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How do we harness adolescent values in designing health behaviour change interventions? A qualitative study

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Objectives. Adolescent health behaviours do not support optimal development. Adolescents are reportedly difficult to engage in health behaviour improvement initiatives. Little is known about what adolescents value in relation to diet and physical activity or how best to target these in health interventions. This study explored adolescents' values in relation to diet and physical activity and how these values can inform health intervention design.

Design. Qualitative semi-structured interviews explored adolescents' lives, what they thought about diet and physical activity and what might support them to improve their health behaviours.

Methods. A total of 13 group interviews were conducted with 54 adolescents aged 13–14 years, of whom 49% were girls and 95% identified as White British. Participants were

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recruited from a non-selective secondary school in a large southern UK city. Inductive thematic analysis was used to identify key adolescent values.

Results. Adolescents valued being with their friends, doing what they enjoyed and were good at; being healthy was important to them but only if achievable without compromising other things that are important to them. The need to be healthy was not aligned with adolescents' basic psychological needs, nor their strongly held priorities and values.

Conclusions. Health is not a motivating factor for adolescents; therefore, interventions designed solely to improve health are unlikely to engage them. Instead, interventions that align with the values and priorities specified by adolescents are more likely to be effective in supporting them to eat well and be more active.

Statement of contribution

What is already known on this subject?

- Conventional interventions to improve adolescents' dietary and physical activity behaviours are often challenged by poor engagement. For adolescents, other values such as food preferences, peer norms, or convenience are given higher priority than making healthy choices.
- A recent values-aligned intervention which promoted healthy eating as an autonomy-assertive and social justice-oriented behaviour led adolescents to change their diets in favour of healthier choices.
- The potential of this approach for improving adolescent health behaviours is largely unexplored outside this one intervention study.

What does this study add?

- Interviews with adolescents highlight specific values that drive their food and physical activity choices: a need to be with friends, to be seen and heard as individuals, to do what they enjoy and are good at, and to be respected and supported.
- Interventions to engage adolescents in health behaviour change need to offer opportunities for them to make their own, healthy decisions about their life, to have a sense of belonging to communities of peers, and to spend their time and energy on things that are enjoyable, rewarding, and not difficult to achieve.
- In doing so, interventions will fulfil young people's adolescents' basic psychological needs for autonomy, competence, and relatedness and give rise to more autonomous forms of motivation for eating well and being active.

Background

Adolescents in the United Kingdom have poorer diets than any other population group and fewer than 20% meet physical activity guidelines (Bates et al., 2014; Townsend, Wickramasinghe, Williams, Bhatnagar, & Rayner, 2015). Almost 95% of adolescents consume nearly three times the recommended amount of free sugars a day and only 7% eat enough fibre (Roberts et al., 2018). Adolescent obesity is now a major public health issue; rates of adolescent obesity recently plateaued at a tenfold increase from what they were 40 years ago (Abarca-Gómez et al., 2017; Hagell, 2013; Wang & Lobstein, 2006). A recent Lancet commission on preconception health and series of review papers on adolescence have emphasized the triple benefit from investment in supporting health during adolescence: to the young person now, and in the future and to their offspring (Barker et al., 2018; Patton et al., 2018; Viner et al., 2015).

Interventions to improve adolescents' dietary and physical activity behaviours have been implemented with varying success, are challenged by poor engagement, and do not maintain positive effects in the medium or longer term (Calvert, Dempsey, & Povey, 2019; Rose et al., 2017; Stice, Shaw, & Marti, 2006; Yeager, Dahl, & Dweck, 2018). Many interventions favour health and nutrition education with behavioural skills training, even

though evidence suggests that adolescents are not ignorant about the health implications of their food choices and physical activity habits; nor are they motivated by promises of future health (Bassett, Chapman, & Beagan, 2008; Bryan et al., 2016; Yeager et al., 2018). Prior research tells us little about how to design evidence-based intervention components that are optimally engaging for adolescents, fit with their values and priorities, and therefore effectively support long-term changes to diet and physical activity.

For adolescents, significant self-regulation is required to resist the temptations of an obesogenic environment at a time when they are hyper-sensitive to emotional and social influences and prioritize the immediate over the long term (de Vet et al., 2013). Brain growth and neurological restructuring in adolescence leaves a maturational gap between the cortical areas responsible for self-regulation and those responsible for emotional processing (Fuhrmann, Knoll, & Blakemore, 2015; Lowe, Morton, & Reichelt, 2020); 14- to 16-year-olds are less inclined than younger adolescents to intentionally self-regulate their diet (Tăut et al., 2015). Other values such as food preferences, peer norms, or convenience are given higher priority than making healthy choices (Bassett et al., 2008).

