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Running Head: Life Transitions and Health Attitudes

Life Transitions and Relevance of Healthy Living in Late Adolescence

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Abstract

Using a cross-sectional qualitative design involving focus groups and interviews, we sought to gain a more detailed understanding of adolescents' physical activity, eating habits, and health perceptions during the transition from secondary school (or high school) to work. Based on thematic analyses, three themes were extracted; (i) perceptions of lifestyle and health; (ii) changes in priorities; and (iii) passive acceptance of internal and external influences on physical activity and diet. Poor diet and physical inactivity appeared to reflect participants' amotivation towards health behaviours, reluctance to divert from perceived peer norms, and efforts to assert independence from parents.

Word count: 97

Keywords

Adolescence; Diet; Eating behaviour; Exercise Behaviour; Lifestyle.

Introduction

The prevalence of overweight and obesity continues to rise in industrialized nations, thus heightening the importance of promoting healthy lifestyles (Finucane et al., 2011). Between 1995 and 2007, the yearly average increase in obesity prevalence rates for 16 and 18 year olds in the UK was reported as being 4.8% for boys and 7.0% for girls; with rises projected to reach 8.0% for boys and 9.7% for girls by 2015 (Stamatakis et al., 2010). As people who are obese from a young age will be living with accumulated excess body fat for a longer period, it has been argued that preventing obesity during adolescence may be of greater importance than prevention in adulthood (Finucane et al., 2011).

Most obesity is attributed to a lifestyle that combines excessive energy intake with insufficient physical activity (U.S. Department of Health and Human Services, 2008). During adolescence these factors are strongly influenced by increases in the consumption of fast food and high fat snacks (Harris et al., 2006) that are often coupled with increases in sedentary behaviours, and/or low levels of physical activity (U.S. Department of Health and Human Services, 2008). Health behaviours are rarely a priority for young people (Allen et al., 2007), which may partly explain the limited success of school-based and public health promotion programmes that focus on health as a motivational driver in young samples (e.g., Kubik et al., 2005; Piggan and Lee, 2011).

Past work has identified that the changes in habits and priorities that occur during life transitions are potentially harmful to health, the weight gain observed following events such as marriage (Jeffery and Rick, 2002) or starting college (Anderson et al., 2003; Racette et al., 2005). Adolescents undergo a number of life transitions, including institutional (school to work or higher education), environmental (moving out of home) and social (making new friends, cohabitation) (Poobalan et al.,

2009). These are marked by increasing independence and autonomy as well as identity development (Nelson et al., 2008). Past work assessing the effect of the transition from school has generally focused on weight gain in college students (e.g., Anderson et al., 2003; Racette et al., 2005). Up to 70% of students are reported to increase in weight during the first two years of college (Racette et al., 2005), and the incidence of overweight and obesity can double by the end of the first semester (Anderson et al., 2003). However, little is known about what happens to the health behaviours of the often more disadvantaged young people who do not attend college after leaving school (Nelson et al., 2008).

Although life transitions can signify marked deteriorations in health behaviours, they also represent a period of great potential for adaptive and volitional health behaviour changes. Indeed, the habit discontinuity hypothesis (Verplanken et al., 2008) suggests that when the environment changes, cues to behaviour that underpin our automatic behaviours, or habits, also become disrupted. As a result, behaviour becomes more volitional and aligned with intentions and attitudes, allowing new habits to form. It is this potential for intervention during life-transitions that make them particularly interesting to study.

In exploring the factors that facilitate or hinder young people to volitionally engage in health behaviours such as physical activity and healthy eating, an understanding of their motivation is important. Therefore to facilitate a more informed interview schedule and aid in the interpretation of the findings against the background of past research, we used self-determination theory (SDT; Deci & Ryan, 2000). SDT is a contemporary theory of human motivation with a multidimensional perspective to motivation, in which behavioural regulations vary in their inherent quality (Standage & Ryan, 2012). That is, autonomous forms of motivation whereby people engage due to interest and/or personal value (high quality) are contrasted with behaviours

regulated by controlled types of motivation in which internal and/or external pressures guide action (low quality) (see Deci and Ryan, 2000).

