



## Article

# Parent Perspectives on Implementing Health Behavior Recommendations for Their Infants

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Received: 29 September 2020; Accepted: 7 December 2020; Published: 10 December 2020



**Abstract:** Little is known about the influence of parental values, preferences, and child achievement and health expectations on parent choices for their child's rearing practices. We aimed to explore parents' perceptions of immediate and future impact of health behavior decisions for their child and to understand factors associated with child-specific health behavior decisions. This pilot study included interviews with 25 parents of 9–24-month-old children attending well child care visits at a primary care practice. Questions assessed parental perceptions and attitudes in making health behavior changes now for their child's future health. Themes suggest parents perceive many factors are involved, and intricately connected, in health behavior decision-making. Although almost all parents believed there is a connection between the foods they feed their child and achieving their goals, only half are willing to make a change. In addition, parents failed to consider the impact of the health practices they currently have with their children to influence the future acquisition of life skills and of healthy versus obesogenic behaviors. Our results add to the understanding of the process of health behavior change through anticipatory guidance. Study findings will be used to guide next steps towards refining our understanding of health and lifestyle change decisions made by parents.

**Keywords:** infants; parents; health promotion; health behavior change

## 1. Introduction

While a great proportion of adults in the United States report they are not meeting national recommendations on healthy lifestyle [1–3], at a given time, 51% of adults with overweight or obesity are trying to lose weight. Parenting styles and attitudes towards eating habits and physical activity lay the foundation for children's health-related behaviors [4–6]. Efforts to promote changes to healthier behaviors are usually clinician-driven, require time, effort, and often target adults or school-aged children. Very important target groups to focus health promotion efforts, are those expecting a baby and entering parenthood, as their health and lifestyle will influence their child's health and development throughout the life course and they are expected to have frequent contact with their own and their child's healthcare providers at this life stage [7–9].

Approximately one in ten children under 24 months had a weight-for-length  $\geq 95$ th percentile in 2011–2012 [10], it is possible that these children exceeded the 95th percentile of an earlier reference sample. One study suggests that this prevalence has remained fairly stable during the last two decades [11]. The prevalence of overweight and obesity among children two years of age and older

has increased over the past three decades [12]. Obesity that begins early in childhood tends to continue into adulthood [13–15]. While there are numerous proposed strategies for obesity prevention, treatment remains difficult as intervention trials report varying degrees of positive outcomes on weight loss and metabolic profile improvements [16].

Current periodic well child care (WCC) visits provide opportunities for regular contacts with parents of young children. It has been estimated that in the U.S., 37% to 67% of children 15 months to 21 years attend the suggested number of well child visits [17,18]. In a study by Freed et al., it was found that 77% of children receive at least 5 well child visits before age two years [17]. Promotion of a healthy lifestyle is an essential component of these visits including anticipatory guidance about feeding, nutrition, and other developmental aspects of children [19]. These encounters may additionally influence parental health behaviors and prevent future obesogenic lifestyle. However, Edvardsson et al. found that health promotion strategies in pregnancy and early parenthood (directed toward the fetus/child) did not seem to influence parents to make lifestyle change to promote their own health [5]. Motivating people to adopt healthier dietary and physical activity behaviors is challenging [4]. Theories and models for understanding how change occurs have been developed [20,21], but sustainable, effective interventions that can easily be applied in pediatric primary care are lacking. Parental health and perceptions, life experiences, and life circumstances may also influence adoption of suggested health behaviors for child overweight prevention [22].

In behavioral economics theory, utilities are cardinal values that reflect an individual's preferences for different health outcomes. Time trade-off is a direct valuation technique that requires participants to make some sort of trade-off between different health states “what am I willing to do now to gain a benefit later on” [23,24]. Utility measurement consists of two main components: (1) the definition and description of a set of health states of interest; and (2) the valuation of those health states (that is, measurement of the strength of preference for each health state) [25,26]. It is important to understand the health utilities of parents for their infants, as well as the expected health utilities for their children as they grow. The understanding of parent health utilities may be a key step in the strategy aimed at parents as the directors of child health behavior change. Several studies have previously addressed various aspects of obesity prevention starting in infancy [27–31], but none have specifically given attention to parental values, preferences, and outcome expectation in the process of health promotion and lifestyle change. Our study aimed to explore parents' perceptions of immediate and future impact of their own health-related behaviors for their infants/toddlers on child life outcomes, including health, and to gain insight on factors are important to parents when making child-specific health behavior decisions.

