et al.*, 2008). Eating patterns and practices are shaped by parental modeling of food preferences and structuring of family meals (Patrick and Nicklas, 2005; Scaglioni *et al.*, 2008). Practices, such as eating together as a family (Neumark-Sztainer *et al.*, 2003; Videon and Manning, 2003), TV viewing during meals (Coon and Tucker, 2002) and eating outside the home (Story *et al.*, 2002), have emerged as having important implications for child and youth nutrition. Healthy eating has been defined as 'eating practices and behaviors that are consistent with improving, maintaining and/or enhancing health' [(Taylor *et al.*, 2005), p. S20]. For the purpose of this study, the concept of healthy eating is based on the work of Falk (Falk *et al.*, 2001) whose definition includes nutritionally balanced foods and social practices of eating at home, or together as a family.

Similarly, the family also socializes physical activity habits. Parental role modeling, including support for, or encouragement of physical activity, has been associated with greater youth engagement in physical activity (Ornelas *et al.*, 2007). At the same time, family practices of

healthy eating and physical activity are influenced by a variety of social determinants of health, notably socioeconomic status (SES) (Janssen *et al.*, 2006; McGrath *et al.*, 2006; Taylor *et al.*, 2006; Ball and Dollman, 2010; Rasmussen *et al.*, 2012). For example, studies have shown higher rates of physical activity, better diet quality and lower rates of obesity among youth from higher SES backgrounds (Popkin *et al.*, 2005; Ball and Dollman, 2010).

Social and environmental interactions are complex for youth, because they gain autonomy yet remain closely tied to their core family(ies) (Bassett *et al.*, 2008), who may live in high or low socioeconomic and urban, suburban or rural neighborhoods. For example, youth generally seek independence from parental/caregiver supervision by exploring neighborhoods, but remain dependent on parental income levels for nutrition, choice of residence and private transportation to and from recreation facilities and other locations. This intricate youth-family-neighborhood context has received less attention (Kime, 2009). The inclusion of intergenerational family context in health promotion research and practice (Kaplan *et al.*, 2006; Eggenberger and Nelms, 2007; Kime, 2009) represents a promising strategy to better understand decision-making and practices pertaining to physical activity and healthy eating.

METHOD

We conducted 47 family interviews as part of a mixed methods study examining environmental influences on youth obesity in Nova Scotia, Eastern Canada (Rainham *et al.*, 2012; Shearer *et al.*, 2012). The Research Ethics Board at Dalhousie University and the Halifax Regional School Board Ethics Committee approved the project. While many studies have engaged select members of the family (e.g. separate data collection of parents and children) (Hesketh *et al.*, 2005; Dwyer *et al.*, 2008; McMinn *et al.*, 2012), we conducted family interviews where parent(s) together with youth, and if possible other siblings, participated during the same interview to obtain a variety of perspectives.

Participants were recruited from six schools within the Halifax Regional School Board in Nova Scotia. We selected schools with students at the junior high school level (grades 7–9; age range 12–14 years) based on location (urban, suburban and rural as defined in the municipal planning

strategy) and neighborhood SES (high and low SES based on median household income for the school's census dissemination area). Research assistants conducted presentations at participant schools to aid in study recruitment; they distributed information packages describing all components of the research and asked that those interested in participating in the family interviews indicate their willingness on a form. Informed consent was obtained from all family interview participants at the time of the interview. Semi-structured interviews with 19 families of male student participants, and 28 families of female student participants lasted ~30–60 min and were conducted by the research coordinator or trained research assistants. The majority of the interviews took place in the homes of participants. The semi-structured interview guide was developed according to the larger study's socio-ecological framework, inviting youth together with their families to discuss neighborhood influences on physical activity and healthy eating. For example, the interview topics were divided equally into questions about barriers and facilitators of physical activity and healthy eating. To begin the interviews, the initial questions focused on the school neighborhoods of participating youth (what physical activities do you engage in within your neighborhood? What are the opportunities for healthy eating within your neighborhood?). Although all members of the household were invited to participate, at minimum we required the student participant and one parent/legal guardian to be present. Over half of the interviews were conducted with the student and one parent/legal guardian present ($n = 26$ student–mother participants; $n = 3$ student–father participants). The remaining interviews also included at least one sibling ($n = 9$), two parents ($n = 7$) or a combination ($n = 2$).