Adolescents can, however, be highly motivated to act in pursuit of other important long-term goals if these reflect values shared with their peers (Bryan et al., 2016; Crone & Dahl, 2012). A recent values-aligned intervention which promoted healthy eating as an autonomy-assertive and social justice-oriented behaviour led adolescents to change their diets in favour of healthier choices (Bryan, Yeager, & Hinojosa, 2019; Bryan et al., 2016). The potential of this approach for improving adolescent health behaviours is largely unexplored outside this one intervention study, and more research into similar developmentally informed intervention strategies is called for (Miller, Lo, Bauer, & Fredericks, 2020). What adolescents value and what might motivate them to make changes to their eating and physical activity habits remain poorly understood, and little is known about how these values might be harnessed in interventions to support change.

The study reported in this paper adopted a qualitative approach to answer three research questions:

1. What do adolescents describe as important to them in relation to diet and physical activity?
2. How do adolescents currently experience eating and physical activity in their life?
3. What influences adolescents' eating and physical activity habits?

Methods

Design

Findings from this work were intended to inform the design of a multi-component intervention to support adolescent diet and physical activity (EACH-B) following a person-based approach (PBA) (Yardley, Morrison, Bradbury, & Muller, 2015). The PBA posits that eliciting and addressing the needs and perspective of the intended intervention user is crucial for optimizing engagement with health behaviour interventions (Yardley et al., 2015). This insight is always contextual, rooted within the time, environment, and culture within which the intervention's target population exists.

The study reported in this paper was therefore exploratory and qualitative; it used focus groups with adolescents to address the research topics in the questions above. Data were analysed using thematic analysis, and the study adopted a relativist ontological and subjective epistemic position, rooted in the belief that reality is always constructed

relative to a particular frame of reference and influenced by personal experience and insight (Dieronitou, 2014; Punch, 2013). The study is reported following the Consolidated Criteria for Reporting Qualitative Research (COREQ; Tong, Sainsbury, & Craig, 2007). The study received ethics approval by the University of Southampton Faculty of Medicine Ethics Committee [Ethics Number: 30054].

Setting

The study was carried out between 2017 and 2018 in Southampton, a large city on the south coast of England, ranked the 67th most deprived of the 326 local authorities in England (Southampton City Council, 2015). Participants were selected using convenience sampling; adolescents (13–14 years) were recruited from a mixed, non-selective secondary school in Southampton. The students at this school comprised 46% girls, 4.3% of students had English as a second language, and 37% of students had been eligible for free school meals at some time during the past six years, which is above the national average of 29% (gov.uk). Adolescents were approached by their teachers at school to participate and interview data were collected during school hours.

Focus groups were conducted by four researchers (STS, SCS, DPN, and TM)[1] in pairs with one of them facilitating the interview and the other one observing. Each researcher had received training in conducting focus groups and in safeguarding young people. The researchers did not know and had never met the participants prior to the focus groups taking place. Researchers worked on the same team but on separate projects, each worked on topics with a health focus. No other people aside from interviewers and participants were present in the focus groups.

Procedures

Information about the study was sent to parents by the school, and parents were asked to consider whether they were happy for their child to participate. A total of 200 information leaflets and opt-out forms were provided to the school. Teachers at school told students in year 9 (13–14 years) about the study, and students who were interested in taking part took information sheets and opt-out forms home to their parents. Parents were instructed to contact the school or research team to 'opt-out' if they did not want their child to take part. Adolescents whose parents had not opted out were then asked to provide their written consent on the day the focus groups were conducted. The school received no opt-out forms from parents. The head of science then identified which lessons students could be excused from without major disruption to curriculum time. A total of 61 students were scheduled to take part, of which seven ultimately decided not to take part on the interview day.

Interviews were conducted with groups of 3–6 adolescents. Participants knew each other from school but were not necessarily from the same class or tutor group. Participants knew that the focus groups aimed to understand what adolescents' lives were like and what they thought about health. Participants knew that the researchers conducting the focus groups were from the University. Groups interviewed were not

[1] *STS was a woman, psychologist with a PhD whose research focuses on adolescent health, and she had six years of experience in qualitative research (QR); SCS was a woman, a nutritionist and PhD student conducting research into adolescents' food environments, and this was her first qualitative study; DPN was a man, a research assistant on a project about product placement in supermarkets, and he had an MSc in Public Health and 1 year of experience in QR; and TM was a woman, a PhD student conducting research into women's health in pregnancy, and she had an MSc in Public Health and 2 years of experience in QR.*

deliberately friendship groups although some participants took part with friends. The focus groups were guided by a semi-structured topic guide (Table 1) which had been developed through consultation with a Young People's Patient and Public Involvement Panel. All focus groups took approximately 15–30 min and were audio-recorded and transcribed verbatim. Participants completed a brief demographic questionnaire asking their age, gender, and ethnicity. Participants received a £10 shopping voucher to thank them for taking part. Focus group characteristics are presented in Table 2.

