

1 **ABSTRACT**

2 Aim: To assess the views and experiences of WA health practitioners on the use of
3 cooking as a public health nutrition intervention.

4 Methods: A 39-point online questionnaire was constructed using Survey Monkey. The
5 questionnaire was distributed via email distribution lists to practitioners working in the
6 areas of nutrition, dietetics, and public health. Questions were focused around four
7 objectives relating to; the value of cooking skills in public health, practitioner cooking
8 skills and training, practitioner views on cooking as a health intervention and
9 practitioner experiences in conducting cooking demonstrations.

10 Results: A total of 84 practitioners completed the questionnaire, of which over half
11 (58%) were employed in dietetic specific positions at the time of the survey. There
12 was overwhelming agreement that cooking skills are an important factor in the
13 prevention of nutrition related disease, and that cooking skill interventions have the
14 potential to change dietary intakes. However, only one quarter of practitioners
15 indicated that cooking skill interventions were a significant part of their current role.
16 Over half (58%) of the practitioners surveyed had either conducted or assisted in a
17 cooking demonstration or cooking class in the last 12 months.

18 Conclusions: WA practitioners place a high value on the use of cooking as a public
19 health nutrition intervention. Practitioners felt they have good knowledge and skills in
20 cooking but indicated the need to know more about conducting cooking skill
21 interventions. The findings suggest the need to improve outcome evaluation as a
22 component of cooking skill interventions to assess long term behaviour change.

1 Key Words: cookery, dietetics, health promotion, interventions, nutrition.

2 **INTRODUCTION**

3 With obesity rates continuing to rise in both children and adults in Australia^{1, 2}, there is
4 a need for effective public health nutrition initiatives to positively influence behaviour
5 change^{1, 2}. One area of nutrition that is under researched in Australia is the use of
6 cooking skill interventions^{3, 4}. For the purposes of this paper, a cooking skill
7 intervention (CSI) is any intervention that is designed to increase the amount of
8 cooking and/ or change cooking skills towards healthier food practices. Recently the
9 Standing Committee on Health and Ageing released its report on obesity in Australia
10 and included a key recommendation for community programs to teach children and
11 adults the benefits of preparing and enjoying healthy and nutritious meals through
12 initiatives such as cooking classes¹.

13 A group of dietary and physical activity experts have identified the rising use of
14 convenience food as one of the most important social trends contributing to
15 Australia's obesity problem⁵. Many authors have stated the value of improving
16 cooking skills in order to improve the dietary intakes of individuals⁶⁻¹². In Australia
17 very few studies have looked at the relationship between cooking skills and health^{4, 11},
18 however a recent Australian study by Winkler and Turrell demonstrated that
19 confidence in cooking is associated with vegetable purchase⁴. Internationally, a
20 Canadian study assessed the impact of cooking classes run for senior men and found
21 successful behaviour change over the duration of their program⁷. There is limited
22 evidence available on how, and to what extent CSI's influence dietary behaviour
23 change. There is also little known about the views of health practitioners on the value

1 of cooking as a public health nutrition intervention and the types of CSI's currently
2 being utilised.

3 The purpose of this study was to assess the views and experiences of WA health
4 practitioners on the use of cooking skill interventions in public health. The specific
5 objectives of this study were to; (i) determine the value health practitioners place on
6 cooking for public health, (ii) assess the level of cooking skill and training of health
7 practitioners, (iii) assess practitioner views on cooking as a public health nutrition
8 intervention, and (iv) assess the experiences health practitioners have conducting
9 cooking demonstrations and cooking classes.

10 **METHODS**

11 **Questionnaire Development**

12 A questionnaire was developed to obtain information in four key areas relating to the
13 objectives of this study. The development of the questionnaire was guided by a review
14 of the literature and constructed using Survey Monkey, an online web based
15 questionnaire program (www.surveymonkey.com). A 39-question survey was
16 developed containing both closed and open-ended questions.