Interviews were first transcribed verbatim and imported into NVIVO qualitative data analysis software version 8 (2008) to organize and code the data. Initial codes were further analyzed into emerging concepts and major themes by an interdisciplinary team including community health nursing, sociology of sports, leisure studies, urban planning, nutrition, health services and policy research and family psychology. Our thematic analysis drew on the approach of Ryan and Bernard (Ryan and Bernard, 2003) to identify the frequency and pervasiveness of narratives. Thematic analysis is an iterative process to identify repetition, patterns and meaning in people's accounts (Luborsky, 1994). Initially, our interdisciplinary

team members individually coded the same four interviews, followed by a team discussion of code definitions from all disciplinary perspectives to develop a code list. Next, members of the team individually coded six or more family interviews from a variety of systematically assigned (low and high SES, rural, suburban, urban) neighborhoods. Subsequent group discussions of emerging themes from all disciplinary perspectives were guided by the socio-ecological framework to critically analyze the interactions between the youth and family with their neighborhood environment, socio-cultural, political and economic influences. In addition to the identification of neighborhood characteristics according to geographic location and SES, time pressure was a pervasive theme that emerged across all neighborhoods.

FINDINGS

Time for physical activity but not healthy eating

A perceived lack of time to meet the demands of youth's scheduled physical activities was the dominant theme across interviews from all neighborhoods. In many families, often including two parents working outside the home, youth participated in (sometimes multiple) organized activities: physical, recreational and/or extracurricular. These activities and their co-ordination placed large time demands on families. Scheduled physical activity for youth appeared to take on a dominant role in many families and became the focal point around which other tasks were negotiated. The following quote illustrates the centrality of scheduled physical activity in the life of a family.

Father: Yes, everything revolves around their sports. And I say sports because not only does our younger fellow play soccer but in the wintertime, he plays hockey. So between practices and games, between the 2 of them. Billy plays for 2 soccer teams. So he's on the go a lot. And [other son] plays soccer and hockey so he's on the go a lot.

Mother: So on the weekend, we might have maybe 6 games that we have to have them to between the two of them. So in between there, it makes more sense to go eat somewhere. Do you know what I mean?

Billy: And if I'm in a tournament or something, it's worse. (Family, 58 052, Low SES, Suburban).

The critical time frame that was most often emphasized was the window of time between the

end of the parent's/caregiver's work day and the beginning of scheduled physical activity for their children. Balancing the physical activity schedules of youth with parental work commitments limited time for preparing and enjoying nutritious meals at home. Many families interviewed reported that, for convenience, they opted for ready-made, fast food or take-out meals as a solution. Consequently, organized physical activity often occurred at the expense of healthy eating, as explained by parents:

It's hectic. It's really hectic and there's certain things I can compromise... I can compromise... the house is a little bit of a mess, but you know, the household will always be there... so we let those things go in that regard, or we'll go through a drive thru' somewhere on the way to the rink and it's not that healthy but that's okay once in a while... you make compromises (Mother, 17 018, High SES, Suburban).

Participants described having to make choices in favor of physical activity at the expense of other activities, including household chores and healthy eating; thus, physical activity and healthy eating appeared to be valued differently, with greater value placed on physical activity than healthy eating. In other words, the pressure to engage youth in organized physical activity appeared to de-emphasize the importance of healthy eating, by neglecting time for family meals at home and encouraging consumption of fast food and take out meals.

The high value of physical activity was also illustrated by parental efforts to problem solve and strategize around shared driving opportunities with other parents to ensure their children's participation. For example, when asked how their family managed activities, a mother explained:

We discuss every activity basically. It's almost usually a night before thing. 'What is on tomorrow? How are you going to get there?' So we do a lot of shared driving for things because most other parents work as well and their kids are busy (Mother, 28 050, High SES, Urban).

Thus, on the one hand, most families reported some successful negotiations to enable youth participation in organized physical activity. On the other hand, the strategy of choice compromised solutions for healthy eating. Notably absent was the parallel negotiation on how to enable healthy eating practices on these busy days.