Analysis

Interview recordings were transcribed by an external transcription service and were checked for accuracy against the original recordings by the researchers (STS, SJ). All audio-recordings and transcripts used interview group ID numbers as sole identifiers. Transcripts were then analysed thematically using NVivo software (QSR International, version 12). Thematic analysis was inductive, following established guidelines (Braun & Clarke, 2006). The analysis began with familiarizing ourselves with the data by reading and re-reading the transcripts and making notes about initial ideas. We then generated initial codes by double coding of three transcripts by STS, SCS, and MS. Each researcher coded text that contained a topic or an idea by assigning it a code that described that idea. For example, a section of text talking about eating out with friends would be coded under 'social influences'. Where a section of text fitted into more than one code, it was categorized under all appropriate codes. The three researchers then compared similarities and differences in their coding, combined their codes and organized them into themes and subthemes to create an initial coding frame. The remaining transcripts were then all double-coded to this coding frame (STS, SCS, SJ). Any discrepancies in coding, creation of new codes where new topics arose, and categorization of codes under relevant subthemes were discussed and agreed by the coding team. Using these methods, the coding frame was refined until a fourth, final, comprehensive coding frame was agreed (coding tree

Table 1. Interview topic guide questions

Topic	Interview guide question
Health	What does it mean to you to be healthy?
	What kinds of things do you do to keep healthy?
Food	What kinds of things do you generally like to eat?
	What kinds of things do you not like to eat?
	How does your family decide what to eat at home?
Barriers	What kinds of things make it difficult to eat well and be active?
Facilitators	What things in your life have helped you eat well and be active?
	What kinds of things do you do to keep healthy?
School days	What is a typical week day like for you?
Life outside school	What kinds of things do you usually do outside of school?
	What kinds of things do you like to do at home?
	Who do you mostly spend time with during the day?
Support	What kind of things would help you eat better and be more active?
	What kinds of things would you find rewarding if you ate better or became more active?
	Who would you ask if you wanted help in eating better or being more active?
	What kind of things do you think would encourage you to be more active?

Table 2. Focus group characteristics

Group	Interviewers	Number of Participants	Girls	Boys	Length
Group 1	STS, DPN	3	1	2	00:27:40
Group 2	STS, DPN	4	3	1	00:21:35
Group 3	STS, SS	4	2	2	00:22:26
Group 4	TR, DPN	3	3	0	00:18:23
Group 5	TR, DPN	5	2	3	00:15:01
Group 6	STS, DPN	6	3	3	00:16:01
Group 7	TR, SS	4	4	0	00:17:17
Group 8	TR, SS	4	1	3	00:13:26
Group 9	TR, DPN	4	0	4	00:20:17
Group 10	TR, DPN	3	2	1	00:13:50
Group 11	STS, SS	5	2	3	00:21:11
Group 12	STS, SS	4	3	1	00:14:10
Group 13	TR, SS	5	3	2	00:16:22

presented in Figure 1). The coders used this final coding frame to revise the coding of all transcripts where appropriate. During this process, themes were reviewed by checking that the themes worked in relation to the coded sections of text and that they represented the entire data set. To assess reliability, a coding comparison query was conducted in NVivo to compare double coding done by the individual researchers (STS, SCS, SJ) (QSR International, 2019). This query provided two measures of inter-rater reliability: (1) percentage agreement (99%) and (2) a Kappa coefficient (0.92) (MacPhail, Khoza, Abler, & Ranganathan, 2016), together indicating an excellent level of agreement.

A table of themes, subthemes, and example quotes is provided as supplementary material to this article. Themes and subthemes were compiled together with verbatim quotations and then discussed and agreed with senior members of the research team (LM, MEB). Discussions within the research team focused on the deeper meaning of participant accounts which the themes represent and the implications for health intervention development. From these discussions, the basic psychological needs defined by Self-Determination Theory (Deci & Ryan, 2008; Ryan & Deci, 2002) were identified as underlying the young people's accounts of influences on their food and activity choices. During these discussions, the researchers produced a conceptual thematic map that would best represent the data and address the research questions (Figure 2).

