Caregiver survey of preschool children with obesity referred to Whānau Pakari—a multidisciplinary healthy lifestyle intervention programme

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ABSTRACT

aim: To examine caregiver perceptions relating to the acceptability of weight screening at New Zealand's B4 School Check (B4SC), and the accessibility and acceptability of a healthy lifestyle programme (Whānau Pakari) for preschool children (Whānau Pakari preschool programme) identified with weight issues.

method: An online survey was designed to assess agreement with statements relating to the B4SC healthy weight check and Whānau Pakari programme. Eligible participants (n=125) were caregivers of preschool children identified with obesity (BMI ≥98th centile), or overweight (BMI >91st centile) with weight-related co-morbidities, at the B4SC and referred to Whānau Pakari over the period July 2016 to March 2019.

results: Twenty-nine caregivers responded to the survey (23%). The majority (76%, n=22) were open to discussing their child's weight. However, whilst most caregivers were comfortable receiving a weight referral to a healthy lifestyle programme for their child, some were ambivalent (24%, n=7) or disagreed (21%, n=6) to feeling comfortable about this. Furthermore, only 38% (n=11) of caregivers were concerned about their child's weight.

conclusions: Findings reveal a reasonable level of acceptability by caregivers to aspects of the B4SC healthy weight check. However, caregiver perceptions may not always be in alignment with the support offered by B4SC health professionals. Regular healthy lifestyle messaging by health professionals, and positive referral experiences, are key to subsequent engagement with healthy lifestyle programmes.

The global prevalence of overweight and obesity in young children has increased steadily over the last few decades, with recent estimates suggesting approximately 40 million children aged 0–5 years are affected worldwide.[1] In Aotearoa New Zealand (henceforth referred to as New Zealand), excess weight continues to be a problem for many young children, with approximately one third of 4-year-old children experiencing overweight or obesity by the time they commence school.[2]

Given childhood obesity has a propensity to lead onto adult obesity, and to its associated co-morbidities,[3] increasing emphasis has been placed on the prevention and management of overweight and obesity in the early stages of a child's life, particularly during the preschool years. The inclusion of growth monitoring in child health programmes for this population group enables early identification of children and families that may require support from services for unhealthy weight.[4]

In 2008, the B4 School Check (B4SC) programme was established, supporting health and wellbeing amongst New Zealand preschool children.[5] As part of this programme, all children undergo a routine screening health check at 4 years of age, which aims to identify health and developmental issues that could hinder participation and learning in the school setting.[5] Height and weight measurements undertaken at the B4SC provide an opportunity for population growth surveillance and screening of a child's weight status.

In July 2016, as part of the New Zealand Government's Childhood Obesity Plan, a national health target measure known as the Raising Healthy Kids target was embedded within the B4SC programme. The target aimed for 95% of children identified with a body mass index (BMI) in the obese range to be offered a referral for clinical assessment and intervention by December 2017.[6] In Taranaki, Whānau Pakari (a multidisciplinary assessment and intervention healthy lifestyle programme)[7] became the accepted referral pathway for preschoolers identified with obesity at the B4SC. Over the study period, the no-cost programme supported

children aged 4–16 years, offering home-based weight-related assessments (including physical, dietary, and psychological review) every six months for one year, as well as additional regular group sessions delivered by physical activity and health professionals. These included family-based physical activity sessions; dietary sessions (cooking sessions, virtual supermarket tours, and healthy portion sizes); and psychology sessions (discussing topics such as self-esteem, and creating and maintaining healthy lifestyle changes as a family).[8]

There is limited research on childhood obesity in New Zealand preschool children, and it remains unclear as to whether a referral for weight from an established child health programme is acceptable to caregivers of this age group. Therefore, as an initial survey alongside wider qualitative work,[9] this study aimed to explore caregiver perceptions regarding the acceptability of the healthy weight check and weight referral as part of the B4SC. Second, views around the acceptability and accessibility of the Whānau Pakari healthy lifestyle preschool programme from caregivers who both engaged and declined to engage with the programme were assessed after receiving a referral for weight for their preschool child.

Methods

Approval for the study was granted by The University of Auckland Human Participants Ethics Committee (#022672). Electronic, verbal, or written informed consents were obtained from all participants.