Time demands for physical activity and healthy eating were exacerbated by certain neighborhood characteristics especially the location of recreation facilities and availability of transportation. Whether families decide to live in urban, suburban or rural neighborhoods depends on many factors and includes preferences based on geographic features, infrastructure and affordability. As the following narratives illustrate, the built environment was a strategic factor some families had to negotiate when managing their time. While locations for physical activity in urban, high SES neighborhoods were often within walking distance, for other neighborhoods the travel time between youth's homes and recreation facilities had implications for managing busy schedules, as one mother from a rural neighborhood explained: 'Everything we do is basically in town. So you have to add a half hour to whatever you are going to do. If you are going to [name of community], it's 40 min kind of thing.' (Mother, 47 003, Low SES, Rural).

When discussing the scheduling of physical activity, parents in the low SES urban group focused on challenges in negotiating transportation and use of public transit. Three out of eight families from the low SES urban neighborhood acknowledged not owning a car. They had to rely on other means of transportation for daily activities and for their children's participation in organized sports activities. As one mother explained:

It takes extra planning to make sure that they can get from point A to point B. Especially, something like soccer where it's not in the neighborhood. You have to get to wherever the event is. (Mother, 39 080, Low SES Suburban).

Almost all parents from suburban neighborhoods described time constraints public transportation posed, that in most instances made driving a necessity. One father explained:

I think the bus goes once every hour... But in order to meet the times, like to go to somewhere like Bedford, it would be a two hour drive on a bus by the time you made sure you made it here on time, to make it there on time, to make your connections. The connections of buses in (name of area) are terrible. (Father, 59 102, Low SES, Suburban).

Families felt the need to choose convenient and quick foods that would allow them to meet their children's eating requirements in a timely manner while transporting their children to their activities on time. Therefore, the additional

challenge of distance further added to the pressures for families to prioritize speed when making family decisions around eating as the following quote illustrates: ‘And as for why, we do eat out fast food. It’s the time. We are coming to or from sporting events, hockey events . . . It’s all about convenience and it’s quick.’ (Mother, 48 052, Low SES, Suburban). Even when families ate at home, the physical activity schedule of their children determined eating practices as the father of this family (48 052) shared: ‘If we have time, we may make a bigger dinner and sit down. And if somebody has to be at a hockey rink at 5:30 or 6:00 or 6:30 then we’ll eat something that doesn’t take as long to cook.’

The time families had available, particularly at the end of a working day, was not equally divided between physical activity and healthy eating. Meeting the demands for physical activity schedules consistently remained the overriding priority that determined eating practices of families in our study.

DISCUSSION

This qualitative study has explored how families make decisions about physical activity and healthy eating. One of our main findings in exploring families’ and youth perceptions of environmental influences on healthy eating and physical activity is related to the dimension of time and how families privilege physical activity over healthy eating. Time, which is far less tangible, has been identified as a powerful force in negotiating and justifying physical activity over healthy eating. Many of the families we interviewed live busy lives and have only a few precious hours available at the end of a working day. Our study highlights how families prioritize time in favor of physical activity, with the preparation and consumption of meals at home as secondary. The evening meal at home is regarded as one of the most important mealtimes for families (Blake *et al.*, 2008; Brannen *et al.*, 2013), which makes the prioritizing of physical activity over healthy eating even more concerning. Researchers found that even if eating together is regarded as a priority, many factors including dominance of children’s leisure activity and parents’ work demands may conspire against healthy eating practices (Kime, 2009; Brannen *et al.*, 2013).

Youth in grades 7–9 are largely dependent on parents or caregivers for food, enrolment in

structured activities and transportation. Since the increase in dual earner families began, much research has focused on how parents negotiate work and family roles (Perry-Jenkins *et al.*, 2000; Roos *et al.*, 2007). The notion that family life is busy for parents of adolescents is not new (Jacobs and Gerson, 2001; Roos *et al.*, 2007). However, less research has focused on the implications of family time constraints for physical activity and healthy eating and the impact one may have on the other. Parents have reported that preparing healthy food consistently takes more time than they have available (Slater *et al.*, 2001). Indeed, Devine *et al.* (Devine *et al.*, 2006) interviewed parents about the impact of work-family spillover on food choice and found that parents identified family or child activities that competed for mealtime as a source of stress. Like the parents in our study, these parents cited fast food as a strategy to ‘speed up’ meals. A study of families with athletic adolescent daughters found that the daughter’s involvement in athletics influenced food selection for the entire family (Travis *et al.*, 2010).