## 2. Experimental Section

This qualitative study utilized behavioral economics theory to guide analytic strategies applied to data from semi-structured interviews. Interviewees were selected from parents/guardians/legal representatives (henceforth parents) of children attending well child care (WCC) visits in an academic primary care pediatric practice in at a tertiary care hospital. Parents were invited to participate in an in-depth interview immediately after their child's WCC visit. Interviews were conducted by trained research personnel from June to November 2016. This study was approved on 03/29/2016 by the Lurie Children's Hospital of Chicago, institutional review board (#2016-374).

### 2.1. Participant Recruitment and Consent

Parents of children scheduled for WCC visits between 9 and 24 months were invited to participate. For children of this age, WCC visits are recommended at 9, 12, 18, and 24 months. Eligible study participants were parents of age-appropriate children, who were comfortable speaking English and were willing to meet before or after a clinic visit (or schedule another time for study participation). All consenting parents completed a Parent Survey, followed by the semi-structured, one-on-one

interview. If more than one parent attended the child visit, information was collected from only one parent. Recorded interviews lasted from 7 to 23 min.

## 2.2. Parent Survey

The self-administered 13-question survey gathered information on child and parent/child demographics (child age group, sex, race/ethnicity, health insurance coverage; parent education level and marital status); parent's opinion of their own weight status (underweight, a little underweight, about the right weight, a little overweight, overweight); parent-perceived stress level was assessed using a 10-point Likert scale question adapted from a comprehensive perceived stress scale. A set of seven new questions assessed feeding practices and perceptions of feeding practices for the child using a 5-point Likert scale (Supplementary material).

## 2.3. Participant Interview and Interviewer Training

The semi-structured interview guide included 6 open-ended questions that assessed parent perceptions, attitudes, and circumstances that influence making health behavior decisions for their child. The questions specifically assessed the following 4 categories: (1) parent expectations/hopes for their child as a toddler/preschooler and in the future as an adult; (2) parent reported actions to impact their child health and parent perception of the relation between child health and achieving the goals they have for their child; (3) circumstances that influence making health behavior decisions for their child; and (4) how much parent goals for the child influence current parent feeding behaviors/practices and the perception of need to change current behaviors/practices to achieve parent goals for their young child. Interviews were recorded, and research assistants (RAs) also took notes during the interviews. RAs were trained by observing 2 interviews completed by an experienced interviewer/trainer, and then leading 2 interviews with a trainer present.

## 2.4. Data Analysis

### 2.4.1. Participant Survey

Frequencies are reported to describe the sample. Chi square and Fisher's exact tests were used. The stress level responses were grouped for analysis as 1–3 = no/low stress, 4–7 = moderate stress, and 8–10 = high stress. The frequency of responses of parent feeding practices, and perceptions of feeding practices on child's health were used to create response groups (strongly agree/agree/neutral vs. strongly disagree/disagree) and compared to the parent reported perceived stress level. Analyses were conducted using IBM SPSS Statistics (Version 21.0, IBM Corp., Armonk, NY, USA, 2012).

### 2.4.2. Participant Interview

Audio recordings of interviews were transcribed verbatim. Based on the interview protocol, two study team members (KN, AA) created a list of codes. A team of five coders completed the coding process. Each coder separately read through each interview and coded the interviews with the code list initially created which identified themes in the data. After the first round of coding the code list was expanded based on feedback from coders. Using the modified code list, coders read through the transcripts a second time to identify any sub-codes under the list of codes included in Table 1. Coded segments from interview transcripts were compiled for each coder in a Microsoft Excel database to assess coding agreement. The inter-rater reliability of the 5 coders was 92%. The coders discussed any differences in coding and came to a consensus. Interview transcript codes and sub-codes are described in Table 1.

