



Assessing parents' receptiveness to a vegetable-focussed in-school nutrition intervention



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ABSTRACT

Objective: Crunch&Sip is an Australian school-based initiative designed to increase the consumption of fruit, vegetables, and water among primary school children. To address the significant deficiencies in children's vegetable intake, the present study aimed to examine the responsiveness of parents (the main providers of food for Crunch&Sip) to a modified version of the program that focuses primarily on vegetable consumption.

Participants: A total of 329 Western Australian parents completed an online questionnaire examining their support for a vegetable focus for Crunch&Sip and any perceived barriers, motivators, and facilitators.

Results: Most (80%) parents were supportive of a shift to a vegetable focus for Crunch&Sip. Belief in the effectiveness of Crunch&Sip at improving children's attitudes towards vegetables and increasing children's vegetable consumption was found to be significantly associated with levels of support. The most commonly nominated motivator was to improve their children's eating habits and the main facilitator was the perceived ability of teachers and peers to influence children's food consumption behaviours. Identified potential barriers included the difficulties associated with providing a variety of vegetables, maintaining freshness, and the preparation time required. The primary suggested strategy to overcome these barriers was for schools to conduct education sessions to provide information about vegetable provision options.

Conclusions and implications: The results suggest that parents can be supportive of school-based nutrition programs that specifically encourage the consumption of vegetables but they may require guidance to reduce the identified barriers related to vegetable provision.

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1. Introduction

As an environment in which children consume a substantial number of their meals, schools play an important role in encouraging healthy eating among children (Biggs, Farrell, Lawrence, & Johnson, 2014; Gleason & Sutor, 2001; National Health and Medical Research Council, 1996; Story, Nannery, & Schwartz, 2009). This influence occurs through food provision and promotion via school canteens, food-related fundraising activities, policies

relating to the types of foods teachers can provide as rewards, the modelling of healthy food consumption by teachers, and facilitating the consumption of healthy foods during class time (Bell & Swinburn, 2004, 2005; Blanchette & Brug, 2005; Potter et al., 2011; Story et al., 2000).

Nutrition programs and interventions delivered in school settings have been shown to be capable of producing positive effects on children's diets (de Sa & Lock, 2008; Delgado-Noguera, Tort, Martinez-Zapata, & Bonfill, 2011; French & Stables, 2003; Jarpe-Ratner, Folkens, Sharma, Daro, & Edens, 2016; Knai, Pomerleau, Lock, & McKee, 2006; Lakkakula, Geaghan, Zanovec, Pierce, & Tuuri, 2010; Laureati, Bergamaschi, & Pagliarini, 2014; te Velde et al., 2008; Tuuri et al., 2009; Zellner & Cobuzzi, 2017), especially in terms of increasing children's fruit consumption (Evans, Christian, Cleghorn, Greenwood, & Cade, 2012). However, a large majority

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of children continue to consume insufficient quantities of vegetables, leaving them vulnerable to health conditions such as diabetes and heart disease in later life (Australian Bureau of Statistics, 2015; Centre for Disease Control and Prevention, 2014; Moller, Taubert, Allen, Clark, & Lauer, 1994; Organization for Economic Cooperation and Development, 2013; Whincup et al., 2002). In Australia, the context of the present study, a recent national survey found that only 5% of children meet the recommended daily intake levels for vegetables, while 68% meet recommended levels for fruit intake (Australian Bureau of Statistics, 2015). The very low levels of compliance with vegetable intake recommendations indicate that addressing deficiencies in vegetable consumption should be a primary focus of nutrition interventions, including those delivered in schools.

While differences in compliance with recommended guidelines for fruit and vegetable consumption are likely due to innate human predispositions with respect to taste preferences (Birch, 1999), it has been suggested that preferences for vegetables can be strengthened with frequent and repeated exposure (Anzman-Frasca, Savage, Marini, Fisher, & Birch, 2012; Wardle, Herrera, Cooke, & Gibson, 2003). This highlights the importance of interventions that aim to increase the availability and accessibility of vegetables (Blanchette & Brug, 2005). An example is the Australian Crunch&Sip program. Crunch&Sip encourages primary schools to allocate time during class for the consumption of fruit, vegetables, and water (i.e., “Crunch&Sip time”) (Biggs et al., 2014). The program was first implemented by the Western Australian (WA) Department of Health in March 2005, and it has since been formally implemented in some other Australian states and informally elsewhere. In most instances, parents provide the fruit and vegetables for their children, although schools in disadvantaged areas sometimes perform this role.