17 As there are varying interpretations of the meaning of 'cooking', a definition for the
18 purpose of this survey was used, along with a definition for 'cooking skills' and 'cooking
19 skill interventions' as they were commonly used terms in the questionnaire. The
20 dictionary meaning for the term 'cook' is to prepare food by the action of heat, as by
21 boiling, baking, roasting etc, and someone who 'cooks' prepares food for the table¹³ .
22 For the purposes of this study the ideas from Symons¹⁴ were adapted to define
23 cooking as the preparation and production of food for meals and snacks, typically in

1 the domestic setting. Cooking skills were defined as the theoretical and practical skills
2 that enable efficient preparation and production of food for meals and snacks, typically
3 in a domestic setting.

4 **Pilot Testing**

5 The questionnaire was pilot tested with 5 practitioners who worked in public health
6 and nutrition education in a university setting. Minor wording adjustments were made
7 before distribution. The practitioners involved in the pilot testing were also invited to
8 participated in the final survey.

9 **Ethics**

10 Ethics approval was granted from the School of Public Health at Curtin University of
11 Technology. Informed consent was assumed as a condition of taking part in the
12 questionnaire. Practitioners were invited to email their contact details at the
13 conclusion of the questionnaire to go into a draw for two supermarket vouchers.

14 **Sample**

15 The primary target group for the questionnaire were members of the Nutrition WA
16 network, a network run by health practitioners for health practitioners, the majority of
17 whom have dietetic training. Nutrition WA is a group that has been established since
18 1996 and is dedicated to improving the dietary intakes in WA through strategic and
19 coordinated service delivery. At the time of this survey there were 66 members of
20 Nutrition WA who communicate through an email distribution list and face-to-face
21 meetings. An email explaining the purpose of the research and an invitation to
22 participate was distributed at the start of a four week survey period. Practitioners
23 were encouraged to forward the email to colleagues that were not on the Nutrition

1 WA email list and a reminder email was sent half way through the survey period.
2 There were also three other email distribution methods utilised. Firstly, an invitation to
3 participate was sent to all health promotion managers of non-government
4 organisations conducting nutrition programs outsourced by the Department of Health
5 in WA. The email distribution list of the WA branch of the Dietitians Association of
6 Australia (n=250) and the Public Health Association of Australia (n=115) were two
7 other distribution lists utilised to capture additional practitioners and to serve as a
8 reminder to those on the Nutrition WA email list.

9 **Data Analysis**

10 Survey Monkey produced descriptive statistics at the end of the survey period. As the
11 purpose of this study was to assess practitioner views on cooking and current use of
12 CSI's, frequency counts were used as the principle form of analysis. Open ended
13 questions were coded into groups representing common themes and tabulated.

14 **RESULTS**

15 **Participant Demographics**

16 A total of 84 practitioners completed the online questionnaire. Practitioners working
17 in dietetic specific positions made up over half (58%) the participants surveyed.
18 Practitioners working in public health nutrition positions made up the vast remainder
19 of the sample, with three respondents working as aboriginal health workers and one
20 working as a cook making up the complete sample. Approximately half (55%) the
21 practitioners worked for the Department of Health in WA. Thirty eight percent of
22 practitioners had been working in their field for over 10 years and one third of

1 practitioners had been working in their field for between 1-5 years. Fifty percent of
2 the practitioners were between 25-39 years of age.

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5 **Cooking Skills for Public Health**

6 There was overwhelming agreement (98%) that cooking skills are an important factor
7 in the prevention of nutrition related disease, and that CSI's have the potential to
8 change dietary intakes. Interestingly, 57% of practitioners agreed that cooking skills
9 should be taught by health practitioners, while almost one fifth (19%) of those
10 surveyed disagreed. Close to 40% of practitioners indicated they were not sure if
11 people who participate in CSI make changes to dietary intakes. Table 1 illustrates
12 other perceptions practitioners have on cooking skills and CSI's.

13 Insert Table 1

14 The majority of practitioners (83%) felt that people who attended CSI's valued
15 obtaining cooking knowledge and skills. Over three quarters (80%) of practitioners
16 believed that the use of cooking as a health intervention was a positive way to educate
17 various groups in the community, particularly hard to reach groups (74%). However,
18 only one quarter of practitioners indicated that CSI's were a significant part of their
19 current role.