**Table 1.** Theme/Code Definitions.

| Theme (Code)      | Definition                                                                                                                                                                                             | Sub-Code                                                                  |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| Emotional         | Feelings or emotions about self and/or others, attitudes and behaviors towards others                                                                                                                  | confidence, self-esteem, happiness, friendliness,                         |
| Intellectual      | Intellect (cognitive development-based, school-based, career-based, development etc.). Any reference to education and schooling or developmental knowledge, and behaviors.                             | education, aspirations, career, age-appropriate knowledge and/or behavior |
| Social            | Communicating and/or establishing and maintaining relationships with others (friendships, classmates, family, etc.).                                                                                   | interactions, relationships, friendships, family, communication           |
| Physical Activity | Any mention of bodily movement, participation in organized or non-organized sports, etc., attitude and behaviors relating to physical activity, knowledge of effects of physical activity              | sport, physical activity, body movement                                   |
| Wellness          | Knowledge, attitudes and behavior related to general wellness. This also includes any reference to following medical advice, i.e., immunization schedule, regulation of food intake, screen time, etc. | setting food limits, immunizations, screen time                           |
| Nutrition         | Knowledge, attitude and behavior referring to eating, feeding, portion sizes, nutrition, healthy growth                                                                                                | fruits/veggie consumption, healthy eating, unhealthy eating               |

The study team members proceeded to thematically analyze coded segments looking for patterns within and between interviews. The team also explored the effect of demographic characteristics (Table 2) such as child race/ethnicity, age group, gender, parent education, insurance status and marital status on the codes and themes from the interview responses. Marital status was the only demographic characteristic for which its lack of homogeneity facilitated theme/code comparison across the sample. Therefore, the interviews were then grouped by marital status, (single versus partnered), to examine coding frequency and themes between these groups. Between group differences with a code frequency that differed by  $\geq 80\%$  were further analyzed.

**Table 2.** Participant Demographics.

| Characteristics                             | N  | (%)   |
|---------------------------------------------|----|-------|
| <b>Parent Marital Status</b>                |    |       |
| Single parent                               | 13 | (52%) |
| Two parent household                        | 12 | (48%) |
| <b>Education Level</b>                      |    |       |
| Some college/College graduate/Post-graduate | 19 | (71%) |
| High school or less                         | 6  | (29%) |
| <b>Child Sex</b>                            |    |       |
| Male                                        | 14 | (44%) |
| Female                                      | 11 | (56%) |
| <b>Insurance</b>                            |    |       |
| Public                                      | 21 | (84%) |
| Private insurance                           | 4  | (16%) |
| <b>Age Group</b>                            |    |       |
| 6–11 months                                 | 4  | (16%) |
| 12 months–2 years                           | 21 | (84%) |
| <b>Race/ethnicity</b>                       |    |       |
| Hispanic                                    | 15 | (60%) |
| black                                       | 7  | (28%) |
| white                                       | 2  | (8%)  |
| Asian                                       | 1  | (4%)  |

### 3. Results

#### 3.1. Parent Survey

A total of 25/70 parents, 36% of those approached, consented to complete the Parent Survey and participate in the interview. Parent and child demographic characteristics are described in Table 2. About half (52%) of the participating parents were part of two-parent homes. Almost all (92%) believed their child was “about the right weight;” most parents (76%) perceived themselves as “normal” or “a little underweight;” about half of the parents (56%) reported having “no or low stress.” Frequencies of reported parent agreement with feeding behaviors and perception of impact of those behaviors is shown in Table 3. Most or almost all parents agree/strongly agree/neutral that the foods they feed their child can affect the child learning, and that they feed their child the way they do so their child can have better health in the future. There were no statistically significant differences when comparing the three groups of parent perceived level of stress to the grouped responses on feeding practices, and perceptions of feeding practices and health; therefore, the data are not shown.

**Table 3.** Frequency of Participant Agreement to Feeding Behaviors.

| Statement                                                                                                   | Agree/Strongly Agree/Neutral |      | Disagree Strongly Disagree |     |
|-------------------------------------------------------------------------------------------------------------|------------------------------|------|----------------------------|-----|
|                                                                                                             | N                            | %    | N                          | %   |
| I sometimes feed my child because I feel I can calm him/her down faster.                                    | 13                           | 52%  | 12                         | 48% |
| I feed my child the way I do because [I] feel that he/she can have much better health when he/she is older. | 23                           | 92%  | 2                          | 8%  |
| I feel that the foods I feed my child now will help him/her be stronger.                                    | 21                           | 84%  | 4                          | 16% |
| I believe that the foods I feed my child can affect how he/she will learn.                                  | 25                           | 100% | -                          | -   |
| I think the foods/drinks I give my child will affect the weight they will be at school entry.               | 18                           | 72%  | 7                          | 28% |
| I think the foods/drinks I give my child will affect how tall they will be at school entry.                 | 19                           | 76%  | 6                          | 24% |
| Sometimes parents feed their child to make the parent’s life easier.                                        | 10                           | 40%  | 15                         | 60% |

