

‘They deserve a treat’: The nature and antecedents of parental licensing surrounding children’s physical activity

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Abstract

Objective: Little is known about parents' compensatory health beliefs (CHBs) surrounding their children's engagement in physical activity. Our aim was to provide evidence regarding the nature of, and factors underpinning, parents' physical activity-related compensatory beliefs for their children.

Design: A qualitative descriptive approach and thematic content analysis was employed.

Setting: Parents were recruited from community sport and physical activity programs.

Participants: 18 parents aged 32-52 years (M age = 40.8 years, SD = 5.4; 6 males; 12 females).

Results: Analyses indicated that parents compensate through 'passive', or 'active' means. Among parents who compensated, most described their provision of 'treat' foods / drinks, and a minority described allowing extended sedentary time to their children. Parents' reasons underpinning these beliefs related to their child's general physical / health status and psychological characteristics, and their own motivation and mood state.

Conclusions: These findings provide the first evidence of unhealthy dietary and sedentary behaviour CHBs that parents may hold regarding their children's involvement in physical activity.

Keywords: licensing; reward; physical activity; exercise; sedentary behaviour

1. Introduction

Overweight and obesity rates in children and adolescents are increasing¹; in Australia, for example, it has been estimated that 25% of those aged 5-17 years are now overweight or obese². The negative effects of children's obesity and overweight are significant, and include a variety of psychosocial problems alongside debilitating physical health consequences³. Indeed, clusters of cardiovascular risk factors have been detected in children as young as five years old⁴. Due to their weight status⁵, overweight and obese children may also experience victimization and isolation by peers and adults⁶, which may lead to undesirable psychological outcomes such as depression and low self-esteem^{7,8}. In light of these barriers, obese children often become unwilling to participate in physical activities in social settings, and this maladaptive cycle of physical inactivity and social isolation is frequently observed to last into adulthood^{8,9}.

Obesity during childhood and adolescence is both preventable and treatable through regular physical activity (PA), a well-balanced diet⁴, and limited sedentary time¹⁰. Therefore, it is important to recognize the significant role that parents play in shaping children's PA, dietary, and sedentary behaviours. Parents are key role models for their children¹¹, and parenting styles, attitudes, and behaviours are central in determining children's PA patterns, eating behaviour, and body weight regulation¹²⁻¹⁴. Parent-child interactions contribute significantly to children's health habits and behaviours¹⁵; for instance, children display similar dietary behaviour to their parents¹⁶, and parental support for PA may contribute significant variance in children's PA levels^{17,18}.

Researchers have, for several decades, examined the psychological (e.g., beliefs, attitudes), environmental (e.g., neighborhood design), and interpersonal (e.g., social support) factors that might contribute to individuals' weight and health status^{19,20}. Recently though, research evidence has emerged regarding one psychological factor correlated with individuals' health and weight status, and that may be relevant for understanding the ways through which parents contribute to their children's health^{21,22}. This psychological factor refers to compensatory health beliefs (CHBs), and it is to one particular type of CHB that we direct our attention to in this study.

Broadly, CHBs represent cognitions that the negative consequences of an unhealthy behaviour can be compensated for through engaging in a healthy behaviour²³, and are different from compensatory health *behaviours*—which represent the compensatory act in which a person engages²⁴. One might hold the belief, for example, that smoking two or three cigarettes each day is 'okay' if one is also regularly physically active. CHBs originate out of an attempt to resolve the cognitive dissonance that arises when short-term goals (e.g., to enjoy hedonically pleasurable but unhealthy food, such as chocolate) conflict with one's long-term interests (e.g., to lose weight or improve one's health)^{25,26}. Accordingly, the activation of CHBs allows individuals to 'indulge' without suffering negative affective or self-perceptual repercussions (e.g., guilt), through a logical reasoning process

relying on the perception that the healthy behaviour ‘neutralises’ the unhealthy one. With particular relevance for the present study, CHBs have, in some instances, been studied under the term of ‘licensing’²⁷. Licensing, while applicable to other domains (e.g., moral licensing)²⁷, is defined in this study as representing the belief that unhealthy behaviours (e.g., prolonged sedentary time, unhealthy food choices) are justified following, or in anticipation of, engagement in a healthy behaviour (e.g., exercise).