20 **Personal Cooking Skills and Training**

21 Practitioners were asked to rate their cooking knowledge and skills using a
22 predetermined scale ranging from very good to no skills. Overall the majority of

1 practitioners rated their cooking knowledge and skills as very good. The majority
2 (93%) of practitioners indicated they enjoyed cooking. A variety of factors influenced
3 practitioner's current cooking knowledge and skills, with the most common positive
4 influences coming from cookbooks (98%), mothers influence (90%), and recipe
5 websites (83%). Almost all practitioners (99%) felt that everyone should have a
6 minimal level of cooking skills. One third of practitioners indicated they were
7 sometimes asked questions about cooking skills they could not answer.

8 Insert Table 2

9 Practitioners were asked to provide their own definition of cooking in an open-ended
10 question. Over half (56%) of practitioners broadly defined cooking as the preparation
11 and combining of food, either fresh or processed. Some examples of responses
12 include the following.

13 *Preparing food for consumption.*

14 *Any kind of food preparation using ingredients to make a meal.*

15 *Process of combining ingredients to make something else.*

16

17 The second most common definition, expressed by 23% of practitioners defined
18 cooking broadly to include the preparation of food with a particular emphasis on using
19 fresh, unprocessed, or raw ingredients. Typical responses for this broad definition
20 include the following.

21 *Taking raw ingredients, and through some process turning them into a meal.*
22 *This does not necessarily involve cooking, as in using heat to prepare food – it*
23 *may be as simple as slicing or arranging on a plate.*

24

1 *Sourcing fresh, unprocessed produce and turning it into something delicious,*
2 *healthy and nutritious.*

3

4 Approximately 17% of practitioners defined cooking broadly to include the preparation
5 of food with a particular emphasis on the application of heat, typical responses
6 included the following.

7 *Combining ingredients together usually involving some form of heat, I don't*
8 *think making a salad is cooking.*

9

10 *Preparing meals using open fire and/or other means of heating.*

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12 Almost all practitioners (92%) indicated they had no formal training in cooking skills.

13 Those practitioners who reported having formal training indicated the qualification to
14 be the catering component of their tertiary degree, with the exception of one

15 practitioner with a TAFE cookery qualification. Approximately half (51%) of

16 practitioners indicated they would like further training in cooking knowledge and skills,

17 and 56% of practitioners indicated they would like further training in conducting CSI's.

18 Three quarters of practitioners indicated they would use a resource outlining good

19 practice techniques for conducting CSI's.

20 **Cooking as a Public Health Nutrition Intervention**

21 Seventy-one percent of practitioners indicated they provide education on general

22 cooking knowledge and skills to individuals and groups. There was variation as to how

23 often practitioners addressed this component of nutrition education. Some

24 practitioners delivered education on general cooking knowledge and skill weekly

25 (28%), others monthly (24%), some annually (17%), and few on a daily basis (2%).

1 The most common CSI delivered on a weekly basis by practitioners was education on
2 modifying recipes (43%), this was followed by provision of recipe handouts (35%).
3 Practitioners rated the nutritional value of a recipe, the taste, and the picture of the
4 finished recipe as the three most important factors they considered when selecting
5 recipes or cookbooks to use in CSI's, other factors are outlined in table 3.

6 Insert Table 3

7 Forty five percent of practitioners indicated they often used the Department of Health
8 WA cookbooks and 'Go for 2&5' campaign material. When asked to indicate the most
9 significant barriers to conducting a cooking demonstration, cooking class or
10 community kitchen, approximately half of the practitioners indicated the cost of food
11 (51%) and finding a suitable venue (47%) to be the most significant barriers.

12 **Experiences with Cooking Demonstrations/ Cooking Classes**

13 Over half (n=45) of the 84 practitioners surveyed had either conducted or assisted in a
14 cooking demonstration or cooking class in the last 12 months. Two thirds of these
15 were involved in cooking classes (n=31) and one third were involved in cooking
16 demonstrations (n=14). The majority of practitioners (64%) had been involved in up to
17 5 of these types CSI's in the last 12 months.