Empirical evidence supports the notion that autonomous motivation promotes adaptive health behaviours, well-being, and functioning (Deci and Ryan, 2000; Ng et al., 2012; Standage & Ryan, 2012; Teixeira, Carraça, Markland, Silva, & Ryan, 2012). Within SDT, autonomous motivation and behaviours are facilitated by social contexts that are supportive of three basic psychological needs (i.e., for autonomy, competence, and relatedness). In contrast, social contexts that thwart basic psychological needs are hypothesised to lead to controlled forms of motivation or passive engagement in activities/behaviours. As healthy development entails moving towards greater autonomy (Deci and Ryan, 2000), SDT may be particularly pertinent to adolescents during their transition to adulthood as they explore and experience greater awareness and adjustment in regards to self-ownership in new facets of their life (e.g., financial and occupational aspects). At the same time, there are shifting and changing socializing agents that will aid in this development to the extent that they are supportive (rather than thwarting) of the young person's basic psychological needs.

The purpose of the present study was to examine the views, reasons, and priorities of young people in relation to diet, physical activity, and their attitudes towards making healthy choices at the point in which they leave school for work or work-based learning. This population are important to study as without higher education they will potentially attain a lower socio-economic status and be exposed to greater future health risk (Pampel, Krueger, & Denney, 2010). A qualitative design was adopted to explore the young people's experiences in depth. As this work was undertaken as a precursor to the development of an intervention to promote healthy lifestyles (cf. Gillison, Standage & Verplanken, 2014), this qualitative approach also allowed us to incorporate participant views into the intervention design (i.e.,

adolescents can make substantial contributions toward the development and effective implementation of intervention programs that directly impact their lives; Wilson et al., 2005).

Methods

Participants

Sixteen participants aged 16 to 19 years (12 male) were recruited from four community settings across rural and urban areas in south west England. Participants were eligible to take part if they had left school within the last 12 months for employment or work-based learning. Those planning to continue onto higher education or returning to school to pursue further academic qualifications were not eligible. Two participants had left school during the previous year (one to take up a full-time job, one remained unemployed), and all other participants had left school in the previous two months and were either looking for work or planning to start vocational training in the autumn. Groups ranged in size from three to six participants. All participants were of white British ethnicity, and 75% were male.

Design

A cross-sectional qualitative research design was used to meet the exploratory aims of the study. Semi-structured focus groups were used in order to discuss young peoples' views on physical activity, diet and health. Focus groups were considered preferable to interviews as (i) young people may be less willing to talk to a researcher one-to-one than with friends, and less confident in articulating their views; (ii) better quality information is likely; and (iii) additional insight is likely to be gained by discussion and interaction between group members (Cresswell, 2007). Although contextualisation is less feasible when reporting on the outcome of focus groups (e.g., individual contributors may not answer all questions), trustworthiness of the data

benefits from a statement's subsequent discussion (and potential agreement/dismissal) from the wider group.

Interview schedule

The focus-group interview schedule was devised based on reviews of the literature, and with a view to forming the basis of the design of a future lifestyle intervention. Discussion was directed towards three issues, (i) influences on diet, (ii) influences on physical activity, and (iii) changes in lifestyle anticipated and experienced after leaving school.

Procedure

Ethical approval was granted by the local institutional ethics committee. Three youth clubs and an information and advice service for young people were approached to provide access. Youth workers at these sites identified and approached young people who met the inclusion criteria to invite them to take part in the study, and arranged a date at the venue for the focus groups to take place. On occasions when only one participant was available for a scheduled focus group session, individual interviews were conducted; three focus groups and three interviews were conducted in total. Participants were informed that their participation was optional, that their contributions would be anonymous, and that they were free to withdraw at any time.

Written consent was obtained from all participants prior to taking part, and all those completing an interview or focus group received a £5 cinema voucher as an incentive. Interviews and focus groups were recorded using a digital voice recorder, and transcribed verbatim. The focus groups and interviews took place in July and August (i.e., after the end of the school year).