Our study revealed not only that nutritional choices are constrained by family schedules which often give priority to physical activity, but that this particular dynamic may be exacerbated in rural and suburban settings. In settings where distance to activity locations was greater, families reported further constraints on their schedules, making the convenience of ready-made and fast-food even more attractive. The amount of time between the end of parents’ work days and the beginning of adolescents’ organized activities, an already small window, was further reduced by lengthy commuting times and the inability of youth to walk or take public transportation to activity locations.

Disparities in physical activity and nutritional intake of individuals in urban and rural areas may be linked to differences in environmental supports in these areas (Popkin *et al.*, 2005; Larson *et al.*, 2009; Moore *et al.*, 2010; Findholt *et al.*, 2011). Youth may be more restricted in gaining access to facilities for physical activity (Moore *et al.*, 2010) and outlets that provide healthy foods (Schafft *et al.*, 2009) than are adults, making community and physical environments strong determinants of autonomous decisions about healthy eating and physical activity for youth.

If time pressure is used as a rationale or decisional credibility of families to privilege one practice

over another, why is the scale tipped in favor of physical activity? What are societal pressures or rewards that might encourage this practice? In North American neoliberal consumer society the public consumption of goods and services is highly valued and displayed to convey meaning associated with social status and identity. Participation in formal recreation and physical activity programs takes place in the public's eye, much more so than eating a healthy meal at home. Rather, the consumption of fast food on the way to physical activity can be a sign of affluence associated with higher SES. The visibility of participating in scheduled physical activities may be an important mechanism to demonstrate 'good parenting'. Further, the timing of scheduled physical activity often takes place at the end of a busy day or during weekends, and the time spent driving to recreation facilities, or the time between the beginning and end of a training session could be perceived as a welcome 'time-off' for parents/caregivers. The time spent watching children playing sports could be perceived as a valuable opportunity to get to know other parents/caregivers, to socialize and feel part of a community. As health promotion researchers we may have to become more vigilant about the 'unintended side-effects' of practices that nevertheless have important health outcomes. As Bisogni (Bisogni *et al.*, 2012) point out, competing priorities of health behaviors include a variety of values people associate with taste, enjoyment, cost, convenience and managing relationships. Moreover, health behaviors are seen as a chain of routine activities embedded in social practices (Van Woerkum and Bouwman, 2014). Van Woerkum and Bouwman propose focusing on everyday-life perspectives to support clients in their positive intentions to 'get things done'.

The challenge for health promotion is how to creatively support families in decision-making that enables both physical activity and healthy eating practices along a time continuum. Children grow older, engage in different activities, and become increasingly independent while parent's work schedules may change over time (Brannen *et al.*, 2013). Clearly, the solution is not to favor one healthy practice at the expense of another. Indeed, families have identified a contradiction in messages promoting physical activity and healthy eating in ways that promote a simplistic dichotomy between only good or bad foods and practices (Hesketh *et al.*, 2005). Rather, multiple interventions that are

coordinated to be sensitive to the scarcity of time and the geographic and socioeconomic location of families are needed to enable healthy choices.

Moreover, in supporting time-stressed families to 'get things done' health promotion messages should perhaps be less targeted toward behavior change that causes decisional dilemmas for families and instead target public policies that work cross purposes. Currently, the recreational/sports industry profits from families engaging in physical activity and the fast food industry is taking advantage of time-pressured families on the run to get their children to participate in physical activity. The latest editorial of *Health Promotion International* (de Leeuw, 2013) reminds the research community that the health promotion agenda, in the spirit of the Ottawa Charter, ought to enable people to take control over their lives. In response, we suggest this requires a position in support of families, particularly in light of neoliberal agendas that insist squarely on personal responsibility for health, while favoring business interests of the fast food industry.

In summary, the findings from our family interviews crystallized time as an important resource for physical activity and healthy eating. To avoid a privileging of one practice over the other however, 'time' and its challenges and opportunities demands more attention toward healthy public policy in addressing the complex problem of obesity prevention.

Study limitations

Since the data presented here drew from purposively sampled diverse contexts, the findings generated are not intended to generalize. Rather, we identified issues of importance to families of youth in particular locales. Only one school neighborhood of each type (high/low SES; urban/rural/suburban) was represented in our data and there is much variation within each of these categories in terms of opportunities for physical activity and healthy eating.

