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11 **Title: Parents' Perceptions of Obesity Prevention During Infancy: A Qualitative Study**
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15 **Corresponding Author:**

16 **Ilona Hale**, MD, University of British Columbia Department of Family Practice
17 ilona.hale@alumni.ubc.ca
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20 **Co-Authors:**

21 **Shazhan Amed**, MD, and **Shelly Keidar**, MSc, British Columbia Children's Hospital and SCOPE
22 BC(Sustainable Childhood Obesity Prevention through Community Engagement); **Megan Purcell**, MA,
23 East Kootenay Division of Family Practice, Cranbrook, BC; **Donna Lee**, MD, University of British Columbia
24 (UBC) School of Population and Public Health; **Daniel Farhadi**, BSc, University of Saskatchewan College
25 of Medicine.
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PARENTS' PERCEPTIONS OF OBESITY PREVENTION DURING INFANCY

INTRODUCTION

Many of the risk factors for obesity appear to have their origins during the critical period of early development. Establishment of behavioural and neuroendocrine pathways and epigenetic(1) changes appear to result in very early programming of the weight "set point" which is difficult to reverse, as evidenced by the refractory nature of adult obesity.(2,3)

There are many potentially modifiable risk factors associated with obesity, which would be suitable for an intervention in the first two years of life. In addition to the traditionally identified risk factors for obesity such as poor diet and physical inactivity, parental feeding style is emerging as another important modifiable factor.(3, 4) However, only a small number of prospective studies assessing the impact of interventions during infancy on obesity later in life have been published to date, most of which have shown some positive effect on parent behaviour or infant weight.(5, 6) A recent review revealed that studies incorporating education about "responsive feeding" showed some of the most promising results. (7)

Responsive feeding refers to a feeding style "characterized by appropriate responses to infant cues for hunger, satiety and non-nutritive needs."(8) The Division of Responsibility (DoR) approach developed by Ellyn Satter, also referred to as the Feeding Dynamics model, operationalizes the responsive feeding message by clearly delineating parents' and children's "roles" in the feeding relationship: Parents decide when, where and what to provide for the child and children decide how much or whether to eat.(9) This approach also encompasses other aspects of food-related responsive parenting behaviour such as recognizing infant cues to hunger and satiety and establishing non-nutritive methods for soothing, rewards and sleep routines. The DoR message has been utilized for many years to help parents promote structured, positive mealtimes but has never been tested directly in a prospective study for obesity prevention.

Understanding the perspectives of parents is critical to the success of any behaviour change intervention for families. Although considerable research has explored parental perceptions of traditional diet and exercise recommendations in childhood,(10) very little has been done to specifically understand either 1) parental responses to feeding style messaging such as the DoR, or 2) obesity prevention education during infancy. The newborn and infant period may present multiple unique challenges and opportunities for obesity prevention.

Objective: To conduct a qualitative assessment of attitudes towards and preferences for different infant obesity prevention education messages, looking at both traditional (sugar-sweetened beverages and screen time) novel (feeding roles) messages, in a population of parents of children under age two.

METHODS

We conducted semi-structured interviews based on existing behaviour change theories (11, 12) with a convenience sample of 33 parents of young (under age 2) children in two communities within the Interior Health region of British Columbia (BC), Canada. The parents were also asked to provide

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3 feedback on a sample of health promotion messages and delivery methods. The data were coded and
4 analyzed by three members of the research team using thematic analysis. Key concepts from Social
5 Cognitive Theory and Theory of Planned Behaviour were used as an initial coding framework which was
6 modified to reflect the new themes identified in the data. Following preliminary analysis of the
7 transcribed interviews we shared the results with a small focus group of original participants to verify
8 that their views had been adequately represented and to allow for further input and clarification.
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11 This study has received ethical approval through a harmonized review from the University of British
12 Columbia (UBC) Research Ethics Board and the BC Interior Health Research Ethics Board (Reference #
13 2016-17-058-H)
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15 16 17 **RESULTS**

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19 There were several important and interesting themes identified that increase our understanding of
20 parents' attitudes towards the messages presented.
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22 **"Parenting is Hard"**