Data analysis

Interviews were analyzed using thematic analysis organized by the framework method of qualitative analysis (Ritchie and Spencer, 1993) as such an approach provides a

means to identify differences and similarities in order to produce structured outputs across the data (Gale, Heath, Cameron, Rashid and Redwood, 2013). Although we do not claim data saturation, the framework approach has been frequently applied in health research and is preferable to other methods of analysis when working with homogenous samples and when data are based on similar health-related topics (Gale et al., 2013). Transcripts were first read and re-read to facilitate familiarisation, and commonalities between accounts were then used to derive raw data themes. Themes were derived inductively, and selected from recurrent observations in the interview/focus group data. Additionally, we used a deductive approach to extract themes based on theoretical propositions within SDT, and populate established themes (Braun and Clarke, 2006). Raw data themes capturing manifest or latent content were categorized into two higher order dimensions (main and sub-themes). Transcripts were analyzed by the first author, and subsequently read and reviewed by the second author. Both authors contributed to the specification and organisation of themes, enabling discussion of coding and themes to ensure that alternative interpretations were considered before final themes were agreed. The purpose was not to arrive at a consensus, but to ensure that interpretations were well grounded within the interview content.

Results

Dimensions

Three dimensions emerged reflecting participants' (i) *perceptions of lifestyle and health*, (ii) *changes in priorities* relating to an increased sense of independence and personal responsibility following school, and (iii) *passive acceptance* of internal and external influences on physical activity and diet.

1. Perceptions of lifestyle and health. The first dimension reflected how young people viewed their lifestyle in relation to their health (see Figure 1). Several participants

reported a general understanding and awareness of the concepts underlying health and healthy living ('I appreciate health education more after leaving school'). For example, participants identified a range of health risk behaviours including smoking, drinking, taking drugs, and eating poorly, and readily assessed their own lifestyles in relation to these. Eight participants felt that they were leading a healthy lifestyle, three believed their lifestyle to be unhealthy, and a further three reported that their lifestyle contained both healthy (e.g., being physically active, enjoying physical activities in different social forms; 'we just get together and play football and muck about') and unhealthy aspects (e.g., eating fast food).

Figure 1: Dimension 1 – perceptions of lifestyle and health.
Numbers in parentheses reflect number of participants citing raw data theme (when >1).

- (a) Attitudes to Health Advice.
1. General Health Perceptions
 - General understanding & awareness of what defines healthy living (4)
 - I am in control of food choices (7)
 - Healthy eating constitutes being healthy (3)
 - I care about what I eat (4)
 2. Identification of Potential Health Problems
 - I eat poorly (part of a weekly routine) (3)
 - I drink
 - I smoke
 - I eat out of boredom
 - I have a poor sleep pattern
 3. Experiences with Health Education (HE) and Health Promotion (HP)
 - I don't like HE/HP in general
 - I think parental health advice is inconsistent (2)
 - I perceive HE at school as ineffective (2)
 - I don't think HE/HP is effective (2)
 - I appreciate HE more after leaving school
 - I perceive HE/HP at school as patronizing
 4. Health Choices
 - I want to make my own health choices (2)

Participants disliked school-based health education, which was perceived as ineffective ('I think it is pointless trying to get people involved by ... going to talk to them [school kids] about it, it's having to do something about it') and patronizing ('In school they treat you like you were three'). They also questioned the effectiveness of the health advice that they received from family at home, as parental behaviours

appeared to be inconsistent with the health messages conveyed ('They [parents] are pushing their child not to eat fatty foods, but when their backs turned they'll just eat it [fatty foods] anyway, so what's the point?'). Participants indicated that they themselves should be the ones responsible for making their own health choices ('You've got to make your own decisions in life').

Only three participants considered health to be relevant to the choices they made, as they were planning to join the army where the values of such a context are endorsed ('I need to keep fit physically ... [for the] army'; 'I need to stay healthy for my future job'). These participants appeared to have personally integrated the value and benefit that eating a healthy diet and regular exercise holds for their job, but recognised that this concern separated them from their peers for whom health was not valued or relevant. A further sub-group of young people expected to get physical activity through their jobs through taking manual work or roles that involved being on their feet all day (e.g., catering; 'I'll be probably doing quite a lot of physical activity as I'll be doing catering, so you'll be like walking around the kitchen and stuff'). Despite acknowledging that this level of intensity of activity may not be sufficient for health and fitness ('I know I will be physically active, but I don't know if it keeps me healthy in the future'), this sub-group appeared to feel that their occupational activity excused them from needing to make further conscious effort to be active. In contrast to the army recruits, for these young people, physical activity was seen as a by-product of work rather than a route to better performance, and appeared to undermine the perceived importance of engagement in regular physical activity at a health-enhancing intensity.