Participants

Participants were recruited from a total of 143 caregivers of children aged 4–5 years referred to Whānau Pakari from the B4SC programme in Taranaki over the period July 2016 to March 2019. Children were referred to the Whānau Pakari healthy lifestyle programme if identified with obesity (BMI ≥98th centile) or overweight (BMI >91st centile) with weight-related co-morbidities[10] at the B4SC. Of those referred, the families of 75 children engaged with the programme, the families of 67 children declined any involvement, and the family of one child was identified as not meeting the above criteria upon entry to the programme. Study exclusion criteria included any caregivers involved in similar Whānau Pakari related research and caregivers with no current contact phone number on record.

Data collection

Qualtrics software (Qualtrics Labs Inc., Provo, UT, USA 2018) was utilised to develop the online survey. Survey questions were derived from a previous survey conducted with other caregivers and children/adolescents engaged with the wider Whānau Pakari service over the period January 2012 to January 2017. However, these were further refined with input from stakeholders and other researchers to ensure relevance to the target group. Beta-testing of questions was undertaken to ensure comprehension and face validity. The survey consisted of Likert scale questions appraising the agreement of participants with certain statements, demographic questions and yes/no questions. Ethnicity was collected as per the New Zealand Ministry of Health Ethnicity Data Protocols and prioritised for the purposes of analysis.[11] Participants' ages and socio-economic status were not collected.

Recruitment of survey participants was via text to mobile phones with a multimodal response strategy adopted, whereby participants could choose to either undertake the survey online by clicking on a hyperlink embedded in the text, post, or over the phone. Two reminder texts were sent during the active phase of the survey, with all texts providing the opportunity for a participant to "opt out" of receiving any further texts. Paper-based surveys were sent to participants requesting the survey by post, and telephone surveys were conducted at convenient times for those participants requesting this response mode. Families with more than one child involved with the programme received the invitation to participate in the survey only once. The opportunity to win fuel vouchers was offered as an incentive for participation in the survey.

Data analysis

Quantitative data were analysed in SPSS version 25 (IBM Corp, Armonk, USA), and frequency distribution measures (%, n) reported. Due to the survey's low response rate, additional statistical analyses were not undertaken.

Results

A total of 125 eligible caregivers were invited to participate, of which 29 (23%) completed the survey. Eighty-six percent (n=25) of respondents completed the survey online, 7% by post (n=2) and 7% by telephone (n=2). Fifty-two percent (n=15) of respondents identified as Māori, and 90% were female (n=26). Eighty-three percent (n=24) engaged with Whānau Pakari after referral to the programme,

and 17% (n=5) declined any further involvement with the programme post-referral (Table 1).

Table 2 shows the level of agreement of caregivers with four statements focused on the B4SC healthy weight check, and the subsequent referral of their preschool child to the Whānau Pakari programme. The majority of respondents agreed to feeling comfortable talking about their child's weight at the B4SC (76%, n=22), and felt weight was an appropriate topic of discussion (62%, n=18). Sixty-two percent (n=18) of caregivers were either ambivalent or not concerned about the weight of their child at the time of the health check, with 31% (n=9) expressing a strong disagreement to being concerned about the weight of their child. Thirty-eight percent (n=11) of caregivers agreed to having some concern about their child's weight. Over half of respondents (55%, n=16) agreed to feeling comfortable about receiving a referral for their child's weight, with the remainder expressing their ambivalence (24%, n=7) or disagreement (21%, n=6) with this statement.

Of respondents who engaged with Whānau Pakari (n=24, 83%), the majority perceived the location and timing of assessments to be convenient (Table 3). Among the four respondents who attended the programme's group sessions (17%), three felt that the sessions were convenient in terms of location and had transport to attend. However, two were ambivalent towards statements relating to session timing, and whether they had time to attend. Seventy-nine percent (n=19) of respondents that engaged with Whānau Pakari agreed that their families would benefit from the programme, and over half (58%, n=14) believed the programme was appropriate for their family. Three out of five respondents who declined to engage disagreed with the statement that the programme seemed appropriate for their family (Table 3).