Data saturation was assessed pragmatically with due consideration for the logistical demands of conducting data collection in school; an assessment of data saturation took place when the focus groups were coded using the final coding frame. Researchers discussed the representativeness of the coding frame of the data and whether any new topics arose in the last few focus groups that had not come up in earlier ones. It was agreed that new topics had not emerged in the final three focus groups and that this suggested data saturation.

Data sharing statement

Data from this study will be uploaded to the SAGE Track submission system and will be uploaded to Figshare on publication. Anonymized participant data in the form of transcript text coded under each main theme and subthemes are shared.

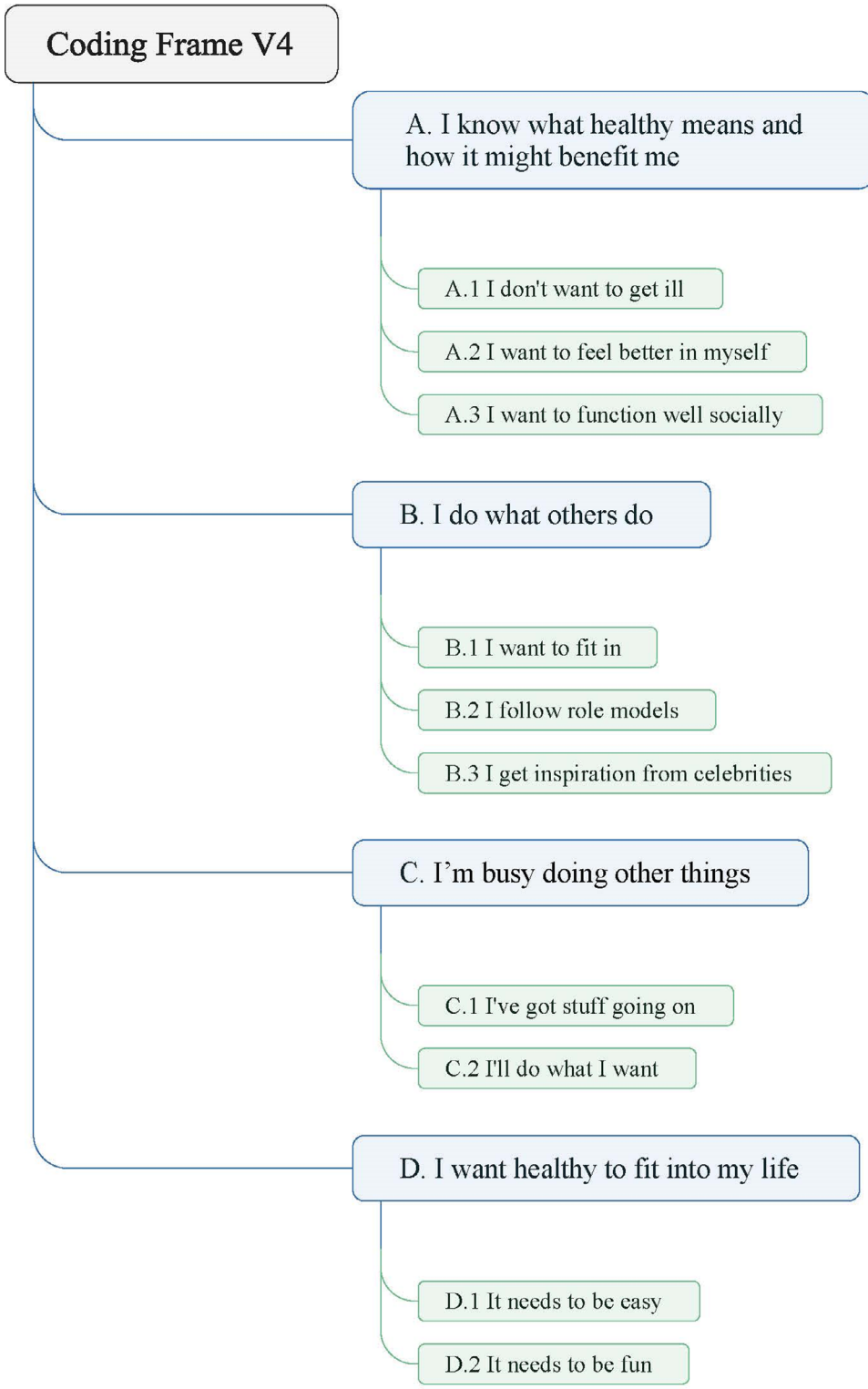

Figure 1. Final coding tree depicting the themes and their respective subthemes.