CONCLUSION

This study adds insight into how families' time demands between organized physical activity and healthy eating are negotiated. Our findings suggest that families are well aware of the benefits of physical activity for youth and specifically arrange the hours between the end of the work

or school day and bedtime to facilitate engagement in physical activity. The study indicates that healthy eating does not receive the same priority, which was exacerbated in suburban and rural environments. Implications for further research include the need to move beyond the socio-ecological model, by integrating critical dimensions such as ‘time’ to allow for a more nuanced understanding of contemporary healthy living (Ball *et al.*, 2004; Welch *et al.*, 2008).

Policy-makers might take several lessons from these findings. It appears ‘timely’ to design health promotion campaigns about healthy eating practices as a public health issue, much as advertisements for physical activity did in recent decades (Glickman *et al.*, 2012). Moreover, youth obesity prevention efforts aimed at both physical activity and healthy eating should seek to address this contradiction by making food provisions within and around activity locations (e.g. recreation facilities) consistent with health (Shepherd *et al.*, 2006; Vander Wekken *et al.*, 2012; Glickman *et al.*, 2012). Our findings indicate additional support for encouraging public policy toward neighborhood developments based on the health promoting philosophy of the Healthy Cities movement (Rydin *et al.*, 2012), at sufficient densities and with a mix of uses to create areas where families do not have to spend the dinner hour eating on the run as they drive to get family members to healthy activities.

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REFERENCES

- Ball, K. and Dollman, J. (2010) Physical activity, health eating and obesity prevention: Understanding and promoting ‘resilience’ amongst socioeconomically disadvantaged groups. *Australasian Epidemiologist*, **17**, 16–17.
- Ball, K., Crawford, D. and Warren, N. (2004) How feasible are healthy eating and physical activity for young women? *Public Health Nutrition*, **7**, 433–441.
- Bassett, R., Chapman, G. E. and Beagan, B. L. (2008) Autonomy and control: the co- construction of adolescent food choice. *Appetite*, **50**, 325–332.
- Bisogni, C. A., Jastran, M., Seligson, M. and Thompson, A. (2012) How people interpret healthy eating: contributions of qualitative research. *Journal of Nutrition Education and Behavior*, **44**, 282–301.
- Blake, C. E., Bisogni, C. A., Sobal, J., Jastran, M. and Devine, C. M. (2008) How adults construct evening meals. Scripts for food choice. *Appetite*, **51**, 654–662.
- Brannen, J., O’Connell, R. and Mooney, A. (2013) Families, meals, and synchronicity: eating together in British dual earner families. *Community, Work & Family*, **1**, 1–18.
- Coon, K. A. and Tucker, K. L. (2002) Television and children’s consumption patterns. A review of the literature. *Minerva Pediatrica*, **54**, 425–446.
- De Leeuw, E. (2013) Health promotion research: war on health, battle of bulge or conflict of confidence? *Health Promotion International*, **28**, 1–3.
- Devine, C. M., Jastran, M., Jabs, J., Wethington, E., Farell, T. J. and Bisogni, C. A. (2006) ‘A lot of sacrifices’: Work-family spillover and the food choice coping strategies of low-wage employed parents. *Social Science & Medicine*, **63**, 2591–2603.
- Dwyer, J., Needham, L., Simpson, J. and Heeney, E. (2008) Parents report intrapersonal, interpersonal, and environmental barriers to supporting healthy eating and physical activity among their preschoolers. *Applied Physiology, Nutrition, and Metabolism*, **33**, 338–346.
- Eggenberger, S. K. and Nelms, T. P. (2007) Family interviews as a method for family research. *Journal of Advanced Nursing*, **58**, 282–292.
- Falk, L., Sobal, J., Bisogni, C. A., Connors, M. and Devine, C. (2001) Managing healthy eating: Definitions, classifications, and strategies. *Health Education & Behavior*, **28**, 425–439.
- Findholt, N., Michael, Y. L., Jerofke, L. J. and Brogoitti, V. W. (2011) Environmental influence on children’s physical activity and eating habits in a rural Oregon county. *American Journal of Health Promotion*, **26**, e74–e85.
- Finewood, D. T., Merth, T. D. N. and Rutter, H. (2010) Implications of the foresight obesity system map for solutions to childhood obesity. *Obesity*, **18**, S13–S16.
- Glickman, D., Parker, L., Sim, L., Cook, H. and Miller, E. A. (2012) *Accelerating Progress in Obesity Prevention: Solving the Weight of the Nation*. The National Academies Press, Washington, DC.