#### 3.2. Parent Interview Results

##### 3.2.1. Parental Expectations and Hopes

The most common themes found were those expressing expectations and hopes for their child to achieve or excel on cognitive milestones and academic performance in the preschool years and to become adults that are formally educated, skilled, capable or knowledgeable in many different areas so they can enjoy life. Several subjects expressed hopes related to their child achieving good social interactions and relationships. Responses also indicated hopes to have a young adult that embraces discipline and self-control. Less frequently mentioned were responses focused on the child being physically active or achieving physical-activity-related goals (active play with peers) during the preschool years.

Coders noted a difference in *Parental Expectations and Hopes* expressed between the *single* versus *partnered parent* groups. *Single parents* had more responses on goals around nutrition and feeding ideals for the child in preschool age, for example “Right. In a few years I would like for him to maintain how he has been eating now. He likes fruits and vegetables. I would like for him to maintain the healthy appetite as well.” While *Partnered parents* reported goals around good nutrition and eating habits for their child when

reaching adult age, for example *“I hope that her health is good and continues to take care of herself from what I’m teaching her now. To what she eats, how much she eats and just to take care of herself.”*

### 3.2.2. Perceived Role of Child Health on Achieving Expectations

About a third of the responses were related to preserving current physical health to prevent health issues in the future. The responses mostly focused on keeping a healthy body to enable healthy physical and mental (intellectual/cognitive) development, *“I think there is a huge connection and, so far we pay attention more to physical health because we believe that if he doesn’t have a healthy body he won’t be able to develop mental health in the future.”*

We observed a difference in this theme area between ideas expressed by the *single* versus *partnered* parent’s groups. *Single* parents rarely responded on current good health and future qualities for their child, one expressed conservative expectations; furthermore, one parent responded with a comment about negative consequences: *“Be on top of his health because if he doesn’t take care of himself a lot of things can go wrong.”* *Partnered* parents clearly made the connection between keeping child’s current overall good health or avoiding illness and achieving intellectual qualities they wanted to see in their child as a preschooler or as an adult. They very frequently responded on how current child health would impact things such as growing healthy, challenging themselves, pursuing a career and completing college education *“yeah it plays a huge part because it starts while they are young it is kind of harder to grasp [it later]. But if you train them while they are young, you know stay healthy, lay off the fried foods and all of the heavy greasy food and hot stuff and more fresh vegetables and taking their vitamin...”*.

### 3.2.3. Parent Influence on Child Health

Almost all the responses indicated parental understanding that good nutrition, healthy eating, and encouraging physical activities can have a positive influence on the health of their child *“Fruits they help her immune system to strengthen it and keep her from getting sick. Vegetables help her both physically and mentally. Gives her a lot of protein and vitamins to help her out . . .”* Parental actions to influence child health through promoting physical activity practices were mentioned less often than nutritional and feeding practices. A few parents indicated that part of the child’s wellness is related to the parent being a good role model.

Responses in this theme area again differed by parental marital status group. A few *Single* parent group subjects mentioned the modeling of healthy behaviors to influence health, *“I would say as a parent I’ll be an example and find positive ways to encourage him to meet his goals. As a parent I feel like we have to set an example in order for them to learn if we do not set the example how they would know what is better”*. Individuals in the *Partnered* parents group described prioritizing wellness preservation by listening to doctor advice and attending preventive visits and their own childhood and life experiences in shaping what they do for their child. *“You know myself growing up, I mean yeah I did have video games and things like that, but majority of my day was school obviously and then come from school and play outside until I went home so I want her to grow up like that. I want her to explore the outdoors and things like that”*.