18 Only 2% of these CSI's were run as men only groups, whereas women only groups
19 made up 36% . Over half (56%) of the groups run were targeted toward adults and 18%
20 targeted to older adults. Whereas only 7% of these CSI's were targeted to children and
21 7% to adolescents. The largest proportion (46%) of these cooking skill interventions
22 were held in the Perth metropolitan area with 31% being held in small country towns.

1 Eighty-four percent of the time an attendance fee was not charged. When an
2 attendance fee was charged, it was to only cover the cost of food.

3 The two most common activities that practitioners included in their cooking
4 demonstration or cooking class were skills in simple cooking techniques (82%) and
5 provision of recipes (73%). Over half of the practitioners also included education in
6 recipe modification (57%), label reading (54%) and discussion on the use of seasonal
7 fruit and vegetables (52%). Forty-five percent of practitioners included education on
8 appropriate portion size. Whereas only 20% of practitioners included information on
9 the use of frozen meals to save money and time, and on storage techniques to reduce
10 food wastage.

11 Only a small number of practitioners (11%) used outcome evaluation to measure
12 participants actual dietary change following the CSI. Process evaluation was used by
13 the majority (78%) of practitioners, while 36% of practitioners used impact evaluation
14 to assess effectiveness of the CSI. A small number of practitioners (11%) did not use
15 any form of evaluation.

16 **DISCUSSION**

17 The present study provides information on the current views and use of CSI's by WA
18 health practitioners. As far as it is known, this is the first time in Australia that the role
19 of CSI's in public health nutrition has been reported on³.

20 Practitioners overwhelmingly agreed that cooking skills are an important factor in
21 reducing the risk of nutrition related disease and have the potential to improve dietary
22 intakes, a view that is also well represented in the literature^{5-8, 10-12, 15, 16}. However, the

1 number of practitioners who identified CSI's as a significant part of their current
2 position was much smaller.

3 One third of practitioners indicated they were sometimes asked questions about
4 cooking skills they could not answer. This is understandable as cooking skills have not
5 been an explicit component of the entry level competency standards for dietitians in
6 Australia since their inception in 1993¹⁷. This finding is similar to that reported by
7 Zwick-Hamilton *et al*¹⁸ who found that 39% of American dietitians felt they could not
8 explain some culinary techniques. There is a definite need for cooking skills to be
9 considered in dietetic training¹⁷, and a resource to be developed outlining good
10 practice techniques for CSI's.

11 The findings from this survey agree with Campbell *et al*¹⁹, who reported that the
12 majority of dietitians surveyed include practical cooking and shopping advice when
13 delivering nutrition education. It appears that WA practitioners place a high value on
14 the use of recipes and recipe modification when delivering education on cooking skills.
15 Stead *et al*¹⁶, suggests that the use of recipes as a method for motivating and teaching
16 individuals to cook may be problematic for some, particularly those individuals with
17 low levels of cooking confidence, reading difficulties, and a lack of basic kitchen
18 equipment¹⁶. Discussing recipes and recipe modification are CSI's with probably the
19 least number of barriers associated with their delivery, as compared to the commonly
20 reported barriers of food cost and venue availability associated with running cooking
21 demonstrations and cooking classes reported in this survey. This may be one of the
22 reasons many WA practitioners provide recipes and education on recipe modification
23 on a regular basis. Some authors^{15, 20} suggest it is important that education provided
24 in CSI's take into account the social context of food choice and cooking practices of

1 individuals. Equally important is the involvement of the family unit when delivering
2 CSI's, so that new nutrition knowledge and cooking skills will be accepted and
3 supported by family members and will allow successful dietary change to take place²¹.

4 This survey indicates that CSI's such as cooking demonstrations or classes are being
5 extensively used in WA as part of public health nutrition program delivery. Some
6 practitioners reported including education on the use of seasonal fruit and vegetables
7 and food storage to reduce wastage as a component of their CSI. Such areas of
8 nutrition education are considered important to include in CSI's, particularly when
9 educating individuals on low incomes^{10, 22}.