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24 Parents repeatedly emphasized that the job of raising children presents many challenges. Health
25 promotion messages that make parenting even more difficult were less likely to be adopted. This was
26 particularly true of the recommendation for children under two to have no screen time. Most parents
27 agreed with the general idea that parents shouldn't use screens as "babysitters," and they almost
28 universally recognized the many benefits for their children of avoiding excessive screen time, but many
29 felt that the recommendation of zero screen time was probably not realistic for most families. Trying to
30 keep screens away from young children would require significant changes to parents' own habits and
31 necessitate avoiding restaurants, other peoples' homes, stores and many other places. Screens and
32 sweetened beverages were described as very attractive to children: "They're just so bright and pretty
33 and attractive. Exactly what babies like." (P24) This caused parents to feel bad for refusing to allow them
34 since parents intuitively wanted to make their children happy.
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38 Many parents made references to "guilt" and "being judged", both for following the recommendations
39 (and denying their children a pleasurable experience which other children may be enjoying) and for
40 failing to follow the recommendations (and being judged as a "bad" parent). "I think parenting is pretty
41 tough and you get lots of advice and sometimes trying to do it all it, doesn't make you feel so
42 good." (P12)
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45 Single or working parents, winter time, long car trips and the presence of an older sibling were some of
46 the factors that made avoiding screens and sweets even more difficult. "I know I'm guilty of it; if they're
47 hungry and I don't have dinner quite ready, they're getting Goldfish Crackers. I can't imagine what it's
48 like for both parents to be working." (P27) "I have got to be sane for her to be sane and if it means
49 letting her watch a show for 15 minutes then that's fine". (P10) Many parents felt that the zero tolerance
50 guidelines were too black and white and that recommendations for moderation would be more
51 reasonable. "I think that you need to set realistic goals for parents" (P9)
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54 By contrast, the DoR message was perceived more positively. Parents intuitively agreed with the
55 concept: "I feel that it is important to be there as a family; You can't force them to eat" (P20). They also
56 felt that it would help them "choose their battles" and relieve guilt, worry and fighting about whether
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3 their child was eating enough. Parents who had tried to follow this recommendation said the regular
4 schedules, not having to cook separate meals for their children and eating together as a family made
5 their lives easier and more pleasant. "It's really helped us have a much more pleasant mealtime; before
6 it would get really tense and people would be really unhappy; it makes the whole evening go better"
7 (P4)
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11 **Simple Messaging**

13 Parents said that clear, consistent messages are important. Parents tended to receive an overwhelming
14 amount of sometimes conflicting information from a variety of sources.
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16 Although many parents felt that black and white messages of "no screen time" and "no sweet drinks"
17 were too harsh, others liked the simplicity. Some parents wanted more explanation of the "why" behind
18 the recommendations to help convince them of their importance and validity.
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21 There was considerable confusion and disagreement about the recommendation to avoid all screen time
22 and 100% fruit juice. "Sugary drinks and juice is all the same now? It just seems kind of unclear - I
23 thought 100% juice was recommended in the Food Guide?" (P13) Some parents feared that their infants
24 would be missing out: "Technology is such an important part of our society these days, that you do not
25 want to completely eliminate it from your child's life." (P3) Increasing the confusion was marketing of
26 both screens and sweetened beverages targeting children with "educational programs", "sports" and
27 "electrolyte replacement" drinks or healthy-sounding, "100% natural" fruit juices. "Advertising or smart
28 marketing make you think it's healthy; there's a lot of misconceptions around food." (P26)
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32 **It Takes a Village**

34 Parents consistently expressed the importance of the influence of their community and the people
35 around them on their choices. Frequently cited were the schools and daycares that prohibit juice and
36 promote other healthy behaviours. "The daycare...they have a really good schedule for the kids so that
37 really helps" (P4)
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39 Social events where unhealthy celebration foods were freely offered presented a great challenge for
40 parents who didn't want to be perceived as being a "picky" parent. Consistent community-based
41 education campaigns designed to establish new accepted norms made it easier for parents to follow the
42 guidelines. The recently implemented Live 5210 initiative (promoting and supporting five fruits and
43 vegetables, under two hours of screen time, one hour of physical activity and no sugar-sweetened
44 beverages) in one of the communities was frequently mentioned. Availability of community
45 parent/baby programs that gave parents something to do with their children made it easier to avoid
46 relying on screen time for entertainment, especially in the winter.
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49 Grandparents, although less likely to rely on screens for entertainment, were more inclined to give
50 sweets and encourage children to "finish your plate" or take "just one more bite", which almost all
51 parents admitted they themselves had experienced while growing up.
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55 **Importance of Starting Early**