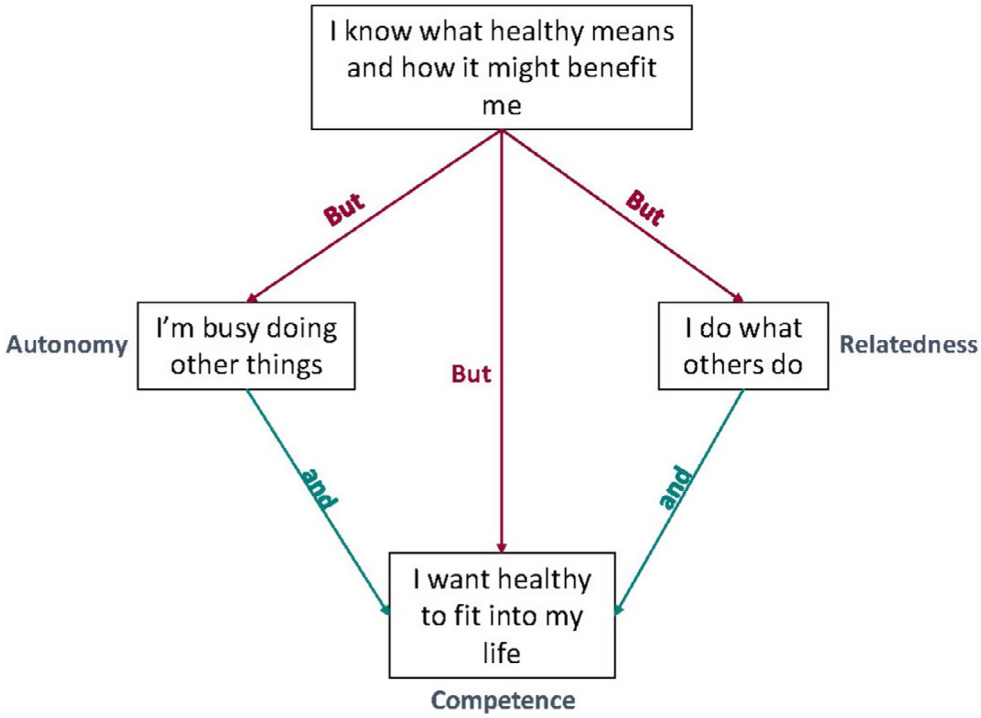

Figure 2. Conceptual map representing the relationship between the four themes.

Results

A total of 13 focus groups were conducted with 54 adolescents. All participants were aged 13–14 years, 49% were girls, and 95% identified as White British (Table 3).

Four themes were identified (coding tree presented in Figure 1). The relationships between these themes are represented in the thematic map (Figure 2). The four thematic areas and their subthemes are summarized below and are accompanied with illustrative quotes from the focus groups.

Table 3. Demographic characteristics of participants ($N = 54$)

Characteristic	*n*	%
Age		
13 years	20	37
14 years	23	43
Missing	11	20
Gender		
Girl	29	54
Boy	25	46
Ethnicity		
White	42	78
Other[a]	1	2
Missing	11	20

[a]Participant identified as Bangladeshi.

Theme 1: I know what healthy means and how it might benefit me

I don't want to get ill

The data suggested that participants were aware of health guidance and the implications of adopting healthy behaviours for their long-term health.

> I think it's important, like if you eat too much sugary food you're gonna get like diabetes
>
> And it'll help you when like later on in life as well, if you're not overweight or you've not got medical problems. (Girls, group 8)

This awareness alone was not enough to manifest as a healthy lifestyle. The struggle was not just in adopting healthier behaviours but more so with maintaining new habits.

> I've tried to before but failed
>
> I like chocolate too much. I just gave up. (Girl and Boy, Group 7)

I want to feel better in myself

Feeling better in themselves, having more energy, and feeling positive appeared to be the valued tangible benefits to being healthy. For some, these were valued more than health consequences.

> Feeling, well, good about yourself and the way you look and the way you like feel inside. So how you feel about yourself. (Boy, Group 9)

I want to function well socially

For many participants, the value of being healthy included engaging in successful social interaction. Eating well and being active were often associated with being more extrovert and liked by others.

> You'll go out more. Meet more people
>
> More people like you as well. (Boy and girl, Group 6)

Theme 2: I do what others do

I want to fit in

Focus groups highlighted the social and interconnected nature of participants' lives. Participants described making unhealthy choices most often when they were out with friends. Peers appeared to directly influence the choice of food, but also the contexts within which foods were consumed, and the choices available.