Discussion

In this survey of New Zealand caregivers of preschool children with obesity referred to a multidisciplinary healthy lifestyle programme from a preschool health check, key findings were that over three quarters of caregivers were comfortable with discussing their child's weight as part of the B4SC, and over half of respondents were amenable to receiving a weight referral for their child. Caregivers who were referred to and engaged with Whānau Pakari perceived the home-based weight-related assessments to be convenient in terms of location and time, and the majority viewed Whānau Pakari as a programme that their family would benefit from attending.

This survey shows a reasonable level of acceptability by caregivers to aspects of the B4SC healthy weight check, such as discussing the issue of weight within the context of their child's overall health. This is supported by New Zealand research exploring nurses' experiences of undertaking the B4SC since the introduction of the Raising Healthy Kids target, which found that adopting a similar holistic approach to weight-related conversations with caregivers of preschool children ensured communication was health-enhancing and acceptable from nurses' perspectives, particularly when referral was indicated in response to target requirements.[12] Ensuring these interactions are a positive experience for caregivers has been deemed as an important factor in the acceptance of weight-related feedback following weight screening in young children.[13]

Although the majority of respondents were comfortable with receiving a weight referral to a healthy lifestyle programme as part of the B4SC,

Table 1: Demographic characteristics of (n=29).

Participants		**n (%)**
Female		26 (90%)
Ethnicity [§]	Māori	15 (52%)
	New Zealand European	12 (41%)
	Pacific	1 (3%)
	Asian	1 (3%)
Accepted referral		24 (83%)

[§] Prioritised ethnicity as per HISO protocols.[11]

it is worth noting that 45% (n=13) of caregivers were ambivalent or felt uncomfortable about this. Additionally, a reasonable proportion of caregivers were ambivalent towards, or not concerned about, the weight of their child—a perception commonly held by caregivers of children experiencing overweight and obesity.[14] This is consistent with New Zealand-based research which showed lower levels of concern related to a child's weight in caregivers who chose not to participate in a "weight management" programme, compared to those who did.[15] This highlights that caregiver perceptions may not always be in alignment with the efforts of health professionals undertaking weight screening in young children, and could potentially influence acceptance of a weight referral on to appropriate support services. Therefore, it is important for health professionals to be cognisant of the importance of caregiver perceptions related to their child's weight, and the impact these may have on the willingness of families to participate in early interventions to address unhealthy weight.

Overall, there was reasonable agreement to statements related to the accessibility and acceptabilty of Whānau Pakari, reflecting positively on the programme. However, feedback indicated room for improvement in terms of group session timing. Although a small group (n=5), most caregivers who declined further contact with the programme after referral indicated that the programme lacked appropriateness for their family. Of note, three of these five caregivers also disagreed with or were ambivalent towards the statement related to showing concern about the weight of their child—linking to the importance of caregiver perceptions identified above.

This study was limited by a low response rate, particularly affecting the representation of those caregivers who declined to engage with the programme after receiving a weight referral for their preschooler. Nevertheless, this study provides some insight into caregiver perspectives on weight screening in preschoolers, and their views on the accessibility and acceptability of a healthy lifestyle programme for younger children affected by weight issues in New Zealand. Given the limited sample size, further qualitative research has been undertaken to understand caregivers' experiences and perceptions of the B4SC healthy weight check and the Whānau Pakari preschool programme. Perceptions and experiences of caregivers, and determinants of engagement with the Whānau Pakari

Table 2: Level of caregiver agreement with statements relating to the Before School Check (B4SC) weight screen (n=29).

Statement	Strongly agree	Somewhat agree	Neither agree/ disagree	Somewhat disagree	Strongly disagree
I felt comfortable talking about the weight of my child at the B4SC	8 (28%)	14 (48%)	2 (7%)	3 (10%)	2 (7%)
I felt weight was an appropriate topic to discuss at the B4SC, as part of my child's health	9 (31%)	9 (31%)	6 (21%)	4 (14%)	1 (3%)
I was concerned about the weight of my child at the B4SC	4 (14%)	7 (24%)	7 (24%)	2 (7%)	9 (31%)
I felt comfortable about receiving a referral for my child to Whānau Pakari	6 (21%)	10 (34%)	7 (24%)	5 (17%)	1 (3%)

Data are n (%).