It has been reported that over 75% of people endorse some kind of CHB, and that the endorsement of compensatory behaviours may be associated with poorer personal health choices²⁸. For example, Kronick and colleagues²⁹ reported that dieters who scored relatively high on endorsement of CHBs also reported greater caloric intake. In a separate study targeting smoking-specific compensatory health beliefs, the endorsement of smoking-specific CHBs correlated negatively with smokers’ readiness to cease smoking³⁰. Researchers have begun to study the implications of CHBs—there is evidence, for example, indicating that parents’ CHBs predict both intentions and behaviour toward vaccination for their children^{31,32}. However, researchers have yet to study the extent to which parents hold these beliefs regarding their children’s involvement in PA. It is possible, for example, that parents who endorse licensing for their own ‘good’ behaviour (e.g., ‘I plan to exercise, so I can have some chocolate’) might also endorse the same principle for their children (e.g., ‘my child went to swimming, so it’s okay for him/her to have confectionary and/or TV time’). Research on self-licensing has shown that these beliefs may align with poorer health choices and outcomes²⁸. As a result, when parents endorse the notion of rewarding their child with prolonged sedentary time and/or unhealthy food/drinks following, or in advance of exercise, this belief may align with negative health consequences for the child.

Scholars have offered interesting insight into the nature and development of CHBs, and our understanding of these beliefs has improved considerably in recent years. Nevertheless, existing models and definitions are limited in scope to the rationalizing of one’s *own* behavior, and not the behavior of others. Given that potential mechanisms underpinning the development and operation of CHBs may differ between self- or other-focus, we sought to explore our data unguided by existing frameworks and definitions. Importantly, there are several processes through which parental licensing beliefs (regarding their children’s involvement in PA) may be problematic for children. First, it is possible that parents who endorse licensing with unhealthy food/drinks for their children around their PA may over-compensate (e.g., allow greater caloric intake than the caloric expenditure achieved during exercise), which, over time, may lead to overweight or obesity. It has been shown, for instance, that individuals tend to overcompensate in terms of acute calorie intake after exercise³³. Second, even if parents are able to balance the caloric expenditure and intake of their children around exercise (i.e., resulting in no net caloric deficit), there may be negative health outcomes associated with unhealthy

food and drink consumption that cannot be offset by exercise engagement (e.g., cholesterol levels)^{34,35}. Similarly, there may be an independent health risk associated with prolonged sedentary time that is not mitigated by exercise engagement³⁶⁻³⁸. Third, if licensing beliefs are activated in advance of planned exercise, stimulating parents to relax their usual rules regarding unhealthy ‘treats’ or sedentary (e.g., screen) time may result in negative outcomes in instances where the planned activity is not actually performed. There is substantial evidence to indicate that intentions do not always translate into behaviour³⁹, meaning that licensing beliefs in advance of planned exercise may be particularly detrimental in cases when the exercise does not actually take place. Finally, it is possible that parent licensing—when it results in the regular provision of prolonged sedentary time and/or unhealthy food/drinks for children—might contribute to the formation of undesirable (and persistent) lifestyle habits among children. There is substantial evidence that automaticity and behavioural habituation occur with repeated engagement in, or exposure to, a behaviour^{40,41}, resulting in a strengthening of the stimulus-response (or cue and action) pairing. That being the case, it is possible that parent licensing beliefs might help shape unhealthy habits among children, which may ultimately come to be performed in the absence of any exercise stimuli.

To date, an emerging body of literature has begun to highlight the antecedents, nature, prevalence, and consequences of personal (or self-focused) CHBs. At this point, though, despite their significant role in shaping child behaviour, researchers are yet to investigate the extent to which parents may hold or adopt compensatory beliefs regarding their children’s involvement in PA. The aim of this study, therefore, was to explore parents’ perceptions about (a) the presence (or lack thereof) of compensatory beliefs regarding their children’s PA involvement, and (b) the factors that might contribute to the activation of such compensatory beliefs. Based on the goal of exploring and understanding ‘lived experiences’ from the perspective of focal individuals^{42,43}, an interpretivist approach was adopted. The interpretivist paradigm is based on concepts of epistemological constructionism (i.e., that knowledge is subjective) and relative ontology (i.e., that multiple realities exist and can be explored through human interactions)⁴⁴. Accordingly, in this investigation we employed a qualitative descriptive approach through interviews and thematic analysis methods.

2. Methods

2.1 Participants

A sample of 18 parents, with three pairs of parents from a single family unit and all other parents from separate family units (6 males; 12 females; M age = 40.8 years, SD = 5.4; age range 32-52 years; 16 Australians, 1 Dutch, 1 New Zealand; highest level of education achieved: year-10 to post-graduate) were recruited from 4 different community sport or physical activity programs (representing soccer, swimming, and two multi-component physical activity programs). Inclusion

criteria were that (a) parents had a child (or children) between 3-12 years, and (b) all parents provided written consent for the collection of data. No incentives were offered for participation.