> Most of the time I would have what [my friends] have. If they all went to like McDonald's, KFC, I would go as well. Just so I'm not left out. (Boy, Group 3)

Friends, however, appeared to also have the power to encourage positive health behaviours, notwithstanding those behaviours might not necessarily be maintained without the friend.

> I go to the gym, sometimes with my friend, we go together. But when she can't go, I don't go, 'cause I don't really wanna be like by myself, it gets a little bit boring. (Girl, Group 2)

I follow role models

Participants often relinquished food sourcing and preparation responsibilities to their parents. They also saw parents as role models for health behaviours and would seek their advice and support for improving their health.

> We always eat healthy, 'cause my step-mum likes to eat healthy. So there's like a bunch of vegetables. I guess in a way I have been eating healthier. Cause she's gone vegan, I've tried different [foods]. (Girl, Group 2)

It was important for participants to have support from someone who was both a good role model for health behaviours and could take the time to listen to them and understand their hopes and goals. Participants described their school as one of the main places they would buy and eat foods, but explained that teachers were not the people they would go to for advice and support if they wanted to be healthier. Others felt it might be possible provided that their relationship with the teacher was compassionate and supportive.

> I don't really get on with many teachers, so I don't think I'd listen to them
>
> It depends if like the teacher - actually has like a connection with you. Someone who you really get along with. (Girl and boy, Group 11)

I get inspiration from celebrities

The people that adolescents followed on social media, such as football players, gamers, and YouTube content creators, appeared to be inspirational to them. Famous athletes were described as inspirational and likely to encourage healthy behaviours.

> Messi. 'Cause like they, they like well they're physical, you see videos of their houses and they've like got massive gyms and they're like working out, you think, "oh, if I like, if I start working out, I could be like that" (Boy, Group 9)

Many other celebrities such as YouTube content creators were described as most followed by adolescents but not linked to health behaviours, though they appeared to represent a key influence in adolescents' lives.

Theme 3: I'm busy doing other things

I've got stuff going on

Many participants described having busy lives with their time full to capacity; schoolwork was demanding and other responsibilities at home or hobbies took up their time. Participants described what their daily life was like. Striking a balance between school and home demands, and what they themselves wanted to do with their time, was important.

> Well I mean to get exercise, obviously that takes time, and with school and all like the homework you get, and doing other stuff with family as well, it can be hard sometimes to find time for it. (Boy, Group 7)

I'll do what I want

When participants were in a position to make their own decisions about food, they felt they had to compromise between what they knew to be ideal for health, and what they most wanted to eat, which often came down to what was good value for money for them.

> Most of the healthy stuff is more expensive than the unhealthy stuff anyway
>
> So it's just easier to buy unhealthy things now. (Girls, Group 2)

Theme 4: I want healthy to fit into my life

It needs to be easy

Many participants felt it was more difficult to make healthy choices than unhealthy ones. The canteen at school offered unhealthy options that were easier to pick, more appetizing and better value for money than healthy options.

> As you come into the canteen, there's all the unhealthy warm foods all along. And that's the first thing that you get shown to. And right where you pay, there's little baskets of fruit.
>
> Most people, they've got their stuff, and they've spent all their money. (Girl and boy, Group 1)

However, participants also recognized that the availability of healthier options may not necessarily be enough to make them choose the healthier options, those options also had to be more appetizing.

It needs to be fun

Speaking about physical activity, some participants wanted to spend their free time doing things they enjoyed and would abandon things that were not exciting or fun to do. They also recognized that doing too much was likely to result in giving up altogether.

> You know what you're supposed to do to be healthy, but you try to do way too much in one go, and then end up completely stopping. [You need something] that reminds you to do a small thing every single day until you can manage. (Girl, Group 5)

They wanted support that would make it easier to make changes that were manageable and could be maintained.

Discussion

Main findings

The thematic map summarizes the answers to the research questions: (1) What do adolescents describe as important to them in relation to diet and physical activity? (2) How do adolescents currently experience eating and physical activity in their life? (3) What influences adolescents' eating and physical activity habits?

The thematic map (Figure 2) describes the four themes that summarize the conversations with adolescents: (1) *I know what healthy means and how it might benefit me,* which describes that the relevance of health behaviour to adolescents is in enabling them to feel good about themselves, in terms of both mental and physical well-being, and enabling them to function well socially. (2) *I do what others do*, which captures that families are influential in adolescents' health behaviours, friends are the main influences on food choice outside the home, and celebrities are inspirational. (3) *I'm busy doing other things*, which denotes that health behaviour change requires effort and more money than adolescents have. (4) *I want healthy to fit into my life*, which captures that adolescents want support that is fun and engaging, takes into account what they like, and has social components. The thematic map represents the way these themes may relate

to one another in influencing adolescents' eating and physical activity habits. Though adolescents recognized the importance of health, they had other priorities such as the demands of daily life and their social world. These priorities presented barriers to making healthier choices, but may also represent levers for change. In this study, being healthy did not appear to fulfil adolescents' basic psychological needs and was not aligned with their strongly held values or their priorities.