2. *Changes in priorities.* Within this dimension we identified two sub-themes; impact of environmental change on behaviour, and future plans and expectations (see Figure 2). Participants reported that one of the biggest changes in their post-school lives was

a sense of greater independence and freedom. For example, participants emphasized that after leaving school they were more able to make their own decisions in their lives, and how they spend their time ('I want to party'; 'I want to have fun with mates'). However, despite the positive perceptions of increased freedom participants perceived several negative effects of leaving school on their health behaviours. For example, participants acknowledged that being at school had helped them to maintain a healthier lifestyle in providing them with structure ('I ... never got in trouble, then as soon as I left school, you just lose the plot'; 'If you are out at 11 o'clock ... you wouldn't usually do that on a school night ... because you would think I have to be up at 7 or 8 in the morning'). Four participants expressed missing their time at school, and looked back on their school life as 'easy'; everything was provided ('a job on a plate'), and school functioned as a centre for experiencing social interactions ('see your mates every day').

Figure 2

Money also became an important focus as participants wanted to be more independent by saving money or moving out from home ('Mostly, I am on my own two feet then, I am not in my parents' hands any more'). However, participants reported on the difficulty of finding appropriate part-time or full-time work and to implement future plans ('I just thought I'd go out of school and get a job straight away. I have been calling people up every single day and still nothing ... it is just not happening'). Overall, participants appeared to hold unrealistic expectations about job opportunities and found it challenging to implement personal plans after leaving school.

3. Passive acceptance of internal and external influences on physical activity and diet.

The third theme related to the passive way in which participants accepted external

influences on their health behaviours and comprised identified two sub-themes; lack of importance and perceived effort (see Figure 3).

Figure 3

The majority of participants did not perceive health behaviours or health itself to be important as they did not foresee any immediate negative impact on their health or wellbeing ('it's not a big thing, is it really'). Furthermore, participants perceived that adopting a healthy lifestyle would take a lot of effort ('being healthy is hard work', '[it is] harder than being unhealthy'). Participants showed little motivation towards initiating physical activity ('I am lazy'), and eating choices were largely dictated by convenience (i.e., low-effort options) and accessibility ('I have easy access to fast food') rather than quality. .

As a result the social environment appeared to have a greater impact on participants' physical activities and dietary choices than their own volition: For example, the majority of participants ($n = 10$) felt they had access to healthy meals prepared for them by their parents if they chose to eat at home ('My dad is really into healthy eating and my mum is quite a good cook so they make sure I have healthy meals'), but many actively chose to eat away from home as a way of asserting independence ('I never eat at home') seemingly accepting that meals eaten outside the home tended to be less healthy without concern.

Discussion

The present work provides a snapshot of adolescents' attitudes towards health behaviours at a time when they begin to expect and experience greater independence, and when the structure and support for healthy lifestyles that was previously provided by school is no longer available. Three themes were extracted, (i) perceptions of lifestyle and health, (ii) changes in priorities, and (iii) passive acceptance of internal and external influences on physical activity and diet. Taken collectively, the three

themes suggest that many young people do not perceive any compelling reason to protect their health through diet and exercise, potentially as threats to health seem too far in the future to make health-related behaviours a priority. Participants were largely content to allow their physical activity and dietary choices be dictated by convenience and other day-to-day priorities, such as asserting their independence and fitting in with friends.

Our findings are congruent with past research (e.g., Allen et al., 2007; Nelson et al., 2008), but also generate new insight: First, while health was not a sufficient reason for young people to change their behaviour, all participants were knowledgeable and aware of what represents a healthy lifestyle. If this finding extends to the wider population of school-leavers it suggests that health promotion initiatives based on increasing “health-related” knowledge may be ineffective in promoting adaptive health behaviour changes. Second, in relation to physical activity, we found that young people of both genders were not predisposed against healthy choices as long as they did not conflict with other priorities; most of the young men and women interviewed enjoyed exercising in some form and reported that they would exercise with friends when offered the opportunity (e.g., play football, walk, dance, swim). However, a number of participants did not feel confident in trying to create such opportunities in case of rejection (i.e., fear of alienation of oneself or ideas). Similarly in terms of diet, participants argued that they often ate junk food just to fit in with peers (i.e., rather than being a desired or likeable food), as it appeared to be the most convenient or only available option when eating outside the home. Thus, our findings suggest that young people are less averse to healthy behaviours than commonly believed. Future work exploring the potential to shift norms and environments to make healthy choices easier in social settings is warranted.