2.2 Procedure

Participants were approached and recruited either in-person by the interviewer or through email via their respective physical activity program coordinators. Potential participants were presented with an information sheet that (a) outlined the nature of the study (i.e., aims, participant involvement, benefits, possible risks), (b) emphasized the voluntary nature of participation, (c) clarified participant anonymity in any future presentation of data, (d) notified participants that they were free to withdraw from the study at any time, and (e) extended an invitation for any questions to be asked. The lead author, who was also one of the interviewers, then liaised with each participant to arrange an appropriate date, time, and venue to conduct a semi-structured, face-to-face interview. At the start of all interview sessions, participants were asked to provide consent and reported brief demographic information (e.g., age, gender, educational levels, age of child/children). Interviews were conducted over a four-month period, and data saturation was deemed to be achieved at the point that no novel themes were emerging from further discussions. At the point of saturation, participant recruitment and data collection ceased^{45,46}. Interviews were conducted with a maximum of two participants per interview. Interviews were held at various locations, with consideration given to participant convenience and appropriateness of the venue. In cases when parents had multiple children within the focal age range, they were asked to discuss their perceptions in relation to one of their children, whom parents felt that they would have a 'typical' response to their participation in physical activity.

2.3 Interview Guide

The lead author facilitated the interviews, with assistance from two co-authors where necessary (both of whom worked within exercise psychology and/or paediatric exercise programs and had experience with conducting interviews). Prior to the start of the interviewing process, a semi-structured interview guide was developed to direct discussions for parents, and to ensure consistency across discussions⁴⁷. The interview guide was reviewed by all co-authors to assess the suitability and coverage of interview questions, and consisted of five broad open-ended questions framed to explore parents' perceptions about (a) the presence (or lack thereof) of licensing beliefs regarding their children's PA involvement (e.g., 'Could you describe what you think and do on days that your child has been, or is going to be, physically active, compared to a day where your child is less active?'), and (b) the factors that might contribute to the activation of such licensing beliefs (e.g., 'Could you describe the things you take into consideration when deciding about food/drinks and screen time for your child around his/her physical activity?'). Probing questions were employed when deemed

necessary to clarify the meaning of a given answer, to explore additional concepts surrounding an answer, and gain further explanation regarding a belief^{48,49}. At the end of the discussion, participants were invited to ask any questions about the study, offer any additional information, and provide general feedback. Interview questions can be found in Supplementary materials S1.

2.4 Data Analysis and Validity

Interviews were audio recorded, and the recordings transcribed verbatim. All audio recordings were reviewed twice by the lead author to ensure maximum accuracy of transcription. Notes of emerging themes were recorded separately to aid in the coding process. To maintain anonymity, participants were identified via code numbers (e.g., F01), and all names mentioned in the interviews were also de-identified (e.g., F01's daughter).

Due to the interpretivist nature of the study, an inductive thematic approach was used, with data analysed using computer-assisted and thematic analysis guidelines^{50,51}. Accordingly, upon completion of verbatim transcription, all transcripts were organised and imported into NVivo qualitative data analysis software (QSR International Pty Ltd). Next, the lead author immersed himself in the data by reading through the transcripts several times and making notes of key concepts or ideas. Following this stage, meaning units, representing paragraphs, sentences, and phrases containing contextually-relevant information regarding the nature and antecedents of parents' licensing beliefs for their children, were identified and coded^{50,52}. All codes were then grouped into an initial theme structure, whereby codes that shared the same focus were grouped according to their similarity in content. Themes were subsequently named and defined, and were reviewed and cross-checked against original transcripts to ensure all themes were represented. Following this process, a 'critical friends' approach was used to highlight and challenge any possible weakness in the interpretation of codes and/or assignment to specific themes, and to allow for the exploration of alternative interpretations^{53,54}. The critical friends method involved a reflexive process whereby the first author met with members of the research team to discuss the initial coding, impression of themes, and theme-to-theme relationships. During this reflexive process, the critical friends provided feedback for consideration, challenged assumptions, sought clarification, and provided alternative perspectives on initial coding, without aiming to seek complete consensus. As a result of this process, some themes were redefined, reorganized, merged, or deleted. Based on the approach adopted, the following judgement criteria (characterizing traits⁵⁴) were considered during this process: worthiness of topic (e.g., content reflective of parental licensing beliefs), significant contribution in a practical (i.e., for parents and health practitioners) or conceptual sense (i.e., novel contribution to CHB literature), and meaningful coherence (e.g., capturing the lived experiences of parents and connection of findings with literature)⁴⁹.

3. Results

The interviews generated 156 pages of 12-point, single-spaced text, with duration of interviews ranging from 14.78 minutes to 30.87 minutes, and mean interview duration of 24.76 minutes. Ten parents were interviewed in pairs, and eight parents were interviewed alone. Codes were isolated, and themes created, when parents described their perceptions about (a) the presence (or lack thereof) and nature of licensing beliefs and behaviours regarding children's PA, and (b) the factors that might contribute to the activation of such beliefs or behaviours. In the material that follows, we present themes within these two broad categories.