Values identified from the focus groups were seen to overlap with the three basic psychological needs outlined by Self-Determination Theory: autonomy, competence, and relatedness (Deci & Ryan, 2008; Ryan & Deci, 2002). Conditions that satisfy these basic needs are proposed to have positive consequences for psychological well-being and autonomous forms of motivation, leading to better health behaviours including healthier food choices (Ryan & Deci, 2002). Adolescents valued their social world and wanted to make choices that aligned with their peer group. These choices were not always healthy ones. An SDT framework suggests that this reflects a basic psychological need for *relatedness,* needing to feel understood and valued by important others (Ryan & Deci, 2000). The focus groups captured a desire to compromise between the expectations of the world around them, and what they wanted to do. This reflects a need for *autonomy*, a growing desire in these adolescents to make their own choices about their lives. Though not particularly healthy, choices which represented value for money, appealing texture and flavour, convenience, and social norms were prioritized. Adolescents appeared to value the sense of mastery and accomplishment gained from challenging activities and described healthy choices as being boring and inconvenient rather than optimally challenging. Choices needed to be enjoyable and challenging but not too difficult to support a sense of *competence*.

Implications for adolescent health interventions

Efforts to support health often adopt an overt health focus, primarily delivering information about health behaviour recommendations, implications, and instructions (Calvert et al., 2019; Rose et al., 2017; Stice et al., 2006; Yeager et al., 2018). Adolescents do not appear to engage well with these efforts and are therefore deemed difficult to engage with health behaviour change. Findings from this study challenge this conclusion. They indicate instead that engagement may be optimized if interventions focus on adolescents' lives more broadly and enable them to easily integrate health with their strongly held values. Interventions to engage adolescents in health behaviour change need to support opportunities for them to make their own, healthy decisions about their lives, to have a sense of belonging to their group of friends and peers, and to use their time and energy on things that are enjoyable, rewarding, and uncomplicated.

Adolescents' sense of autonomy increases when they make their own decisions and use their time and energy on things that are enjoyable and rewarding (Deci & Ryan, 2008; Gillison, Rouse, Standage, Sebire, & Ryan, 2019). Interventions need to make healthier choices the preferred, enjoyable, and rewarding option. A sense of competence stems from feeling able to meet the challenges of a task. Interventions therefore need to make healthier choices feel manageable to the individual and to provide recognition for successfully making healthy choices. Relatedness is provided by feeling connected to and supported by the social groups around you. Our results suggest that interventions need to enable adolescents to engage in health behaviour change together with their friends, working in groups towards a goal, and to share progress and successes with selected others. Intervention design may also need to confront the challenges of environmental

level constraints such as canteens and physical activity spaces and should consider involving other social agents prominent in adolescents' lives, such as parents, teachers, and peers.

Reviews suggest that training teachers may help them to support their students to plan and achieve their behavioural goals in a way that is acceptable to adolescents (Katz, O'Connell, Njike, Yeh, & Nawaz, 2008). Adolescents in this study felt that they would currently not talk to teachers about their health, but would consider doing so if the teachers were supportive and genuinely interested in what they had to say. Healthy Conversation Skills (HCS) training is one such option which offers a set of accessible, theory-based skills of listening, reflecting, and goal setting, with which adolescents may be empowered to identify their own health goals and explore ways of achieving them that suit them (Barker, 2011; Lawrence et al., 2016). Such communication skills allow students to feel heard and supported by their teachers (Deci & Ryan, 2008). Training teachers to use these skills may enable students to exert their agency in making decisions about what health behaviours to engage in (Bonell et al., 2013).

Peer and parental involvement present challenges and opportunities in terms of enhancing adolescent health interventions. It remains unclear how exactly to involve parents in ways that are acceptable to both parents and adolescents and contribute positively to the effectiveness of adolescent health interventions. Adolescents in this study felt that it was important for them to have support from someone who was both a good role model for health behaviours and could take the time to listen to them and understand their hopes and goals. Involving parents might include offering insight into what the intervention is supporting their children to achieve, and communication skills that will encourage their children to reach those goals, similar to those offered to teachers.