### 3.2.4. Parental Reasons for Child Feeding Practices

There was wide variability in the responses for this theme. The various responses included feeding their child in response to hunger, economic circumstances, and trying to provide balance with nutritional needs. Most parents mentioned that their own childhood and life experiences influence feeding practices for their child, *“I was having the challenge of being overweight when I was growing up and once I became an adult I set myself a goal of losing weight, which I did. I lost over 100 pounds, by myself. So, I think with my own challenge of being obese and I know those restaurants don’t offer good [food], I mean its food but it’s not the best foods to choose from. So, I just try to avoid it, so I don’t want him for me to take him to McDonalds every time he is hungry.”* *Single* and *partnered* parents had similar responses.

### 3.2.5. Relating Parent Goals for their Child in the Future and Current Feeding Child Practices

Most subjects indicated that they understand how good nutritional habits and healthy eating can have a positive influence on current child health. As an example, *“If you eat healthy then you got more energy and more focus, you know, you are able to do more when you are eating healthier rather than junk food.”* However, only one subject indicated a connection between current feeding practices for the child and the likelihood to achieve the goals parents have for him/her in the future. *“I can clearly see a strong connection. As we described earlier, we first help him to develop a healthy body, so we try to give him a balanced diet. Based on scientific knowledge we have we give a lot of exercise, a balanced exercise and calories so he can grow more, in a more healthy way. Because we want him to be first of all physically healthy and then intellectually healthy, so we potentially give him a lot of high protein kind of foods.”* Single and partnered parents had similar responses.

### 3.2.6. Perceptions of the Need to Change Current Child Feeding to Achieve Parent Goals

About half of the subjects indicated that they did not perceive a need to make change in how they feed their child. This group of parents felt that they understood nutrition and feeding practices that would lead to good health for their child now and in the near future. The other half of parents indicated willingness to make changes in current child feeding practices. These changes included adding more fruits/vegetables, decreasing fast food, or adding vitamin supplements. However, some of the subjects indicated barriers to implement changes, *“I would love to completely omit out fast food. But that’s almost impossible when you’re a working parent you know, and you have fluctuating schedules like that’s the only thing. We can just cut down on fast food.”* Only single parents addressed the role of the parent on influencing the habits and behaviors of the child, indicating that they needed to motivate the child and to be a good role model for their child, *“I would say like being an example. Like running with him or walking with him.”*

Furthermore, both single and partnered parents discussed having to negotiate or comply parenting with the other parents’ views. A single parent insists, *“Me and [his] father, . . . I didn’t want any conflict, so we compromised, and he does eat meat he just doesn’t eat pork. If it was up to me he wouldn’t eat meat period, but we are compromising.”* Partnered parents also discuss negotiating parenting *“His dad didn’t want to give him mayo, I don’t know why.”*

## 4. Discussion

Responses to our interview questions uncovered a few surprising facts that have not conventionally been considered when developing health promotion efforts. We found that parent expectations or hopes for their child at school entry and as an adult are mostly related to achieving good cognitive skills and social interactions. Single parents reported goals related to achieving good nutritional habits. Parental actions to influence child health were mostly described around nutrition- or feeding-related practices. Parents notably did not mention any actions related to helping their child achieve good cognitive skills.

Overall parents were aware that working towards maintaining good health for their child in the present will likely result in the child enjoying good health in the future. However, among this group of parents they did not consider the impact of the health habit practices they currently have for their children (mostly related to feeding) and its influence on future child acquisition of life skills and parent goals. It is of interest that mostly partnered parents indicated that a way to influence the health of their child was based on following medical guidance (i.e., immunizing their children, providing healthy foods); however single parents indicated that they can influence their child habits by modeling their own habits.

About half of the parents indicated willingness to make changes on current feeding practices for the sake of achieving the goals parents had for their child. Personal life experiences of a parent played a role on the decision on what to do when raising their own children. It seemed like parents have a strong sense of correcting for perceived failures in their own youth or continuing what their parents



did if they perceive it to be healthy. Child-related needs and desires, and household circumstances were also deemed as key factors in the deciding how to feed a child. Pocock et al., suggests that health promotion strategies may be more effective if directed at the wider family, rather than parents alone [22]. A systematic review of qualitative research on parent perceptions about behaviors to prevent excessive weight gain revealed that many parents believed strategies to promote healthy weight should start early in a child's life [22]. However, parent decisions to implement suggested healthy behaviors are influenced at many levels and often in complex ways. As presented in the results, these include the parent's own childhood experiences, current living circumstances, and health perceptions among a variety of other factors.