3.1. Nature of Parents' Compensatory Beliefs

Two distinct themes emerged regarding the nature of parents' compensatory beliefs for their children's PA. The themes reflected (a) incidence of CHBs for children (i.e., parents describing their belief, or not, in compensation, and others' use of compensation), and (b) types of compensation (i.e., the ways in which these beliefs were employed). Themes, sub-themes, and exemplar codes are presented in Table 1.

[Table 1 near here]

3.1.1. Incidence of Compensatory Beliefs

Within this theme, codes emerged reflecting both the endorsement and non-endorsement of compensatory beliefs, as well as examples of other parents' use of compensation. A relatively even proportion of codes emerged that reflected the endorsement versus non-endorsement of compensatory beliefs. With respect to non-endorsement of compensatory beliefs, one parent alluded to a PA 'cutoff' below which point licensing was unlikely ('My son was only active for 14 minutes, so I wouldn't say "yep, you can have a Happy Meal [McDonald's] for lunch"). Parents also mentioned that although they may license themselves around their own participation in PA, they did not endorse the same approach for their children. One parent commented,

I compensate. If I have more than 2 glasses of wine on a Friday night, I have to run an extra kilometre on Saturday morning... but I don't want my two kids growing up with those attitudes towards food and things.

With respect to those parents who did (at least, under some circumstances) endorse licensing around their child's PA, the majority reported licensing with what would typically be considered unhealthy (i.e., hedonically-pleasurable, high-fat, -sugar, or -salt) food rather than with extended sedentary (i.e., screen) time. One parent highlighted, for example, 'he's going to be running around, so I won't worry if I'm giving him chocolate', and another parent commented, 'I know that at school they run around... so if, on occasion, they want to have lollies [confectionary] then I'm like, "okay,

no worries””. Several parents also provided secondary accounts of witnessing other parents licensing with unhealthy food. One parent commented, ‘One of my friends, they have a rule actually, it’s KFC after swimming all the time’. In these examples, the PA was sequenced (temporally) before the act of compensation; however, there were also some instances of the reverse sequencing whereby the licensing act took place ahead of PA (or was used to justify the need for subsequent PA). One parent explained, ‘If you have had party food, or you are going to be having those treat foods, then we would make sure we go for a bike ride around the lake afterwards’. Another parent mentioned, ‘when you add sugar in the mix with food, like an intense amount of sugar, then they need to go and run around after’.

A minority of parents who endorsed licensing with food described that they preferred to do so with the use of (what they considered) ‘healthy’ foods—by allowing their child to consume more than usual around PA, even though the ‘compensation’ might exceed their child’s caloric expenditure. One parent articulated, for example, ‘tomorrow night he will be starving after soccer... so I have made him his favourite, chicken soup. I’ve prepared an extra bowl today already, in preparation for tomorrow’. Another parent mentioned, ‘when he finishes being active, I’m quite happy for him to have as many strawberries as he likes’.

Compared to the use of food, compensation with sedentary time was not commonly described. Some parents did, however, comment on the use of sedentary time in response to PA. One parent highlighted, for example, ‘when she is tired and has had her swimming lesson... our tendency would have been to give her screen time after physical activity’. Another parent commented, ‘if he’s had a big rugby game, and he’s run around, I’ll give him some time in the afternoon, like early afternoon, to have some screen time’.

3.1.2. *Types of Compensation*

We observed two distinct types of compensation, which we termed ‘passive’, and ‘active’ in nature. When describing these instances of compensation, consistent with the evidence presented above, parents again focused primarily on licensing with food, rather than with sedentary time, and any temporal specificity within these codes indicated that the majority of active, and passive compensation occurred after PA.

We used the term *passive compensation* to characterize instances when parents described the use of compensation in response to a request from their child (rather than being initiated by the parent). One parent described, ‘with the TV, my son walked in and said, “Oh, I’ve been playing soccer”, and so my response was “yes, okay okay, I’ll let you watch it”’. Another parent commented, ‘with my son, after he has been to his swim squad, or he has done five hours of swim races, and says, “I’m starving mum... can I have some hot chips [fries]?”, I’ll say “yeah sure!”’.

We also identified a separate (and smaller) group of codes whereby parents compensated without being prompted or requested by the child; we referred to these incidents as acts of *active compensation*. When talking about her daughter, one parent highlighted this type of compensation, with her, it is always like, “you *need* to get in the water [for swimming], so if it is going to help you to get into the water, then maybe we could go do this after”. It could be anything, could be something as simple as lollies [confectionary] at the end.