Theoretical interpretations

An objective of this work was also to explore young people's motivation towards healthy eating and physical activity. Accordingly, we examined whether interpreting the findings through the lens of SDT could lend further insight. Although research with younger British adolescents has shown physical activity to be predicted by autonomous forms of motivation (see Standage & Ryan, 2012 for a discussion), participants in this work made very few references to personal motives for physical activity or dietary behaviours themselves. Instead they explained their choices in terms of contextual factors, driven by other priorities. This lack of interest in physical activity and dietary activities suggests that they were generally passively engaged, which is a characteristic of being amotivated (i.e., seeing no benefit of a course of action; cf Deci & Ryan, 2000). On the occasions when physical activity and dietary choices were given consideration, albeit limited, behaviour was guided by controlled reasons (or low quality types of motivation) such as conforming to social and parental pressures (e.g., fitting in with friends, avoiding parental control).

The social context/environment during the transition from school was one in which young people felt that expressing concern about health behaviours, and carrying out health behaviours, would conflict with peer-approved activities. As individuals are more likely to accept and internalize the values and norms espoused by socializing agents such as their peers, for whom they feel a sense of connection and belonging (Deci and Ryan, 2000), the context could very feasibly have undermined their need for relatedness. Indeed, past work shows that being part of an active group of friends is a main impetus for adolescents to be physically active (Kubik et al., 2005), and a disruption or decline in social interactions and relatedness to peers has been shown to result in lower physical activity levels in young adults (Moller et al., 2010). While social norms in the home appeared to contrast with peer norms (i.e., promoted healthier behaviours as the norm), for those young people engaged in

attempting to demonstrate their independence from parents, rejecting parental dietary values, for example, may have been an easy way to emphasize this. Again, this is consistent with findings in other domains indicating that health risk behaviours are more prevalent in young people in the process of trying to assert their independence (Borawski et al., 2003). It is important to acknowledge that from an SDT perspective autonomy and independence are considered as conceptually orthogonal constructs; it is the experience of autonomy (rather than dependence or independence) that will predict well-being, adjustment, and optimal functioning.

There were a number of exceptions to the presence of amotivation, whereby maintaining a healthy lifestyle was perceived to contribute towards a personally valued goal; this was largely restricted to army recruits who appreciated and internalized the relevance of health and fitness for their careers. This finding further supports the notion that young people are able to adopt a healthy lifestyle and implement their existing knowledge, if there is sufficient rationale and informational support to do so.

Some of the points raised by participants suggest that the passive approach taken to diet and physical activity may reflect a more general tendency to withdraw or passively engage in various life domains at this disruptive period. For example, a number of participants reported the difficulty that they experienced in directing other aspects of their lives as a result of losing the structure that school had provided; i.e., without a fixed point in the day they found it hard to plan other activities (e.g., arranging to spend time with friends, getting up in the morning). Most participants thought that getting a job and keeping up with friends would be easy after leaving school. Yet, the reality was that they majority spent the summer relatively detached from friends and with no job or alternative plans, even if only temporarily. Their amotivation in this regard may reflect a lack of support for their three basic needs as

they (i) lack the competence to behave with a sense of volition and congruence in directing their own lives as they had anticipated (autonomy), (ii) experience detachment from friendship groups (relatedness), and (iii) experience undermining of their autonomous motivation through the sudden loss of structure (i.e., which if provided in an autonomy supportive way is a scaffolding to the development of competence; Standage & Ryan, 2012) and agency experienced on completion of school. Research would do well to examine how best to provide support and/or develop new supports for young people's basic needs at this key transition point. Such work would provide valuable insight into how practitioners can support on-going well-being and adjustment.

A positive finding was that most participants appeared to retain some intrinsic motivation towards sports and social forms of exercise (e.g., enjoyment of football or dance). In these instances, physical activity appeared to be incidental, and engagement aligned with autonomous motivation towards leisure activities in general rather than physical activity specifically. As such, the promotion of physical activity as a means of spending enjoyable time with peers, rather than improving health, may prove more relevant to young people. It is also more likely that such activities would be incorporated into their new routines on leaving school. These findings are congruent with SDT in suggesting that it is the inherent and intrinsic aspects of activities (e.g., for fun, satisfaction, promote challenge, and afford opportunities for new experiences/exploration, etc.) that determine adaptive and maintained behaviours (see Standage and Ryan, 2012 for a discussion around need-supports).