It is estimated that more than 40% of WA schools currently participate in Crunch&Sip (Cancer Council Western Australia, 2015). This level of coverage indicates the opportunity to address the substantial current deficits in children's vegetable intake by refocusing the program to include a stronger emphasis on vegetables. However, prior to modifying the program, formative research with key stakeholders is crucial to increase the likelihood of positive outcomes by ensuring the new program addresses the needs and concerns of the target population (Linde et al., 2014; Vastine, Gittelsohn, Ethelbah, Anliker, & Caballero, 2005; Wilson et al., 2007). A recent formative study of school representatives' attitudes to a modified Crunch&Sip program that specifically encourages vegetable consumption found that school staff were strongly supportive of this change in focus, but expected substantial parental resistance (Sharp et al., 2017). Concerns about the cost of vegetables and the preparation time involved were anticipated to be particular parent-related barriers to successful implementation. These results indicate that attempts to modify the Crunch&Sip program to include a stronger vegetable focus may need to contend with parents viewing such a change as impractical and undesirable.

Previous research examining parents' food-related attitudes and motives has identified a range of factors that contribute to food provision, including convenience (Oellingrath, Hersleth, & Svendsen, 2013; Roos, Lehto, & Ray, 2012), cost (Mushi-Brunt, Haire-Joshu, & Elliott, 2007), and preferences of the child (Russell, Worsley, & Liem, 2014). While this work provides insights into issues of relevance to food provision in the home environment, there is a lack of research specifically investigating parents' attitudes to in-class programs focusing on vegetable consumption. Given the requirement in most instances for parents to provide the foods available for consumption during Crunch&Sip breaks, and the demonstrated role of parental support and engagement in the success of school-based nutrition programs in general (Knai et al.,

2006; Nathan et al., 2011), formative research with parents is needed prior to the redevelopment of the program to ensure potential barriers to implementation are identified and addressed.

Accordingly, the aim of the present study was to identify relevant parent-perceived barriers, motivators, and facilitators that need to be addressed in efforts to introduce in-class vegetable consumption programs to achieve higher levels of intake among primary school children. The results of this formative research are likely to be of relevance to policy makers and practitioners in various jurisdictions who are seeking to implement school-based nutrition programs featuring in-class vegetable consumption components that are reliant on parental support. In addition, the results provide potential insights for the implementation of strategies relating to foods consumed on school premises via other mechanisms (e.g., school canteens and the foods provided from home for snack and lunch breaks).

2. Methods

2.1. Participants and procedure

The project received ethics clearance from a University Human Research Ethics Committee. Parent recruitment was conducted via an ISO-accredited online panel (The Online Research Unit), with respondents invited to complete a questionnaire relating to nutrition and school practices. Participants were 329 WA parents of children who were in Grades 1 to 6 of primary school. Quota sampling was used to ensure that at least 20–40% of the sample comprised males, with the final sample comprising 35% males and 65% females. Most respondents (77%) were in the 25–44 years age range, with 1% under 25 years and 22% over 44 years.

2.2. Measures

The survey comprised items assessing a range of attitudinal and behavioural variables. Parents' satisfaction with their children's levels of vegetable consumption was assessed via the item “To what extent are you satisfied with your child/ren's consumption of vegetables”, with a 5-point response scale ranging from 1 (very dissatisfied) to 5 (very satisfied). A 6-item scale was used to assess the perceived impact of increased vegetable intake on children's well-being. Respondents rated each item (e.g., “If your children ate plenty of vegetables every day, how likely would they be to have lots of energy?”) on a 5-point scale that ranged from 1 (very unlikely) to 5 (very likely). For analysis purposes, a grand mean was derived across all 6 items of this scale, with higher scores indicating a greater belief in the benefits of vegetable consumption for children. The reliability of the scale was excellent (Cronbach's alpha = 0.94).

A dichotomous (yes/no) response scale was used to assess whether the schools attended by the respondents' children had Crunch&Sip breaks, with follow-up questions assessing how many days these breaks were conducted per week (1–5 days) and how often parents provided vegetables for these breaks (6-point scale: 1 = never to 6 = daily). All respondents, regardless of their children's current Crunch&Sip participation, were asked to rate their level of support for teachers encouraging children to bring vegetables for Crunch&Sip breaks on a 5-point scale (1 = not at all supportive to 5 = very supportive). Two items assessing respondents' beliefs in the ability of Crunch&Sip to improve children's attitudes towards vegetables (1 = “makes no difference to children's attitudes to vegetables” to 5 = “improves children's attitudes to vegetables”) and increase vegetable consumption (1 = “makes no difference to children's vegetable consumption” to 5 = “increases children's vegetable consumption”) were averaged

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