Another parent described the active compensation offered by his spouse,

one of my sons, I don’t know why, he’s a struggle to get into this multi-sport program... and he really doesn’t want to go... so, [my wife] made a deal, each time he goes, on the way home, they would call through Red Rooster [Australian fast food restaurant] and get some hot chips [fries] or something.

3.2. *Reasons for Compensation*

Three distinct themes emerged in relation to the reasons behind parents’ belief in choosing to compensate or not. These themes were focused broadly around (a) parent considerations of their child’s physical or health status, (b) parent considerations of their child’s psychological characteristics, and (c) parents’ own motivation and/or mood state. Themes and exemplar codes are displayed in Table 2.

[Table 2 near here]

3.2.1. *Children’s Physical and Health Status*

In this theme, parents described that their use of licensing around PA—and their endorsement (or not) of CHBs in this context—was informed by their appraisals about their child’s physical and health status (e.g., their PA levels, diet, fatigue). Parents appeared to be more likely to compensate when they felt that their children had engaged in sufficient (i.e., duration or intensity) PA; one parent commented, for example, ‘if it’s a Saturday morning, and they did two hours of gym... they’re going to be exhausted, so I do let them crash [engage in sedentary time] for the afternoon’. Parents also appeared more likely to endorse unhealthy food rewards when they believed that their child was otherwise ‘healthy’ and regularly physically active. As one parent commented, ‘he will get little food treats, because at the end of the day, we are so active, we always cycle, we always do stuff’.

3.2.2. *Children’s Psychological Characteristics*

Codes in this theme reflected the ways parents appeared to modify their endorsement of CHBs on the basis of their child’s motivation for, and mood surrounding, the PA in question, or in response to other aspects of their child’s personality. With respect to motivation, several parents

described that ‘rewarding’ their child was simply unnecessary because their child enjoyed the PA in question. As one parent commented, ‘he doesn’t need much reward. He loves sports, and it’s very easy to get him to do sports... so he doesn’t really need bribery’. On the reverse, some parents endorsed CHBs because they felt that a ‘treat’ or ‘bribe’ was required in order to motivate their child to participate in PA. One parent explained, ‘The thing is, he doesn’t do activities. He comes to this program, and is just being silly, he doesn’t do anything... so I have to bribe him to do the activities’. Another parent commented on the use of unhealthy treats (i.e., confectionary), ‘In the winter, it’s cold. It’s not very warm, and she just doesn’t want to get in the pool. And, we’re paying for it, so it’s like, “you are going for a swim!”. So we will tend to bribe her’.

Aside from their child’s motivation surrounding PA, some parents also appeared to take into account aspects of their child’s general nature or personality when considering compensatory beliefs. On this issue, one parent commented, ‘He’s very good at manipulating, if he knows he’s getting a treat for doing football, he’ll start to manipulate you... so, we’re very careful not to do that’. Taken together, codes in this theme appeared to indicate that CHBs may be most likely when parents felt that these rewards were required for a motivational purpose, and were less likely when children were (a) already happy to participate in the PA, or (b) likely to use the reward for manipulative purposes in the future.

3.2.3. Parent’s Motivation and Mood State

In this theme, parents described that their compensatory beliefs were dependent, at times, upon factors associated with their own motivation or mood state. Parents noted, for example, that they were more likely to endorse compensation with unhealthy treats when they were pleased with their child’s accomplishment in PA. For example, one parent noted, ‘Compensating probably is something we do for sport... because it’s almost like we are in a good mood with him because he has done something well’. Parents also described being more likely to compensate with unhealthy food not only when they took pleasure from their child’s PA involvement, but also when they took pleasure from consuming the licensed ‘treats’ together. One parent commented, for instance, ‘I do like to share it [the treat] with her, it’s something that I would also want. I like cooking, I like baking, so I’ll make cake and biscuits and things for us’.

Parents also described endorsing compensatory beliefs in cases when they (personally) felt that the PA was of practical value to their child; one parent described, ‘we are pushing to do what needs to be done with swimming. So, that’s where the bribe comes into it’. In other cases, a financial investment appeared to heighten parents’ motivation to ensure their child participated in the PA program, which, in some cases, appeared to stimulate compensation. On this issue, one parent commented, ‘we tend to bribe them... it’s to make them go in the pool because we have already paid

for it!'. Aside from compensating as a result of these considerations (e.g., due to pleasure at one's child's achievements, or the practical or financial value of PA), parents also cited convenience as a factor that shaped their compensatory beliefs. One parent highlighted the convenience of having unhealthy snacks nearby the PA facility, commenting, 'we'll buy him a packet of sweet biscuits after he's been swimming, down at the canteen, just down there, and that's a bit of a reward for him' (for another example of 'convenience', see Table 2).