Limitations

This study is somewhat limited by its cross-sectional design, which allows exploration of participants' experiences and behaviours during the transition phase, but not beyond this time-period. A longitudinal design incorporating re-assessments would

provide valuable insight into participants' changing priorities, adjustment to their new environment, and the process of habit formation. The sample characteristics may have also limited the scope of the results as 75% of the participants were male, and all participants were from a single ethnic group (white British).

Conclusions

The transition from school to work or work-based learning is an important period when adolescents can form new physical activity and dietary habits. The young people taking part in the present study largely reported an absence of goals or motives for enacting health-related behaviours unless fitness was a specific requirement of a desired job. Although physical activity (particularly sport or dance) was enjoyed for its own sake by many participants indicating some level of intrinsic motivation, this was not a sufficient motive for this sample of young people to purposefully design it into their lives.

This work showed that adolescents experienced a lack of structure in their lives as a whole, and lacked a sense of competence that they could be the authors of their own lifestyle decisions (i.e., amotivation towards health behaviours appeared to reflect a global level of amotivation). Future work would be useful to explore whether the provision of structure with supports for basic psychological needs can support health and lifestyle adjustments during the school to work transition. From a SDT perspective, this may be best achieved by focussing on the inherent aspects of the activities/tasks (e.g., fun, creativity, exploration, mastery, etc.).

Conflicting or competing interests

No conflicting interests.

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References

- Allen ML, Elliott MN, Morgales, LS, Diamant AL, Hambarsoomian K and Schuster MA (2007) Adolescent participation in preventive health behaviors, physical activity, and nutrition: Differences across immigrant generations for Asians and Latinos compared with Whites. *American Journal of Public Health* 7: 337-343. doi:10.2105/AJPH.2005.076810
- Anderson DA, Shapiro JR and Lundgren JD (2003) The freshman year of college as a critical period for weight gain: an initial evaluation. *Eating Behaviors* 4: 363-367.
- Borawski EA, Ievers-Landis CE, Lovegreen LD and Trapl ES (2003) Parental monitoring, negotiated unsupervised time, and parental trust: the role of perceived parenting practices in adolescent health risk behaviours. *Journal of Adolescent Health* 33: 60-70. doi:10.1016/S1054-139X(03)00100-9.
- Braun V and Clarke V (2006) Using thematic analysis in psychology. *Qualitative Research in Psychology* 3: 77-101. doi:10.1191/1478088706qp063oa
- Chainey TA and Stevens C (2014) ‘Lets get wasted’: A discourse analysis of teenagers’ talk about binge drinking. *Journal of Health Psychology*, 19: 1-12 doi: 10.1177/1359105314532972
- Cresswell JW (2007) *Qualitative Inquiry & Research Design*. 2nd Edition. Sage Publications: California.
- Deci EL and Ryan RM (2000) The “What” and “Why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry* 11: 227–268.
- Finucane MM, Stevens GA, Cowan MJ et al. (2011) National, regional, and global trends in body-mass index since 1980: systematic analysis of health examination surveys and epidemiological studies with 960 country-years and

- 9·1 million participants. *The Lancet* 377: 557-567. doi:10.1016/S0140-6736(10)62037-5
- Gillison, F, Standage, M, and Verplanken, B (2014). A cluster randomised controlled trial of an intervention to promote healthy lifestyle habits to school leavers: Study rationale, design, and methods. *BMC Public Health*, 14: 221. Doi:10.1186/1471-2458-14-221
- Harris KM, Gordon-Larsen P, Chantala K and Udry JR (2006) Longitudinal trends in race/ethnic disparities in leading health indicators from adolescence to young adulthood. *Archives of Pediatrics and Adolescent Medicine* 160: 74-81.
- Jeffery RW and Rick, AM (2002) Cross-sectional and longitudinal associations between body mass index and marriage-related factors. *Obesity Research* 10: 809–815. doi:10.1038/oby.2002.109
- Laghi F, Baiocco R, Liga F, Lonigro A and Baumgartner E (2014) Binge eating and binge drinking behaviors: Individual differences in adolescents' identity styles. *Journal of Health Psychology*, 19: 333-343. doi: 10.1177/1359105312470851
- Kubik MY, Lytle L and Fulkerson JA (2005) Fruits, vegetables, and football: Findings from focus groups with alternative high school students regarding eating and physical activity. *Journal of Adolescent Health* 36: 494–500. doi:10.1016/j.adohealth.2004.05.010
- Moller AC, Deci EL and Elliot AJ (2010) Person-level relatedness and the incremental value of relating. *Personality and Social Psychology Bulletin* 36: 754–767. doi:10.1177/0146167210371622
- Nelson MC, Story M, Larson NI, Neumark-Sztainer D and Lytle LA (2008) Emerging adulthood and college-aged youth: an overlooked age for weight-related behavior change. *Obesity* 16: 2205-2211. doi:10.1038/oby.2008.365