10 The majority of practitioners agreed that people enjoy CSI's, a finding that concurs well
11 with the literature^{6, 7}. However, the practitioners were divided over whether CSI's
12 actually facilitate long term change in food habits. The best way to evaluate any long
13 term change in eating behaviour is to utilize impact and outcome evaluation methods,
14 of which only a small number of practitioners in this survey applied. There is a need
15 for more research to focus on the effectiveness of CSI's in changing health outcomes.

16 The collection of data supporting long term behaviour change associated with CSI's is
17 essential for better understanding of the use of CSI's as a public health intervention.

18 CSI's have the potential to improve confidence and skills in cooking, and improve
19 knowledge in healthy cooking^{4, 7, 8, 10, 21}, particularly when run by health professionals⁷.

20 Stead et al¹⁶ makes the point that some individuals may be put off by the concept of
21 healthy cooking, and encourages practitioners designing interventions to include
22 healthy eating in innovative ways. This may include structuring cooking classes around
23 topics identified as important by participants and fitting healthy eating concepts into
24 these classes, rather than structuring the classes around healthy eating concepts¹⁶.

1 Abbott et al²¹ found that Aboriginal people were motivated to attend cooking classes
2 and make dietary change principally due to the practical nature of the classes and the
3 provision of an enjoyable and supportive group learning environment.

4 **CONCLUSION**

5 The findings from this study indicate that WA practitioners and cooking mix well.
6 Many practitioners are currently using CSI's, feel they are a useful strategy in program
7 delivery, and are interested in gaining knowledge and skills on conducting effective
8 CSI's. However, it is apparent that more research is needed on the effectiveness of
9 CSI's in changing health outcomes. Particularly given the growing obesity rates in
10 children and adults in Australia^{1, 2} and the recent recommendation by the Standing
11 Committee on Health and Ageing to teach children and adults the benefits of preparing
12 and enjoying healthy and nutritious meals through initiatives such as cooking classes¹.

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19 Table 1 Health practitioner perceptions on cooking skills and cooking skill interventions

Questionnaire Item	Agree (%)	Disagree (%)	Undecided (%)
Cooking skills are declining in Western Australia	81	8	11
Cooking skills are an important factor in the prevention of nutrition related disease	98	1	1
Cooking skill interventions have the potential to change dietary intakes	98	0	2
People like to receive cooking knowledge in interventions	87	2	11
Practitioners have fully explored cooking's potential as an effective public health strategy	17	63	20
Cooking skills should be taught by health practitioners	57	19	24
People who participate in cooking skill interventions make changes to dietary intakes	55	6	39
Cooking skill interventions are a significant part of my organisations program implementation	30	65	5

20 Practitioners (n=84). Agree = agree plus strongly agree. Disagree = disagree plus strongly
21 disagree.

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Table 2 Practitioner rating of personal cooking knowledge and skill

Questionnaire Item	Very Good [†] (%)	Good [‡] (%)	Acceptable [§] (%)	Poor [¶] (%)	No Skills ^{**} (%)
Rate your personal cooking knowledge and skills	72	26	2	0	0

Practitioners (n=78). [†]Can use all types of recipes, invent dishes without recipe, like to try new foods. [‡]Happy to use recipes although tend to stick to standard range of foods and dishes, rarely try something new. [§]Can do basics but not adventurous. [¶]Find it difficult to prepare basic dishes, rather eat out. ^{**} Cant boil water, rely on others to cook for me, or always eat out.

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7 Table 3 Factors rated as a top priority by practitioners when choosing recipes and/or
8 cookbooks to use in cooking skill interventions

Factor relating to recipe/ cookbook	Number of practitioners who rated the factor as an area of top priority (%) [†]
Nutritional value of recipes	62
Taste of recipes	49
Picture of finished recipes	46
Step-by-step written instructions	39
Cooking skill required	38
Cost of ingredients	29
Cultural considerations	28
Number of ingredients	25
Step-by-step picture instructions	23
List of utensils required	16
Title of recipe	6

9 Practitioners (n= 63). [†] Practitioners were able to select more than one factor as a top priority.

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