4. Discussion

There is a developing literature that documents the nature, antecedents, and health implications associated with compensatory health beliefs. Researchers have demonstrated the presence of these CHBs with respect to PA participation—most notably in relation to the licensing of unhealthy foods and drinks around exercise⁵⁵—and we are also beginning to learn about the associated negative health consequences. To date though, scholarly attention in this area has been directed toward understanding the way in which individuals (do or do not) justify *their own* health decisions around PA^{21,29}. Although there is evidence indicating a negative relationship between adolescents' own CHBs and intentions towards PA²¹, it is surprising, given the critical role parents play in shaping their children's dietary and sedentary behaviours around PA, that there is little evidence regarding parents' compensatory beliefs surrounding their child's involvement in PA. We sought to address this research gap by eliciting information from parents as to (a) the presence (or lack thereof) of licensing beliefs regarding their children's PA involvement, and (b) the factors that might contribute to the activation of such compensatory beliefs. In doing so, we sought to not only allow parents to discuss the licensing of unhealthy foods or drinks, but also to consider whether they provided extended sedentary (screen) time—another factor that is independently important for children's health aside from PA and dietary factors¹⁰.

Our analyses revealed that, similar to existing perspectives on CHBs²⁶, parents did engage in experience motivational conflict, which resulted in the formation of compensatory beliefs around their child's PA participation. More specifically, although some parents appeared not to endorse such beliefs, the most common form of compensation that we observed reflected the provision of (primarily) unhealthy 'treat' foods, or a quantity of 'healthy' foods that exceeded the caloric needs of the child, following a child's involvement in PA. Parents appeared to provide these treats in different forms—either with (passive compensation) or without (active compensation) an explicit request from their child, and typically after the child's involvement in PA. These findings are interesting from a conceptual perspective inasmuch as they represent the first documented evidence of the different types of compensatory beliefs parents may hold around their child's PA, and from a practical perspective insofar as they may carry important health implications for children and families. In addition, we also documented some of the reasons behind parents' compensatory beliefs. Parents

cited a range of child- (e.g., physical and psychological considerations) and self-focused (e.g., motivation) reasons for endorsing compensation, and in doing so, provided evidence to support previous findings on factors underpinning people's self-licensing decisions and actions. Moshier et al.²⁸, for example, presented evidence that individuals tend to license with food around PA due to a desire for reward, recovery, or relief (see, for example, the child physical and psychological factors that were cited as reasons for parent compensation in this study). Given that we provide some of the first evidence regarding the nature and antecedents of parent compensatory beliefs around children's PA, in the material that follows we reflect upon what we consider to be some of the more noteworthy conclusions—and associated future research directions—stemming from these findings.

First, we found it noteworthy that some parents described that they did not endorse licensing beliefs around their child's PA involvement. It is entirely possible that these parents did indeed not modify their dietary and sedentary behaviour practices in response to their child's involvement in PA. Our findings also point to another potential explanation, however, that should be examined further in future work. Specifically, although some parents noted that they did not endorse licensing beliefs, the vast majority of the parents interviewed in this study provided several accounts of *other* parents engaging in licensing with unhealthy food or drinks. This potential willingness to share licensing examples from other families, but not one's own family, emphasizes the sensitive nature of this topic, but might also be due (at least in part) to parents not being explicitly aware of their own behaviour around this issue, or perhaps parents wanted to portray a socially desirable (e.g., healthy) image of their family. In addition, despite our attempt to focus on licensing from both a dietary (e.g., unhealthy treats) and sedentary behaviour (i.e., screen time) perspective, parents focused very little attention on the use of extended screen time for their children around PA. In much the same way that parents may not always be explicitly aware of their dietary decisions, allowing one's child to relax in front of a screen for longer than usual may not be particularly memorable or accessible for parents when attempting to recall incidents (particularly in comparison to, for example, driving through a fast food restaurant on the way home from PA). With this issue in mind, there may be interesting methodological approaches that could be used in the future to allow for greater insight into these licensing reactions. One such approach for addressing this issue might be to develop or use nonconscious (e.g., implicit attitude²²) tests for parents to examine their implicit associations⁵⁶ between children's PA and licensing (both dietary and sedentary) responses. In addition, it might also be valuable to employ repeated assessment protocols (e.g., ecological momentary assessment⁵⁷) that enable parents to provide insight into the ways in which, for example, children's PA and parent decisions around screen time are linked.