- Ng JYY, Ntoumanis N, Thørgersen-Ntoumani C, Deci EL, Ryan RM, Duda JL et al. (2012) Self-determination theory applied to health contexts: A meta-analysis. *Perspectives on Psychological Science* 7: 325-340. doi:10.1177/1745691612447309
- Pampel FC, Krueger PM, and Denney JT (2010) Socioeconomic disparities in health behaviors. *Annual Review of Sociology* 36: 349-370. doi:10.1146/annurev.soc.012809.102529
- Piggin J and Lee J (2011) Don't mention obesity': Contradictions and tensions in the UK Change4Life health promotion campaign. *Journal of Health Psychology* 16: 1151-1164.
- Poobalan AS, Aucott LS, Precious E, Crombie IK and Smith WCS (2009) Weight loss interventions in young people (18 to 25 years old): A systematic review. *Obesity Reviews* 11: 580-592. doi:10.1111/j.1467-789X.2009.00673.x
- Racette SB, Deusinger SS, Strube MJ, Highstein GR and Deusinger RH (2005) Weight changes, exercise, and dietary patterns during freshman and sophomore years of college. *Journal of American College Health* 53: 245-251. doi:10.3200/JACH.53.6.245-251
- Ritchie J and Spencer L (1993) Qualitative data analysis for applied policy research. In: Bryan A and Burgess R (eds) *Analysing Qualitative Data*. London: Routledge, pp.173-194.
- Sousa P, Gaspar P, Fonseca H and Gaspar F (2014) Lifestyle treatment adherence among overweight adolescents. *Journal of Health Psychology*, 19: 1-11 doi: 10.1177/1359105314531469
- Stamatakis E, Zaninotto P, Falaschetti E, Mindell J and Head J (2010) Time trends in childhood and adolescent obesity in England from 1995 to 2007 and

- projections of prevalence to 2015. *Journal of Epidemiology and Community Health* 64: 167-174. doi:10.1136/jech.2009.098723
- Standage M and Ryan RM (2012) Self-determination theory and exercise motivation: Facilitating self-regulatory processes to support and maintain health and well-being. In *Advances in motivation in sport and exercise - 3rd edition*. Edited by G.C. Roberts and D.C. Treasure, Champaign, IL: Human Kinetics 233-270.
- Teixeira PJ, Carraça EV, Markland D, Silva MN, and Ryan RM (2012) Exercise, physical activity, and self-determination theory: A systematic review. *International Journal of Behavioral Nutrition and Physical Activity* 9:78.
- U.S. Department of Health and Human Services (2008) 2008 Physical activity guidelines for Americans. Washington, D.C.: U.S. Department of Health and Human Services. Retrieved August 2, 2013, from <http://www.health.gov/paguidelines/>.
- Vallerand RJ (1997) A Hierarchical Model of Intrinsic and Extrinsic Motivation in Sport and Exercise. In *Advances in experimental social psychology*. Edited by M.P. Zanna. New York: Academic Press, 263-319.
- Verplanken B, Walker I, Davis A and Jurasek M (2008) Context change and travel mode choice: Combining the habit discontinuity and self-activation hypotheses. *Journal of Environmental Psychology* 18: 121-127. doi:10.1016/j.jenvp.2007.10.005
- Wilson DK, Evans AE, Williams J, Mixon G, Sirard JR and Pate R (2005) A preliminary test of a student-centered intervention on increasing physical activity. *Annals of Behavioral Medicine* 30: 119–124. doi:10.1207/s15324796abm3002_4