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3 Many parents noted that it is much easier to consistently follow healthy guidelines if routines for both
4 parents and children were established from the start. For example, “If they don't know that juice is an
5 option then I don't think they miss it”(P11) and “If you start right away, I can't imagine that it would be a
6 problem”(P28).
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9 Parents emphasized how comparatively easy it was to control their children's exposure to screens and
10 unhealthy food and drinks while the infants were very young, less mobile and more at home with the
11 primary caregiver. “If it's an infant then it is really easy to say, no you can't have it, but if they are older
12 they can argue with you” (P12) Many parents also felt that starting from infancy also increased the
13 chances that children would adopt these healthy habits later. “If they've been following this
14 recommendation, they're not all of a sudden going to start feeding them sugary drinks because they've
15 built up a healthy habit” (P6).
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18 **Discussion**

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21 This is the first study exploring the important topic of parents' attitudes towards obesity prevention
22 messages during infancy(10). Parents expressed that confusing or unrealistic health promotion
23 messages are unlikely to be followed and may induce guilt. It is important to find a balance between
24 respecting parents' preferences while continuing to provide high-quality health information. This study
25 provides useful information for designing appropriate obesity prevention interventions during infancy,
26 but also has broader implications for health promotion aimed at this important demographic group.
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29 The findings are largely consistent with behaviour change theory and studies of parents of older
30 children.(10) Parents' behaviours and confidence in following recommendations were dependent on
31 their knowledge, attitudes, social context, relevance and level of perceived control. Several new and
32 interesting themes were identified that appear to be specific to infancy and to this generation of
33 parents.
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36 A novel finding in this study is the importance of convenience in decision-making. Many of the tools
37 parents use today to entertain or distract children and promote “good behaviour” rely on the
38 convenience of screens or sweet treats. “It's too easy to do, just to get them entertained and quiet so
39 you can get something done.”(P24) As discussed by Wu, the value of convenience for many people in
40 our fast-paced society is becoming the primary consideration, trumping all other values.(11) Many
41 parents indicated that they did not feel able to relinquish something that makes their lives easier, even
42 when they acknowledged the potential negative health implications. For example, most parents agreed
43 that “kids are way too plugged in” (P16) yet admitted that they still often used screens to entertain their
44 children despite feeling guilty about it. “Bad habits come from parents feeling imbalanced today and
45 feeling guilty... and giving their kids what they want... because they're just too tired” (P26) Convenience
46 appears to be even more important to many parents than financial cost, which has traditionally been
47 assumed to be an important factor influencing behaviour. This need for convenience is driven by what
48 Dr. Paul Kershaw describes as “Generation Squeeze”: parents are working for less pay than previous
49 generations with more debt, while also raising young children, caring for aging parents, and facing
50 unprecedented challenges of affordability and receiving little support from government social programs
51 despite being the lowest-earning segment of the population.(12)
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55 It remains critical to find ways to provide important health messages while respecting and supporting
56 parents' need for convenience. Offering positive suggestions may be more effective for parents than the
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3 often-used, traditional “zero tolerance” policies. As one parent articulated: “Blanket statements like that
4 feel so preachy...I want you to educate me on how best to give my child an advantage so maybe ‘work
5 the wording.’” (P1) Instead of demanding total abstinence (from screens or sweet drinks), messages
6 should explain why minimizing exposure is particularly important for babies and then adopt a more
7 informative, realistic harm reduction approach, for example: Try to watch with your child whenever
8 possible. Avoid screen time while eating and before bedtime and offer short, slow-paced programs with
9 little stimulation.(13)
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12 When compared to more traditional messages, the novel DoR message was better-received, perhaps
13 because it achieves an appropriate balance by providing parents with clear, helpful suggestions that
14 actually make their lives easier: “It is good because it breaks it down and it takes the pressure off a
15 bit.” (P3) “You don't have to force feed your child if they choose not to eat what they've been given.” (P9)
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18 Providing information at a very early age makes it easier for families to develop healthy habits during
19 infancy when parents have most control. Parents should be reassured that enforcing some of these
20 behaviours even for a very short period of time during this important window may have significant
21 benefits for their child.
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24 Parents recognized that simple things such as a daycare or school introducing a “no juice” policy were
25 very helpful in raising awareness, establishing community norms and supporting parents' efforts at
26 home. Successful obesity prevention should include promotion of an environment where parents are
27 supported by their community in making healthy choices and not place the responsibility entirely on
28 individual families.
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30 **Limitations**