Second, we were intrigued by some evidence of a perceptual 'cutoff' that some parents appeared to employ in order to gauge the acceptability of licensing with unhealthy food. As might be expected,

we observed that parents were more likely to endorse compensatory beliefs in the form of unhealthy treats when they felt that their child had ‘earned’ such foods. In the future, experimental research may be suitable to examine the exercise characteristics and perceptual factors that contribute to the setting of any licensing cutoff. There exists evidence to suggest that exercise modalities can impact adults’ own compensatory decisions⁵⁸, and it would be interesting, for example, to examine how different exercise modalities (e.g., duration, intensity) might play into parents’ compensatory decisions for their children. It would be fascinating to also identify whether appraisals about psychological factors might also shape the point at which any cutoff is set. Researchers might examine, for instance, whether a given ‘dose’ of PA for children is more likely to result in parent compensation (with unhealthy treat food) when the child is assumed to have been highly anxious or unmotivated (relative to low anxiety or high motivation) regarding the performance of the activity. Similarly, large-scale observational studies might also provide insight into the variation in cutoffs adopted by different parents / families, indicating whether some parents require only minimal PA with limited energy expenditure to ‘qualify’ for compensation, while others require relatively more sustained or intense activity. Such work could also shed light on the potential moderators of such variation (e.g., parent PA and fitness levels, parent dietary behaviour, child weight).

Third, although active compensation can lead to an increase in physical activity engagement, incentivizing engagement through the promise of unhealthy food (prior to participation in particular), may be counterproductive. Especially in instances when external tangible rewards are perceived as *controlling* in nature, these strategies can undermine children’s intrinsic motivation for PA (e.g., enjoyment of PA⁵⁹). Indeed, many parents cited that when their child highly enjoyed his/her PA participation, there was little need to offer rewards in the form of unhealthy snacks or extended screen time. As a result, it is possible that the use of these ‘bribes’ (as many parents referred to them) may create a negative motivational ‘spiral’ insofar as children strive to reach PA achievements predominantly for the treat or reward that is on offer, rather than for the enjoyment or value associated with that achievement.

Finally, although most licensing acts took place after the PA bout, we did observe some evidence that licensing may occur in advance of planned PA. This particular sequencing may have important practical and psychological implications, and warrants further attention. From a practical perspective, in instances when PA is subsequently performed as planned, there is likely little difference in one’s overall net position regardless of whether licensing occurs before or after PA. In light of the well-established intention-behaviour gap, though³⁹, it is possible that the intended PA may not be carried out. In such instances, the provision of unhealthy treats in advance of a planned PA session *that does not actually eventuate* may be problematic from a health perspective (if this pattern is repeated often). Meanwhile, it would be interesting to study whether the provision of unhealthy treats consistently in

advance of PA might change children's views on (i.e., motives for) their participation in PA. To illustrate, consider the scenario where parents provide unhealthy food relatively frequently in advance of planned PA, and begin to 'pair' the provision of such food with the need to subsequently be active. In such a scenario, the way parents communicate to their child about PA may be less than optimal, and might be accompanied by messages that are perceived by children as guilt-inducing or coercive (e.g., 'we all treated ourselves to that cake at lunchtime, but now we *have to* get out and be active to work it off'). It would be interesting to study whether such a licensing arrangement—if it is present in any households—could be associated with heightened introjection (e.g., guilt) and external regulation for PA among children.

The findings of this investigation provide an interesting first step into studying the nature and psychological underpinnings of parent compensatory beliefs surrounding their children's PA participation. The contributions of the study, though, should be considered alongside important limitations. First, our design precluded drawing robust conclusions relating to the ways in which cultural, social desirability, personality, and demographic factors (e.g., nationality, child age, number of children, marital and socioeconomic status) might moderate parents' compensatory beliefs; future efforts to consider such questions appear worthwhile. As one example, it would be interesting—given that we recruited parents of children ranging in age from 3 to 12 years—to use a quantitative approach to test how child age might influence parents' compensatory beliefs. In addition, we did not aim to examine the health or behavioural outcomes (for child or parent) associated with these beliefs. As such, although we presented evidence for the nature and antecedents of parent compensation, we cannot yet be confident that these beliefs will have similar effects to those that have been begun to emerge in the research on personal or self-licensing among older cohorts^{60,61}. We encourage researchers to begin to chart the correlates of parent compensatory beliefs, and in doing so, examine the extent to which children develop perceptions about licensing that may mirror those held and displayed by their parents.

5. Conclusions

In closing, we feel it is important to qualify briefly the evidence presented and discussed above. Our treatment of parents' compensatory beliefs surrounding their children's PA is not intended to appear critical of parents and their child-rearing practices. Indeed, all of the parents who participated in this study should be recognized for the substantial time and effort devoted to enrolling their children in, and transporting them to and from, various PA programs. Moreover, we are not seeking to advocate that the provision of (often highly sought after) foods, drinks, and screen time to children should be eliminated altogether from a child's development; there is little doubt that these licensing behaviours, in moderation, are typically enjoyable for children (and likely, parents too), and help

contribute to the richness of family life. However, the literature that has developed regarding CHBs among older cohorts does indicate that there may be adverse health consequences associated with these patterns of thought and behaviour⁶¹, and so our hope is simply that these findings will provide the impetus for increased research attention to be directed toward this unique and interesting form of compensation. From a practical perspective, these findings may help us better understand, and better prevent, the unhealthy beliefs and habits that may form for parents around their children's involvement in physical activity.