- Hesketh, K., Waters, E., Green, J., Salmon, L. and Williams, J. (2005) Healthy eating, activity and obesity prevention: a qualitative study of parent and child perception in Australia. *Health Promotion International*, **20**, 19–26.
- Hunter, D. J. (2009) Leading for health and wellbeing: the need for a new paradigm. *Journal of Public Health*, **31**, 202–204.
- Jacobs, J. and Gerson, K. (2001) Overworked individuals or overworked families. *Work and Occupations*, **28**, 40–63.
- Janssen, I., Boyce, W. F., Simpson, K. and Pickett, W. (2006) Influence of individual- and area- level measures of socioeconomic status on obesity, unhealthy eating, and physical inactivity in Canadian adolescents. *American Journal of Clinical Nutrition*, **83**, 139–145.
- Kaplan, M., Kiernan, N. E. and James, L. (2006) Intergenerational family conversations and decision making about eating healthfully. *Journal of Nutrition Education and Behavior*, **38**, 298–306.
- Kime, N. (2009) How children eat may contribute to rising levels of obesity Children's eating behaviours: An inter-generational study of family influences. *International Journal of Health Promotion & Education*, **47**, 4–11.
- Kirk, S. F. L., Penney, T. L. and McHugh, T. L. F. (2010) Characterizing the obesogenic environment: the state of the evidence with directions for future research. *Obesity Review*, **11**, 109–117.
- Larson, N. I., Story, M. T. and Nelson, M. C. (2009) Neighborhood environments: disparities in access to healthy foods in the US. *American Journal of Preventive Medicine*, **36**, 74–81.
- Luborsky, M. R. (1994) The identification and analysis of themes and patterns. In Gubrium, J. F. and Sankar, A. (eds), *Qualitative Methods in Aging Research*. Sage, Thousand Oaks, CA, pp. 189–210.
- McGrath Davis, A., Bennett, K. J., Befort, C. and Nollen, N. (2006) Obesity and related health behaviors among urban and rural children in the United States: data from the national health and nutrition examination survey 2003–2004 and 2005–2006. *Journal of Pediatric Psychology*, **36**, 669–676.
- McMinn, A. M., Griffin, S. J., Jones, A. P. and van Sluijs, E. M. F. (2012) Family and home influences on children's after-school and weekend physical activity. *The European Journal of Public Health*. doi:10.1093/eurpub/cks160.
- Moore, J. B., Jilcott, S. B., Shores, K. A., Evenson, K. R., Brownson, R. C. and Novick, L. F. (2010) A qualitative examination of perceived barriers and facilitators of physical activity for urban and rural youth. *Health Education Research*, **25**, 355–367.
- Neumark-Sztainer, D., Hannah, P. J., Story, M., Croll, J. and Perry, C. (2003) Family meal patterns: Associations with sociodemographic characteristics and improved dietary intake among adolescents. *Journal of the American Dietetic Association*, **103**, 317–322.
- Ornelas, I., Perreira, K. and Ayala, G. (2007) Parental influences on adolescent physical activity: a longitudinal study. *International Journal of Behavioral Nutrition and Physical Activity*, **4**, 1–10.
- Patrick, H. and Nicklas, T. A. (2005) A review of family and social determinants of children's eating patterns and diet quality. *Journal of the American College of Nutrition*, **24**, 83–92.
- Perry-Jenkins, M., Repetti, R. and Crouter, A. (2000) Work and family in the 1990s. *Journal of Marriage and the Family*, **62**, 981–998.
- Popkin, B. M., Duffey, K. and Gordon-Larsen, P. (2005) Environmental influences on food choice, physical activity and energy balance. *Physiology & Behavior*, **86**, 603–613.
- Rainham, D. G., Bates, C. J., Blanchard, C. M., Dummer, T. J., Kirk, S. F. and Shearer, C. L. (2012) Spatial classification of youth physical activity patterns. *American Journal of Preventive Medicine*, **42**, e87–e96.
- Rasmussen, M., Holstein, B. E. and Due, P. (2012) Tracking of overweight from mid- adolescence into adulthood: consistent patterns across socio-economic groups. *European Journal of Public Health*, **22**, 885–887.
- Ristovski-Slijepcevic, S., Chapman, G. E. and Beagan, B. L. (2008) Engaging with healthy eating discourse(s): ways of knowing about food and health in three ethnocultural groups in Canada. *Appetite*, **50**, 167–178.
- Roos, E., Sarlio-Lähteenkorva, S., Lallukka, T. and Lahelma, E. (2007) Associations of work-family conflicts with food habits and physical activity. *Public Health Nutrition*, **10**, 222–229.
- Ryan, G. W. and Bernard, H. R. (2003) Techniques to identify themes. *Field Methods*, **15**, 85–109.
- Rydin, Y., Bleahu, A., Davies, M., Davila, J. D., Friel, S., De Grandis, G. et al. (2012) Shaping cities for health: complexity and the planning of urban environments in the 21st century. *Lancet*, **379**, 2079–2108.
- Sallis, J. F. and Glanz, K. (2006) The role of built environments in physical activity, eating, and obesity in childhood. *The Future of Children*, **16**, 89–108.
- Sallis, J. F., McKenzie, T. L., Conway, T. L., Elder, J. P., Prochaska, J. J., Brown, M. et al. (2003) Environmental interventions for eating and physical activity. *American Journal of Preventive Medicine*, **24**, 209–217.
- Sallis, J. F., Owen, N. and Fisher, E. B. (2008) Ecological models of health behavior. In Glanz, K., Rimer, B. and Viswanath, K. (eds), *Health Behavior and Health Education. Theory, Research, and Practice*. Jossey Bass, San Francisco, CA, pp. 465–486.
- Scaglioni, S., Salvioni, M. and Galimberti, C. (2008) Influences of parental attitudes in the development of children eating behaviour. *British Journal of Nutrition*, **99**(S1), S22–S25.
- Schafft, K. A., Jensen, E. B. and Hinrichs, C. C. (2009) Food deserts and overweight schoolchildren: evidence from Pennsylvania. *Rural Sociology*, **74**, 153–177.
- Shearer, C. L., Blanchard, C., Kirk, S., Lyons, R., Dummer, T., Pitter, R. et al. (2012) Physical activity and nutrition among youth in rural, suburban and urban neighbourhood types. *Canadian Journal of Public Health*, **103**(Suppl. 3), S55–S60.
- Shepherd, J., Harden, A., Rees, R., Brunton, G., Garcia, J., Oliver, S. and Oakley, A. (2006) Young people and healthy eating: a systematic review of research and barriers and facilitators. *Health Education Research*, **21**, 239–257.
- Slater, J., Sevenhuysen, G., Edginton, B. and O'Neil, J. (2001) 'Trying to make it all come together': structuration and employed mothers' experience of family food provisioning in Canada. *Health Promotion International*, **27**, 405–415.
- Story, M., Neumark-Sztainer, D. and French, S. (2002) Individual and environmental influences on adolescent eating behaviors. *Journal of the American Dietetic Association*, **102**(Suppl. 3), S40–S51.
- Taylor, J. P., Evers, S. and McKenna, M. (2005) Determinants of eating in children and youth. *Canadian Journal of Public Health*, **96**(Suppl. 3), S20–S26.
- Taylor, W. C., Poston, W. S. C., Jones, L. and Kraft, M. K. (2006) Environmental justice: obesity, physical activity,