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32 The participants in this study, although socioeconomically diverse, were culturally homogenous (94% of
33 European descent) and fathers were under-represented. The results from these two small communities
34 may not be applicable to other groups, especially large urban populations. All of the findings are based
35 on parent self-report and one of the interviewers was a local family physician, which may introduce
36 some bias due to social desirability.
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39 **Implications**

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41 This study has provided us with a wealth of valuable information about how to create supportive and
42 helpful health promotion messages for parents. The information will be used to guide the development
43 of a pilot intervention trial on obesity prevention in newborns focusing on the feeding jobs message. It
44 can also be used by other researchers, educators and policy makers to design more effective health
45 promotion strategies for this population.
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Table 1. - Demographic Table

Table 1. Participant Demographics (n=33)	
Female	31 (94%)
Age [years]	
17-23	5 (16%)
24-30	6 (19%)
31-36	13 (42%)
37-43	7 (23%)
Mean Age [years]	32
Marital Status	
Married	21 (64%)
Common Law	8 (24%)
Single	3 (9%)
Unknown	1 (3%)
Education Level	
High School	3 (9%)
Grade 12	6 (18%)
College	10 (30%)
University	13 (39%)
Unknown	1 (3%)
Annual Household Income	
<\$30,000	10 (30%)
\$31,000 - \$60,000	3 (9%)
\$61,000-\$90,000	10 (30%)
>\$90,000	8 (24%)
No Answer	2 (6%)
Body Mass Index	
<25	17 (52%)
>25	9 (27%)
Don't know/ decline	7 (21%)
Other Siblings	18 (54%)

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3 **Table 2. - “Parenting is Hard”**

4 “Parenting is really hard and I don’t want to be told off for sitting my kid down in front of a
5 screen, when I need a break... if the consequences are worse... I don’t want to be getting
6 really angry, if I need some time to cool down then I rather them have the screen time then
7 me lose it.” (P12)

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9 “I think that it is a great theory but try to work 3-night shifts in a row and not put her in front of
10 the TV for half an hour when I just need her to calm down, or I just need to get something
11 done or go switch the laundry or something.” (P10)

12 “I think it (rigid guidelines) is another thing that would make parents feel guilty about and
13 another challenge that makes it difficult for parents.” (P11)

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Table 3. - Division of Responsibility Message
“I think it's wonderful - I should put it on my fridge; you can't make your kid eat.” (P1)
“It makes it really black and white ... it's not something you think about, but to see somebody spell it out for you... you realize that it's important.” (P24)
“Babies and kids thrive on structure and routine and being able to predict what's going to happen.” (P3)
“Including her in our meal times... and making it more about a social interaction, suddenly she [is] also like ‘Oh yeah, I want to eat too.’” (P13)
“It tells you that your child, if he’s not eating then that’s totally fine.” (P4)

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Table 4. - Preference for Simple Messaging

“There is so much information that you get hit with, you kind of remember bits of it...you don’t remember it [all] correctly.” (P12)

“I think I have heard no screen time under 2 and then I’ve heard limit screen time to half an hour a day for maybe over 2 but I am getting them mixed up. So, I am not exactly sure.” (P12)

“There's like 12 grams of sugar in milk so...where do you draw the line?” (P27)

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Table 5. - It Takes a Village

“There are other programs adopting that no juice philosophy already. It’s easy if it’s everywhere, on the same page.” (P5)
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“We go to Strong Start on the Wednesdays and that’s great because it is a night off for me and it is a healthy meal.” (P12)

“I can’t really say to my daughter “you can’t drink it” [at a party] when everyone [else] is.” (P15)
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“I think if everyone is doing it, it becomes normal.” (P12)

Confidential

Table 6. - Importance of Starting Early

"I think just knowing this stuff before you kind of start out, before the baby comes is very important." (P10)

"I wish I had never given him any form of juice whatsoever because then we wouldn't have had this ongoing battle." (P 26)

"It is hard after we already set the precedent that you can say you are hungry and you get a snack. It is harder to go back." (P33)

"When they're sort of under [age] one, it's pretty easy to control it., but will be tough in day care. ...[now] it's my chance though." (P2)

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