Table 3: Level of caregiver agreement with statements relating to Whānau Pakari programme elements by those that engaged and declined to engage.

	Engaged (n=24)					Declined to engage (n=5)				
Statement	**Strongly agree**	**Some-what agree**	**Neither agree/ disagree**	**Some-what disagree**	**Strongly disagree**	**Strongly agree**	**Some-what agree**	**Neither agree/ disagree**	**Some-what disagree**	**Strongly disagree**
Assessments in a convenient location*	14 (58%)	7 (29%)	3 (13%)	-	-					
Assessments at a convenient time*	9 (38%)	13 (54%)	2 (8%)	-	-					
Time to attend assessments*	10 (42%)	8 (33%)	4 (17%)	2 (8%)	-					
Sessions in a convenient location†*	3 (75%)	1 (25%)	-	-	-					
Sessions at a convenient time†*	1 (25%)	1 (25%)	2 (50%)	-	-					
Time to attend sessions†*	1 (25%)	1 (25%)	2 (50%)	-	-					
Transport to get to sessions†*	3 (75%)	1 (25%)	-	-	-					
Programme seemed appropriate for my family	7 (29%)	7 (29%)	9 (38%)	1 (4%)	-	1 (20%)	-	1 (20%)	3 (60%)	-
Programme could work for my family	9 (38%)	8 (33%)	5 (21%)	2 (8%)	-	1 (20%)	-	2 (40%)	2 (40%)	-
Family would benefit from the programme	13 (54%)	6 (25%)	3 (13%)	2 (8%)	-	1 (20%)	-	2 (40%)	1 (20%)	1 (20%)
Other things were more important for my family at the time	1 (4%)	11 (46%)	5 (21%)	5 (21%)	2 (8%)	1 (20%)	2 (40%)	1 (20%)	-	1 (20%)
Previous negative experiences with healthcare services made me/my family reluctant to attend	-	2 (8%)	4 (17%)	3 (13%)	15 (63%)	1 (20%)	1 (20%)	1 (20%)	-	2 (40%)
Previous positive experiences with healthcare services made me/my family keen to attend	5 (21%)	8 (33%)	11 (46%)	-	-	1 (20%)	1 (20%)	3 (60%)	-	-
Other people might judge my preschooler and I for attending	1 (4%)	4 (17%)	9 (38%)	2 (8%)	8 (33%)	2 (40%)	1 (20%)	1 (20%)	-	1 (20%)
Programme was culturally appropriate*	7 (29%)	5 (21%)	11 (46%)	1 (4%)	-					

Data are n (%). † Due to the survey's branching design, these statements were only applicable to the four caregivers in our survey who participated in Whānau Pakari's assessments-and-sessions intervention model.
* Statements not applicable to those who declined to engage.

programme have been reported elsewhere.[9] Referral experience, competing life demands, and caregiver resistance to, and motivation for, accepting external support all affected engagement with the Whānau Pakari preschool programme. Almost one third strongly disagreed that they were concerned about their child's weight, and this survey was not able to understand the reasons behind this. However, focus groups identified that caregiver perceptions were related to beliefs around genetics, the mitigating effects of healthy lifestyle factors and age.[9]

Previous research from our group has identified that past negative experiences with the healthcare system affected engagement with the Whānau Pakari programme in general.[16] However, past negative experiences were not seen in this survey as a strong determinant of engagement with the programme. Referral experience from the B4SC did affect likelihood of engagement however, as identified in the focus groups.[9] Of those referred to the Whānau Pakari preschool programme from July 2016 to March 2019, just over half (52%) engaged with the service, suggesting concern regarding child weight and referral experience are important considerations when aiming to enhance uptake of referrals to such a programme.[17]

In conclusion, caregivers of children referred for unhealthy weight from the B4SC to the Whānau Pakari preschool programme were predominantly comfortable discussing their child's weight in the B4SC, yet almost half were reticent to receiving a referral. Regular conversations by health professionals with families incorporating healthy lifestyle messages and positive referral experiences may enhance subsequent uptake of healthy lifestyle programmes in families of children when a referral is indicated.

COMPETING INTERESTS
Nil.

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