Adolescents in this study also spoke about celebrities and other influencers who they followed on social media. These popular personalities create trends that influence young people's choices; they can act as credible aspirational role models (Goodyear, Armour, & Wood, 2018). However, we currently have a poor understanding of how best to harness social media to create health benefit, given that evidence to date has focused mainly on risk and negative outcomes (Shaw, Mitchell, Welch, & Williamson, 2015; Third, Bellerose, Oliveira, Lala, & Theakstone, 2017). Recent evidence suggests that young people already access health-related content on social media in a variety of ways: automatically sourced content, suggested or recommended content, endorsement through likes, peer content and reputable content from official organizations (National Health Service, Government, Sport England), celebrities, athletes, and commercial brands (e.g., Nike) (Goodyear, Armour, & Wood, 2019). Understanding how young people engage with social media is an essential starting point for developing new and more effective health promotion interventions (Third et al., 2017). Future research should explore the opportunities to reduce risk and facilitate the positive impact of social media for young people by (1) understanding the ways in which young people use social media and its functionalities (Goodyear et al., 2018, 2019), (2) co-creating social media campaigns with young people themselves, and (3) engaging with trusted influencers to design and test content about personal experiences and norms around health behaviours (Harris, Atkinson, Mink, & Porcellato, 2020).

Examining the findings of this study alongside existing research evidence strongly indicates that a multi-component intervention for adolescent health should involve schools, engage adolescents in health behaviour change, and facilitate social support from friends and parents. Adolescents in this study wanted support that fit into their lives and was fun. As such, digital platforms and social media may lend themselves to support

adolescents to eat better and be more active, and show potential to be complementary features in complex interventions for health behaviour change (Partridge & Redfern, 2018).

Strengths and limitations

The study reported in this paper adds to the existing literature an in-depth qualitative analysis of adolescent perspectives on the role of health in their lives and identifies a disparity between what adolescents value and what they are required to do for long-term health. A methodological consideration is that the adolescents were interviewed in groups, which may have influenced their responses. Some focus groups were shortened by the dynamics between participants in the discussion, one example being where there was members of different friendship groups or unbalanced gender representation. For example, one group had three boys and only one girl. A different data collection method may have made a difference to the depth of information received from the adolescents, and future studies may wish to interview young people alone or in friendship groups or single gender groups to ensure they feel comfortable sharing their thoughts. Adolescents were willing to share a variety of views within groups and express differences of opinion with each other, indicating that their responses were balanced. Participants were all from one school in the South of England; most were White (representative of locality), and focus groups in other schools or with more diverse groups of adolescents might have produced different findings. The interpretation of the interview data presented in this paper is only one of many possible interpretations. To ensure that the interpretation was a fair representation of interviewees' views and data analysis decisions were transparent, a rigorous process was adopted in which data were double-coded by pairs of the researchers, and disagreements were resolved in team discussions throughout the coding process.

Conclusions

This study suggests that interventions designed to support adolescent health need to focus on aligning health agendas with adolescents' own values and priorities. By doing this, it is possible to fulfil their basic psychological needs of autonomy, competence and relatedness and give rise to more autonomous forms of motivation for eating well and being active. The paper offers practical suggestions for realizing this strategy. There are plans to test the effectiveness of these suggestions in the development of health interventions for adolescents. Developing effective interventions that engage adolescents in eating better and being active will benefit them now, as they enter adulthood, and their future offspring.

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Conflicts of interest

CV has a non-financial research relationship with a food retail company and maintains independence in all evaluation activities. This article, however, is not related to this relationship. The authors declare that there is no conflict of interest.

Author contributions

Sofia Strömmer (Conceptualization; Data curation; Formal analysis; Methodology; Project administration; Resources; Writing – original draft; Writing – review & editing) Sarah Shaw (Data curation; Formal analysis; Writing – review & editing) Sarah Jenner (Formal analysis; Project administration; Writing – review & editing) Christina Vogel (Conceptualization; Supervision; Writing – review & editing) Wendy Lawrence (Conceptualization; Supervision; Writing – review & editing) Kathryn Woods-Townsend (Conceptualization; Funding acquisition; Writing – review & editing) David Farrell (Conceptualization; Funding acquisition; Writing – review & editing) Hazel Inskip (Conceptualization; Funding acquisition; Writing – review & editing) Janis Baird (Conceptualization; Funding acquisition; Writing – review & editing) Leanne Morrison (Conceptualization; Formal analysis; Supervision; Writing – review & editing) Mary Barker (Conceptualization; Formal analysis; Funding acquisition; Resources; Writing – original draft; Writing – review & editing).

Informed consent

Informed consent was obtained from all individual participants included in the study.

Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee (details given in the methods section) and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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