Compared to partnered parents, single parents denoted focus on a more immediate and temporal window. Responses from single parents in planning for the future indicated ideal situations *"you should have a plan for ..."* versus articulating their own *"I have a plan for ..."* Responses from single parents indicated that they have more control on how they raise their child and on the health habits they have for their child. Health habits implemented by partnered parents seemed to be more of a result of a combination of factors such as prior life experiences, interaction with the partner parent, and parenting style. As Thomas et al. indicated, it is likely that *"different approaches are needed during lifestyle promotion depending on a variety of patient-related factors"* [32]. It may be that single parents are more receptive to a change intervention. Changing health habits/behaviors in a partnered household maybe more challenging as the change may require a negotiation. This finding may need to be considered in future interventions focused on modifying health behaviors of the mother/main caregiver and the child as they may need to be adjusted if a partner is involved.

In a pilot implementation of a practice-based intervention aimed at improving the promotion of lifestyle counseling, no differences were found in the frequency with which parents report healthier behaviors for themselves or their child after health supervision visits [33]. The authors assumed that this was likely related to difficulties families may experience with implementing and sustaining health behavior change, and the brief time for counseling during health supervision visits [33]. In a qualitative evaluation of parent reactions to messages in handouts promoting healthy dietary and physical activity habits the authors found that there are many factors that play a role on how health habit recommendations can be interpreted by parents and that clinicians will need to provide health behavior recommendations considering parental beliefs [34].

Our study has uncovered several findings that would need to be confirmed in a larger study. Evaluation of the impact of health promotion interventions is complex, especially when interventions provided are expected to achieve measurable improvements several years or sometimes even decades after their initiation. However, caregiver perceptions and health values seem to play an important role and those can be explored using both qualitative and quantitative methods [5]. Qualitative research methods can assist in examining the process of change, and the reasons people adopt healthy lifestyle or obesogenic behaviors [22].

Applying a behavioral economics theory to parent perspectives on promotion of healthy lifestyle is a potential strength of the study and a novel way to approach preventive efforts. However, our findings would need to be verified in a larger study as the information was obtained from a convenience sample of parents and results cannot be generalized. Other weaknesses are that we did not obtain any information from the parents that refused to participate, we did not obtain demographic information from all family members, and parent responses during the interview may have been biased by the pre-interview survey as the focus of the survey was on feeding. Moreover, interviews were very brief, as the interviewers were trying to keep the overall interview time to no longer than half an hour.

## 5. Conclusions

Our pilot findings indicate that parents base their parenting choices on many personal experiences and beliefs, and that knowledge alone may not be enough to promote change in behaviors. Parents have a clear understanding that the health habits they have for their children as well as the health-related



actions they perform have an impact on child habits and current health. However, parents do not establish a connection between current health and health habits for the infant/toddler with their infant/toddler's future health, and achievement of parent expectations. Understanding parental perceptions may help to unravel the complexity of the process of health behavior change and may lead to modifications of how anticipatory guidance is provided. A larger study is needed to confirm our findings.

**Supplementary Materials:** Supplementary materials can be found at <http://www.mdpi.com/2571-841X/3/4/35/s1>.

**Author Contributions:** Conceptualization, A.J.A. and M.M.; methodology, A.J.A., M.M. and K.P.N.; software, K.P.N.; validation, K.P.N., K.W., P.K.B. and L.B.; formal analysis, M.M.; investigation, P.K.B.; resources, L.B.; data curation, K.P.N. and K.W.; writing—original draft preparation, K.P.N.; writing—review and editing, A.J.A.; visualization, L.B.; supervision, A.J.A.; project administration, L.B.; funding acquisition, A.J.A. All authors have read and agreed to the published version of the manuscript.

**Funding:** This project was supported through a Cooperative Research Agreement between Ann and Robert H. Lurie Children's Hospital of Chicago and the Williams Heart Foundation.

**Acknowledgments:** The authors would like to thank the editorial contributions of Helen J. Binns, MD, MPH.

**Conflicts of Interest:** The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.

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