- and healthy eating. *Journal of Physical Activity and Health*, **3**(Suppl. 1), S30–S54.
- Travis, S., Bisogni, C. and Ranzenhofer, L. A. (2010) Conceptual model of how US families with athletic adolescent daughters manage food and eating. *Appetite*, **54**, 108–117.
- Vander Wekken, S., Sørensen, S., Meldrum, J. and Naylor, P. J. (2012) Exploring industry perspectives on implementation of a provincial policy for food and beverage sales in publicly funded recreation facilities. *Health Policy*, **104**, 279–287.
- Van Woerkum, C. and Bouwman, L. (2014) ‘Getting things done’: an everyday-life perspective towards bridging the gap between intentions and practices in health-related behavior. *Health Promotion International*, **29**, 278–286.
- Videon, T. M. and Manning, C. K. (2003) Influences on adolescent eating patterns: the importance of family meals. *Journal of Adolescent Health*, **32**, 365–373.
- Warde, A., Cheng, S., Olsen, W. and Southerton, D. (2007) Changes in the practice of eating. A comparative analysis of time-use. *Acta Sociologica*, **50**, 363–385.
- Welch, N., McNaughton, S., Hunter, W., Hume, C. and Crawford, D. (2008) Is the perception of time pressure a barrier to healthy eating and physical activity among women? *Public Health Nutrition*, **12**, 888–895.