Increasing the fruit and vegetable consumption of preschool children

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BA/B.Comm (Hons Psych) Grad Cert Public Health

Submitted for the Degree of Doctor of Philosophy

School of Medicine and Public Health
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March 2012
Statement of Originality
This thesis contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. I give consent to this copy of my thesis, when deposited in the University Library**, being made available for loan and photocopying subject to the provisions of the Copyright Act 1968.
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Rebecca Wyse            (Date)
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Interventions for increasing fruit and vegetable consumption in children aged up to 5 years

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- Extracting data regarding study characteristics from all included studies
- Extracting data regarding risk of bias from all included studies
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- Contributing to data analysis and interpretation
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• Participating in recruitment
• Overseeing data collection
• Cleaning the data
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- Determining the measures to be used
- Developing additional data collection tools
- Participating in recruitment
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- Determining the research question
- Determining the measures to be used
- Leading the writing of the manuscript

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- Determining the measures to be used
- Developing additional data collection tools
- Participating in recruitment
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- Cleaning the data
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Synopsis

Inadequate fruit and vegetable consumption is associated with increased chronic disease risk and represents a considerable global health burden. As dietary habits develop in early childhood and track into adulthood, intervention at an early age may have long lasting benefits. As such, the aims of this thesis were: to review the existing evidence for the efficacy of interventions to increase the fruit and vegetable consumption of preschool children; to identify the characteristics of the home food environment that are associated with higher levels of fruit and vegetable consumption in preschool children; to develop, pilot and evaluate an intervention to increase the consumption of fruit and vegetables among preschool children; and to provide recommendations for future research and practice regarding interventions to increase the fruit and vegetable consumption of preschool children.

Despite the importance of establishing healthy dietary habits from an early age, there is little research investigating the efficacy of interventions aimed at increasing fruit and vegetable consumption in children prior to starting school. In accordance with the first aim, a systematic review of interventions to increase the fruit and vegetable consumption of children aged 0 to 5 years was conducted (Chapter 2). Only five randomised controlled trials were identified and the review provided no clear evidence in favour of existing intervention approaches.

Chapter 3 addresses the second aim and reports the result of a cross-sectional study investigating the relationship between the home food environment and children’s fruit and vegetable consumption. Three hundred and ninety six parents of 3 to 5 year-olds participated in a telephone survey that included the fruit and vegetable subscale from the Children’s Dietary Questionnaire and selected measures of the home food environment. It was found that preschool children’s fruit and vegetable consumption was positively associated with: parental fruit and vegetable consumption ($p=0.005$); fruit and vegetable availability ($p=0.006$) and accessibility ($p=0.012$) within the home; the frequency of provision of these foods ($p<0.001$); and allowing children to only eat at set meal and snack times ($p=0.006$). Such findings strengthen the evidence in support of the home food environment as an important setting for fruit and vegetable interventions targeting children of this age.
The third aim of the thesis is addressed in Chapters 4 and 5. An intervention was developed to support parents to make changes within their home food environment, focusing on increasing the availability and accessibility of fruit and vegetables, parental role-modelling of fruit and vegetable consumption, and establishing supportive family food routines. It was designed to be delivered to parents over four 30-minute phone calls and accompanying printed resources were also provided. The intervention was piloted in a pre-post trial with 34 parents of 3 to 5 year-olds (Chapter 4). Children’s fruit and vegetable consumption was assessed using the fruit and vegetable subscale of the Children's Dietary Questionnaire administered via telephone. Following parent participation in the intervention, children’s fruit and vegetable scores were significantly higher than at baseline ($p=0.027$). Furthermore, the findings suggested that parents actively participated in the intervention tasks and activities and judged aspects of the intervention, including the length and number of calls, to be acceptable. Based on the pilot findings, a randomised controlled trial was conducted with 394 parents. The methods employed in this trial are comprehensively described in the study protocol (Chapter 5a) and the 2- and 6-month results of the trial are reported (Chapter 5b). Specifically, generalised estimating equation analysis using all available data found that fruit and vegetable scores of the children in the intervention group were significantly higher than the control group at 2- ($p<0.001$) and 6-months ($p=0.021$).

The thesis concludes with reflections on the implications of the thesis findings for research and practice (Chapter 6). It is suggested that, pending results of longer-term follow-up, an intervention targeting characteristics of the home-food environment and delivered by telephone may be an effective way of supporting parents to increase the fruit and vegetable intake of their preschool children, thus representing an important contribution to public health nutrition.