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Table 1. Themes, Sub-themes, and Example Codes Reflecting the Nature of Parents' Compensatory Beliefs for Their Children

Theme	Sub-theme	Example meaning unit
Incidence of compensatory beliefs	No endorsement of compensatory beliefs	<p>"I don't want her to associate physical activity with food... because I used to do that, and it's not good"</p> <p>"I don't think there's a correlation for me between what they have done physically and what we give them to eat"</p>
	Endorsement of compensatory beliefs	<p>"He does get hungry from sport, but he can't have anything sugary. He still has to eat his proper food, but just more of it."</p> <p>"I have always sort of said [to child], 'you can have an ice cream after swimming'"</p> <p>"At the park, right after swimming, I'm like, 'yay, help yourself!' . Some of the kids have amazing stuff... ice cream, chips [fries], drinks"</p> <p>"If I don't go in and say, 'Right, turn it off' [television], he would sit there. So, you have to find something else to do"</p> <p>"After a party, we will definitely go for a bike ride because I just want to burn off all that sugar [party treats]"</p>
Types of compensation	Passive compensation	<p>"If she came back from running around at netball and said, 'I really ran a lot, I would love a glass of cordial', then I'd think, 'yeah, sure, no worries'"</p> <p>"If he asked for something as a treat after soccer, we'd be more inclined to say yes"</p>
	Active compensation	<p>"The bakery treat after swimming is a choice that my husband makes, not my son asking"</p> <p>"From us it was, 'you need to do this swimming and then I'm happy to treat you afterwards, because I need to encourage you'"</p>

Table 2. Themes and Example Codes regarding Parents' Reasons for Compensatory Beliefs

Theme	Example meaning unit
Children's physical and health status	<p>"He just burned off all of that energy at swimming... so I think, 'yeah, you can have a treat'"</p> <p>"There is no treat after football... but there is more so with swimming because we know he is hungry afterwards"</p> <p>"She does not have an off-switch for food. So, I have to be really careful, from day 1, with her. So, ever since I realised that, I can't reward her with going to the bakery after a run"</p>
Children's psychological characteristics	<p>"The way of getting them to do sport when they don't want to do it is a [food] bribe of some sort"</p> <p>"For us, the way of getting him to swimming was that he can have an ice cream after"</p> <p>"She can swim properly now, like she can do laps at the pool. While she's doing that well, the bribes aren't needed"</p> <p>"With that one [child], we wouldn't have to bribe him... because he is happy to go and participate in soccer anyway"</p>
Parent's motivation and mood state	<p>"Sometimes we will tend to bribe them with food... but it's not for the reason to make them exercise or anything like that. It's just to make them go [swimming] because we have already paid for it"</p> <p>"When physical activity occurs on a weekend, it gets really hard because you tend to go, 'tick, tick, tick, we've done all the things we need to do and now it's relax time', so we say, 'let's go to the bakery, and you can have a treat while I order a coffee'"</p>

Supplementary 1. Interview Questions

Introduction

Today we will like to hear your experience and opinion on the matter of compensatory health belief. Compensatory Health Belief is the belief that an unhealthy behaviour can be compensated by a healthy behaviour. Research has shown that 3 in 4 of us often compensate ourselves with food in response to exercise, either before or after exercise. However, we are interested in your compensatory belief for your children.

Questions...

1. How do you feel about parents rewarding their child for being active or before going to be active?
 - Do you endorse the idea of rewarding?
 - What is the reason you do/don't?

- 1b. (If they endorse) What are things that parents can reward their children with?
 - Any reason for selecting these things?
 - How about the use of snacks, such as sweets and chips, and sedentary activity, such as watch TV or play iPad?

For the purpose of our research, which of your child will you like to refer to?

- Age
- Daughter or Son

2. In reference to your child, have you rewarded him or her for being active or before he or she is going to be active?
 - When was the last time you reward your child before he/she was active or for being active?
 - What was the reason you reward your child, such as for recovery/to motivate/encourage?
 - What did you reward your child with?
 - What was the reason you pick that "thing" as a reward?

3. Is it common that you reward your child before or after his or her exercise?
 - If yes, what do you usually reward him or her with?
 - (if there is something specific) What is the reason for the use of that "thing" as a reward?
 - How often do you offer reward?
 - Do you think the use of reward has any effect on your child, such as their involvement in sports?

4. Has your child requested for rewards after you started to use it before or after exercise?

5. What do you think will happen if you were to stop rewarding your child?